Exploring the Links between Communality, the Metabolic Relationship, and Ecological Sustainability: A Case Study of a North-West of Ireland Community (c. 1930s-50s)

Clodagh O' Malley Gannon, B.A., M.A.

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Department of Sociology
Faculty of Social Science
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Head of Department: Prof. Mary Corcoran
Supervisor: Dr. Eamonn Slater
Second Reader: Dr. Peter Murray

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National Folklore Collector's Notebooks

National Folklore Photograph Collection

List of National Folklore Collector Notebooks and Pages Referenced

*(Iml. stands for Imleabhar/Notebook)

Iml. 1132: 32
Iml. 1145: 140; 141; 142
Iml. 1242: 8; 10; 288; 305; 308; 386; 568
Iml. 1243: 2; 40; 73; 80; 85; 86; 88; 90; 91; 92; 93; 99; 100; 106; 223; 240; 310
Iml. 1244: 444; 448; 451; 452; 454
Iml. 1245: 1; 4; 119
Iml. 1253: 66
Iml. 1340: 3; 275; 330
Iml. 1395: 7; 485; 490
Iml. 1534: 429; 485; 486; 488
Iml. 1825: 64

List of Newspapers Referenced

- Connacht Tribune
- Connaught Telegraph
- Irish Independent
- Irish Press
- Kerryman
- Nenagh Guardian
- Sunday Independent
- The Ballina Heral

Glossary of Abbreviations

HEP	Human Exceptionist/Exemptionist Paradigm
INF	Inorganic Nitrogen Fertiliser
NEP	New Ecological Paradigm
REPs	Rural Environmental Protection Scheme
TEK	Traditional Ecological Knowledge

Dedication

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Abstract

My thesis explores the links between communality, the metabolic relationship, and ecological sustainability. It does so through case study research of a rundale system of production context (because rundale was a communal mode of production) in North-West Mayo in Ireland (c. 1930s-50s). The aim of my research is to contribute to discussion about the relationship between society and nature tied to agriculture. I investigate a pre-capitalist setting that was marginal in terms of rundale existing at the margins of capitalism. But crucially, the setting was ecologically marginal with the productiveness of agriculture being extremely limited by location and the harsh physical environment that existed there. This double marginality made it possible to reveal certain things: On the one hand, it highlighted the social processes involved in enabling the society to engage with capitalism without becoming capitalist, and in so doing emphasised the significance of communal relations of production in helping to safeguard sustainable agricultural production in the area; on the other hand, because of the extreme physical environment concerned it was possible to unpack the social processes involved in dealing with nature's forces as they confronted society there, because in having to produce under such extreme conditions the social processes involved in safeguarding production were more exposed. I highlight the people's ingenuity in appropriating nature's forces to allow them to successfully produce within a socio-ecological relationship where both nature and society acted as causal variable at different times within their interaction. I demonstrate this through a focus on processes occurring in social and natural systems and sub-systems. I explore social, ecological, and socio-ecological relationships as they acted to affect the metabolic relationship and ecological sustainability. I use an emergent primarily qualitative mixed method case study research approach to uncover nuanced data on the phenomena of interest and to allow the data to shape the research process to a large degree. I apply an iterative analysis process to allow new avenues of inquiry as they emerge from the research process to be followed up. The result is an unfolding research process. My work is also presented in an unfolding cyclical manner with separate sections offering different levels of analysis, and with each of those sections each offering two types of analysis – one informed by scholarly insight and the other informed by empirical data. The results of each system level analysis section provide the impetus for which system level is discussed next until all systems have been discussed. The key finding of my research is that communality supported agricultural sustainability within the setting investigated.

Section 1

Research Aims, Approach, Logic of Presentation, and Review of Environmental Sociology Literature and Theory

Chapter One

Introduction

(1.1) *Introduction*

My thesis aims at contributing to Irish rural sociology, sociology in general, but particularly environmental sociology by asking the question of, how does a rundale system of production context affect the metabolic relationship and ecological sustainability within agriculture?

The metabolic relationship looks at 'metabolism (the relationship of exchange within and between nature and humans)' (Clark and York 2005:396). The concept of metabolism is useful for examining at a materialist level the interaction of nature and society within agricultural contexts (Foster 2002:80). Specifically, it is useful for examining soil nutrient flows that affect agricultural sustainability tied to crop production (Foster 1999:379, 2002:158, 2009:189): Where nutrients are removed from agricultural soil and not replaced this leads to a rupture occurring within the natural system (Clark and York 2005:400). This ultimately results in the natural system being unable to support agriculture over time. Conversely, where nutrients taken from soil in the course of production are replaced through labour then this helps to safeguard the metabolic relationship and agricultural sustainability.

However, while agriculture requires nutrient inputs across production nutrient inputs alone are not enough to ensure agricultural sustainability. Rather, other ecological issues such as soil type, soil structure, soil depth, level of soil organisms present in soil, weather, local topography, and specific plant characteristics (and livestock characteristics where a mixed crop and livestock system which relies on livestock manure for use as fertiliser for crops is involved) all contribute to the sustainability of an agricultural system. In other words both the metabolic relationship and these other wider ecological issues together affect the degree to which an agricultural system will be sustainable. I consider each of these issues in turn and in doing so widen the focus on

agricultural sustainability beyond issues of nutrient replacement only (see Schneider and McMichael 2010; Slater 2014b).

But also, the system of production within which agriculture is pursued also affects the degree to which agricultural sustainability is achieved within an area. My research focuses on agricultural sustainability as it was affected by a rundale context of production. Rundale was a pre-capitalist agrarian communal system of production (Slater and Flaherty 2009:10). Historically it existed in various parts of Ireland (Yager 2002:177) and was common in the West of Ireland. Rundale systems were associated with marginal environments (Bell and Watson 2008:24). They involved a mix of private and common land (Bell 2008:50) and mixed crop and livestock production (Flaherty 2014:36). They were regulated by communal institutions (McCourt 1955:375), and, agriculture was pursued alongside other forms of production within them (Ó Catháin and O' Flanagan 1975:251). These characteristics of rundale affected how nature and society interacted within agriculture so that the metabolic relationship and ecological sustainability were affected in a very particular way.

Additionally, rundale systems operated at the margins of capitalism and not outside of it, so that, investigating nature-society interaction within a rundale setting can contribute to understanding capitalism's exapansion dynamics (Anderson 2010:201). This is so because by rundale operating at the margins of capitalism what is exposed through a focus on rundale are pre-capitalist and capitalist dynamics as they were in tension with each other there: Where such tension exists capitalist dynamics as they threaten to undermine pre-existing relations of production (including socio-ecological relations of production tied to agriculture) are most clearly evident. Conversely, it is also at these points of tension that already existing social and natural processes as they might contribute to resisting capitalist processes are revealed (see Anderson 2010:196-236).

Marx, in his effort to understand capitalist dynamics, used this same type of approach of examining pre-capitalist societies for insight into the drivers of capitalism (Smith 2002:75)[1]:

> To be sure, Marx's lifelong intellectual project centered on the critique of political economy – on the elaboration of a model of the structure of modern capitalist society and of the potential for its transformation through the movement for self-emancipation of the modern working class … [However] his writings on … non-Western societies constituted an important, albeit neglected, part of that effort. (Anderson 2010:4).

Marx's '1879-82 notebooks[2] show a … turn in his thought, toward a greater concentration on non-Western societies' (Anderson 2010:4). 'One core theme of these excerpt notebooks was the communal social relations and property found in so many of these societies' (Anderson 2010:242).

In the face of expanding capitalism associated with processes of globalisation it is important to try to understand how communal forms of production might help to protect agricultural sustainability within a system because in certain parts of the world indigenous communal forms of production still exist: Examples of areas where such

[1] To 'know concretely, in exact cultural detail, what capital could expect to confront in its global expansion … Marx chose to investigate non-Western societies … to understand … the difference it makes *for capital*' (Smith 2002:79). In other words, to understand how cultural difference could affect the expansion of capital 'Marx needed to know as much as possible about noncapitalist social structures' (Smith 2002:79). 'Marx was still actively writing *Capital*, and indeed, some of the key sections of volume 2 were written at precisely the moment that he turned to ethnology. [It is not] … irrelevant that the ultimate focus of Marx's work on *Capital* in this period – the global accumulation of capital – connects closely to the themes of his ethnographic research' (Smith 2002:75)

[2] '*The Ethnological Notebooks* … [are] [w]ritten in an unpolished, sometimes ungrammatical mixture of English, German, and other languages, these are not draft manuscripts, but working notebooks in which Marx recorded or summarized passages from books he was studying. However, they are far more than summaries of other authors. As Dunayevskaya suggests, these notebooks "let us hear Marx think" (2002, 294). First, they show Marx as a "reader". Not only do they contain his direct or indirect critique of the assumptions or authors he is studying, but they also show how he connected or took apart themes and issues in texts he was reading. Second, they indicate which themes and data he found compelling in connection with these studies of non-Western and precapitalist societies. In short, they offer a unique window into Marx's thinking' (Anderson 2010:198). There is 'the possibility that Marx's … notebooks were concerned not so much with the origins of social hierarchy in the distant past, as with the social relations within contemporary societies under the impact of capitalist globalization' (Anderson 2010:201). Marx paid particular attention to social relations associated with communal property (Anderson 2010:209; 212). Notably, he embraced 'Russia's rural commune of the 1880s as a potential source of resistance to capital' (Anderson 2010:224). 'In Western Europe, [Marx said] … the transition from feudal to capitalist property was "the transformation of one form of private property into another form of private property," but capitalist development would require that Russian peasants "on the contrary, transform their communal property into private property" … Therefore, *Capital* was agnostic on the question of Russia's future' (Anderson 2010:229). Marx thought that 'it might be possible to combine Russia's ancient communal forms with modern technology … in a less exploitative manner than under capitalism. [In other words] … Marx was proposing not an autarky but a synthesis of the archaic and the modern, one that took advantage of the highest achievements of capitalist modernity' (Anderson 2010:230). 'There is a great deal to be learned from these notes' (Smith 2002:75)

communities still exist are the 'Chiapas, Mexico, or the highlands of Bolivia and Guatemala, or similar communities across Latin America, Africa, Asia, and the Middle East' (Anderson 2010:245). These types of communities often involve communal ownership of goods/property, communal access to resources, communal activities, and communal institutions which together help to safeguard natural resources within them (see Ostrom 1990), but if the communal structures of these communities were undermined by capitalism then the natural resources that these communities rely on might be depleted.

Some scholars have identified rundale as an expression of the most developed form of the primitive communal mode of production (see Slater and Flaherty 2009). However, this recognition of rundale as such is not widely known. On the other hand, the Russian mir is well established as being an expression of the most developed form of the primitive communal mode of production (see Shanin 1983; Slater and Flaherty 2009). Thus, my thesis which examines the links between communality, the metabolic relationship, and ecological sustainability within a rundale setting draws heavily on literature relating to the Russian mir and demonstrates on a comparison basis that the rundale mode of production is an expression of the same mode of production as the Russian mir, which supports my argument that a rundale system of production analysis is useful for exploring socio-ecological relationships as affected by a pre-capitalist communal mode of production that interacts with capitalism.

But as well as attempting to highlight how a specific mode of production context can have definite implications for nature-society interaction within agricultural production, what I also aim to do is demonstrate the importance of locality in affecting that interaction. The setting explored (a community in North-West Mayo) was one in which efforts at agricultural production had to deal with extreme marginal physical environmental conditions. Examining this setting made it easier to investigate nature's role in affecting the socio-ecological relationship involved in maintaining agricultural sustainability within the area. This was because nature as a causal force affecting the agricultural labour process was so pronounced there. But also, social processes as they appropriated nature in its many forms – including soil, weather, topography and so on – were more visible (and so easier to examine) because in having to confront extremes of

nature's processes the social processes involved in safeguarding production were more exposed. By examining nature-society interaction tied to agriculture within the setting investigated it was possible to reveal nature's forces and those of society as they separately and interconnectedly affected agricultural production. Ostrom (1990) in her examination of social processes as they interact with natural ones to affect ecological sustainability follows this same approach of looking at local community settings beset by physically marginal environments.

As to the reason for exploring a rundale setting c. 1930s-50s, the logic of this is that it was around this time that the last vestitudes of rundale could still be found lingering in Ireland[3] (see Bell 2008; Dowling 1999; Evans 1973; McCourt 1955) which meant that in studying that time period it was still possible to gather folk data from living memory which meant that research findings could be more nuanced, detailed, and reflective of lived experience. But also, knowledge provided through interviews could be captured before it was lost forever.

Furthermore, in studying a rural community that existed within Ireland c. 1930s-50s what I also do is re-visit the seminal work of Arensberg and Kimball on rural Ireland in the 1930s, because their work has had the most effect on how rural Ireland at that time has been understood. It is important to re-visit their work because their work encouraged the view that the key to understanding rural Ireland at that time was an exclusive focus on farming which they perceived to be determined by a cultural system that isolated the farmers from external influences (e.g. the market economy) when this was not true. But also, the 'image' of rural Ireland as presented by them lacked any ecological focus, and instead, offered a one-sided view of community development as if nature played no part. In other words, Arensberg and Kimball offer a model of cultural determination whereas I go beyond a focus on culture to also include an ecological determination perspective: While Arensberg and Kimball are very good on the social and cultural aspects of Irish rural communities c. 1930s-50s they are weak on the other side of issues affecting the metabolic relationship and ecological sustainability which cannot be excluded because they are so important in determining outcomes for society.

[3] While some land may technically have been squared by this time even that land was not functionally enclosed so that how it was used actually changed

(1.2) *A Focus on Processes*

Social and natural processes are examined together here where a key aim of mine is to demonstrate the role of processes in affecting agricultural sustainability. Social processes as they interacted with other social processes are examined; natural processes as they interacted with other natural processes are investigated; and, social and natural processes as they interacted with each other to affect the metabolic relationship and ecological sustainability are interrogated.

Social processes and natural processes as they separately and interconnectedly affected agriculture are examined across different system levels. Processes associated with a specific system are explored in terms of their affect on nature-society interaction at that system level before the same type of examination repeats for processes associated with other system levels. The specific systems explored here are (1) the property system (2) the economic system (3) the productive and spatial system (4) the ecological system (5) the knowledge system. The reason that each of these specific systems are explored is because they emerged from the research process as being key to understanding the overall dynamics shaping nature-society interaction tied to agriculture within the area studied.

Specifically, my research explores natural and social processes across various system and sub-system levels. My work begins by developing an understanding of wider social processes as they operated under rundale. Also, it builds an understanding of the general local physical and spatial environment as it existed in the setting investigated. And, it considers how agriculture was affected by the co-existence of non-agricultural forms of production in the area, and by money being sourced from outside of agriculture in various ways. These issues are addressed before discussion narrows in to specifically consider the socio-ecological relationship within the agricultural labour process. This serves the purpose of allowing a contextualised understanding of wider issues affecting agricultural production to be developed before socio-ecological relationships tied to agriculture are explicitly examined at the level of the agricultural labour process. This helps socio-ecological interaction as it occurs within the agricultural labour process to be better understood. It is appropriate to explore the metabolic relationship and ecological sustainability through a focus on the agricultural labour process because it is

at this level that nature and society interact directly within agriculture (Castree 2000:15: Clark and Foster 2010:124; Foster 1999:380, 2000, 159: Foster and Burkett 2000:411).

Through a focus on the agricultural labour process nature is demonstrated to act as a causal variable within nature-society interaction within agriculture. In bringing nature into this study at the level of a causal variable I aim to contribute to environmental sociology (because of environmental sociology's specific interest in understanding nature-society interaction) (Dunlap and Marshall 2007:330), because environmental sociological knowledge of nature-society interaction within which nature acts as a causal variable is incomplete (Buttel et al. 2002;28; Dunlap 1997;28; Murphy 1995;690, 2002:113), despite the fact that understanding nature's capacity to act as a causal variable is crucial to building a model for sustainable agricultural development.

My research also contributes to rural sociology (as it focusses on issues of rural development and systems, processes, and relationships as they occurred within a rural community), but specifically, as previously indicated, it contributes to Irish rural sociology because it speaks to the seminal work of Arensberg and Kimball (1968) on Irish rural society c. 1930s, and, develops on from their work by applying an ecological reading of Irish rural society as it presented at that time. It does this by engaging in a sustained critique of Arensberg and Kimball's work throughout the study – sometimes accepting their analysis and sometimes not, but always with a view to moving beyond their work and 'bringing nature in', which is to say understanding the forces that operated to affect society better (Buttel 2002:43; Dunlap 1997:28; Moore 2003a:440; Murphy 1995:694).

Nature's processes are examined at the level of soil nutrients, soil type, soil structure, soil depth, level of soil organisms in soil, weather, local topography, plant characteristics, and livestock characteristics, as they separately and interconnectedly affected the metabolic relationship and ecological sustainability within the rundale setting investigated. Also, where soil is considered I not only examine the importance of chemical incorporation to soil (see Clark and York 2005, Foster 2002, Mancus 2007),

but also, incorporation at the mechanical level of soil (see Marx 1981:756; Schneider and McMichael 2010:469; Slater 2014a:8).

Given that processes are examined within my research what this has meant for the research was that the research process was not fixed from the start, but rather, it unfolded over time so that the structure changed: An adaptive approach was utilised so that the research process was adjusted along the way to fit with 'reality' as it was emerging from the research process (Hjorth and Bagheri 2006:74). As the research unfolded new insights and new avenues of data collection were followed, but also, the research had to incorporate an interdisciplinary perspective as it emerged through the research process that reductionist views of reality and reductionist techniques (Costanza et al. 1993:545) could not answer the research question. Additionally, the research called for a mixed methods approach to be used because this offered greater understanding of the processes being examined. As understood by O' Carroll and Gray (2010) where qualitative and quantitative data is analysed together it can open up avenues of inquiry that might not be revealed if only one method were used (p. 25). Furthermore, an iterative analysis process was utilised whereby data collection and data analysis were interwoven in such a way that theory was being developed at the same time as data was being collected (Klenke 2008:67).

> The philosophy behind an iterative approach to research is that of flexibility and ongoing change that meets the needs of the research design, data requirements, and analysis methods in response to new information as it is collected … working back and forth between the research design and the initial data collection, adjustment can be made to the purposive sampling frame, followed by further data collection with another cycle of evaluation against the sampling frame, and further sampling adjustment and data collection as needed. (Bassett 2010:504).

Essentially, from the time that data began to be collected I began to analyse it in a cyclical way which repeatedly saw new data sources being added and analysed and based on that analysis new data being added again and analysed again, and so on. This iterative process of data collection and analysis helped to produce rich data that contributed to answering the research question (Bassett 2010:504).

Additionally, just as data gathering and analysis involved 'a sequence of tasks carried out in exactly the same manner each time and executed multiple times' (Bassett 2010:503), so too is the same principle applied to how findings are presented here: As previously indicated my work is divided into separate system level discussion sections that deal with processes occurring within them which ultimately affect agriculture. But also, within each system level discussion section the same method of presenting a findings discussion informed by scholarly insight before presenting a findings discussion informed by empirical data is repeated across the findings section of my thesis. This is done to offer a double analysis - using two sets of findings informed by two different types of data (one set of data coming from scholary insight and the other from empirical findings). This double analysis offers a more thorough understanding of the phenomena being examined as the issue is approached from multiple perspectives.

The logic of the empirical findings always being offered last within each system level discussion (and sometimes sub-system level discussion) is that this allows discussion to stay centred on the locality being examined as empirical findings are specific to there. Also, by ending each section with empirical analysis of findings produced from the particular setting being investigated what this allows is the empirical findings to drive the direction of the analysis forward in an emergent way: In each case it is the findings from the empirical analysis discussions that are the impetus for the next analysis section offered.

However, while findings from earlier analyses sections dictate which analysis section is discussed next within my thesis it was of course necessary to decide which analysis section should be discussed first. I made a deliberate choice to begin the analysis process by first examining the property level system. This was because it is at this system level that the idea of rundale existing in the setting explored is most challenged by the literature (see Sammon 1997:38; 177). Thus, findings on the property system level are presented first to clarify that rundale did in fact still exist in the area of North-West Mayo investigated here c. 1930s-50s[4]. In other words, the starting point makes

[4] 'Once chosen … the case must be justified – shown to be a case of something. How is this done? … [One way] is substantive in the sense that the investigator plunges into a "case like other cases" … making it clear that the issues presented by the … case are similar to those treated in previous studies of the general case. The new case is justified by showing not only that it pertains to the interpretative

sense. Then, based on questions emerging from the empirical findings of this section this decided which system level I discussed next, and so on, until the conclusion section of the work.

Crucially, what I demonstrate within this research is that natural and social systems tied to agriculture interact with each other at the level of processes. I reveal that depending on how the elements of the systems/sub-systems involved interact at a particular point in space and time (whether at the level of interaction of social systems/sub-systems with each other, or, ecological systems/sub-systems with one another, or, at the level of social systems/sub-systems and ecological systems/sub-systems with each other) that the labour process involved in agricultural sustainability can alter. I highlight that natural and social processes do not stand apart from each other within agriculture. Rather, they overlap at the level of relationships to affect outcomes (Hjorth and Bagheri 2006:90). In other words, instead of seeing processes associated with a particular system as only affecting outcomes for that system what I demonstrate is that natural and social systems and their associated sub-systems interact with each other in multiple different ways depending on the relationship of their elements to each other at different times. But also, as well as demonstrating that natural processes and social processes interact with each other in particular ways at particular points in time and space what I also demonstrate is that processes occurring at one time within an agricultural setting can affect those that occur later, and that, processes occurring in one space can affect those occurring in another. Within this discussion of natural and social processes as they interact within agriculture what I demonstrate is that sometimes nature occupies the role of causal variable within that interaction and at other times it fills the position of dependent variable and ditto for society (Barry 1999:189; Clark and York 2005:396; Foster and Burkett 2000:408).

Furthermore, not only are nature and society understood to alternate the position of causal variable within agriculture, but also, nature and society are demonstrated to act co-constitutively so that agricultural development is shaped by both natural processes and social processes as they overlap to affect production (Moore 2003:447; 450; 452): I

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issues generated in similar cases, but also that it adds something to substantiate, or, preferably, expand earlier understandings' (Walton 1992:125)

demonstrate that rundale as a social system supported the metabolic relationship and the ecological sustainability of local agriculture in many ways, but also, I show that nature's forces as they interacted with each other locally affected agricultural sustainability and agricultural development within the setting. Many instances of this are revealed across the chapters presented here.

(1.3) *The Sections/Chapters as They Fit Together*

Also, as already indicated there is a logic as to why the chapters produced within my work are ordered as they are. The following provides more detail in relation to this issue.

Section 1: Research Aims, Approach, Logic of Presentation, and Review of Environmental Sociology Literature and Theory

Chapter One – General Introduction, which is this chapter serves the purpose of introducing my research, explaining why my research question is important, why the research context is appropriate (a rundale system of production context c. 1930s-50s in North-West Mayo) to the study, what broad area of theory is used to guide my research, why my work is presented as it is, and what each of the subsequent chapters can contribute to answering the research question.

Chapter Two – Nature, Sociology, & This Study, builds on chapter one's introduction of the idea that nature is important to consider sociologically. In this chapter I discuss why nature should be understood to operate as a causal variable within nature-society interaction. I introduce the idea that this study is informed by an ecosystems approach within which the natural and the social system are understood as separate to each other, so that, each is governed by its own laws and tendencies, but, while understood as separate to each other are also understood as connected to each other through relationships which affect processes that occur within them.

Also in chapter two I present a discussion of the major socio-ecological theories – The Treadmill of Production, The Second Contradiction of Capitalism, and The Metabolic

Rift Theories - that can be used to explore nature-society interaction within production, and highlight why it is that the metabolic rift concept is particularly useful to answering the research question of this case study research. Given the focus on the agricultural labour process within my research what this chapter also does is explain in detail why the labour process level is the most appropriate level at which to study the phenomena of interest.

Section 2: Methodology

Chapter Three – Methodology, offers insight into the methodological approach that I adopt within this research process. The chapter introduces the complex research framework that I use to answer the research question being asked. It discusses my ontological stance and how this shapes my epistemological approach. It explains why the complex methodological approach adopted within my research is best suited to answering the research question. It reveals the data collection and sampling methods used. It explains how data is analysed, and, it assesses the overall merits (and difficulties) associated with the research process involved in bringing this work to its completion.[5]

Section 3: Property Systems

Chapter Four – Primitive Communal Production: Property Relationships is the first of the analysis section chapters. The purpose of this scholarly informed analysis chapter is to identify the property structures necessary to classify a system as a rundale system of production, but also, to clearly demonstrate that the rundale system of production was a communal system of production of a particular type – that it was an expression of the most developed form of the primitive communal mode of production (from its archaic form).

In order to establish rundale as an expression of the most developed form of the primitive communal mode of production (from its archaic form) a comparative

[5] Issues of access to data are presented in Appendix I. Ethical issues involved in the research are discussed in Appendix II

discussion of rundale and the Russian mir is offered. This highlights the similarities between the Russian mir property system and rundale's property system. Given that the Russian mir is widely acknowledged as an expression of the most developed form of the primitive communal mode of production this supports the argument that rundale was an expression of this same mode of production.

Chapter four also compares historical rundale with its more contemporary form (as it presented in rural Ireland in the twentieth century) to establish that although certain features of the rundale property system had changed by then, that, rundale (when assessed at the property system level) continued to exist into the twentieth century nonetheless. I explore issues of property system regulation as it affected agricultural practices of individuals and I examine the development processes of consolidation and enclosure as they affected the organisation of property within rundale by the twentieth century. I specifically focus on the role of the Irish state in facilitating changes to property organisation within rundale areas.

Questions arising from this analysis chapter are: Did the specific community of interest to this research have a rundale past? If so, did the state carry out any land redistribution schemes there? If so, what effect on the organisation of property in the area c. 1930s-50s did this have?

Chapter Five – Property Relationships in North-West Mayo, confirms empirically that the area investigated here can (from a property systems level analysis) be considered to have had a rundale past. I examine the role of the Irish Land Commission in consolidating/enlarging land (and in very limited cases enclosing land) in the area in the period c. 1930s-50s, and, I demonstrate that although the formal subsumption of landed property may have begun to occur c. 1930s-50s that the real subsumption of landed property did not, because although some changes were being affected to the organisation of property at that time, how property was managed did not change at all. Additionally, I demonstrate the extent to which communal land existed in relation to private land within the area, and, the marginal quality of much of that land. I show that the area's communal property system affected how land was managed, with the

communal system rather than individuals deciding which crops to produce, and so on. Also, I discuss how the presence of communal property encouraged communal labour within the performance of labour on that property.

However, understanding property system level structures is only one half of understanding the drivers of a mode of production - with the other half involving relations of production as they operate at the level of a society's economic system. Thus, the questions that come out of this property system level analysis are: What relations of production are associated with primitive communal/rundale producers? What structures and institutions act to shape primitive communal/rundale relations of production? How might primitive communal/rundale relations of production operate in response to modernising processes?

Section 4: Economic Systems

Chapter Six – Primitive Communal Production: Production Relationships, offers scholarly informed analysis aimed at answering the aforementioned questions. Within this chapter I explore the structures operating at the economic system level to affect behaviour within the context of the Russian commune and within the context of rundale. The reason for this is that comparison of both systems at this level adds further weight to the claim that rundale was an expression of the most developed form of the primitive communal mode of production as so many similarities are found to exist between these systems when analysed at this level.

I place particular emphasis on the institution of cooring (exchanging services/goods without money being exchanged) as it affected agricultural practice under a rundale system of production. I discuss cooring as it operated at the level of the labour process, and as it was underpinned by various social mechanisms outside of agriculture, and as it affected agricultural development. Also, I discuss the idea that one of the townlands studied by Arensberg and Kimball (1968) may have had a rundale past which could account for why relations of production occurred as they did in that area. This chapter is followed by an empirical chapter where I ask the following questions in relation to North-West Mayo c. 1930s-50s: Can relations of production as they presented in this

community be understood as those associated with rundale? What structures and institutions were acting in that community at that time to affect relationsions of production there? How were relations of production being affected by modernizing processes?

Chapter Seven – Production Relationships in North-West Mayo, assesses the degree of individualised labour that was occurring in the area of North-West Mayo investigated here. I find that there was an aspect of individualised labour involved in agricultural production, but that, there were certain types of activities which were habitually performed as a part of a collective, but, not only an agricultural collective. Collectives formed to pursue non-agricultural tasks as well. Also, I discuss how people who were not themselves directly involved in a particular collective activity often acted to support such activity by facilitating it in some way outside of actual practical engagement with it.

Additionally, , I assess the level of exchange of gifts/goods/services that was occurring in North-West Mayo because together all of these issues affected the degree to which reciprocity underpinned production relationships. I identify some of the social mechanisms that underpinned cooring relationships in the area, and, I address how different practices performed across the commonage affected co-operation and communality within labour.

By the end of the chapter I establish a clear image of the economic system as it presented in North-West Mayo c.1930s-50s. However, certain questions are raised by this chapter but not answered there, because they relate to separate systems. Specifically, they relate to the productive and spatial systems. What emerges from chapter seven is that although relations of production between community members were non-commoditised, that, people were nonetheless engaging with the market in numerous ways, which encourages the following questions: How exactly did this type of society engage with the market? To what extent did it engage with the market through agriculture? To what extent did it engage with the market through other forms

of production? And, with what effect on agriculture and communality? Did commonage affect how agriculture or other forms of production engaged with the market?

Section 5: Productive and Spatial Systems

Chapter Eight – Beyond a Restrictive Farm Model: Commonage & Issues of Agriculture, Petty Commodity Production, & Sustainability, seeks to answer the aforementioned questions. I identify the criteria for identifying a society as subsistent and use this criteria to assess if rural Ireland c. 1930s-50s can be classified as subsistent or not. I explore the relationship between agriculture, petty commodity production, and wage labour as they existed together as features of life in rural Ireland at that time. I examine processes of commercialisation and commoditisation as they affected rural Ireland and agriculture therein. I assess how petty commodity production and wage labour affected agriculture, but also, how privately held agricultural land was affected by the co-existence of communal property and open-access areas, such as the sea, within rural Ireland.

Chapter nine and ten follow up empirically on issues brought up but not answered in chapter seven. Specifically, in chapter nine I explore the relationship between agriculture, petty commodity production, and wage labour as they interacted together to affect agriculture. In chapter ten I investigate the relationship between the commonage and privately held agricultural land.

The questions asked of chapter nine are: How did the community of Dún Chaocháin c. 1930s-50s engage with the market at the level of agricultural and non-agricultural production? How was agriculture affected by other opportunities for production within the area? Beyond production were there any other ways of earning money? And, how important was money to the community?

Chapter Nine – Agriculture & Other Forces Underpinning Production in North-West Mayo, empirically establishes the importance of agriculture to the area and the role that it played in the production of use value products. But also, I reveal the many other ways

that people in the area contributed to meeting their use value goods needs through other forms of production. Additionally, I demonstrate that even though agriculture was combined with other activities within the locality, that, the community could not even then meet all of its use value goods requirements. This meant that a certain amount of goods had to be purchased, but also, beyond requiring money for these goods what this demonstrated is that money was also needed to pay other costs of living, and that, in order to meet the costs of living that people in the area had to engage with petty commodity production and wage labour.

Furthermore, chapter nine shows how the state provided various supports to the community in the form of welfare payments and supports for petty commodity production. I find that these sources of money facilitated agriculture in pursuing use value production. However, I also find that petty commodity production had the greatest effect on allowing agriculture to be carried out along traditional lines because petty commodity production involved non-monetised relations of production which acted to support the continuance of traditional agricultural practices. But also, what I find is that the presence of communal space affected agricultural production on private land. However, because chapter nine concentrates on the relationship between agriculture, petty commodity production, and wage labour as they interacted together to affect agriculture it does not deal with the specific relationship between the commonage and privately held agricultural land. That is left to chapter ten.

Chapter ten seeks to answer the following questions: What was the relationship of commonage space to privately held agricultural land? What was the relationship of commonage space to petty commodity production? How did the presence of commonage space encourage communality?

Chapter Ten – Commonage as an Integral Part of Production in North-West Mayo, offers empirically grounded discussion of the role of commonage in bringing non-productive space in the area investigated here into productivity. In this chapter I examine how the community used resources from the commonage to support agricultural productivity over time. Also, I explore the relationship of commonage to

the open-access area of the sea in terms of the effect of commonage location in facilitating petty commodity production. Additionally, I consider how within commonage space – because commonage was not a homogenous thing – that different forms of petty commodity production occurred in different areas within the commonage. Also, I explore the idea that the different townlands involved in this study had differential access to participation in certain forms of petty commodity production in line with the way that nature provided different resources to the different townlands across the commonage spaces that they each had access to. And similarly, I reveal that the different townlands were differentially supplied with agricultural inputs based on the specific location of their commonage. Also I examinethe idea that common spaces promote communality within labour because people occupy those spaces collectively while performing activities there.

Additionally, in chapter ten I demonstrate the commonage to be an important provider of inputs that affect soil productivity. This brings up the idea that soil is a process and prompts the following questions: How does soil act as a process? What internal soil issues affect soil fertility? What external forces impact soil productivity? To what degree is soil fertility affected by social processes? To what extent is soil fertility affected by natural processes? Where does the local factor into the equation in affecting soil fertility?

Section 6: Ecological Systems

Chapter Eleven – Socio-ecological Interaction within Agriculture, explores how soil is affected by its chemical composition. I identify that nitrogen replacement is key to agricultural productivity, but also that other soil nutrient inputs beyond nitrogen are also required if soil fertility is to be maintained, as more than just nitrogen is drawn from the soil in the course of crop production.

Additionally, I reveal soil chemistry i as only one level at which a social form is imposed on agricultural land to make it more productive. I demonstrate that incorporation also occurs at the mechanical level of soil. Also, I examine the relationship between soil, weather, and local topography as it can impact soil

productivity, and, demonstrate that natural forces operating outside of soil must be considered alongside internal ones where soil fertility maintenance is the objective.

The questions that chapter eleven raises for chapter twelve to explore empirically are as follows: How did local forces come together within a particular setting to affect soil productivity there? How did natural forces internal to soil and natural forces external to soil interact in specific combinations across local space to affect agricultural productivity in certain points? How did labour appropriate the existing local forces of nature in such a way as to foster crop productivity despite the marginal environment within which crop production was occurring? Was adaptability within the labour process essential to agricultural success?

Chapter Twelve – Local Issues Affecting Productivity in North-West Mayo, explores how nutrients were incorporated into soil in the community in North-West Mayo investigated within this research. I identify the importance of the commonage in supplying inputs directly to crop production without which crop production could not have occurred. I discuss soil characteristics and the level of soil organisms present in soil as they affected its ability to produce.

I highlight the way that this society worked with nature's forces as they occurred locally to make it possible to pursue crop production in a very difficult physical environmental context. I discuss strategies for appropriating nature – such as crop rotation and ridge and furrow cultivation –but with an understanding that nature's forces are never dominated by such strategies only appropriated. I explain that weather, crop type, and soil as they interacted locally resulted in different crops being grown in different areas and at particular times, but also, crop beds being constructed differently in those different areas in order to meet the specific needs of the crop growing there under specific conditions.

I discuss issues of fertiliser use – in terms of space and time – type of fertiliser used, and, the advantages of using locally sourced fertiliser under local conditions. But also, given the importance of the commonage in supplying fertiliser – and different types of

fertiliser at that – a question emerges around what the exact relationship of commonage to crop production was within the area, and, whether the commonage can simply be understood as a resource/input provider to the agricultural labour process involved in maintaining soil productivity there, or, if processes may have been occurring at the level of commonage itself that ultimately affected nature-society interaction at the level of soil productivity within crop producing space where the commonage provided resources to the socio-ecological relationship involved in sustaining agriculture?

Similarly, the question is raised as to whether livestock who are normally understood as resource providers – in so much as they provide manure for fertiliser – for crop production are not themselves affected by processes that occur at their corporeal level which affect their ability to act as resource providers to the metabolic relationship.

Chapter Thirteen – Livestock & Socio-ecological Interactions within Agriculture, offers a scholarly informed analysis aimed at answering the above mentioned questions. Specifically, I explore the different entities/moments involved in safeguarding livestock manure for fertiliser. I draw attention to the way that weather can interact with fodder to affect its nutritional status and availability, with the effect that livestock can be impeded in their ability to act to supply maximum nutrients to crop space through their manure.

I discuss livestock health as affected by interacting processes associated with weather, topography, species/breed of livestock, and sheltering opportunities Also, I examine the housing of livestock for the purpose of collecting and efficiently using their manure, and I explore the role of the commonage in supporting the housing of livestock through the provision of materials necessary to shelter construction and livestock bedding.

I examine corporeal processes associated with livestock that could affect their ability to produce nutrient rich manure. Specifically, I consider how different types of livestock can be produced together in a way that one can help safeguard the health of another where protection of livestock against the ingestion of noxious weeds is at issue. Also, I explore livestock's capacity to act as weed control agents in general Additionally, I

discuss how commonage was not a homogenous thing and that as a result livestock health could be affected by where they grazed upon the commonage, with livestock health being best maintained where livestock could graze different areas of the commonage across time.

Chapter fourteen applies the ideas developed in chapter thirteen to the context of the community in North-West Mayo c. 1930s-50s being examined here. The specific questions that emerged from chapter thirteen are as follows: How did local natural forces combine to affect the ability of livestock to contribute nutrients to the metabolic relationship? How did livestock processes affect the metabolic relationship? What was the relationship between commonage processes, livestock processes, and labour processes in helping to safeguard soil fertility within crop producing space (private space)?

Chapter Fourteen – Livestock: Their Role in the Metabolic Relationship & the Local Issues that Could Affect How Well They Contributed to Crop Productivity in North-West Mayo, discusses issues involved in safeguarding fodder nutrients against weather, and, the importance of the commonage in facilitating this endeavour. In this chapter I discusse how livestock characteristics, combined with local topography, combined with specific types of weather acted to affect livestock health in various ways, so that, the commonage came into play in either providing adequate shelter to livestock against adverse weather conditions, or else, where it did not provide sufficient shelter to livestock that it did on the other hand still provide materials necessary to the construction of appropriate shelter for them. Furthermore, I discuss how when livestock were housed the commonage provided materials across the time that they were housed that facilitated the collection of quality fertiliser while at the same time helping to safeguard livestock health while they were confined.

Also, I explore how sheep and cattle were used together to control weeds within the locality being examined, and how sheep were used there to control weeds that were noxious to cattle. Lastly, I look at which areas of the commonage local livestock grazed upon over time because (as earlier indicated) this had implications for their health. I

discuss how the community were very aware of the multiple issues that could affect livestock health and crop productivity, and that, they were capable of using the various materials provided through nature to promote processes occurring at the level of nature in such a way that allowed them to successfully produce over time. However, while this chapter highlights the many knowledgeable practices that were carried out by the local community involved in this study which together all contributed to safeguarding the metabolic relationship within agriculture what this chapter does not do is answer the question of how did the community know all that they needed to know to carry out crop production under such marginal production conditions? A knowledge system investigation is required to answer that question. This is exactly what is offered in chapter fifteen and sixteen (Section 7: Knowledge Systems).

Specifically, the questions raised in chapter fourteen that drive the enquiry on to the knowledge system level analysis are as follows: How did people know so much about how the forces of nature operated to affect production within their area? How did they know what to do in relation to nature's processes, and when to do it? Where did the attitude of working with nature come from? To what degree did this attitude of working with nature allow them to successfully produce over time?

Section 7: Knowledge Systems

Chapter Fifteen – Ways of Knowing & Their Impact on Nature-Society Interaction within Agriculture, offers a discussion of the type of knowledge system that is typical of a traditional communal society. I begin this chapter by comparing Western science and traditional ecological knowledge (TEK), highlighting the similarities and differences that exist between them, and demonstrating that, TEK offers a form of knowledge that is locally specific and that has been developed communally over generations of people living and producing in an area, so that, it is detailed and nuanced to fit with local conditions of production (including cultural conditions of production).

I explore TEK from the perspective of the mechanisms that lie behind it and its role in promoting sustainable practices. I award specific attention to folklore, weather lore, and local place names as they allow TEK that is developed communally to be held by individuals within a locality. Lastly, I consider if TEK as a factor shaping agricultural

production has been given enough attention in relation to understanding traditional rural Ireland. The specific questions raised in this scholarly informed analysis chapter that wait to be addressed in relation to TEK as it affected life in North-West Mayo are as follows: How did oral culture contribute to sustainable agricultural practices? How was TEK transmitted within the community? How important was TEK to supporting agricultural sustainability?

Chapter Sixteen – TEK, Communality, & Sustainability: The Situation in North-West Mayo, offers empirical discussion of TEK as it operated to affect the community of North-West Mayo investigated here. I begin this chapter by establishing if the community investigated within this research was a literate or oral community, because oral culture is linked to TEK. I establish that the community can properly be classified as an oral culture and then explore how knowledge contained in local folklore was disseminated to the community as a whole through various institutions, but, most notably through the institution of visiting. I reveal some of the practical instruction that was contained in folklore, but also, I discuss how local folklore acted to encourage adherence to communal values within production with the effect that interactions with nature reflected an ethic of care and tended to be less exploitative as a result.

In the next section of the chapter I discuss weather lore as it was known within the society and how knowing it was useful to production. Also, I discuss the mechanisms through which weather lore was disseminated But also, I reveal that this was a society who performed rituals in the hope of protecting their crops, and, it was a society who looked to 'charm people' for cures, and that, because of these understandings and ways of relating to the world around them the community were less likely to engage with Western science.

In the final section of the chapter I discuss the role of local place names in promoting a particular understanding of the local environment – in symbolic and functional terms. I look at the role of local place names in facilitating agriculture and petty commodity production in the area by providing information about the functional qualities of local space. Also, I look at how local place names facilitated agriculture through embedding

cultural – communal – values in the landscape that then acted to reinforce those values within production, so that, adherence to traditional practices were encouraged, so that, nature was not as readily exploited within production.

Section 8: Tying It All Together

Chapter Seventeen – Conclusion, brings insight gained from all of the systems level analysis sections that have gone before it into one flowing narrative that joins the main findings from each of the system level analysis sections together, so that, the overall picture of how the systems all worked together to affect the metabolic relationship and ecological sustainability under the rundale system of production (that they were all a part of) is offered. The chapter breaks down into the following sections, presented in the following order: Property systems level analysis, economic systems level analysis, non-agricultural systems level analysis, spatial systems level analysis, ecological system systems level analysis, and knowledge systems level analysis. It concludes with a final summation of the key findings as they answer the research question of how does a rundale system of production context affect the metabolic relationship, and, ecological sustainability within agriculture?

Chapter Two

Nature, Sociology, & This Study

(2.1) *Introduction*

Nature and society are connected to each other in shaping the development of social formations at the level of production dynamics tied to labour processes within them. Yet, sociology has historically bracketed nature out of sociology, and more recently, where it has considered nature has tended to do so within a framework that predominantly privileges a focus on social variables over natural ones. This approach to understanding nature-society interaction is problematic because it encourages the idea that where societal development is concerned, that, social processes stand apart from natural ones when they do not[6] (Moore 2003a:440, 2011:110).

Understanding the concept of nature to be imprecise, fluid, and open to multiple interpretations (Carolan 2005a:399) it is important for analytical clarity to establish here, from the outset, that, nature as I discuss it within this study refers to nonhuman nature, because nature does not have a set meaning within sociology.

> In sociology, as well as within everyday discourse, the term *nature* is used to speak of any number of things: from the "not natural," involving certain acts of sexuality, the production of pollution, and the urban landscape; to the nature of mountain ranges, old-growth forests, and unspoiled wilderness areas; to the forces of nature, such as gravity and natural selection; to the nature of the universe, of dark matter, quarks, and galaxies; and finally, lest we forget, to the always contentious debate surrounding human nature (Or is it human natures …). (Carolan 2005a:399).

[6] 'Braudel suggests that wheat, rice, and maize – "the 'plants of civilisation"' … exerted a strong influence over the fate of European, East Asian, and American Civilizations: Europe chose wheat, which devours the soil and forces it to rest regularly; this choice implied and permitted the raising of livestock. Now, who can imagine the history of Europe without oxen, horses, plows, and carts? As a result of this choice Europe has always combined agriculture and animal husbandry. It has always been carnivorous. Rice developed out of a form of gardening, an intensive cultivation in which man could allow no room for animals. This explains why meat constitute such a small part of the diet in rice-growing areas. Planting corn is surely the simplest and most convenient way to obtain one's "daily bread". It grows very rapidly and requires minimal care. The choice of corn as a crop left free time, making possible the forced peasant labor and the enormous monuments of the Ameridians. Society appropriated a labor force that worked the land only intermittently. (Braudel 19977, pp. 11-12)' (Moore 2003a:440)

Recognising nature as an elastic term that can mean different things depending on how it is defined and understood or who defines it[7] (Barry 1999:6; 14) there is a need not only to clarify nonhuman nature as the subject of my enquiry , but also, it is important to make explicit the sphere of interaction within which nature and social development are explored together, which in this case is agriculture. Furthermore, because socio-ecological interaction within agriculture can occur across different types of agriculture – such as capitalist or traditional agriculture – and across different levels within agriculture – such as the decision making level, or, the level of practice – it is necessary to make clear which form of agriculture, and, which level within that agricultural form, is the subject of this research because failure to offer transparency in this regard could otherwise lead to ambiguity around how nature and society are understood to interact with each other within agricultural development.

I demonstrate in the following chapter that nature has not received as much sociological attention as it deserves, and that, where nature has been considered, that, often it is only from the narrow perspective of nature providing resources to development rather than interacting with society in an ongoing process over time so that nature and social development are mutually constitutive. Introducing Moore's (2011) model for understanding development, which is to recognise natural and social systems as intertwined within a dialectical milieu that together act on one another to shape development, I use this chapter to set the stage for how I understand nature and social systems throughout this research: Situating focus on socio-ecological interaction as it occurs within the agricultural labour process I engage with much of the historical materialist environmental sociology arguments which stress that social systems act on nature to affect development but demonstrate that the situation is more complex than that. My thesis espouses an understanding that nature actively contributes to how a society develops so that not only is nature *acted upon* within development, but also, it *acts* to shape development (p. 118).

[7] '"[N]ature" does not only refer to the nonhuman world, but is, as Raymond Williams noted, "perhaps the most complex word in the language" (Williams, 1988:221). This is because "nature" can and does refer to both "human nature" and nonhuman nature (understood as natural environment), thus crossing the boundary between that which is human and nonhuman' (Barry 1999:13)

(2.2) *Sociological Human-Exemptionalism Historically and Today*

The fact that sociology has historically excluded a focus on ecological nature is not new: It is well established that The Enlightenment, epistemological concerns within sociology, and, the classical tradition upon which sociological enquiry is founded all contributed to bracketing ecological nature out of sociological enquiry (Barry 1999:44; Buttel 2002:42; Buttel et al. 2002a:5; Dunlap and Marshall 2007:330; Foster 1999:367, 2002:195; Murdoch 2001:113; Murphy 2002:695). Environmental sociology[8], which has only developed as a recognised sub-field of sociology in recent decades, is understood as moving toward remedying the deficit in knowledge about how society and nature interact to affect society which has arisen because of sociology's historical anthropocentric human-exemptionalism[9] approach to nature (Barry 1999:3; Catton and Dunlap 1980:34). However, although environmental sociology has brought much needed attention onto nature as a topic worth considering (Barry 1999:3) there has been a tendency within even environmental sociology to repeat the human-exemptionalism so characteristic of the sociology from which environmental sociology developed (Buttel et al. 2002:28; Dunlap 1997:28; Murphy 1995:690, 2002:113).

The Enlightenment, or modernity as it can also be termed (Barry 1999:43) encouraged the idea of technology as the solution to transcend natural limits and control nature and did so on the premise that 'human progress and improvement [involves] … the more effective exploitation of the natural environment' (Barry 1999:44). This type of thinking lead to instrumentalist and misleading views about nature (Kelly 2007:16; 19) with nature being understood as connected to society within a utilitarian relationship where nature's role was to offer resources for human needs, but beyond that, nature and

[8] While nature is now being included within evolutionary sociology, sociology of the body, medical sociology, sociology of emotions, sociology of religion, and some feminist research (Carolan 2005a:394), it is environmental sociology which has moved sociology furthest in the direction of trying to understand nature-society interaction (Rosa and Richter 2008:186) because what 'makes environmental sociology a distinct field is its focus on the biophysical environment' (Dunlap and Marshall 2007:330)

[9] Sociology has historically been characterised by a dominant human exemptionist/exceptionist paradigm (H.E.P.) which sets humans above all other creatures on the earth, as if humans have dominion over all other creatures and can decide their own destinies by choosing their own goals and then applying themselves to achieving them through human intellect. Human ability is understood to offer boundless opportunities for development within a vast world which humans have access to and can use to shape progress according to human desire (Catton and Dunlap 1980:34); Buttel (2002) stresses that an exemptionalist approach is an unecological approach (p. 43)

society were not thought to interact with each other in other ways within production (Barry 1999:43; Kelly 2007:16; 19). This understanding of nature encouraged sociology to exclude a focus on nature within its research because nature was considered a non-causal variable within nature-society interaction.

Further contributing to sociology's historical neglect of nature was the fact that, the classical tradition upon which later sociology developed awarded much more emphasis to social phenomena than natural phenomena within its scholastic repertoire. A common argument made against the inclusion of a focus on nature into sociological enquiry is that the classical forefathers ignored nature, and so, later sociology would be right to do the same. However, this is not actually true and even if it were there would have been justification for the classical tradition emphasising social phenomena over natural phenomena because of the historical context within which knowledge was being produced by them: They were writing at the height of the industrial revolution so that a focus on social phenomena was to the forefront of their research (Foster 1999:367, 2002:195). This led many scholars to understand that the classical scholars did not consider nature worthy of sociological attention (Foster 1999:367–8; Lidskog 2001:114). However, the fact that the classical writers stressed social phenomena over nature should not be understood to mean that they did not recognise nature as an important force shaping society, and, as an important force worth considering sociologically.[10]

[10] 'Not only did Marx, Durkheim, and Weber incorporate what we might regard as ecological components in their works, they did so from a variety of standpoints. Among the multiple ecologically relevant components of their works are the materialist ontologies (in the case of Marx and Engels), biological analogies (Durkheim), use of Darwinian/evolutionary arguments or schemas (Marx, Durkheim, and Weber), the notion of the nature-society "metabolism" (Marx), and concrete empirical analyses of natural-resource or "environmental" issues (Marx and Weber)' (Buttel 2002:39); 'Darwin's ground breaking work, Marx wrote to Engels in 1860, "contains the basis in natural history for our view" (Marx & Engels, 1936, p. 126). Although critical of Darwin's (1859/1964) sometimes narrow and Malthusian view of the "struggle for existence" (Engels, 1939, pp. 75-85), Marx and Engels shared with him a view of history characterized by struggle, adaptation, transformation, and above all, the dialectical interplay of organism and environment. Their great innovation was to adapt and build upon Darwin's conception of natural, in which organism and environment alike are transformed, each determined by and determining the other. From this standpoint, human evolution encompasses social as well as natural history' (Moore 2003a:449); 'Marx and Engels worked from a materialist ontology, which should be understood to mean not only a structural/nonidealist posture and an emphasis on the conditions of production and labor, but also an understanding that, in principle, the predominance of the sphere of production and social labor cannot be understood apart from nature. This is particularly clear if one reads the early "philosophical" works by Marx (those published in 1844 or earlier), in which the notions of "nature" and the material world are employed frequently, and in a nondeterministic dialectical manner (Parsons). It is thus no accident that contemporary works in environmental sociology that are

Also, in addition to both The Enlightenment and classical tradition contributing to nature historically being ignored by sociology, the other main influence in this regard was that when sociology was only developing there was an epistemological necessity to establish sociology as the field of enquiry with supreme knowledge of the social. Because, at the same time that the social science of sociology was developing, so too, were some of the natural sciences: Rejecting models of biological determinism/Darwinism popular during sociology's development stage, sociology deliberately bracketed nature out of its enquiry so as to be able to claim epistemological supremacy over the social (Buttel 2002:42; Buttel et al. 2002:5; Dunlap and Marshall 2007:330; Murdoch 2001:113; Murphy 2002:695) but, this led to a situation where nature was not considered at all (Foster 2009:162), so that, no questions were asked about relations between society and its "natural" or "material substrate" (Foster 1999:367, 2002:195).

While it is no longer the case that nature is excluded from sociological enquiry, the legacy of the social focus approach which has historically existed within sociology is such that, even where nature has been brought under the sociological lens it has been common for the social side of nature-society interaction to be explored more readily than the natural side and its associated processes (Buttel et al. 2002:28; Dunlap 1997:28; Murphy 1995:690, 2002:113). From its initial development stage and through to the present day there has been, and still is, a tendency even within environmental sociology to repeat – to a certain degree - the anthropocentrism of earlier sociology where emphasis predominantly rested on understanding 'humans, human interest and human social relations' (Barry 1999:33).

Early environmental sociology was preoccupied with 'analysing societal awareness of environmental issues' (Dunlap and Marshall 2007:329), and, tended to look at the environmental movement, conservation groups, environmental policy, public attitudes

explicitly neo-Marxist (e.g., Dickens 1992) often draw their main inspiration from the works of the early Marx. But while the work of the young Marx was quite ecological in some respects, this does not imply that the later work of Marx (and Engels) was devoid of references to nature and the natural world. Marx and Engels, for example, frequently referred to the penetration of capitalism as a cause of massive air pollution and other threats to the health and welfare of workers and to the need for political economy to treat relations between society and nature (Dickens 1992; Parsons 1977)' (Buttel 2002:39)

toward the environment and the manner in which environmental quality was being developed as a social problem[11] (Buttel 2002:325; Dunlap and Marshall 2007:329; Dunlap 1997:22, 2008:480); more recently 'emphases [while continuing] … this line of research … [has also extended to] include considerable work on the causes, impacts, and solutions of environmental problems' (Dunlap and Marshall 2007:329). But, overall, the focus of environmental sociology continues to be socially centered (Buttel et al. 2002:28; Dunlap 1997:28; Murphy 1995:690, 2002:113). However, while sociology is right to emphasise the social there is a point beyond which sociology must guard from developing an 'exaggerated sense of the social' (Murphy 1995:694) and must acknowledge nature as an independent variable that can act to affect society in important ways (Buttel et al. 2002:28; Dunlap 1997:28; Murphy 1995:690, 2002:113).

(2.3) *Nature as a Causal Variable*

The idea that nature can act to affect human functioning, human interaction, and human ability has been well documented within psychology where nature is appreciated as a causal force affecting society: Kuo, Sullivan, Coley and Brunson (1998) have highlighted how the presence of trees and grass within inner-city neighbourhood common spaces supports the use of those spaces 'and informal social contact among neighbours' (p. 823), and that, the more trees that are present in a space the greater the number of people who simultaneously occupy that space (Kuo et al. 1998:827); contact with nature has also been linked to reductions in mental fatigue (Hartig et al. 1997:176), stress, and, arousal, and, has been found to have positive effects on mood (Kuo et al. 1998:827); the presence of plants in a room has been found to improve people's impressions of that room and their mental well-being (Lohr and Pearson-Mims 2000:580); natural environments have been found to be more restorative than built environments (Berto 2007:338); Natural environments have also been found to have

[11] 'Although there was minor sociological interest in environmental topics prior to the 1970s, consisting primarily of research on natural resources by rural sociologists (see Burch et al., 1972) and on built environments by urban sociologists (see Michelson, 1970), it is generally agreed that the field of environmental sociology developed largely in response to the emergence of widespread societal attention to environmental problems in the early 1970s … Not surprisingly, the bulk of this early work focused on the environmental movement, public attitudes towards environmental issues, environmental policy making and the development of environmental quality as a social problem' (Dunlap 1997:22); 'The bulk of research on the environment movement during the 1970s and through to the mid-1980s was done by environmental sociologists, rather than by social movements specialists. These early years of research on the "modern" (post-1968) environmental movement were dominated by survey research on public environmental attitudes' (Buttel 1997:49)

other positive psychological and health benefits such as helping reduce blood pressure, aiding concentration (Kearney and Winterbottom 2006:9), and, generally contributing to relaxation and the clearing of minds (Pedretti and Soren 2006:85). In other words, nature does not simply exist apart from society. Rather, it operates as a causal variable to affect society in important ways, and thus, not only should a focus on nature be included within sociological research because of the fact that it is a constant and fundamental part of real life (Dickens 1997:180; Lidskog 2001:128), but, where nature is included within sociological study it should be with an understanding that nature exhibits agency to affect society.

Sociological exploration of nature's agentic capacity within nature-society interaction is more important today than ever before because of the ability of society to act against its own best interests (Buttel et al. 2002:4; Dunlap 1997:27; Foster 2002:93) developing technology and such like that is harmful to the planet (Barry 1999:7), and, pursuing unsustainable forms of production[12] (Clark and York 2005:418). It is within an understanding that nature possesses its own laws and tendencies that can act to affect society that the New Ecological Paradigm[13] (N.E.P.) which has shaped materialist understandings of nature-society interaction within environmental sociology has been developed. Rejecting the idea that humans can be considered apart from the rest of the natural world, that human action always brings about desired outcomes, that natural resources are infinite, and that technology can overcome all obstacles to human development (Catton and Dunlap 1980:34) the assumptions of the N.E.P. are as follows:

1. Humans have exceptional characteristics but remain one among many in an interdependent global system.

2. Human matters are influenced not only by social and cultural factors but also by the complex interactions in the web of nature, so that human actions can have many unintended consequences.

[12] Drawing on the Brundtland Report 1987 definition of sustainable development – which is the most common understanding of this concept – sustainable development is understood as development that 'meets the needs of the present without compromising the ability of future generations to meet their own needs' (Rennings and Wiggering 1997:339)

[13] Drawing on Ritzer's definition, a paradigm can be understood as follows: 'It serves to define what should be studied, what questions should be asked, how they should be asked, and what rules should be followed in interpreting the answers obtained. The paradigm is the broadest unit of consensus within a scientific discipline, and serves to differentiate one scientific community (or subcommunity) from another. It subsumes, defines and interrelates the exemplars, theories, methods, and instruments that exist within it' (Tindall 1995:34); The New Ecological Paradigm was originally named the New Environmental Paradigm (Tindall 1995:36)

3. Humans are dependent on a finite biophysical environment which sets physical and biological limits to human affairs.
4. Although the inventiveness of humans and the power therefrom may seem for a while to extend carrying capacity limits, ecological laws cannot be repealed. (Catton and Dunlap 1980:34).

The N.E.P. with its focus on nature (Foster 2009:194; Lidskog 2001:116; Mol 2006:10; Rosa and Richter 2008:182) has been treated with scepticism by some who argue that to include nature within sociological focus means abandoning earlier established theoretical models (Buttel et al. 2002:15), that Catton and Dunlap (who promoted the N.E.P.) presented a scenario of you are with us or against us – you are with us and progressive if you embrace nature, you are against us and backward if you concentrate more on the social (Spaargaren and Mol 1992:325), and, that in bringing nature into sociology that the anthropocentric focus of sociology would simply be replaced by an ecocentric one (Foster 2009:194-5).

However, in using the N.E.P. it is not necessary to replace earlier sociological theory, but rather, earlier sociological theory can be built on and complemented (Dunlap 2008:484). Criticisms against the inclusion of nature at an ecological level into sociology miss the point, that, to include a focus on nature is not necessarily to displace one on society[14] (Foster 2009:195; Moore 2003b:309). Instead, because humans and other species share an ecosystem dependence this means that nature affects social action (Murphy 1995:691), and so, looking at nature can improve sociological knowledge about society, and, looking at nature at the level of causal variable alerts us to the need for responsible environmental practices because irresponsible environmental practices that damage nature undermine nature's ability to supply society with the resources it needs (Dunlap and Marshall 2007:331). But more than that, nature not only supplies resources to society, but instead, it actively contributes to how a society develops, and so, must be considered within sociological research, and, must be understood to act in this way (Moore 2003a:440).

[14] '"[F]actors of the physical environment … should be assessed and given their due weight … [I]ncluding the variables of the physical environment does not undo our previous [social] analysis. It enriches it by adding a further element to help explain a historical conjuncture so consequential in the future history of the world"' (Moore 2003b:309)

Guided by the N.E.P., my research offers a holistic sociological model of nature-society interaction (Lidskog 2001:116; Mol 2006:10; Rosa and Richter 2008:182) within which the interaction of organisms are explored with their total environment, as is the basis for ecology (Hill, Wilson, and Watson 2004:48): Ecologically grounded as the N.E.P. is it allows for the reality that people are not only conditioned by the social environment, but also, the natural one within which they are embedded (Murphy 1995:689–91), and that, the natural environment can constrain human action (Rosa and Richter 2008:182) by limiting resources available to humans (Clark 2003:89; Foster 2009:171).

However, while working with ideas put forward by Catton and Dunlap's (1980) version of the N.E.P. which stressed that it is important to investigate nature at an ecological level because at this level nature serves the important social functions of providing society with a waste repository, living space, and supply department, so that, damage to nature can ultimately mean harm to society (Tovey 2003:210) what my thesis does is move beyond this idea that nature and society are only connected to each other within a resource relationship whereby nature supplies the resources for human use. Because, this type of thinking while awarding nature focus as a causal variable repeats the social exceptionist model that the N.E.P. is meant to stand against. Drawing on Moore's (2011) understanding of how nature and society interact with each other within development, my thesis appreciates that social processes and natural processes are intertwined at every scale within production, so that, nature is not only a resource provider, but, a development shaper (Moore 2011:108-9). Specifically, Moore's (2011) understanding of nature-society interaction within development is utilised within a case study of the forces shaping production in a North-West Mayo community in Ireland c.1930s-50s where it is found that natural and social processes overlapped with, and, influenced each other at various scales. As the name suggests, case study research is about investigating some particular case. In this instance, nature-society interaction was explored at the level of agriculture.

(2.4) *Ecosystems and Agro-ecosystems*

Agriculture not only involves ecological relationships between nature and society, but, it involves a management relationship where agro-ecosystems are managed ecosystems

(Thrupp 2000:266). Agro-ecosystems are managed in such a way as to ensure the production of agricultural products within a space. Yet, they are 'highly variable across space … [Globally, agro-ecosystems reflect] a mosaic of multifold ecosystems and diverse modes of production and distribution' (Buttel 1997:43). There are different types of agro-ecosystems such as agro-ecosystems supporting small or large scale production, or, those which rely on being rain fed or the availability of irrigation (Thrupp 2000:266) for instance.

Different agro-ecosystems have been linked to different forms of agricultural production. Traditional agro-ecosystems are generally understood to 'share a number of structural and functional similarities' (Altieri 2004:36) as set out below:

- High species numbers
- High structural diversity in time and space
- Exploitation of the full range of local microenvironments
- Maintenance of closed cycles of materials and waste through effective recycling practices
- Complex biological interdependencies, resulting in a high degree of natural pest suppression
- Dependence on local resources and human and animal energy, thereby using low levels of input technology and resulting in positive energy efficiency ratios. (Altieri 2004:36).

Modern market responsive agro-ecosystems can also be understood to share a number of structural and functional similarities. While market responsive agro-ecosystems might differ in terms of the products they produce or the location where production occurs they are generally similar in the following regards: They tend to reduce biodiversity (Nicholls and Altieri 2004:49; Rosset 2000:203) in line with the pursuance of monoculture production (Altieri 2000:77; Moore 2000:134; Wittman 2009:808); they rely on chemicals and machinery which harm microenvironments (Clark and York 2005:399); they operate an open system of production with inefficient recycling of waste (Clark 2003:89; Foster 1999:379, 2002:158, 2009:189); they depend on the market for inputs (Clark and York 2005:399); and, they need ever increasing quantities

of pesticides[15] – understood to include herbicides, fungicides, insecticides, and molluscicides - to combat pests (Eke, Barnden, and Tester 1996:43).

But, beyond understanding traditional and modern responsive agro-ecosystems to differ in the aforementioned ways, it is important to understand that even within either form of agricultural production – traditional or market responsive - there will be agro-ecosystem difference because of the specific forms of production pursued there. For instance, multiple farms might fit into the category of traditional or market responsive. Yet, because they engage in the production of different crops and/or livestock they will have different agro-ecosystems because of the different combination of different organisms within farm space. Likewise, even within the same farm, agro-ecosystems will differ across time in line with crop or livestock health, in line with technology used within production, in line with stage of production, in line with weather effects, and any number of other things. As such, while it is not possible to explore every component aspect of an agro-ecosystem which affects nature-society interaction within agricultural contexts from day-to-day, it is still important to identify which form of agriculture is being pursued – traditional or market responsive – which crops and livestock are being produced on the farm and in what combination, and, what general conditions of production – in terms of the physical and cultural environment - agriculture is being pursued under, because only when the dominant structures affecting nature-society interaction within an agricultural context are revealed can an appreciation of how nature and society respond to, and, shape those structures be gained. In other words, ecosystems can vary depending on the specific combination of natural and social forces acting to affect them, which means that, to understand how nature and society interact with each other spatial heterogeneity as a factor affecting ecosystem interaction must be considered (Grove and Burch, 1997:259). But, not only is it important to identify which mixture of factors act to shape nature-society relationships within specific agricultural contexts, but, it is important to recognise that the different social and natural elements that exist within agricultural space exist there within a specific relationship to each other.

[15] 'Pesticides are not new. The use of inorganic substances, such as copper, for controlling insects and diseases is mentioned in the Bible, but the first synthetic pesticides, the organochlorines, were not developed until the 1940s. Since then, hundreds of new pesticides have been produced to control a wide range of weeds, pests, and diseases' (Eke, Barnden, and Tester 1996:43)

Much of the environmental sociology materialist understandings of nature-society interaction within production have argued that, nature and society interact dialectically with each other within agriculture. Murphy (1995) has argued that, in the context of agriculture nature can sometimes act as the independent variable and at other times the dependent one (p. 694) because the relationship between nature and society within agriculture is dialectical: Nature and society are understood in this context to interact in terms of a double causality (Murphy 2002:326), as opposed to agriculture involving a 'uni-directional causality from the social to the natural' (Murphy 1995:690). This idea of nature-society interaction within agriculture, involving upward and downward causal forces acting on both nature and society, avoids reductionist explanations of reality, while at the same time, highlighting that nature-society relationships within agriculture are dynamic, with natural phenomena capable of bringing about social change and vice versa[16] (Carolan 2005a:408).

However, while it is correct to understand that nature and society exist in a dialectical relationship to each other within agriculture there has been a tendency within sociology to only explore this dialectical relationship through a focus on the social side of this relationship (Clark and York 2005:395). A common argument as to how nature and society are dialectically related within production, is that, capitalist systems of production exploit and over use nature's resources, so that, eventually these resources will be exhausted, which in turn, will affect the ability of capitalism to continue to pursue forms of production based upon them (York and Dunlap 2012:508).

Even scholars – of the ecological modernisation school[17] - who reject the idea of capitalism as an unsustainable system recognise that nature and society exist in a dialectical relationship to each other within production: Ecological modernisationists recognise that capitalism negatively affects nature's resources where the technology employed within capitalist production is not as ecologically friendly as it should be, and that, it is important to safeguard nature's resources by creating more ecologically

[16] This dialectical understanding of nature-society interaction within agriculture builds on the Chicago School of Human Ecology idea that biotic forces can shape and determine social phenomena, and ideas from social ecology that understand that sociocultural factors can shape environments (Grove and Burch, 1997:261–2; Vaillancourt 1995:6–9)

[17] Ecological modernisation is a theoretical view that falls into the category of being "exemptionalist" (Buttel 2002:47)

responsible technology, because, otherwise these resources can be destroyed (Costanza and Bernard 1995:339; Foster 2002:92; Spaargaren and Mol 1992:336; 341); Marxists, on the other hand, reject the idea that technology, is in the final instance, what is affecting nature-society interaction under capitalism. Instead of seeing technology as the problem per se, they see the capitalist system of production within which technology is utilised as having the greatest influence on nature-society relationships tied to systems of production (Clark and York 2005:419; Foster 2009:144).

Marxist scholars draw attention to the way that the development of even 'environmentally friendly' technology can negatively impact the environment within the workings of a capitalist market: '[I]ncreased efficiency in using a natural resource … [can result] in increased demand for that resource, not a reduction in demand. This [is] … because such improvement in efficiency [can lead] … to a rising scale of production' (Foster 2002:95), as was the case in the United States in the 1970s where the introduction of more energy-efficient automobiles led to more people driving, and, more cars on the road, and so, ultimately more fuel being used (Foster 2002:125). In other words, relationships between nature and society within production are complex, and, there is no straightforward corrective fix for solving the problems of the nature-society relationship under capitalism.

Additionally, just as there is no simple solution to mending the damage done to ecosystems in line with capitalist agriculture, there is another problem that confronts scholars interested in understanding nature-society relationships within agriculture, and that is that, capitalism not only acts on nature and then in turn has nature act back upon it, but, social and natural development shape each other over time so that nature should be understood as contributing to how a system develops, and, not only as capable of responding to a social system that is already in place.

Foster (2002) has argued that direct correlations exist between how societies interact with nature and how that interaction ultimately affects the society involved (p. 125). However, while understanding that nature and society interact dialectically to affect development, what Foster (2002) does, is focus on how a system of production that is in

place – capitalism in his case – acts on nature (p. 125) instead of understanding that nature contributes to the development of social systems which then act upon it, and it back upon the system: Foster (2002) borrowing from the ideas of 'Arthur Tansley … the foremost plant ecologist in Britain of his generation, [and] one of the greatest ecologists of all time' (p. 157), uses Tansley's model for understanding nature-society ecological system interaction. This involved looking at ecology in terms of the impact of man's activities on natural systems and paying attention to ways that ecosystems are destroyed or created anew by man's engagement with them. Bringing ecology into focus in this way offers a very practical form for sociological analysis because it penetrates beneath the forms of "natural entities" to see how these entities are affected by the social environment within which they are embedded (Foster 2002:159).

However, natural entities are not only embedded in, and shaped by, human society, but rather, they actively contribute to shaping the form that human society takes (Moore 2011:108–9). As such, research interested in understanding nature-society relationships within agricultural production must move beyond historical materialist understandings of development such as Foster's (2002) which looks at nature within the context of the "environmental history of" a social system (capitalism in Foster's case). Instead, nature must be understood to contribute to the creation of social systems (Moore 2011:116). Moore (2011) has lead the way in promoting the view that nature actively contributes to shaping the form that development takes within society (p. 114). My thesis builds on Moore's (2011) idea, by applying the theoretical insight that is offered by Moore (2011) to a case study of development in a community in the North-West of County Mayo in Ireland c.1930s-50s. Using socio-ecological theory, insight is gained into the dynamics shaping production there.

(2.5) *Socio-ecological Theory*

Various socio-ecological theories have been used to explain how nature and society are connected within production: The Treadmill of Production, The Second Contradiction of Capitalism, and, The Metabolic Rift have been developed to explain nature-society interaction at an ecological level (Foster 2002:48): The Treadmill of Production - initially developed by Schnaiberg and later further developed by Schnaiberg in conjunction with others (Schnaiberg and Gould 1993; Gould, Schnaiberg, and Weinberg

1996) highlights the environmentally destructive aspects of production within capitalist contexts, whereby the competitive character of capitalism forces all levels of society - public and private - to engage with capitalism in the pursuit of private accumulation regardless of negative environmental consequences (Buttel 2002:44; Buttel et al. 2002:3).

> The core logic of the treadmill is that ecosystem elements are converted by capitalists through market exchanges into profits. Capitalists reinvest some of these profits in more productive physical capital, which requires still greater ecosystem access to "efficiently" operate this equipment, i.e., to generate exchange values and eventually profits by using this equipment in and on ecosystems. This technological change in turn raises the capital-intensification of production. Thus, because a growing share of national production is then required to repay capital owners, expanded ecosystem use is necessary. Production must generate enough surplus to support this outlay to capital owners, to provide enough additional exchange values and social surplus to supply an adequate level of wages to maintain consumer demand, and to generate enough tax revenue to cover social expenditures of the state. This need for increasing exchange values typically accelerates the environmental demands of modern treadmills. (Schnaiberg 1993:6).

The 'treadmill of production' emphasises the importance of biophysical variables (Buttel 2004:323) and of looking at how human relationships are organised in relation to the environment (Foster 2005:7). It understands the relationship between nature and society as largely based on a system of inputs and withdrawals - in the form of resource extraction and inputs in the form of pollution (Buttel 1997:45). In other words, it stresses the unsustainability of nature-society interaction under capitalism (Clark and York 2005:395).

The Second Contradiction of Capitalism (developed by O' Connor) offers 'the idea that capitalism, in addition to its primary economic contradiction stemming from class inequalities in production and distribution, also undermines human and natural conditions (environmental conditions) of production on which its economic advancement ultimately rests (Foster 2002:48). The Second Contradiction of Capitalism thesis …

> stresses the problems and contradictions inherent in the escalation of production in capitalist systems. The second contradiction thesis argues that increasing the scale of production increases the costs of production and expands environmental problems. This happens because initially natural resources are extracted that are of the highest quality and closest to the sites of production, but as these are depleted, further expansion of production requires accessing lower-quality resources … and/or those farther from the sites of production … Thus, the treadmill and the second contradiction emphasize the fundamentally unsustainable nature of economic growth. (York and Dunlap 2012:508).

However, while The Treadmill of production and The Second Contradiction of Capitalism concepts bring attention to how as a society we interact with nature within production – the Treadmill highlighting that we as a society must think about how we interact with nature, and the Second Contradiction drawing attention to how ecological conditions shape the economy in various ways (Foster 2005:13) - they operate at a macro level focus offering quantitative insight into the nature-society relationship (York and Dunlap 2012:509). The Treadmill of Production looks largely at the role of the state in affecting nature-society interaction (Buttel 1997:46). The Second Contradiction of Capitalism concentrates on the relationship between nature and the economy in general (Foster 2005:13). In addition, while they help to inform understanding of how nature-society interaction is shaped by the system of production – capitalist in this case - within which nature and society interact, they offer no specific guide to understanding nature-society interaction within an agro-ecosystem context, beyond highlighting that, ever-increasing demands are placed on nature, and that, ultimately this will impact negatively on society.

> [While] a central concern of these theories is how society interacts with nature in ways that are unsustainable … little time is spent analyzing natural processes and cycles: How they operate on their own; how social interactions, as organized under historical social systems, affect their operation; and how they are transformed or disrupted by social processes. In other words, one side of the dialectic of the nature-society relationship is short changed. (Clark and York 2005:395).

On the other hand, the Metabolic Rift theory developed by Foster, looks at 'metabolism (the relationship of exchange within and between nature and humans)' (Clark and York 2005:396), and, not only brings focus on nature-society interaction within production down to an agricultural level offering a model through which this interaction can be explored quantitatively, but also, qualitatively (Clark and York 2005:396). Building on the work of Marx, who himself built on the insights of Justus von Liebig (a nineteenth century agricultural chemist) (Foster 1999:379), Foster develops the concept of metabolic rift to explain at a materialist level the interaction of nature and society within capitalist agricultural contexts (Foster 2002:80). Liebig's assessment of the nature-society relationship tied to the second agricultural revolution[18]

[18] 'The first agricultural revolution was a gradual process occurring over several centuries, associated with the enclosures and the growing centrality of market relations; technical changes included improved techniques of crop rotation, manuring, drainage, and livestock management. In contrast,

(Foster 2009:171) was that capitalist agriculture was a 'system of robbery, opposed to rational agriculture' (Clark 2003:89).

Liebig - and Marx building on Liebig's insights – noted that nutrients essential to soil fertility were being lost to agricultural spaces as agricultural produce – in the form of food and fibre – was transported out of the country and into cities (Foster 1999:379, 2002:158, 2009:189) in their commodity forms (Slater and McDonough 2008:169) without those nutrients later being returned – in the form of waste – to sites of production, but instead, being disposed of into urban waterways and contributing to urban pollution (Clark 2003:89; Foster 1999:379, 2002:158, 2009:189). This 'rupture in nutrient cycling between the country and the city in historical capitalism' (Moore 2000:124) is understood within the metabolic rift concept to be a 'rupture or interruption of a natural system' (Clark and York 2005:400).

It has been argued, that the 'metabolic rift might be framed as an *ecological* concept to describe ruptures or imbalances in natural cycles, as a *social* concept to describe social causes and consequences of different human-nature relations, and as a *historical* concept to describe the historical contingency of social and natural relations' (Schneider and McMichael 2010:466). In other words, the metabolic rift concept has a lot to offer research that is interested in considering socio-ecological interactions specific to a particular community, in a particular space, and, at a particular point in time.

It has been argued that, in bringing together a focus on the ecological, social, and historical circumstances that interact to affect nature-society relationships within agriculture, the metabolic perspective does not promote either nature or society as the causal variable affecting development: The central idea of the metabolic rift concept is that nature and society interact materially and dialectically so that although different

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the second agricultural revolution occurred over a shorter period, between 1830 and 1880, and was characterized by the growth of a fertilizer industry and a revolution in soil chemistry, associated in particular with the work of the great German agricultural chemist Justus von Liebig. The third agricultural revolution was to occur still later, in the twentieth century, and involved the replacement of animal traction with machine traction on the farm and the eventual concentration of animals in massive feedlots, together with the genetic alteration of plants (resulting in narrower monocultures) and the more intensive use of chemical inputs - such as fertilizers and pesticides' (Foster 2002:169)

processes take place in both nature and society neither is awarded primacy in shaping development because there are always points at which these two realms interact and transform each other (Barry 1999:188; Clark and York 2005:396; Foster and Burkett 2000:408). However, the metabolic rift theory as applied by Foster does not in fact award equal determinacy to natural and social processes. Because, Foster's use of the metabolic rift concept starts with the view that capitalism – a social system – acts on nature to affect it and ultimately society: Nature's agency is only considered in terms of its response to capitalism/the social system that it is embedded in. In other words, the metabolic rift concept as put forward by Foster awards social processes more causal force to affect development than natural processes, and, in approaching understanding nature-society interaction in this way the metabolic rift concept as applied by Foster has a human-exemptionist aspect to it because in the first instance it repeats the mistake that has been so widespread in sociology, and that is, to award social processes more power to affect development than natural processes (Moore 2011:116).

Barry (1999) has argued that:

> The environment for humans is not some "raw" or untransformed one as given by nature, but rather a humanised one. Like other species, humans are not simply faced with the problem of how to "fit" a particular "given" environment. The environment is not "given", fixed and something external to "society", but nor is it completely "materially (and socially) constructed, that humans can ignore and/or make for themselves. A dialectical understanding of the relationship between society and environment sees both as interdependent, the environment, in part, transformed (as opposed to "made" from scratch) by human activity, and the environment in turn providing opportunities and constraints for human activity. (p. 189).

This idea that natural and social systems stand apart from each other, yet, interact with each other within development should be taken to mean that regardless of the social system that is in place at any point in time within a community, that, the model of society that is there did not simply spring from preceding social processes, but rather, emerged through the combination of social and natural forces acting on each other within that society over time.

The fact that Foster's use of the metabolic rift concept favours – in the first instance – a view of social processes as determining how nature and society interact with each other under production regimes does not mean that Foster's discussion of nature-society interaction under capitalism is not useful for helping to understand production dynamics

within a society. On the contrary. The metabolic rift concept as put forward by Foster is very useful for helping to build a model for exploring social development, because, it encourages focus to be situated at the most fundamental level affecting development: It brings focus right down to the level of the "building blocks" of life in so much as it concentrates on nutrient exchange and regulation (Foster 1999:381).

> The concept of metabolism … captures the complex biochemical process of metabolic exchange, through which an organism … draws upon materials and energy from its environment and converts these by way of various metabolic reactions into the building blocks of growth. In addition, the concept of metabolism is used to refer to the specific *regulatory processes* that govern this complex interchange between organisms and their environment. (Foster 2000:160).

In other words, the metabolic concept is tremendously important in helping to understand how nature and society interact to affect development. Yet, it does have shortcomings. One of which is as Moore (2011) identifies, that, the metabolic rift concept as put forward by Foster encourages a view that capitalism develops and then acts on nature in unsustainable ways, when in fact, capitalism not only acts on nature, but, instead natural processes themselves are implicit in the development of capitalism (p. 116).

> Foster argues that Marx introduced the "metabolic rift" [into his discussions on capitalism] … to explain what was happening as a result of the capitalist town-country ("social") division of labour and the interesting alienation of human beings from nature as a result of industrialisation and its extension to agriculture. The key point in Foster's reconstruction of Marx's concept are as follows: First, the social division of labour created an "irreparable" rift in the metabolism between humans and nature. Second, the large-scale agriculture and long-distance trade intensified the rift. Third, the corollary to the problem of declining soil fertility in the countryside was the accumulation of human waste pollution in towns. Marx's use of *metabolism* as the "material exchange between man and nature" is central. According to Foster, the concept referred to both the actual metabolic interaction between society and nature through human labour, and in a wider sense, to the social relations brought into being and constantly reproduced in alienated form under capitalism … Jason Moore takes issue with Foster's periodization of Marx's metabolic rift and with his emphasis on industrialisation as the primary cause of soil nutrient depletion. Instead, Moore reframes the origins of the metabolic rift in the sixteenth century, arguing that the concept is specific to capitalism as a whole, not just to its industrial form. He maintains the material and social thrust of the concept as Foster developed it, but extends the concept by theorising "a succession of metabolic rifts specific to each phase of world capitalist development" (Moore 2000, 128). Foster's metabolic rift during the second agricultural revolution in the nineteenth century is, for Moore, just one historically specific manifestation of historical capitalism's metabolic rift. These different periodisations have implications for how the relationship between primitive accumulation and the metabolic rift is understood. On the one hand, Clark and Foster (2008) argue that both concepts provide insights into the ecological dimensions of capitalism and into changing human relations to nature, but they are nevertheless distinct. While primitive accumulation concerns the origins of capital, the metabolic rift concerns industrial capitalism and the town-country antagonism in the nineteenth century. Alternatively, Moore (2000) sees the two concepts as mutually conditioning, where original (financial) accumulation in the world market was articulated with original (landed) accumulation in the countryside. By locating the metabolic rift in these combined processes of accumulation,

> Moore sees an original rupture in nutrient cycling that occurred with the emergence of a general capitalist division of labour and the associated separation of people from the soil. (Schneider and McMichael 2010:464).

However, while Foster and Moore disagree about whether 'it is capitalism or industrialism that is the primary cause of environmental degradation, Foster and Moore both associate the metabolic rift with a rupture in soil nutrient cycling, within the context of the town-country division of labour' (Schneider and McMichael 2010:466). My thesis while also using the metabolic concept to explore soil nutrient exchange and regulation as it occurs under social systems departs from Foster and Moore's approach by focussing more on local conditions of production – social and natural – as opposed to issues of the town-country division of labour in affecting local development.

Following the example set by Schneider and McMichael (2010) my research places heavy emphasis on local factors of production as they affect soil nutrient levels within individual social systems. Specifically it brings the focus on soil nutrients right down to the level of practice where soil as a process involving soil organisms, soil texture[19], and soil structure[20] are considered alongside issues of soil chemistry in affecting the fertility of agricultural land[21] (p. 468). Given that soil and soil fertility are not things, but rather, are processes[22] it is important when 'looking at either one at a certain point in time [that] … an examination of the processes that converged to create soil conditions observed at that moment [be examined]' (Schneider and McMichael 2010:468).

[19] '*Soil texture* describes the relative proportions of sand, silt, and clay present in a soil, which is related to the geological processes (such as the action of glaciers) that deposited minerals in particular places' (Schneider and McMichael 2010:468)

[20] '*Soil structure* describes the relative aggregation or clumping of soil particles. Aggregated soils that crumble easily are best for growing crops, and they are affected by choice and timing of agricultural practices' (Schneider and McMichael 2010:468)

[21] 'Soil texture and structure together determine a soil's air space and water circulation capacity, erosion resistance, ease of tillage, and degree of possible root penetration. The dynamics of these two characteristics are also related to *soil fertility* and *soil organic matter*' (Schneider and McMichael 2010:468)

[22] 'First, the ability of soil to produce crops is not based solely on a measure of soil nutrients. Rather, it is based on a set of interrelated factors and processes that together constitute "soil health" … Second, certain characteristics of any soil can be changed through the choice and timing of agricultural practices, while others, at least in geological time, cannot … Third, soil is understood as a living ecosystem nested within larger agroecosystems' (Schneider and McMichael 2010:468)

However, while Schneider and McMichael (2010) make the important argument that soil fertility is reliant on more than soil chemistry, which means that, to understand the metabolic relationship between nature and society within agriculture there is a need to consider other internal soil components such as soil structure, soil texture, and, the level of soil organisms present in soil, what Schneider and McMichael do not consider is how other natural forces outside of soil itself affect the ability of soil to produce. Instead, Schneider and McMichael draw attention to the fact that soil can be affected by social forces and actions – such as soil cultivation, land clearing, and so on (p. 469). However, they fail to discuss how in local production contexts, external natural forces such as the weather and local topography also act to affect soil nutrient levels within agricultural production. Additionally, they fail to discuss soil depth as an important feature affecting the ability of soil to produce crops. Conversely, each of these issues are explored within my research as factors affecting soil productivity.

In sum, my research builds upon the work of Foster and Moore who have been particularly influential in highlighting the importance of analysing the role of soil nutrients within development, and who have used the concept of metabolic rift to explore how nature and society are materially connected to each other. Moore's (2011) idea that natural processes actively contribute to shaping development is used within my thesis where the aim is to understand how nature and society interacted to affect development within an area of North-West Mayo c. 1930s-50s.

Using Schneider and McMichael's (2010) idea that soil fertility is affected by more than just soil chemistry, nature-society interaction within North-West Mayo c. 1930s-50s is explored through examination of soil nutrients, soil organisms, soil structure, and soil texture as they each contributed to affecting soil fertility. However, also moving beyond Schneider and McMichael's (2010) recognition of the aforementioned elements each affecting soil fertility, my thesis also considers soil depth. Additionally, accepting Schneider and McMichael's (2010) argument that social processes such as soil cultivation can operate as external forces that interact with soil across the various levels of soil chemistry, soil biology, and, soil physicality to affect the productivity of soil, my thesis considers how social practices affect the soil across the aforementioned soil components. But, my thesis also moves beyond a focus on external social influences

that affect the internal workings of soil to also include a focus on weather and local topography as they too affect the capacity of soil to produce.

(2.6) *The Labour Process*

The level at which to explore issues affecting soil productivity as affected by social and natural forces is the level of the labour process because labour 'is, first of all, a process between man and nature, a process by which man, through his own actions, mediates, regulates and controls the metabolism between himself and nature … (Marx 1976, pp. 283, 290)'[23](Foster 1999:380). Essentially, the labour process affects the socio-ecological metabolism between nature and society by bringing together social and natural forces (Foster 2000:159). Marx understood that nature and society were connected to each other within the process of labour at which point humanity confronts '"the objective, nature-given inorganic body" of human subjectivity'[24] (Foster and Burkett 2000:412). In other words, through labour the organic – human beings – and inorganic – nature – which humans rely on for their existence confront and affect each other[25] (Foster and Burkett 2000:411) because it is within the labour process that nature and society interact directly (Castree 2000:15; Clark and Foster 2010:124) and exchange nutrients (Clark and York 2005:398), and so on.

Marx understood the relationship between man's organic and inorganic body – nature – to be dialectical because man is dependent on nature so that changes to nature ultimately result in changes to man (Dickens 1997:181).

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[23] 'Labor for Marx was another term for the metabolic transformation of the human relation to nature, using instruments derived from nature. In that sense, he was "instrumentalist," as we all are. But, Marx insisted on the need for a sustainable human relation to nature and … was a far cry from what would normally be called … instrumentalist' (Foster and Burkett 2001:459); 'Marx puts the labor process and the agency of the direct producers at the centre of his perspective on social change (Foster, 2000). In this way, Marx contributes to an activist materialism prefiguring recent conceptions of nature and society as relationally constituted (Braun & Castree, 1998; Moore, 2001). At the same time, in Marx's hands, the labor process is not endowed with supernatural powers but rather conceived as a decisive moment in the broader process of production, in which production, circulation, distribution, and exchange comprise an "organic whole" (Marx, 1973, p. 100; also Tomich, 1997)' (Moore 2003a:433)

[24] 'The relation between the organic body of a human being and the inorganic world is one that is conditioned by the subsistence needs of human beings and their capacity through social labor to transform the "external" conditions of nature into means of satisfying these needs' (Foster and Burkett 2000:411)

[25] 'Labor ... defines "the distinctive ecological niche occupied by humanity" and "allows us to recognize that human beings transform their environment not entirely in accordance with their choosing, but based on conditions provided by natural history"' (Moore 2001:136)

> For Marx, there is a necessary "metabolic interaction" between humans and the earth. Marx contended that "man *lives* on nature" and that in this dependent relationship "nature is his *body*, with which he must remain in continuous interchange if he is not to die". Thus, a sustainable social metabolism is "prescribed by the natural laws of life itself". (Clark and York 2005:398).

Marx has been accused of '"Prometheanism" (a term usually meant to refer to an extreme commitment to industrialization at any cost)' (Foster 2009:143), of referring to nature as a free gift to capital (Foster and Burkett 2001:412) and of referring to nature as man's inorganic body (Foster and Burkett 2001:451) - encouraging a 'dualistic conception of the human-nature relationship in which human beings and nature exist in perpetual antagonism' (Foster and Burkett 2000:405).

However, while Marx referred to nature as a free gift to society it was not to suggest that nature was available for human exploitation without consequence (Foster 2002:184). Rather, Marx's ideas about how nature and society interact within capitalism are now understood as forerunners to ideas later developed within the field of ecology (Foster 2002:167) and environmental sociology (Foster 2009:196). But, importantly, it is not so much 'a question of whether Marx addressed nature, and did so throughout his life, but whether he can be said to have developed an understanding of the nature-society dialectic that constitutes a starting point for understanding [socio-ecological relationships tied to production]' (Foster 2009:143), which is what he did when he brought attention to considering the metabolic level interactions that occur between nature and society within agriculture (Clark and York 2005:398), and specifically, it is what he did when he stressed the labour process level as the level through which to approach investigating this metabolic interaction.

Some have argued that Marx explicitly dissociated natural processes from social processes at the level of the labour process by identifying nature as standing apart from the human body within production. Specifically, Marx is criticised for referring to nature as mans' inorganic body. However, what these criticisms miss is that, when Marx 'referred to nature … as the inorganic body of humanity [he was speaking] in conformity with the scientific vocabulary of his day, wherein organic referred to bodily organs, whereas inorganic meant unrelated to bodily organs' (Foster and Burkett 2000:412), and, so his use of the term inorganic to refer to nature was not as his detractors would argue evidence of his belief that nature and society were not connected

to each other within the labour process. On the contrary. Marx was highlighting how nature and society are connected at the level of the labour process. Marx, was making …

> the … basic point … that the human-nature relationship physically transcends, at the same time that it practically extends, the actual bodily organs of human beings – hence, the reference to nature as man's inorganic body. Here, inorganic simply means external to, yet in constant interchange with, the human body itself, in a basic material and biological sense. (Foster and Burkett 2000:412).

'"To be truly meaningful, the dialectical conception of a totality in the process of becoming … [has] to be placed in a practical, materialist context"' (Foster 2002:5)' (Slater and Flaherty 2009:6) which is exactly what is offered when research is situated at the level of practice within the agricultural labour process.

(2.7) *Conclusion*

In sum, the agricultural labour process is shaped by natural processes and social processes as they interact to affect practice and outcomes, which in turn, affects development. However, very little research has concerned itself with actually exploring the "on the ground" reality of the social and natural forces affecting the agricultural labour process, as my thesis does. My thesis exploresnature-society interaction at the level of labour processes within a particular case study, where theory is supported by empirical findings which reveal the relationships between nature and society as they were manifest in a community in North-West Mayo c. 1930s-50s.

My thesis not only examines nature-society interaction empirically, but also the following chapters weave across a number of system levels with a view to not only advancing empirical understanding of nature-society interaction within the agricultural labour process but so as to also demonstrate that the metabolic relationship and ecological sustainability as it occurs within the agricultural system is not only affected by processes occurring there, but also, by wider processes tied to separate systems which separately and in combination affect soil productivity.

Moore (2011) has argued that in order to truly understand the dynamics shaping production within a community that it is important to bring analysis down to the level of relationships (p. 108). Different relationships are tied to different processes. Social processes are affected by property relationships, economic processes are affected by production relationships, and, ecological processes are affected by the way that social and economic processes overlap with natural processes within production (Slater and Flaherty 2009:11). Together, social processes, economic processes, and ecological processes shape development within a system. To understand exactly how, 'the complex theoretical tool of the mode of production' (Slater and Flaherty 20009:21) is introduced in Section 3 from where the dynamics shaping production in North-West Mayo c.1930s-50s begin to be revealed, before explicit discussion of the socio-ecological forces affecting production are analysed again in more detail in later chapters (see Section 6: *Ecological Systems*).

The logic behind not immediately launching into an indepth socio-ecological exploration of nature-society interaction within the agricultural labour process at the level of the metabolic relationship and ecological sustainability, is that, to properly appreciate the dynamics shaping nature-society interaction there it is first necessary to build a wider picture of the social and natural environment within which that interaction occurs. Contextualisation matters because practices as they occur within an agricultural system are affected by issues of context such as the mode of production under which agriculture is being pursued, the spatial and physical environmental context that agricultural production occurs within, and whether or not those involved in agriculture also pursue other forms of production outside of agriculture, or if they have have other sources of income. Thus, it is important to first consider how each of these issues affected agricultural production in general before examining in detail the socio-ecological relationships involved in agriculture because those relationships were affected by these wider issues.

The first issue addressed within the mode of production discussion – which is separated into a property system level discussion (Section 3) and an economic system level discussion (Section 4) – is how property was organised within the setting of interest to this thesis. Discussion begins by focussing on the property system as it is at the property

system level that the idea of rundale existing in North-West Mayo c.1930s-50s is most challenged within the literature (see Sammon 1997:177).

The questions posed in Section 3: *Property Systems* are: When explored at the level of property relationships, what are the features of a rundale system of production that allowed it to be classified as rundale? What property system was land being held under in North-West Mayo c. 1930s-50s, and, with what effect on nature-society agricultural interaction in the area?

However, before the property system level analysis begins it is first necessary to include a discussion of my methodology because findings are offered within the property system level analysis section (and all subsequent sections), and the methodology section is necessary to help the reader to understand how findings were developed. The methodology section also explains the purpose of the double analysis – one informed by scholarly insight and the other by empirical data - which is provided within each system level discussion (with the exception of Section 8: *Tying it All Together*, which is the conclusion section of my thesis). But also, the methodology section explains why the discussion unfolds as it does.

Section 2

Methodology

Chapter Three

Methodology

(3.1) *Introduction*

A methodology chapter is exceptionally important because it guides the reader through the process involved in carrying out the research, and explains the rationale for choices made along the way. In other words, it explains how the research project developed from the time it began to its completion. Where qualitative research is involved it is particularly important to reveal to the reader what the researcher actually did within the research process that allowed them to arrive at the study's conclusions and logic of presentation of work, because, one of the criticisms often laid against qualitative research is that it lacks transparency (Bryman 2004:285). As such, this chapter aims at revealing in detail the various steps involved, and decisions made, that together have resulted in the final product which is my thesis.

(3.2) *A Complex Research Framework for a Complex Research Question*

Of course, central to how the study was conducted was the research's topic of interest which was to understand the factors affecting nature-society relationships within a rundale production context. The research question that this study asks is: How does a rundale system of production context affect the metabolic relationship and ecological sustainability within agriculture? The answer to this question is not straightforward, but instead, is extremely complex[26] because it involves analysis of systems as they interact with other systems, analysis of systems as their sub-systems interact, analysis of systems as they interact with sub-systems of another system, and analysis of sub-system interaction between systems.

[26] 'The greater the number of planes of analysis which are articulated, the more complex is the analysis' (Jessop 2002:99)

Given the complexity of the research question it was essential to develop a complex methodological framework to answer it. The framework developed involved:

1. identifying what systems of production operated under rundale (an agricultural system of production and non-agricultural systems of production)
2. identifying what systems operate together within agriculture (the natural system and social system)
3. identifying what sub-systems operate within the natural system to affect agriculture (the soil system, weather system, topographical system, animal systems, and plant systems); identifying what sub-systems operated within the rundale social system to affect production there (the property system, the economic system, and the knowledge system) (see *Diagram 1*)
4. identifying the main elements shaping each system and sub-system
5. identifying relationships between the elements of a system/sub-system and how those relationships affect production processes
6. identifying relationships between the elements of a system/sub-system with elements of systems/sub-systems external to itself and how those relationships affect production processes (see *Diagram 2*)
7. identifying how systems, processes, and relationships are connected to each other (see *Diagram 3*)

Note: Although *Diagram 2* presents a particular order of how systems/relationships might overlap to affect production processes associated with a rundale system of production what is important to note is that the systems/relationships (how elements of one system interact with those of another) are ordered in this way for the purpose of presentation and explanation, but in reality, any system or element of a system could interact with any of another system or element of a system because the order of how systems/elements interact is non-linear.

Diagram 1:
System Levels that Affect the Agricultural Labour Process
Under a Rundale Production System

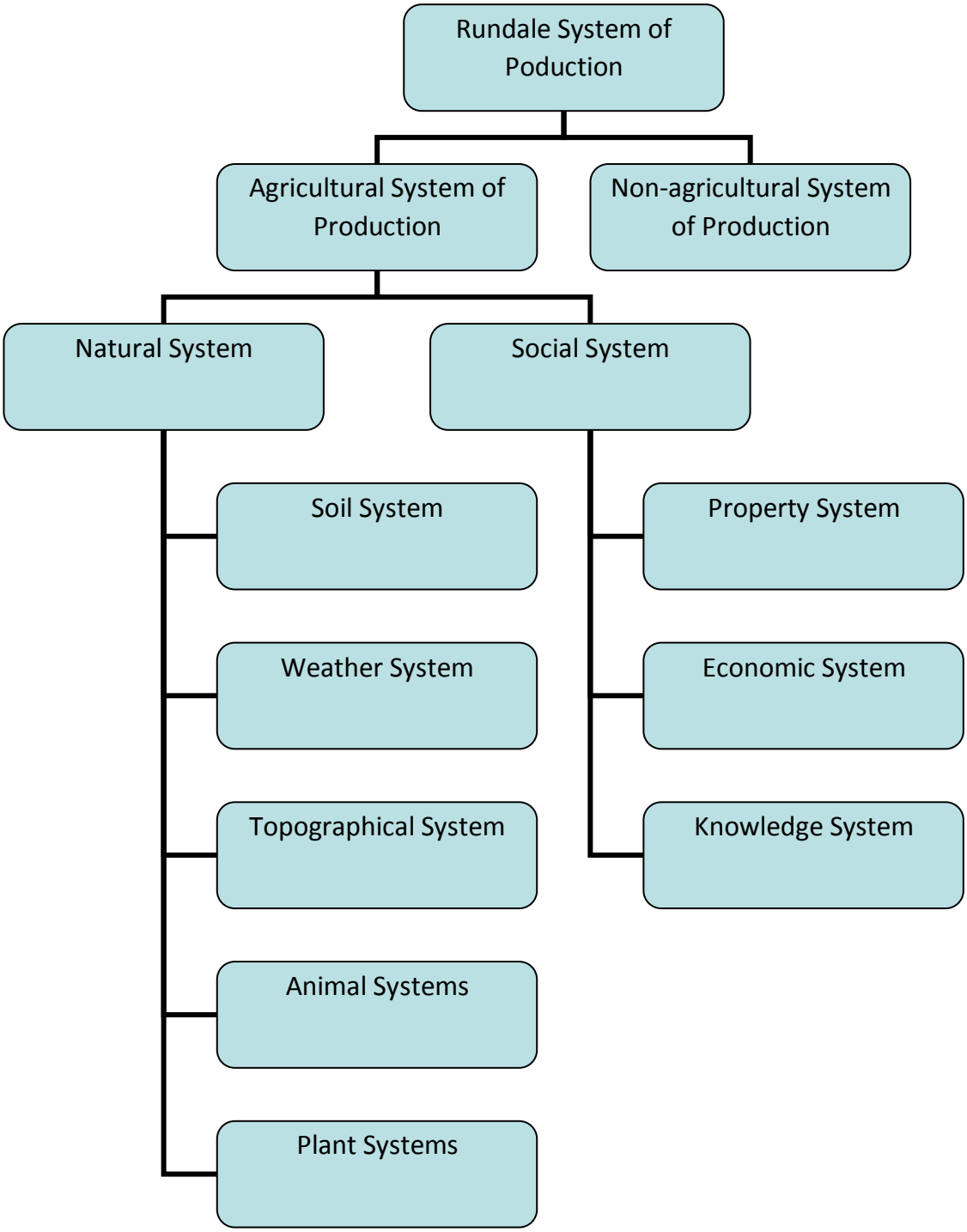


Diagram 2:
Cross System Relationships of Systems as They Might Interact at the Level of Relationships to Drive the Agricultural Production Process Associated with a Rundale System of Production in Various Directions

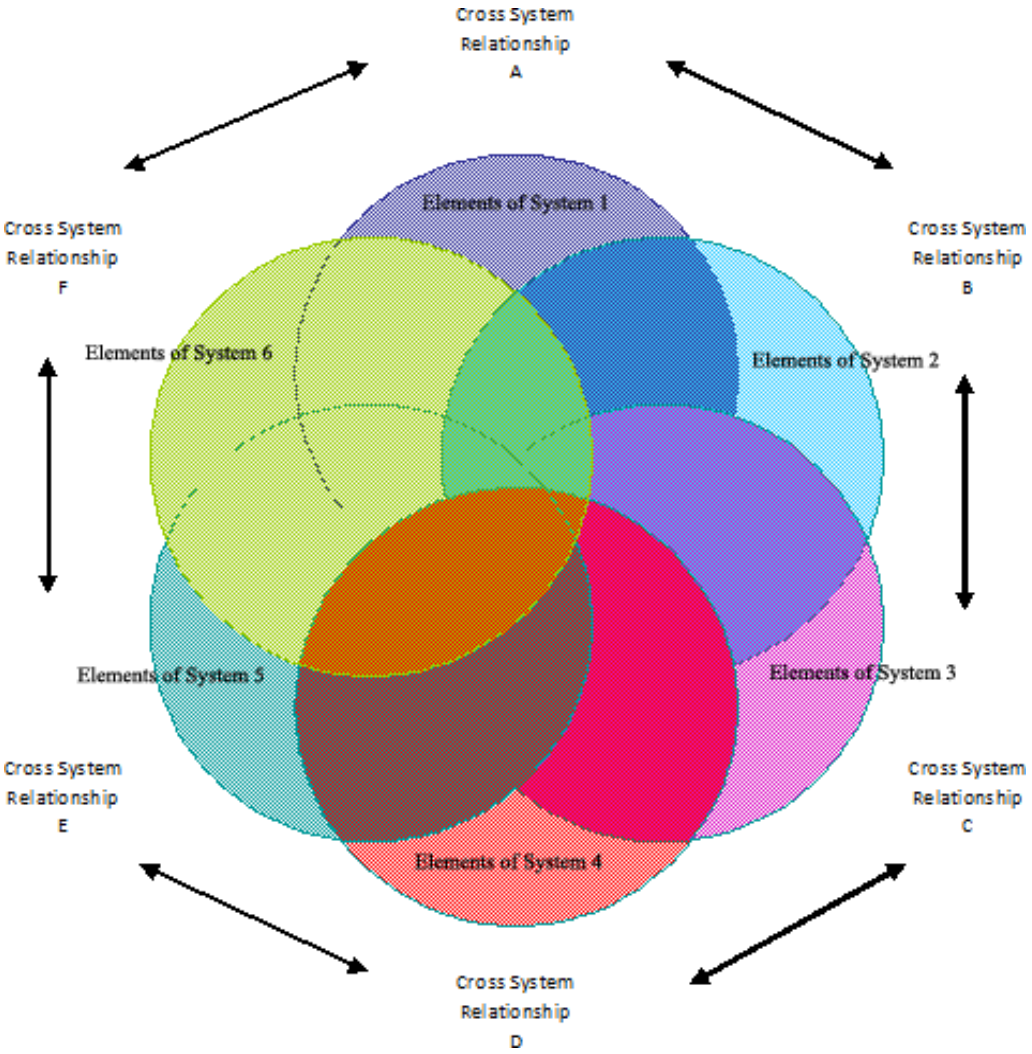
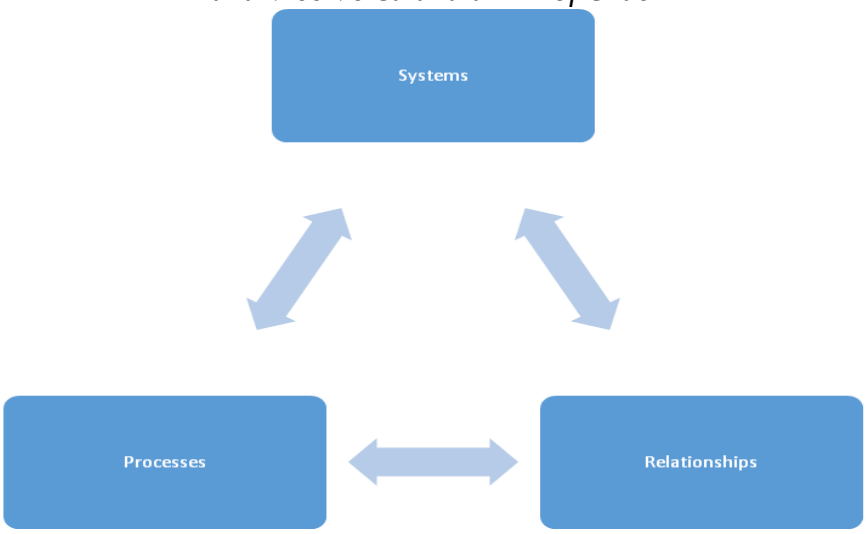


Diagram 3:
From Systems to Processes to Relationships and Vice Versa and a Mix of Order



Essentially, in order to answer the question of how a rundale system of production affected the metabolic relationship and ecological sustainability within agriculture there, I had to develop a complex research framework to deal with the complex analysis that was involved in answering this complex research question. But also, as demonstrated in *Diagram 3*, my research involved recognising that processes are not only affected by systems, but also, that they too act to affect systems. Thus, in answering the question of how a rundale system of production affected the metabolic relationship and ecological sustainability within agriculture there, what is correspondingly revealed is how nature-society interaction within rundale production contexts also acted back to affect the rundale system.

I employed an emergent strategy of allowing the data to shape the research design within the top-down-bottom-up approach utilised. The top-down aspect of the approach involved using theory to guide research in the initial stage, but also, allowing theory a certain degree of influence at later stages once the data collection process had begun. The bottom-up aspect of the research is that after the data collection process began that from that point on data was allowed to influence which theory was included within the research alongside the metabolic rift theory which was the theory which first informed the study. In other words, theory and data engaged with each other throughout the research process. Additionally, the thesis is divided into analysis sections dealing with separate system level findings: Section 3 - *Property Systems*; Section 4 – *Economic Systems*; Section 5 – *Spatial and Productive Systems*; Section 6 – *Ecological Systems*; Section 7 – *Knowledge Systems.* Issues affecting nature-society interaction within a rundale production context are explored at each of these levels in terms of scholarly informed analysis and empirical analysis.

However, first to explain how my ontological position[27] affected my epistemological approach[28] by encouraging me to carry out and present the research in this way.

[27] Ontology refers to what we think we know. It is how we perceive the universe. For sociology, it is how we understand society (May 2001:22)

[28] Epistemology is concerned with how we know (May 2001:22)

(3.3) *Ontology and Epistemology*

Scholars have different understandings of reality and the ability of science to capture reality: Positivists believe that 'there is an objective reality that exists apart from the perceptions of those who observe it, and that the goal of science is to better understand this reality' (Schutt 2004:72); building on ideas from positivism …

> postpositivism is a philosophy of reality that is closely related to positivism. Postpositivists believe that there is an external, objective reality, but they are sensitive to the complexity of this reality and to the limitations and biases of the scientists who study it (Guba & Lincoln, 1994:109-111). (Schutt 2004:73).

Essentially, postivists and postpositivists are objectivists because objectivism is an …

> ontological position that asserts that social phenomena and their meanings have an existence that is independent of social actors. It implies that social phenomena and the categories that we use in everyday discourse have an existence that is independent or separate from actors. (Bryman 2004:17).

Standing in stark contrast to the objectivist position on social reality and on the ability of research to capture that reality are the interpretivists and constructivists:

> Interpretive social scientists believe that social reality is socially constructed and that the goal of social scientists is to understand what meanings people give to reality, not to determine how reality works apart from these interpretations. This philosophy rejects the positivist belief that there is a concrete, objective reality that scientific methods help us to understand (Lynch & Bogen, 1997); instead, interpretivists believe that scientists construct an image of reality based on their own preferences and prejudices and their interactions with others … [Developing on the interpretivist approach, the] … constructivist paradigm extends interpretivist philosophy by emphasizing the importance of exploring how different stakeholders in a social setting construct their beliefs (Guba & Lincoln, 1989:44-45). It gives particular attention to the different goals of researchers and other participants in a research setting and seeks to develop a consensus among participants about how to understand the focus of the inquiry. (Schutt 2004:75-6).

A scholar's ontological position affects how they carry out research: Objectivism encourages deductive enquiry with the aim of the research being to test hypothesis to establish the relationship between variables. In other words, objectivists begin with a hypothesis (developed through theory) and then they go into the field to test it (Schutt 2004:44). On the other hand, subjectivists (those that adhere to interpretivist and constructivist views) follow an inductive method of enquiry, where in contrast to deductive research they begin by collecting data and later use that data to then develop theory to explain the data (Schutt 2004:49). Essentially, a deductive approach is a top-down approach to knowledge development while an inductive approach is a bottom-up one (Schutt 2004:49).

However, my research is both top-down and bottom-up and so neither a strict objectivist nor subjectivist approach was useful. Rather, my research required an approach that could incorporate aspects of both of these approaches: It required a mixed method approach that could handle the complexity of the issue under investigation (Teddlie and Tashakkori 2003:14–5). Where critical realism informs the ontological position of scholars it has allowed them to cross the paradigmatic boundaries of objectivist and subjectivist approaches[29] (Barry 1999:11; Carolan 2005b:396; McEvoy and Richards 2006:69–70):

> The critical realist agrees that our knowledge of reality is a result of social conditioning and thus cannot be understood independently of the social actors involved in the knowledge derivation process. However, it takes issue with the belief that the reality is a product of this knowledge derivation process. The critical realist asserts that "real objects are subject to value laden observation"; the *reality* and the value-laden *observation of reality* operate in two different dimensions, one intransitive and relatively enduring and the other transitive and changing. (Dobson 2005:606).

'Critical realism holds that there is more to "what is" than "what is known," … [but] at the same time, however … [understands that] human perception typically affects what we can know of "what is"' (Kitch 2000:168). The essential premise of critical realism is that although things may be real – that is they can exist independently of our knowledge of them – they can only be known to us through the ever-distorting lenses of culture, history, and practice (Carolan 2005b:10), so that, knowledge can be flawed and changing (Carolan 2005a:2; Dunlap and Marshall 2007:335).

Essentially, a critical realist ontology combines both objectivist and subjectivist views of reality and it is this philosophy that guides this research.

> Critical realists distinguish between three different ontological domains or modes of reality (Bhaskar, 1978; Delorme, 1999). These are: the empirical (those aspects of reality that can be experienced directly or indirectly); the actual (those aspects of reality that occur, but may not necessarily be experienced); and the real or "deep" structures and mechanisms that generate phenomena … These causal mechanisms cannot be apprehended directly as they are not open to observation, but they can be inferred through a combination of empirical investigation and theory construction. For critical realists, the ultimate goal of research is not to identify generalizable laws (positivism) or to identify the lived experience or beliefs of social actors (interpretivism); it is to develop deeper levels of explanation and understanding. From a critical realist perspective there are two main problems with positivistic methodologies. First, that they focus exclusively on observable events and fail to take full account of the extent to which these observations are influenced by prior theoretical frameworks (Olsen, 2002). Second, that they deal with relationships between various elements of a social system in isolation. They treat them as though they are "cut off" from external influences in a closed system and fail to take account

[29] Deductive and inductive approaches can be combined in highly compatible ways (Berg 2004:19)

> of the interactions between mechanisms and the contexts in which they occur (Collier, 1994). (McEvoy and Richards 2006:69-7).

Guided by a critical realist ontological perspective (that encourages the use of deductive and inductive approaches together) my research began by reviewing theory (a deductive approach), I then entered the field to collect empirical data. I then used that data to decide what new theory needed to be included within my research to explain findings (an inductive approach), but also then if newly introduced theory highlighted avenues that seemed important to investigate then data was collected and/or analysed in relation to the new idea that emerged from the theory (deductive again),. This process was repeated until no new insight was gained on the phenomena being explored

Also, in terms of the overall focus on dialectic processes involved in this study, critical realism offered the model that guided my research because critical realism moves beyond linear cause and effect understandings of reality and instead explores dialectic relations (Moore 1995:175). This critical realist approach is also 'consistent with the … "eco-system approach", [used here[30]] in which the world is conceived as being constituted of complex (open-systemic) and self-organizing phenomena, stratified, in multi-layered holons (Kay and Boyle, 2008)' (Manuel-Navarrette 2013:309). The critical realist approach also fits with the interdisciplinary eco-system focussed argument developed within this research because …

> [t]he argument of critical realism goes beyond disciplinary boundaries. It postulates that structures, mechanisms, processes, fields and other intransitive objects of scientific knowledge (epistemology) are fundamentally distinct from, and irreducible to the actual patterns of events they represent (Bhaskar, 2010). This highlights the artificial nature of drawing boundaries between biophysical and social systems. (Manuel-Navarrette 2013:309).

[30] As explained by Murphy (2002), '[c]ritical realism … is realist because it integrates into the analysis rather than brackets the causal powers of nature. It is critical because it sees knowledge as socially constructed on the basis of culture, power, and inequality. Precisely because of this as well as the deep levels of nature that are not always visible at a particular point in time even through science, such knowledge is seen as partial both in the sense of being incomplete and of favouring those groups that control its development (p. 323). Essentially, critical realism argues that, '[r]eality is stratified, rooted, and emergent. Consequently [it argues that], to bracket social life from those levels "beneath" it – or, in some cases, to write out nature entirely (e.g., discursive theory and "strong" social constructionism) – is to approach the study of those phenomena with a degree of institutionalized blindness' (Carolan 2005b:1)

(3.4) *A Complex Methodological Approach for a Complex Analysis*

Additionally, the choice of using quantitative and qualitative approaches together fits within a critical realist framework: 'Critical realists argue that the choice of methods should be dictated by the nature of the research problem. In many cases it is suggested that the most effective approach will be to use a combination of quantitative and qualitative methods or techniques' (McEvoy and Richards 2006:71). A mixed method approach allows for stronger inferences to be made as well as providing a greater mix of views on a topic (Teddlie and Tashakkori 2003:14-5). Thus, both quantitative and qualitative methods were combined within my research. Quantitative data was sourced from surveys - the Census of Ireland 1901 and 1911 – but was also available through archival sources[31] such as newspapers (regional and national - printed 1930s-50s) and official governmental reports (The Griffith Valuation). Qualitative data was sourced through interviewing and documentary analysis.

The benefit of using quantitative methods of data collection was that figures could be collected on phenomena occurring within the society being investigated (Berg 2004:2–3; Merriam 2002:4), while the advantage of using a qualitative methodology was that it allowed meaning to be revealed and description to be provided about phenomena which occurred (Berg 2004:2-3). However, while a quantitative and qualitative approach are combined here to offer maximum insight into the phenomena of interest to this study this is not to say that they are given equal weight. Rather, what should be pointed out is that the primary methodological approach was qualitative. This was because the ultimate goal of the research was not to capture measurements of phenomena, but, to understand why phenomena occurred, and it was only through utilising a qualitative approach that this knowledge could be found (Merriam 2002:4).

Also, although the quantitative approach is sometimes seen as the 'gold standard' in research (Silverman 2001:26), what is understood here is that the 'gold standard' within

[31] Historical research can utilise primary sources and secondary sources such as documents (see Berg 2004)

any research project is achieved where the approach best fits the research[32], and the strength of a qualitative research approach is that the approach can fit around the research being carried out (Denzin and Lincoln 1998:9). Also, while a criticism often made against the use of qualitative research is that it is the enemy of positivist science because bias and opinion (subject understanding) affects research (Denzin and Lincoln 1998:7; Schutt 2004:72, 2006:40) this is not as much of a problem as it is made out to be. It is especially not such a problem where this subjectivity is recognised by the researcher and made transparent to the reader.

It is true that subjectivity factors into qualitative research (Berg 2004:156; Creswell 2003:182; Mason 1996:6; May 2001:152; Pink 2001:20; Stake 1995:45) because there 'is no way in which we can escape the social world in order to study it [or put simply] … a relationship always exists between the researcher and those being researched' (Hammersley and Atkinson 1983:15), with the researcher carrying into the research their 'various values, moral attitudes, and beliefs [that] orient [them] … in a particular manner' (Berg 2004:155), so that 'all inquiry is laden with values' (Creswell 2003:182) and produced through 'a personal lens' (Creswell 2003:182), so that, '[d]ata are not collected, but produced [which means that facts] … do not exist independently of the medium through which they are interpreted, whether that is an explicit theoretical model, a set of assumptions, or interests that have led to the data being collected in the first instance' (May 2001:152). But also, what is important to understand is that while researchers 'take what [they] … hear as the expression of the speaker's consciousness. The sense [that they] … make of it is also, of course, an expression of [their] … consciousness [as they] … supply their meaning' (Cohen and Rapport 1995:12). Thus, it is accepted that the reality presented within my research is a negotiated version of reality (Berg 2004:154–5; Pink 2001:20).

However, while subjectivity is an issue that qualitative research has to contend with it is not (as earlier indicated) necessarily a weakness of the research approach. Instead, where subjectivity is recognised its effect on the research can be minimised in various

[32] 'Whereas the rigour in quantitative research is in the disciplined application of prescribed rules for instrument design, the rigour in qualitative research is in the principled development of strategy to suit the scenario being studied' (Holliday 2007:8)

ways. For instance, before beginning an interview researchers can consciously decide to try to control their reactions to data gained there, so that, they do not appear judgemental and thus cause interviewee shut down which could lead to the opportunity to collect valuable data being lost. As understood by Mason (1996) the key to successful research lies in the researcher being actively reflexive and engaging in self-scrutiny (p. 6): A researcher's subjectivity can be reduced if they recognise it (Buraway 1988:14). But also, 'subjective disclosures by researchers allow the reader to better understand why a research area has been selected, how it was studied, and by whom' (Berg 2004:156).[33]

Furthermore, although quantitative techniques are often understood as unbiased and therefore more valid than qualitative ones this is not necessarily so: For one thing, quantitative approaches standardise information (Silverman 2001:31), but also, choices are made within quantitative research about who to include in studies and how to present standardised information about them. Also, even within surveys themselves the order of the questions can influence how the questions are answered (Schutt 2004:244). However, the issue is not to find flaws in quantitative approaches, but rather, to highlight why a predominantly qualitative approach was the best fit for my research which essentially came down to my interest in understanding why people interacted with nature within rundale agricultural production contexts as they did and with what effect.

[33] In the spirit of reflexivity and to offer increased transparency to the issues that have affected this research it is important that I recognise and disclose how my personal views and background have influenced this research. As already indicated I believe that reality exists external to society, but that, social processes affect how reality is interpreted which is why I can be understood to have a critical realist understanding of reality, which is reflected within this research. But also, my critical realist philosophy reflects how I understand nature and society to interact within rundale production systems in general, and specifically within agriculture as carried out there. I believe that nature exists external to society and that nature exhibits agency within nature-society interaction (Lidskog 2001:129; Murphy 1995:693; Murphy 2002:318), but that, social processes have affected how nature has been understood (Carolan 2005b:10; Weigert 1997:120–1), so that, knowledge of nature can be flawed and changing (Carolan 2005a:2; Dunlap and Marshall 2007:335). Thus, I fully appreciate that any findings produced from this research can only offer a partial view of reality and that as new knowledge develops that new ways of understanding the phenomena observed here may be developed. Correspondingly, I also believe that the knowledge developed in this research can improve on already established knowledge of nature-society interaction within rundale production contexts and can move knowledge as it relates to the topic of interest to this research forward. As to how I came to study this topic in the first place what motivated my decision to carry out this research was the understanding that nature and society do not stand apart from each other in affecting social life, but rather, they are connected in deep and meaningful ways, but that as yet, sociology has not strongly enough investigated or emphasised this fact. As regards explaining how this research was carried out that is the purpose of this chapter

While quantitative research involves surveys (Schutt 2004:227), qualitative research has a much broader range of data collecting techniques within its repertoire from which to draw upon to gather information on social phenomena. '[Q]ualitative research … includes such methods as observation of experimental natural settings, [interviewing], photographic techniques … historical analysis (historiography), document … analysis … ethnographic research, and a number of unobtrusive techniques' (Berg 2004:3). To various degrees this research has touched on all of these techniques, and has done so through case study research.

I engaged in case study research because it is good for dealing with complex issues and because it could offer an in-depth/detailed and nuanced view into the phenomena of interest to this study as it occurred within a particular setting (Berg 2004:251). While my research was ethnographic to the extent that it involved understanding the culture of a particular society over an extended period of time (Schutt 2004:417; 431) it was not ethnographic to the point where I was able to actually participate in the society of interest to this study – because the society being investigated here was one that existed c.1930s-50s. Thus, I could not physically immerse myself in the social universe that I have examined (May 2001:154). However, following the ethnographic model of providing deep description and explanation (Berg 2004:154) of a society as a whole, I too, tried to capture a view of a whole community and the relationship of its elements to each other, but without actually being present to observe them.

Instead, using a mix of methods under a case study framework what I did was collect data from various sources to build a picture of the phenomena being examined as it would have occurred c. 1930s-50s in the setting of interest. The use of case study research allowed me to explore the research topic within a real life context. Focussing on a specific 'case' allowed me to 'uncover the manifest interaction of significant factors characteristic of [the phenomena being explored and] … to capture various nuances, patterns, and more latent elements that other research approaches might overlook' (Berg 2004:151). This was because the case study method offered a model which allowed for capturing holistic description and explanation (Berg 2004:151). This ability to see the wider picture of what was affecting nature-society interaction within production under rundale helped me to understand the forces that were acting to affect

this interaction. While case study research is not explicitly causal (Schutt 2004:188) it was nonetheless possible to discover through case study research how specific structures interacted with each other in particular ways at particular times to affect outcomes for the nature-society relationship explored at this level. Through case study research I was able to understand how a rundale context of production affected nature-society relationships tied to the rundale production system because case study research brings the researcher into the social, economic, historical, and natural context of the setting allowing them to understand phenomena in that setting, instead of abstracting phenomena from the context within which it occurs.

As understood by Merriam (2002):

> The key to understanding qualitative research lies with the idea that meaning is socially constructed by individuals in interaction with their world. The world, or reality, is not the fixed, single, agreed upon, or measurable phenomenon that it is assumed to be in positivist, quantitative research. Instead, there are multiple constructions and interpretations of reality that are in flux and that change over time. Qualitative researchers are interested in understanding what those interpretations are at a particular point in time and in a particular context. (p. 4).

Of course, key to case study research is that the case being studied is able to reveal information useful to the research question. As such, the research question should be the primary guide in choosing the setting to be studied (Berg 2004:32). The decision to carry out the research in the particular area that has been investigated here was based on a number of factors: It was already established within the literature that the area had historically had a rundale past (see Ó Catháin and O' Flanagan 1975); map evidence supported this view (see *Map 1*); also, this was an area beset by marginal physical conditions of production, so that, stresses on nature-society interaction within production there were more exposed; but also, I had family connections to the area and so thought that this would facilitate my carrying out research there, as issues of access are central to case study research[34] (Berg 2004:33). The case study setting of my research was a local community c. 1930s-50s spread across the North-West of Mayo townlands of Kilgalligan, Stonefield, Carrowteige, Portacloy, Curraunboy, and Rossport.

[34] 'In many cases, the decision to use a particular research site is tied closely to obtaining access to an appropriate population' (Berg 2004:33)

As to why I studied six townlands as a community the reason for that is simple. Once the data collecting process got under way the people who participated in this research set the bounds of what was community to them. When I first began the data collection stage of the research I had only ever intended to study one townland, because from the literature (see Sammon 1997:34-5; 169) I had been encouraged to think of rundale communities as being 'bounded'[35] by townland boundaries.

However, once I began interacting with locals it became clear to me that their community was not one that was bounded in this way. Instead the different townlands investigated together here comprised a community. At first this was not clear to me and I could not understand why whenever I interacted with the original participants (from Curraunboy) involved in this study that they constantly mentioned the other townlands (which at that time I was not so much concerned to know about), and often encouraged me and directed me to visit people and places within the other townlands (now involved in this study) to help me with my research.

However, once I discarded the idea that the limits of the community correlated with townland limits, I realised that what they (the research participants) were telling me from the start was that these six townlands were the bounds to their community as lived and experienced by them. Some of the reasons why these townlands formed a community were because people in one of the townlands could have relatives in another, and because people from these different townlands came together through school, through mass, and through socialising. Even through death they were united as a community because people from the different townlands involved were often buried in graveyards in one of the other townlands (see Ní Ghearraigh and Mac Graith 2009) so that living relatives of those that had died were connected (on yet another level) to the other townlands outside of their own.

In sum, the research participants shaped which townlands were investigated as a case. And, I believe that in following the research participant's lead and allowing this to

[35] Merriam (2002) says that case studies examine 'a single entity, a unit around which there are boundaries. The case then has a finite quality about it either in terms of time … space … and/or components comprising the case' (p. 178)

happen, that, this research speaks more to how their community operated than would have been the case had I not been flexible in this regard (and retained my original idea of only investigating one townland. Had I kept to that strategy, the research produced would not have spoken to how the community operated, but rather, it would have provided only a partial view of community dynamics, because only a section of the community would have been investigated).

However, while the literature (see Sammon 1997:34-5; 169) misled me into thinking that the case would be bounded by townland limits, it did on the other hand help me to understand some of what I might expect to find when I entered the setting to carry out research there. Preparation through reading was essential prior to entry into the community because '[k]nowledge about the people being studied and familiarity with their … rituals facilitate[d] entry as well as rapport once entry [had] been gained' (Berg 2004:159). This issue of rapport is returned to later, but for now, it is first necessary to explain exactly what data collection methods were used to understand the case being examined.

(3.5) *Mixed Data Collection Methods*

The data collection process, as earlier indicated, involved a mix of a quantitative and qualitative approach, and thus, a mix of data collection methods. In terms of the quantitative data that was collected, the *National Census of Ireland* for the years 1901 and 1911[36] was examined to provide measures for phenomena in the area. The censuses offered figures/statistics on the entire 1901 and 1911 population of the townlands which allowed insight into the area as a whole.[37] Specifically, the censuses were used to provide statistics on: (1) heads of household occupations listed for the years 1901 and 1911 (2) literacy levels among the population for each of those years. My purpose in using the censuses to provide figures on heads of household occupations at those times was to try to build a picture of what production systems were operating in the area at that time. The logic behind accessing the census for information on literacy levels was to assess the degree to which members of the community were literate in those years

[36] Had any later census records been available they would have been consulted, but, the Census 1911 is the most recent census available

[37] This type of in-depth detail on the community as whole would have been unavailable to me as a lone researcher (Schutt 2004;134)

and to observe if change occurred over time in relation to literacy levels recorded there. This information was important to discover because within the literature (see Berkes, Colding, and Folke 2000:1257; Snively and Corsiglia 2001:12) a correlation is generally believed to exist between literacy and human behaviour towards nature within production.

Also, as earlier indicated, I collected quantitative data through the medium of regional and national newspapers printed c.1930s-50s, and from the Griffith Valuation Report. I examined regional and national newspapers for the years 1930-50 for figures relating to local and national forces as they could impact the nature-society relationship tied to production within the community under study. I examined the Griffith Valuation Report for measures on quality of land and size of holdings within the area. I did this to build a picture of the material conditions under which agricultural production was being pursued. Essentially, I collected quantitative data to add a layer of knowledge – involving statistics and figures - to the research that would not have been possible to gather in a qualitative way. But also the quantitative data helped me to build a background picture of trends and issues that were affecting the society of interest to this research (Schutt 2004:134). In other words, I used both qualitative and quantitative data together to build a deeper insight into the processes being examined. This was because while qualitative data is very insightful for processes it is also good to use quantitative data to explain processes, because quantitative data allows for understanding the trends that give rise to particular phenomena occurring in a particular way at a particular point in time and space (Gray and O' Carroll 2012:698-9).

However, while the quantitative aspect of the research was important in this regard my primary method of data collection was qualitative. This was because of my interest in understanding the dynamics of interaction shaping nature-society interactions within production and the forces affecting those dynamics. In terms of the qualitative data collection techniques used within my research, the techniques used were interviews and documentary analysis. Interviews took the form of semi-structured in-depth face-to-face interviews, and semi-structured telephone interviews. As regards the mediums involved in documentray analysis, contemporary maps – relating to satellite imagery and local place names - were examined, archival and contemporary photographs were assessed,

folklore notebook manuscripts were investigated[38], and the same regional and national newspapers for the period 1930s-50s that were examined for quantitative data were also scrutinised for what they could reveal about the forces shaping nature-society interaction within production in the area and to understand how the local community negotiated those forces in a particular way with a particular affect for that community and nature-society interaction within it.

'[M]ultiple data collection' is commonly done in qualitative research (Merriam 2002:25). This limits the possibility of bias and increases reliability[39] because where as many pieces of 'evidence as possible [are gathered] from a wide range of sources … the accuracies and distortions of particular sources are more likely to be revealed' (Tosh 2002:98). As Berg (2004) points out, an 'important feature of triangulation[40] is not the simple combination of different kinds of data but the attempt to relate them so as to counteract the threats of validity[41] identified in each' (p. 5). Many research projects triangulate through the 'use of multiple data-gathering techniques (usually three) to investigate the same phenomenon' (Berg 2004:5). Especially where such different techniques as gathering survey results from secondary sources and carrying out qualitative techniques such as interviewing and documentary analysis are brought together can one expect to have more confidence in the validity of the research (Schutt 2004:105).

> Each method [of data collection can be considered as] … a different line of sight directed toward the same point, observing social and symbolic reality. By combining several lines of sight, researchers obtain a better, more substantive picture of reality; a richer, more complete array of symbols and theoretical concepts; and a means of verifying many of these elements. (Berg 2004:5).

Given the exploratory nature of my research question the use of multiple methods was important to the validity of the research findings.

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[38] References taken from the folklore notebook manuscripts are indicated by 'Iml.' (which means imleabhar/notebook) followed by a notebook number and page number for that notebook

[39] 'Reliability means that a measurement procedure yields consistent scores when the phenomenon being measured is not changing' (Schutt 2004:115)

[40] Triangulation is the 'use of multiple methods to study one research question' (Schutt 2004:16)

[41] Validity occurs where 'the findings are accurate from the standpoint of the researcher, the participant, or the readers of an account' (Creswell 2003:196). For internal validity to be achieved a causal connection has to be demonstrated within findings (Bryman 2004:30). 'Reliability is a perquisite for measurement validity' (Schutt 2004:115). External validity refers to the generalisability of results beyond the research (Bryman 2004:29). External validity is associated more with survey research (Schutt 2004:229) because by its very logic a case study is not expected to be generalisable as cases are culturally and historically specific. Instead, the measure of success for qualitative research is more about how well theory is developed from findings (Bryman 2004:52)

But also, beyond method combining for increased validity of findings there were also specific reasons as to why the specific methods used within my research were the ones that were used. I have already discussed the benefits of the quantitative data sources used. But, as yet I have not discussed the reasons for the qualitative data collecting methods used Thus, I discuss them now. The original plan was to carry out interviews, to take my own photographs of the area, to collect old photographs of the area, and to gather and analyse local maps. I originally had no intention of using newspapers, the censuses, or the folklore notebook manuscripts. However, once the data collecting and analysing process began I realised that it was necessary to also include these data sources for the reasons outlined below.

As I interviewed research participants I realised that newspapers had been a feature of life in the area c. 1930s-50s. This was surprising to me because ethnographic studies carried out in rural Ireland during that time period encourage the idea that communities in rural Ireland were at that time oral cultures (see Arensberg and Kimball 1967), which suggests that newspapers would not have circulated within them. Once the interviews introduced the idea of newspapers circulating within the area I began thinking about what access to newspapers might mean to the community, and, was encouraged to look at regional newspapers being printed at that time. Later I also realised the benefit to the study of including national newspapers and newspapers from other regions within Ireland. Doing so allowed me to observe wider trends and forces that might have impacted on the community that I was investigating. To begin with I was interested in examining the newspapers for articles relating to production in the area to see what types of information and messages people were being exposed to that might influence how they carried out production locally, but once I began collecting and examining the newspapers I realised that their usefulness to this research extended beyond allowing me to consider how local culture was being shaped by wider cultural forces: The newspapers offered date stamped records of information – figures and meaning - for local phenomena. They provided in-depth coverage of local events as well as wider events that could affect the local society in question. They contained eye witness accounts as well as revealing official and dominant discourses, as well as issues of law. They provided government information on official government policies and schemes that were operating to affect people within the area. And, they reported on the weather and how the weather affected production in the area, especially agricultural production.

While it is understood that newspapers not only report news, but rather, are social products which are shaped by editorial decisions and such like, the newspapers nonetheless ended up offering a wealth of useful information to this research. But also, as well as acting as a data source in their own right the newspapers were also especially useful to use alongside the interviews because the interviews required the participants to search back into their memories to recall events from years earlier (Hoffman 2007:333): The newspapers corroborated interview data and provided extra detail on some of the issues brought up in the interviews. Additionally, they helped to counteract recall bias within interviews: A criticism often made against historical research involving interviewing is that memories can become 'rewritten over time' (Riley and Harvey 2007:401).

Also, just as I was encouraged by the interviews to incorporate a focus on newspapers into the research, so too was I encouraged by the same interviews to consult the census to examine official records on literacy levels in the area. Also, I realised once I began consulting the census for information pertaining to local literacy levels that the census could also be useful to the research in providing figures for local population levels, and for providing information on occupations in the area. So, while the original plan did not involve gathering census data this data source (like the newspapers) ended up being very important to the research, because it provided statistics on the area as a whole, and, allowed me to observe and predict trends based on the information provided through this source.

Similarly, although I did not originally intend to use the folklore notebook manuscripts (with the relevance of examining folklore records also emerging from the interviews), they too ended up being invaluable to the research. Not only did they discuss folklore, but they offered contemporary analysis of social phenomena as it was happening in the area c.1930s-50s and provided written record of such. Additionally, they offered insight into the area's history and discussed rundale as a feature of life there. Furthermore, while the notebooks were a valuable source of data in their own right, they were also useful in relation to some of the other data sources used. They were particularly useful to use alongside the local place name maps, because while the maps indicated where the local place names were sited and the degree to which they existed within the area, the

folklore notebooks offered detail on how the local community acted in relation to certain named places and helped me to understand the significance of the local place names in affecting social life in the locality. But also, the notebooks supported and sometimes elaborated on information provided through the interviews.

Also, just as the notebooks were useful to use alongside the local place name maps, so too were the local place name maps particularly useful to use alongside the interviews. While the local place names were a source of data in and of themselves which offered insight into how the local community understood itself to occupy the local landscape, and, provided proof of ongoing intensive interaction with the landscape within production, the local place name maps did more than act as data sources – either on their own or in conjunction with other data sources. The local place names occupied the role of data source and research tool within this study.

These maps were useful to the interviews where they were used because they helped to draw memories from participants about how they used to interact with and understand the landscape/seascape around them. Additionally, they were helpful in facilitating rapport between myself and the interviewees because many of the interviewees had not previously seen the maps and were interested in them, and enjoyed looking at them which contributed to the interview atmosphere being more relaxing for them and thus more productive for the research in terms of the depth of information gathered within the interview context.

As to the purpose for using the satellite map (*Map 1*), the purpose of using this map as a data source was to allow the research to comprehend the spatial and material environment better than would be possible through description of the characteristics and layout of the area alone (Knowles 2008:19). Specifically, *Map 1* is used to demonstrate the extent of marginal land that existed in the area. But also, to indicate how much of the land adjoined a shore area which could be used to support local production. And, to highlight the extent to which local land was occupied by commonage and correspondingly to demonstrate that very little of the local land was privately held. It is important to show the marginal quality of much of the land in the area, the level of

shore access available to townlands, and the vast amount of commonage that existed locally because all of these issues affected how nature and society interacted within local production contexts in important ways.

In addition to the maps, I also gathered visual data through photographs. Photographs are used to examine the lived environment – in cultural, material, and spatial terms. They are not merely used for illustrative purposes, but rather, were used as an investigative medium within the research (Ball and Smith 1992:2). Photographs are useful as data because they can 'transport readers into the lives and culture's [of others]' (Kornblum 2008:29). As a source of data they are useful in understanding nonverbal culture (Holm 2010:326) as well as the physical environment – material and spatial - and processes of nature that occur within particular environmental contexts. The photographs are also useful for bringing nature into the data collecting process and giving it a 'voice there' at a visual level. Essentially they provide a form of information that could not have been gathered in any other way. For instance, I could try to explain what the area looked like, how sheer and steep some of the cliffs were within it (see *Plate 24*), or what sods of turf cut from the ground (see *Plate 44*) for use in bedding and so on might look like, but without a picture it would be impossible to accurately portray to the reader a proper and detailed enough description that would allow the reader to see the image in their mind's eye as a result. As such, photographs were not only used for the purpose of gathering data, but also, they are necessary to disseminating information to the reader about the locality. As understood by Laheen (2010) photographs of a landscape can 'render it legible' (p. 17).

However, this is not to say that photographs are objective (Holm 2010:326; Spencer 2011:19) While there was a time when photographs were accepted as being objective (Holm 2010:325; Rose 2001:104). This is no longer so. It is now understood that photographs are not neutral (Holm 2010:325), so that, an issue with the use of photographs as data sources is that you must think who took the photograph and why (Harper 1987:2; Holm 2010:325). However, photographs are not the only documents around which care must be taken as to the authenticity of the document and its reliability. The same is true of documents in general (McCulloch 2004:42). Three types of images are used in visual research (1) subject produced images (2) researcher

produced images (3) pre-existing images found in archives (Holm 2010:328; Shortell and Krase 2013:115).

Within my research, I used both researcher produced images and pre-existing images found in archives. I can personally vouch that any photographs taken by me are authentic and reliable, and as for the archival photographs used I believe them to be authentic and reliable as they were sourced through reputable sources[42] who have been collecting historical photographs in the area of interest to this research for many years for the purpose of documenting life as it historically occurred in the area. But also, as well as being useful sources of data, the photographs were also useful research tools because just like the local place name maps they elicited and aided memory within the interviews and also were enjoyed by the interviewees. Thus, they facilitated the collection of deep data beyond themselves.

In terms of why I used interviews to collect data the logic for this is based in my belief that through talking to people you can learn a lot about how they understand the world around them (Patton 2002:341). And, because this research was interested in understanding phenomena within a case study context I believed that interviews would offer a valuable entry point into understanding that phenomena. Face-to-face semi-structured interviews were the main type of interview used The face-to-face context was important to establishing rapport between myself and the research participants (Curtis and Curtis 2011:63). I only contemplated carrying out telephone interviews after rapport had already been established through previously conducted face-to-face interviews Also, I only used telephone interviewing to follow up on points made within face-to-face interviews, or that had arisen as a result of analysis of some of the other data sources. Thus, the telephone interviews tended to be relatively short.

However, while they were usually very short with much of the rest of the time on the telephone being taking up with general conversation and asking after people in the area

[42] The National Folklore Collection UCD and a local community based initiative named Comhar Dún Chaocháin Teo were the reputable sources through which archival photographs were collected for analysis within this research. Comhar Dún Chaocháin Teo is a community development initiative that among other things promotes cultural development in the area being studied

(which was very important to the research participants), this is not to say that these telephone interviews were not important because they were as they served the purpose of clarifying points (May 2001:123) that needed clarifying but without it being necessary to physically travel the distance from my base to the research site (which was approximately one hundred and fifty miles away).

As to the semi-structured face-to-face interviews they took place in a variety of settings. Most were conducted in the homes of participants, but one was conducted on a mountaintop bog, and another was conducted walking the land in the area with one of the research participants generally talking to me about life in the area c. 1930s-50s and showing me where different practices were performed across the local landscape/seascape. The naturalness of the interview setting to the participants – whether it be their homes, the bog they were used to working, or on the land that they had long engaged with around them – made the interviews feel less formal and so encouraged the interviewees to engage with the interview process and provide deep and detailed information to the research.

The interviews initially involved a series of prepared questions relevant to the topic being researched (Ackroyd and Hughes 1983:66). The order of the questions and the questions asked changed across the course of carrying out the research as new avenues of enquiry opened up from earlier interviews, or, from analysis of any of the other forms of data collected. In-depth interviews were used to probe for information useful to explaining the phenomenon under investigation (Schutt 2004:277).

Aside from the polite preliminaries that always proceeded each interview (and which were essential to their success), such as talking for a while and usually being offered and accepting a cup of tea, the interviews began by asking for permission to tape the interviews.[43] This was followed by descriptive questions so as to further establish rapport and so as to 'ease' the interviewees into the interview and make them more

[43] The taping of interviews is useful to the flow of the interview, but also, it offers a highly reliable record that can be returned to at analysis stage (Silverman 2006:21). However, only the face-to-face interviews were taped with the telephone interviews only involving short notes being written on points being clarified

comfortable in participating in it. Non-directional open-ended questions were asked so as to foster exploration and discovery, and so encourage the interviewees to discuss their perceptions (Rossman and Rallis 2003:131). The questions were mostly 'how', 'why', 'where', 'when', 'who' type questions which were asked in a careful properly phrased way so as to elicit stories and reduce the possibility of the interviewee closing down during the interview process (Antonesa et al. 2006:80).

The semi-structured character of the interviews allowed space for the interviewees to provide information that they thought relevant, but that, I had not thought to ask. This allowed important avenues of interest that emerged in the interviews to later be followed up in more interviews (and indeed in relation to any of the data forms collected), sometimes with the same interviewee but also with others. In other words, the reflexive nature of the semi-structured interviews (Hammersley and Atkinson 1995:152) was important in bringing the research to where it is now because the interviews opened my eyes to exploring issues that I had not previously understood to be relevant.

Also, in actively listening to what the research participants had to say – which was obvious to them when I followed up on what they were saying by asking a question about the issue they had raised – what I also achieved was access to more in-depth data as the interviewees felt that what they had to say was of value. However, it is recognised that 'despite rapport, interviews will result in selective information, [as the interviewer only has access to] the part that the respondent is prepared to make available and that she … thinks will be of interest to the researcher: this is known as interview effect'[44] (Harvey and MacDonald 1993:123). Also, what must be considered is that it is impossible to get '"inside someone's head" [and that] what an interview produces is a particular *representation* or *account* of an individual's views or opinions' (Silverman 2006:117). However, interviewing was useful nonetheless because it provided detailed description of the world I was interested in learning about, but also, 'the aim of this research was 'not to discover … for that is impossible, but to construct a clearer reality'

[44] While I made every effort to allow the interviewees to discuss their experiences in their own terms I also recognise my role in shaping the information that was provided within the interviews, because the questions I asked and the issues I followed up on meant that data as it was presented to me by the interviewee within the interview was partly shaped by my behaviour within that context (Taylor and Bogdan 1998:157)

(Stake 1995:101) which is what I feel the interviews (and also each of the other forms of data used) allowed me to do. Also, the interviewing process continued until a natural saturation point had been reached where it became clear to me that the interviews were revealing little new information (Schutt 2004:151).

(3.6) *Sampling*

My study involved non-probability purposive sampling. In other words, the samples were chosen on the basis that they could provide the maximum amount of pertinent data to the research question (Schutt 2004:150). Purposive sampling occurred in relation to each data source that was used: I used the Griffith Valuation because it could provide detailed information on the quality of land within each of the townlands involved in this study (I only consulted the section of the Griffith Valuation that pertained to the community of interest to this research); I included different types of maps providing different types of information– a satellite map to show the extent of marginal land in the area and the organisation of property there, and local place name maps to show how the community understood their environment – but while each map provided different forms of data in the aforementioned ways, all of the maps were of the specific community being studied and so the information they provided was useful to understanding that setting in relation to the research question; I only consulted information provided to the National Folklore Notebook Manuscripts Collection by local folklore collectors who were operating in the area of interest to this research at the time period of interest to this research (c.1930s-50s). I consulted their work on the expectation that they could offer valuable insight into the type of folklore that was circulating within the community at that time. Also, I used their work to help me explain some of the social structures, institutions, and practices that were happening at that time, and, to offer some insight into how the area's history could shed light on phenomena as it occurred c. 1930s-50s.; I only used photographs of the area (some recent and some not). As the photographs all relate to the local environment – at a material, spatial, and cultural level – they aided the process of understanding phenomena as it occurred within the setting for this study; the newspaper sample contained a mix of regional and national newspapers but all printed across the 1930s-50s; and, I purposively selected the interviewees

The interviewees involved in this study (of which there were fifteen in total) ranged between approximately 75 years of age to approximately 90 years of age. The strategy of interviewing the most elderly members of the community was based on the belief that they above other community members would have knowledge on the time period of interest to the research (also a mix of males and females were interviewed to provide balance to the investigation - 5 females and 10 males). I used the technique of snowball sampling to identify research participants. Snowball sampling relies on people who have already participated in the research providing names of others who might also participate (Berg 2004:36). Sometimes I had to request this information, but more often than not it was freely offered.

'Snowball sampling is useful for hard-to-reach or hard-to-identify populations for which there is no sampling frame, but the members of which are somewhat connected' (Schutt 2004:151). While only fifteen people actually participated in this research I feel that this number was sufficient because most of these people were interviewed more than once, but also, each interview tended to be approximately one and a half hours at a minimum, so that by the end of the research I had gathered approximately sixty hours of taped data (apart from the data collected through telephone interview). Also, recognising that the greater the sampling size the less sampling error (Schutt 2004:159) I feel that the interview sample combined with the many other data collecting samples used within the overall sampling strategy provides a large enough sample to ensure that sampling error did not occur within this research.

In terms of access to the various elements of the overall sample used here (the interview sample, the folklore notebook manuscript sample, the photograph sample, the map samples, the census sample, the sample taken from the Griffith Valuation, and the newspaper sample) details are provided in Appendix I, as to what was involved in accessing each element of the overall sample and the issues involved in capturing the data which has been used to answer the research question of my research.

(3.7) *Analysis and Presentation of Data*

Once the data started being collected the next step in the research process was to start to analyse that which had been gathered. As I collected data I made hard copies of it. Having the data in hard copy meant that I could begin familiarising myself with it and start coding it as soon as it was collected. I did this using the technique of 'coding the record' (Hammersley and Atkinson 1995:195) or 'open coding' (Strauss and Corbin 1990:61). This required writing notes on the various different pieces of data so as to facilitate their later organisation into themes (Hammersley and Atkinson 1995:195). Coding the record as soon as data was collected allowed for later data to be used to clarify points as they emerged at an early stage in the analysis process (Taylor and Bogdan 1998:142). Also, in beginning coding before the data collection phase was complete it was easier to pick up on and follow important points as they were raised within the course of later data collection (Strauss and Corbin 1990:80). But also, beyond offering these opportunites what this early coding did was allow data already collected to be examined as a whole, in a new way as new data revealed new information that changed earlier interpretations of it (Berg 1998:236).

However, starting the coding process so early on in the research process not only affected how the empirical data was understood in relation to each other, but also, because theory and findings were in constant dialogue with each other throughout the process of this research what beginning the coding early on did was also allow ideas to develop about the relevance of the original theory being used to explain data as it was collected. Where the original theory was found to be incapable of explaining a particular piece of data this encouraged the consultation of scholarly discussion at that point to try to explain the significance of the piece of data at issue. But also, where scholarly discussion was consulted and where this encouraged new avenues of inquiry that had not yet been considered then this affected what data was later collected and how it was later analysed. A cyclical process of repeatedly collecting and analysing data together was carried out across the duration of the data collection stage with the research repeatedly being driven in different directions based on whether the original theory could or could not explain data found. Where the original theory could not explain the data being found then the research was driven in a different direction through consultation of scholarly material that could explain the phenomena, but which sometimes also introduced new avenues of inquiry and encouraged data to be analysed

in a new way and/or new data to be collected. As this process was repeated across the data collection stage a store of scholarly informed data accumulated alongside empirical data so that the research was informed by both types of data. The fact that these two types of data were accumulated meant that it was possible to offer a double analysis within the research: On the one hand, it was possible to explain phenomena through scholarly informed discussion; on the other hand, it was possible to explain it through empirical findings.

Specifically, my research was originally only informed by the metabolic rift theory which shaped my understanding of nature-society interaction within agricultural production before I ever went into the field to start collecting data there, but once the data collecting process began it became clear that the metabolic rift theory could not by itself explain what I was finding (although it remained the dominant theoretical focus guiding the overall research). Thus, new conceptual orientation was required alongside the metabolic rift theory to explain the data that was being found. In other words, the research process while originally only guided by a specific theory was later guided by theory and data together involving an emergent strategy within which data was found and then new theory was consulted to explain that data, but also, where if new ideas emerged from new theory consulted then those ideas were explored at the level of data collection and analysis. In other words, a constant weaving backwards and forwards between data collection and analysis occurred in an iterative way (Klenke 2008:67).

To a certain degree the research can be said to follow a grounded theory approach because once the data collection stage began then from that point on data was allowed to guide the research process and to contribute to the development of theory on the back of data found (Corbin and Strauss 2008:1; Urquhart 2013:16). However, of course, the method used here was also different to grounded theory. It was different because although data was allowed to influence the direction of the research process it was not allowed to do so alone. Rather, data and theory were used together to shape how the research was carried out and what was found from it. Conversely, grounded theory only

brings theory into the research process after the point of theoretical saturation[45] (Urquhart 2013:9).

An example of how data and theory together shaped the direction of my research is provided in the following example: From the data I realised that local place names were important to affecting nature-society interaction within production within the community. Thus, from the time I realised this I started to think about what theory could explain this. The theory I found to explain it was TEK, but as I learned about TEK I realised that I had been missing an opportunity to follow up on the importance of weather lore as it too affected the relationship. Thus, I looked to the data to see what if anything had already been said about weather lore and I carried out extra interviews to find out more about this issue.

While grounded theory is understood to be good for examining processes (Urquhart 2013:10) because it is focusses on what the data has to say about what is happening and what is important to consider in relation to the phenomena in question, I feel that the two way approach used here is better again, because, in allowing the data and the theory to constantly engage with each other in an iterative way it was possible for the research to remain guided by the original theory used, but also, to be flexible to following concepts as they emerged as important from data collection and analysis. This approach offered a more complete understanding of the processes involved in affecting nature-society interaction within agricultural production under rundale. As understood by O' Carroll and Gray (2010) where an iterative process which moves 'backwards and forwards between … two ways of thinking [is used it allows for] … a more accurate understanding of … process' (p. 25).

Also, to facilitate understanding of the processes under examination it was important that once the coding the record stage was complete that this was followed by a more systematic coding procedure. I developed categories to allow for the detailed analysis of

[45] 'It is usually quite obvious, in a grounded theory study, when to stop data collection. It is when the researcher finds no new concepts are emerging from the data – all that is that there are more instances of existing categories. In this way *theoretical saturation* is reached – the particular category is seen to be 'saturated', that is, full!' (Urquhart 2013:9)

specific issues (Strauss and Corbin 1990:73). The categories were named based on themes and sub-themes of interest to the research. Once named the categories were easier to remember and think about, and therefore more useful to the analytic process (Strauss and Corbin 1990:69). However, this is not to say that the categories did not change across the analysis process because they did. They changed as my understanding of how everything fit together developed. Yet, it was essential to the analytic process that I develop categories at this stage even if they did change later on because without having a way to think about the data in relation to a particular theme/sub-theme the analysis process would have stalled. In terms of making the material manageable so that data that was relevant to a theme could be explored in relation to that theme in a manageable way what I did at this point was make multiple copies of all of my data and physically cut the data up so that bundles comprised of a mix of the data forms were created for each theme.[46] This helped me to think about how the data related to a theme.

The next stage of the research analysis process involved axial coding. 'Axial coding occurs after open coding is completed and consists of intensive coding around one category' (Berg 2004:280). It involves 'putting data back together in new ways after open coding by making connections between categories' (Silverman 2006:96). This selective coding (Berg 1998:237) 'involved selecting the core category, systematically relating it to other categories, and filling in categories that need[ed] further refinement and development' (Silverman 2006:96). Seeing the connections between the themes helped me to understand the phenomena of interest to the research.

Having identified patterns and connections within and between categories/themes/sub-themes, the next stage of the analytic process involved interpreting the data. All three aspects of enquiry were being utilised at this interpretation of data stage - induction, deduction, and verification – because they were each essential (Berg 1998:241) to understanding the complexity of the phenomena under investigation. But also, as

[46] Before cutting the data up, I first ensured that each individual piece of data was marked with a code. I used numbers to refer back to the codes that I was using and I created a table of codes so that I would know which numbers referred to which themes. The reason for writing numbers as opposed to the theme names on the data was simply that it was more efficient because it took less time to write a number than a word e.g. '1' as opposed to 'topography' for instance. While this may seem unimportant it was actually very important at this stage of the analysis because of the actual amount of data that had to be coded

already indicated the process of analysing scholarly informed data and empirical data together had already began. However, at this stage in the research process it became essential to identify the key pieces of data that would be used to explain the phenomena of interest. As understood by Holm (2010) not everything that is collected as data ends up being chosen for final analysis and presentation (p. 330). The data was reduced down through coding (Berg 2004:39).

Once the most significant data had been analysed it was presented in a way that was reflective of the iterative analytic process which produced the findings of my research. In other words, just as a cyclical repetition of data collection and analysis had occurred across the data collection stage of the research, so too, do the findings chapters as presented here follow an iterative model because for each system level findings discussion offered within this thesis what occurs is that a double analysis – one informed by scholarly insight and the other informed by empirical data - is repeatedly offered across each system level analysis section presented. This double analysis aims at understanding the phenomena of interest better. As understood by O' Carroll and Gray (2010) where a double analysis offering two lines of inquiry into the same phemomena is used within research it can contribute more to understanding the processes being examined (p. 25). Also, the order of the presentation of findings chapters within each system level discussion section repeats in each case. Within each system level discussion a scholarly informed analysis chapter precedes empirical discussion. The logic for presenting the chapters in this order is based on the fact that this research follows an emergent model of knowledge development within which findings emerging from the empirical analysis sections are used to drive the direction of the analysis forward. This is done for the purpose of revealing local nuances as they affected the phenomena of interest and giving them voice. In other words, it ensures that processes as they occurred locally remain central to the overall discussion aimed at understanding nature-society interaction within a specific locality.

Additionally, just as scholarly informed findings chapters and empirical findings chapters are presented together throughout the discussion, so too, is visual data and verbal data presented together throughout the empirical findings chapters. However, it is understood that this is not typical of sociological presentations, nor, of how the visual is

understood as being useful to sociological analysis: The usual approach is to treat visual data as illustrative rather than as a source of data in its own right (Andrews and England 2012:37) because of sociology's history of being a discipline of words (Emmison, Smith, and Mayall 2012:24); also, there is sometimes a tendency to separate the visual presentation from the verbal presentation as if they should stand apart (Andrews and England 2012:37). In contrast, visual and verbal data are presented together here (just as they were analysed together throughout the research process). They were analysed together and are now presented together because they complement each other and together offer a deeper and more nuanced insight into the phenomena being explored (Deloughan 2011:107; Riley and Harvey 2005:282).

Where I present visual data within my thesis it is not merely provided as an appendum to verbal discussion (Spencer 2011:18). Rather, it is included as a source of data in its own right (Knowles 2008:1), where images are used to 'visualise the landscape' (Knowles 2008:9) and help make it knowable to the reader. The use of images allows for the telling of '"a more complicated story" than could methods that did not [demonstrate] … what existed, quite literally on the ground' (Knowles 2008:6).

However, while images are not treated as inferior to textual data within my research this is not to say that images do not require the accompaniment of narrative description because they do. There should be a 'narrative relationship' between text and images to explain the significance of images to answering the research question (Banks 2001:145) as images are open to interpretation. But also, just as an image can add depth to textual narrative (Deloughan 2011:107), so too can textual narrative add depth to an image as the image is explained in terms of its meaning to the researcher (Riley and Harvey 2005:282).

But also, beyond all of the aforementioned considerations that shaped this research there were also ethical issues which had to be considered. I had to seek permission before I could use the photographs sourced from archival collections. I saught permission from the relevant authorities and was granted permission to use all of the photographs presented within this work. Permission was granted on the basis that each photograph

used be referenced to its source. I complied with this requirement. I also had to seek permission to use the local place name maps presented within this work. I saught permission from the authors of the book that they were taken from. Permission to use the maps was given on the basis that the maps be presented in their original Irish format with English translations for the place names following the maps on a separate page. I complied with this request. Copyright issues were also considered for the satellite map (*Map 1*). Google allows this map to be reproduced under the principle of 'Fair Use'. However, Google insists that where any of their maps are used that they must be attributed to both Google and its data providers. Google asks that the attribution text be legible to the average viewer or reader and that the attribution text be visible in the content section of the image. I complied with Google's requirements (see Appendix II for further discussion of ethical issues).

(3.8) *Conclusion*

The strength of the research approach utilised here is that it allowed me to answer a complex research question that could not have been answered through the use of a standard research approach. It was important to develop my own framework for answering the research question because answering the research question was not straightforward. It involved a complex analysis which could only have been achieved through the steps set out here. It was important that theory be reviewed before entry to the field, but also, it was necessary that the data be allowed to guide the research process alongside theory from the point where data began to be collected, because when dealing with multiple system interactions no linear relationship exists between systems to affect relationships within them. Thus, no pre-determined model can deal with questions relating to this type of interaction where processes are involved. Instead, an emergent approach is required to respond to what the data reveals about system interaction under certain conditions.

Also, the strength of my approach is that the research process was not reductionist and stuck with having to explore the findings through theory (the deductive approach), nor was is it left waiting until all data had been collected to develop theory from findings (the inductive approach) which could have resulted in valuable avenues of inquiry informed by the theory being missed. Instead, the process was reflexive and was

capable of using theory to guide the research when necessary but was also open to widening the theoretical focus as data indicated this need. In using an iterative analysis process deeper and more nuanced insight was gained on the phenomena of interest because layers of understanding were built up.

The strength of presenting my work as it is presented here is that it allows the reader to understand on a systems by systems basis – involving a double level of analysis - all of the different forces/processes that came together at particular points in particular ways to drive the relationship between nature and society within agricultural production in different directions at different times in the rundale setting investigated. As no linear cause and effect relationship existed between the systems/processes investigated I had to present the discussion in an unfolding way as opposed to following a predetermined order.

As to the strength of using a mixed methods approach, this allowed my research to be more rounded and informative across different levels: It offered statistics and figures relevant to the entire community; and, it offered insight into experiences, and meaning, and environmental context – spatial, cultural, historical, and material – as it affected the community as a whole, individual townlands within it, and individual people within that. Similarly, the use of a case study strategy was that it allowed the research to focus intently on a case/a community so that the research process could handle the complexity of the research question by focussing on phenomena within only that case study setting.

The decision to present textual and visual data together within findings adds depth to the presentation and makes it more informative, and, through the inclusion of visual data allows the reader to appreciate the setting in a way that words could never do.

The challenge to using the approach adopted here is that it involves a huge amount of work throughout the whole research process, and results in masses of data which is difficult to work with (because there is so much of it). Also, the uncertainty of not knowing where the research process would next take me was sometimes daunting as it meant having to become acquainted with theory that was often not previously familiar.

However, despite these challenges to using this approach the benefits it affords outweigh the negatives and make it possible to explore complex research questions in an organic holistic research approach way where the answer to the research question is revealed through the study of theory and phenomena together as opposed to being set from the outset (the deductive approach) or only developing after the empirical stage has ended (the inductive approach).

Overall, I feel my research approach was the best fit for answering my research question. The study was carried out causing no harm to participants and within ethical guidelines. My subjectivity as a researcher has been examined and made transparent to the reader. There was a systematic order to how I carried out the research process Thus, because my research was properly undertaken what can be said is that while my research findings may not be generalisable beyond the case studied, they do shed light on structures as they would operate in a similar case setting (Berg 1998:218). Hence, my research is useful to understanding causal relationships beyond the setting explored within my research (Strauss and Corbin 1990:130-1).

Section 3

Property Systems

Chapter Four

Primitive Communal Production: Property Relationships

(4.1) *Introduction*

My thesis applies a Marxist mode of production framework to understanding how nature and society interacted with each other at the level of the labour process involved in production under rundale. In utilising a mode of production framework, it is possible to move beyond the mainstream sociological approach, which tends to maintain analytic separation between the natural and the social, and instead to offer an explanation of community development that incorporates a focus on the structures underpinning 'social relations (people to people), but also, relations of material appropriation (people to nature)' (Slater and Flaherty 2009:5) as they interacted at the level of labour processes associated with production under rundale.

I begin this chapter by establishing how mode of production is comprehended here as the concept is not self-explanatory (Rudra 1988:377). Having established how mode of production is understood within this thesis, the rest of this chapter examines the appropriateness of applying a primitive communal mode of production framework within this research - as some other research on similar communities in Ireland has done (see Slater and Flaherty 2009) – to the community of North-West Mayo c. 1930s-50s investigated within this study.

Specifically, I establish in this chapter why the area can historically be understood to have operated under a primitive communal mode of production (of the most developed form from its archaic form which is expressed as rundale). The logic behind exploring whether rundale can be understood to have historically existed in the area is that this supports the idea that rundale may still have existed in the area at the time of interest to my study.

In order to establish if rundale itself can be understood as an expression of the most developed form of the primitive communal mode of production (from its archaic form) comparisons are made between the property system and organisation of production that occurred in the Russian mir system and that of rundale because the Russian mir system is widely acknowledged as an expression of the most developed form of communal production, so that, if the same structures and institutions are found to exist under rundale then this demonstrates that rundale was indeed an expression of the same mode of production as operated to shape the Russian mir. And, that as such it is appropriate to study a rundale system of production here where the interest is in understanding the links between a communal mode of production context, the metabolic relationship and ecological sustainability tied to agriculture, and where the best place to examine such links is within a pre-capitalist communal system where capitalist processes have already began.

To begin then, the first thing to do is to clarify how mode of production is understood within my analysis.

(4.2) *Mode of Production*

'In its widest sense a mode of production is a totality, which covers three levels: economic, political and ideological' (Rudqvist 1986:11). It includes all the 'institutions that allow political-economic relationships to function and reproduce themselves from one generation to the next' (Cronon 1990:1124).

> The mode of production constitutes the structure which determines what form the growth of the productive forces and the distribution of the surplus will take, how society can or cannot change the structures and how, at suitable moments, the transition to another mode of production can or will take place. (Rudra 1988:375).

Whether or not a system will reproduce itself over time or give way to a new mode of production is determined by the 'articulated combination of relations and forces of production' (Rudra 1988:377) specific to a system.

Relations of production are generally understood as the social relationships among people that affect production (Hunt 2003:86; Little 1986:43; Morrison 2006:50;

Rudqvist 1986:11). Forces of production, on the other hand, include land, labour, technical division of labour, technology, animals, and such like (Hunt 2003:86; Little 1986; Morrison 2006:20; 50). The forces of production are put to work to produce livelihoods through relations of production (Morrison 2006:49). When natural entities such as land and animals are put to "work" through social relations of production (people-people) then relations of material appropriation (people-nature) occur (Slater and Flaherty 2009:5).

Some scholars understand relations of production to determine the mode of production present within a system (Banaji 1977:6). Others prefer to concentrate on the material elements of a system as if they determine change (Cronon 1990:1124). But, neither relations of production nor forces of production should be considered dominant within a mode of production analysis (Byres 1985:378; Rudra 1988:377) because both articulate with and shape each other (Byres 1985:5; Rudra 1988:378).

To understand what mode of production is present in a system in a particular space at a particular time it is necessary to examine how the relations and forces of production within that system are articulating with each other at that spatial and temporal point, because, at various times across the same space different modes of production can be identified in line with changes in the way that the relations and forces of production operating within that space articulate with each other (Rudqvist 1986:11), which means that multiple modes of production exist simultaneously across space and time alongside others.

However, while different modes of production can exist simultaneously across space and time (Rudra 1988:382) there is only ever one dominant mode per epoch (Banaji 1976:301; Rudra 1988:382), and, this dominant mode shapes the development of other modes (Banaji 1977:8) by affecting how relations and forces of production articulate within them.

Central to the mode of production concept is the idea that, "history occurs as a sequence of modes, logically connected with each other' (Rudra 1988:382). This does not mean

that history displays ‘a single sequence of universally occurring stages of social development, each of them corresponding to a different stage in the development of productive forces’ (Rudra 1988:382). Rather, while modes of production do not have to develop in linear sequence (Haldon 1993:65; Hunt 2003:87; Mandel 2002:24; 25; Morrison 2006:52; Rudra 1988:382), and, can develop in different sequences across different societies (Rudqvist 1986:10; Rudra 1988:390), and, in different combinations with each other within them (Byres 1985:6–7), there is yet, a logic to their development which can be traced to how relations and forces of production articulate with each other within a society and how production within that society is being affected by the dominant mode of production present at that time.

At the level of particular social formations/societies multiple combinations of modes can co-exist within the same society (Byres 1985:6; Rudqvist 1986:11), but again, one mode will be dominant and so will shape development within that social formation (Rudqvist 1986:11). My thesis brings the mode of production focus down to the level of social formation analysis because in that way it is possible to examine development at the real-concrete level (Rudqvist 1986:11) of society by tracing the relationships between the structures affecting production within it. Additionally, it allows for the incorporation of local history into analysis which helps inform understanding of how the community investigated within this research developed in the particular way that it did, because as understood by Byres (1985) the social formation concept through its incorporation of a focus on local history provides greater clarity as to why societies develop in regionally diverse ways (p. 6-7). This incorporation of local history is crucial because even ‘the same social phenomenon [such as] … the advent of capitalism can take forms and have effects which are very different depending on the local and historical conditions in which it takes place’ (Stahl 1980:2). Local and historical conditions can affect the way that property is organised within a social formation. But also, the way that property is organised within a society is very telling about the mode of production that drives production dynamics there: Marx suggested as much in his letters to Vera Zasulich.[47]

[47] ‘In her letter of 16 February 1881 Zasulich … asked Marx … [among other things] his opinion about the economic evolution of Russia and the prospects for the peasant commune’ (Eaton 1980:105)

(4.3) *Primitive Communal Mode of Production*

Slater and Flaherty (2009), who use a mode of production framework to understand historical production dynamics within Irish societies similar to the one being investigated here, argue that historically in many parts of the West of Ireland the mode of production that existed there – rundale which was characterised by a very specific property system – was an expression of the most developed form of primitive agrarian communism as seen in the Germanic/Russian type of communal system (p. 8-10). Following this idea, the foundations for this claim are examined here. However, first to note that, not all communes have an agricultural character (Mironov 1985:8), but of those that do, Marx argues that it is possible to classify agrarian communal forms into types: Marx is understood to have proposed 'a typology of agrarian communal forms in which communal property is combined with private property in varying combinations. These types … are … the *Oriental* ... *Ancient* … and the *Germanic* forms of agrarian communities[48]' (Slater and Flaherty 2009:8).

These societies developed from the archaic form of society within which all property was communal (Slater and Flaherty 2009:8): In the Oriental/Asiatic society – such as those societies in Imperial China or India – all property belonged to a tribe/community, so that, there was no private property at all; in the Ancient/Classical society - such as societies in Greece and Rome – property was owned individually, but, was collectively used to support the community; in the Germanic form both private and communal property co-existed, but, in a way that allowed a much greater degree of autonomy within individual households than existed in either the Oriental or Ancient societies (Dugget 1975:162–5; Marx 1964:67–99).

Marx with his understanding that, 'according to the condition of production, property will take different forms' (Marx 1964:81-2) understood the Germanic commune to be the most developed form of property that had developed from the archaic form of primitive communal property (Shanin 1983:118). Furthermore, Marx in his unsent draft

[48] 'In the relevant sections of the *Grundisse* entitled "Forms which precede capitalist production" [1973: 471; 1964: 67] Marx does not speak of "peasant societies" as such. But this section of the manuscript, however, was essentially about the presuppositions of capitalist production and first among these was the destruction, in his view, of social forms in which the "worker is a proprietor or in which the proprietor works" [1973: 497; 1964; 97], and although this also includes small craft or artisan workers of the medieval type, most of his argument relates to peasants of various kinds' (Duggett 1975:161)

letters to Vera Zasulich indicated that the structure of the Germanic and Russian agrarian commune were the same (Shanin 1983:118; Slater and Flaherty 2009:17). Marx identified the main characteristics distinguishing the Germanic/Russian commune from the archaic type to be as follows:

1. While the archaic commune rested upon blood relationships so that all members of the commune were related, this blood connection was not essential to the agrarian commune.
2. In the archaic commune all property was owned collectively while in the agrarian commune the house and its associated garden were privately held.
3. In the archaic commune all cultivatable land was worked in common, and all produce remaining after a portion had been set aside for reproduction was divided among commune members in accordance with consumption needs. In the agrarian commune cultivatable land remained the common property of the commune, but, was periodically redistributed among communal members allowing them to work their own sections of land and appropriate the products produced therein (Shanin 1983:119).

Additionally, in the Germanic/Russian commune there were sections of land belonging to the society that were continually held in common: 'forests … waste ground' (Shanin 1983:107), 'hunting grounds, common pastures or woodlands, etc., … that part of the land which [could not] … be partitioned if it [was] … to serve as a means of production in [that] … specific form' (Marx 1964:78-9). In the German/Russian context, common land was a supplement to individual holdings that existed within the commune (Marx 1964:79). In short, the Germanic/Russian commune is understood as the most developed form of primitive society in so much as it is a social form of production that facilitates the co-existence of privately owned land and communal property within the same social formation (Shanin 1983:109; 119).

(4.4) *The Russian Agricultural Commune*

In the Russian agrarian commune, areas where privately held houses and gardens were located were surrounded by an open three field system where there was meadow, but also, areas where pastures and woodlands existed (Atkinson 1973:775; Moon

1999:201). The open fields were divided into individual sections cultivated by individual households. These sections took the form of long, thin strips of roughly equal quality in terms of soil fertility, land elevation, and distance from the village. Each household would have a number of strips, often separated by a distance from each other, scattered over different sections of the three fields, within which the community as a whole carried out a three field crop rotation system (Lewin 1985:10–1; Moon 1999:220–3). While the meadow land involved individualised production on individual plots, the pastures and woodland were held in common with commune members being granted rights to their use, as well being restricted in how and when they used them: Households were allowed to graze a certain number of cattle on the common pasture and were allowed to cut a certain amount of wood in a given period (Moon 1999:222-3).

In other words, different 'property regimes prevailed for different categories of land: one for allotments, another for pasture and common lands … and yet another for the household plot' (Lewin 1985:9). In line with these different property regimes, the 'basic function of a commune was to regulate holding within a given area' (Male 1971:56) because while the 'commune had no right to deprive a household of its allotment provided there were no significant arrears of taxes and dues … the household did not have any defined share of the commune's assets, as real owners would' (Lewin 1985:9). Rather, communes redistributed land among communal members over time so that no specific area of land could be understood to belong to a particular individual or household (Atkinson 1973:775). Decisions about who would be given each allotment of plough land were decided by village assembly attended by all heads of households and presided over by an elected elder (Czap 1967:150–1; Lewin 1985:10).

Periodic redistribution of property[49] occurred within the Russian commune in line with changes in household composition with increases in family size being accompanied by increases in the size of strips held by a family, and decreases in family size seeing a corresponding decrease in the size of arable land apportioned to a household (Moon 1999:199; 221).

[49] While there is some ambiguity about whether cabins and gardens were exchanged within the commune there was a definite practice of periodic re-allocation of arable strips between households (Evans 1979:72, cited in Slater and Flaherty 2009:32)

> Each of the three fields would be divided into blocks … of more or less equal quality, and each block would be subdivided into "shares" … as many as there were "mouths" in the village. Thus the household with five "mouths" would get five shares in each block. (Lewin 1985:10-11).

This periodic redistribution of land within the Russian commune meant that a peasant did not own their land as individual property. Instead, they had the right to use that land at that time because they were members of the commune (Male 1971:56).

These periodic redistributions in line with fluctuations within individual households were not performed because it was somehow fairer to divide land in this way. Rather, the logic behind this practice was that in matching the size of arable land held by a family to the level of labour available in the family, the commune as a whole, could maximise on available labour and be in a better position to meet its reproduction costs (Mironov 1985:30; Moon 1999:199; 217), because under the situation where the commune as a whole was expected to pay a certain amount of rent[50] and taxes, the commune assessed how much households would contribute based on their size and wealth (Bohac 1985:29) and the commune wanted all households to meet their productive potential.

In areas where mixed crop and livestock production was pursued it was not only family composition that affected how much meadow land a household was allocated, but rather those communes also repartitioned meadow land in line with the number of cattle a household possessed (Moon 1999:220). 'Once communes had decided how many strips of arable, or meadow, land each household was due, they decided which strips households were to receive' (Moon 1999:220-1). This was not always an easy process because in terms of the redistribution of the meadows, the 'peasants would stride over the land, measuring, checking, and arguing over little pieces of ground' (Male 1971:63)

[50] 'Marx relied heavily on the [work] … of James Anderson, a Scottish agronomist, practicing farmer, and political economist who was a contemporary of Adam Smith. In 1777 Anderson published *An Enquiry into the Nature of the Corn Laws* in which he introduced what was to become known as the Malthusian/Ricardo theory of Rent. In Marx's view, Anderson's original model was far superior to the variant later offered by the classical economists Thomas Malthus and David Ricardo since it placed strong emphasis on the possibility of continuing agricultural improvement. Rent, Anderson argued, was a charge for the use of the more fertile soil. The least fertile soils in cultivation generated an income that simply covered the costs of production, while the more fertile soils received a "certain premium for an exclusive privilege to cultivate them; which will be greater or smaller according to the more or less fertility of the soil. It is this premium which constitutes what we now call *rent*; a medium by means of which the experience of cultivating soils of very different degrees of fertility may be reduced to a perfect equality"' (Foster 2000:47)

within the complex collective action of land redistribution that was carried out for the good of the commune, which involved commune members participating in this action of redistribution, but at the same time, thinking about their own self-interest (Confino 1985:38).

Once strips had been allocated they were worked by individual households but not only with a view to supporting their own subsistence, but also, so that the household could contribute to the collective costs of reproducing the commune (Moon 1999:222; Male 1971:65). In contrast to official law which recognised private property[51] as the chief form of property held by society, and which was dominated by the idea of individual accountability to the state, communal property underpinned communal life so that common law recognised collective responsibility. This meant that, while individual households within the commune organised their own labour and benefitted from it, they also operated within the context of production to meet communal requirements as a whole (Mironov 1985:12; Moon 1999:207).

Likewise, just as the commune had its own specific way of organising property to meet the production requirements of the commune as a whole, so too, did the commune have its own rules about what form of production was to be carried out on communal land: While the Russian commune was subject to requirements set out by the Russian state – and had to provide dues such as taxes and rent - the Russian commune was essentially self-governing (Moon 1999:6). The state enlisted local leaders selected by the people[52] to oversee administration within individual communes. These leaders were elected by the people based on their personal qualities and were usually the elders within the community (Mironov 1985:13; 15). Together they 'constituted a group and sometimes formed an informal "council of elders"' (Mironov 1985:15).

[51] Regarding the development of capitalism - 'In the Western case … *one form of private property is transformed into another form of private property.* In the case of the Russian peasants, on the contrary, *their communal property would have to be transformed into private property*' (Marx cited in Shanin 1983:117)

[52] 'The government did not risk appointing its own people, who would have been independent of the peasants, to official positions in the commune: that would have been too expensive and ineffective at the same time' (Mironov 1985:13)

This "council of elders" regulated which crops were to be produced, where they were to be produced within the three field system, and when they were to be planted and harvested, because as previously said, the land within the fields devoted to crop production contained individually held narrow strips located adjacent to each other so that …

> it would have been inadvisable for one household to plant one crop in one strip, while another household planted a different crop in an adjoining strip, because the likely outcome would have been a mixture of both crops. The custom of grazing livestock on stubble in the open-fields after the harvest was another reason to enforce a common tillage system. Unless all households harvested their crops simultaneously, peasants whose crops were still ripening risked having them trampled and eaten by animals grazing on the stubble in neighbouring strips that had already been harvested. (Moon 1999:222).

In other words, given the way that property was organised it was necessary to have some form of communal regulation pertaining to its use because by regulating how it was used – as described above – the risks associated with production were lessened. The periodic re-allocation of strips among communal members can also be understood as a risk reducing mechanism because in holding several plots around different parts of the open field – involving different physical conditions – families were less exposed to risks that may have occurred had their holdings been consolidated, but more than that, by periodically re-distributing the plots it was possible to avoid a situation where some members of the commune enjoyed more successful production than others over time (Moon 1999:216) which could ultimately undermine the commune. Instead, the spreading of risk in this way, and the continual circulation of land, would have impeded individualism because it would have affected the ways Russian commune members thought about who "owned" the land encouraged the continuation of the primitive communal mode of production that already existed with its specific mix of private and communal property (Moon 1999:225).

However, the partible inheritance system which saw all male offspring receive an equal share in household land and other resources eventually contributed to weakening the position of households over time because of the frequent subdivision of property (Bohac 1985:23):

> The community allotted a plot of land in the village and the communal field land to the household as a whole. The members in turn bore joint responsibility for the payment of the money rent and taxes due to the national government … Distributing equal shares to all heirs

> ensured that no heir would be dispossessed and left without the minimum economic resources needed to pay taxes and to meet his family's basic needs. (Bohac 1985:26-29).

The fact that land which was already held in separate sections of the three various different fields was continuously subdivided meant that land ended up being held in extremely fragmented and parcellised form. However, the point of this section is not to analyse how the subdivision of land within households affected production, but rather, to clearly establish that land within the Russian commune existed in both private and communal form which can be taken to indicate the presence of the primitive communal mode of production of the most developed type there.

(4.5) *Rundale*

The same mix of private and communal property that existed in the Russian agricultural commune existed within the rundale agrarian system (Slater and Flaherty 2009:10), historically practiced in certain parts of Ireland (Yager 2002:177[53]), notably in the West of Ireland (Bell and Watson 2008:24) - where it was associated with marginal environments (Bell and Watson 2008:24; Dowling 1999:186–7). Rundale was especially common in Mayo[54] (Flaherty 2014:37; McCourt 1955:25), and most particularly within Erris (situated in North-West Mayo) (Knight 1836:6; Otway 1841:408)[55] – which is the area of Mayo being investigated within this research. In fact, Marx and Engels acknowledged the rundale system as a concrete variant of the same mode of production – primitive communism – that existed within the Germanic/Russian form of communal production (Engels 1884:194; Slater and Flaherty 2009:10).

[53] 'McCourt … listed 128 places (mainly in the six counties of Northern Ireland) where he succeeded in identifying what he took to be "archaeological fossils of the rundale system.". He searched the historical record … finding dozens of references to land held in "joint tenancy", in "partnership", in "rundale" or simply "in common". Most of these were dated to the nineteenth century, Ireland's golden age of social documentation' (Yager 2002:177)

[54] An estimated '831,000 acres, or 63% of the total area of County Mayo, was held in rundale in the 1840s' (Flaherty 2014:37)

[55] 'An early account of Erris's communal land system appears in a book published in 1836 by Patrick Knight, the engineer who planned and supervised the building of the town of Belmullet for William Carter, one of Erris's two principle landlords' (Yager 2002:155); 'Caesar Otway, a touring clergyman recognised as an authority on the West, visited Erris' (Yager 2002:160)

Land under rundale – similar to the operation of runrig in Scotland (McCourt 1955:370) – was land that was held under joint tenure (Dodghson 1975:19), or in other words, it was land held in partnership (Flaherty 2014:36). '"Ownership", or rather control, rested with the community as a whole (Taylor 1980:170). Joint tenure was not the same as farming in common because farming in common entailed individual producers being assigned a specific share of land which they managed, produced from, and paid rent in relation to, whereas, when land was held under joint tenure this involved a group of tenants who while working their own individual strips of land, together were responsible for the management of all of the land as well as the rent associated with it (Dodgshon 1975:15–7). Scholars reporting on landlord-tenant arrangements in Ireland have identified that rent could include payment for the land being farmed, but also, in coastal areas the right to seaweed (Senior 1868:73).[56] Also, there were often a number of joint farms within the same townland (McCourt 1955:375).

While the origins of rundale in Ireland are debated with some arguing that its origins can be traced to the medieval period and old Celtic practices (Yager 2002:176; Williams 2008:100), and others contending that, rundale only 'emerged in Ireland from the seventeenth century onwards as a response to a rapidly growing population' (Whelan, cited in Yager 2002:181) as well as the colonisation of Ireland by Britain at that time - and the corresponding need to pay rent to landlords to work the land that arose as a result (Flaherty 2014:37; Slater and Flaherty 2009:11) - what is significant to my research is that, rundale was historically practiced in certain parts of Ireland, and, that 'by the later eighteenth century it was widespread throughout the north and west of the country' (Bell 2008:38) being a frequent phenomenon in Mayo up until the middle of the nineteenth century (McCourt 1955:370).

Records indicate that, rundale survived in some parts of the country – such 'as in the Glens of Antrim, and also in remote parts of Cavan and Fermanagh, the Omeath peninsula of County Louth, and high in the Sperrin mountains' (Dowling 1999:185) and in parts of Mayo (McCourt 1955:370) into the nineteenth century (Dowling 1999:185; McCourt 1955:370). Additionally, research has found that it survived on Rathlin Island

[56] Nassau William Senior was an English lawyer who provided the British government with advice on economic and social policy during the nineteenth century

until 1908 (Bell 2008:55; 56), that it was observed in the townland of Beltany Mountain in 1938 (Evans 1973:97), and that, some sort of rundale was still being carried out at Brockley as late as the 1970s (Bell 2008:55; 56), but also, records indicate that rundale not only continued in some parts of Mayo into the nineteenth century, but in fact there were areas of Mayo where rundale existed in some form during the twentieth century (Sammon 1997:Statistical Appendix 5).

Rundale landscapes typically consisted of an area where houses and their associated out-buildings and gardens were clustered together to form the village component of the rundale system, otherwise known as the clachan[57] (Johnson 1958:554; Whelan 2012:453). 'A clachan … was a nucleated group of farm houses, where land-holding was organised communally frequently on a townland basis, and often with considerable ties of kinship between the families involved' (Whelan 2012:453).

The houses/buildings and gardens of the clachan were privately held (Slater and Flaherty 2009:16). Beyond this clachan area were the open field areas called the infield[58] and outfield, and beyond those areas was the booleying ground (Bell 2008:50; Dowling 1999:176). The infield area was considered the most fertile part of the community and accordingly was the area that was devoted to cultivation (Dowling 1999:176; Whelan 2012:453). Within this infield area land was divided between households so that they each cultivated their own individual strips. Each household had access to 'a number of strips of varying quality' (Bell 2008:50) within the infield fields which had marked differences in terms of their productivity in certain parts of them compared to others (Knight 1983:46-7; Yager 2002:156): They differed in terms of soil quality, aspect, exposure to weather, distance from the village, and such like (McCourt 1955:374-5).

In order that each household within the rundale community would have access to similar working conditions on the strips that they cultivated, the strips were laid out in

[57]Single family settlements developed into wider kinship groups or clachans as their population levels grew (McCourt 1955:376); Clachans could 'wax and wane, largely because of fluctuations in population numbers … an individual farm [could grow] … into a clachan … and a clachan [could dissolve] … into isolated farms' (Johnson 1958:559)

[58] The infield is understood to have been the area that first induced settlement (McCourt 1955:369)

long narrow fashion to try to offer each household a portion of land that was relatively similar in terms of the 'soil quality, situation in relation to the village site, exposure to wind and sun, and other minutiae' (McCourt 1955:374-5) that they each had to deal with. 'The arable strips were unfenced, but were marked out in a number of ways, most often by small earth banks known in different areas as *mearings, ribs, roddens, bones, rowins,* or *keelogues'* (Bell 2008:50). Sometimes stones instead of sods might also be used to demarcate one strip from another (Mac Graith and Ní Ghearraigh 2004:15; Whelan 2012:453).

The infield was usually separated from the outfield by a wall or enclosure of some sort (Whelan 2012:453). However, the outfield itself was unenclosed (Bell 2008:50). This area was predominantly used for common grazing purposes and operated as communal land (Yager 2002:168), but, sometimes sections of it might be used for cultivation (Bell 2008:50). All rundale households had rights to use the common land and could avail of its resources within production (Kenny 1998:33). These commonage rights not only pertained to the right to graze livestock on the outfield area, but also, on the booleying grounds. The booleying grounds stood unenclosed and so were physically open to all (Bell 2008:50), but also, they were available to all as a matter of right (Slater and Flaherty 2009:12). This booley area was located on the most marginal sections of land held within the rundale system commonly referred to as mountain[59] (Taylor 1980:170). As well as being used for grazing, 'fuel in the form of wood, but more often peat, was gathered [from the common/mountain area]' (Taylor 1980:170). Members of coastal rundale communities also enjoyed rights to seaweed cultivation which similar to the case of rights of use to the outfield and mountain grazing were assigned in proportion to holdings in the infield (Kenny 1998:33; Taylor 1980:175).

The way that land was divided within rundale meant that members had access to different types of land – good land, inferior land, and bad land (Knight 1836:46)/'deep, shallow, sandy, boggy, dry [land]' (Whelan 2012:453) and land in different areas (McCourt 1955:374-5). However, while all rundale community members may have had to deal with similar conditions of production within the infield areas they cultivated, and

[59] Mountain here is 'referring more to a condition of soil and vegetation than a necessarily high elevation' (Taylor 1980:170)

all rundale community members may have had communal access to the outfield and booleying ground this should not be taken as a marker of egalitarianism within rundale systems because not only did different households hold more land than others within the infield (Knight 1836:46-7; Yager 2002:156), but, limits to commonage use were placed on individual households as a result of the size of arable land held by each[60] (Kenny 1998:33; Slater and Flaherty 2009:16; Yager 2002:157). In short, what this indicates is that land was not organised as it was to support egalitarianism, but rather, land was organised in a way that was understood to maximise the production potential of the rundale community as a whole (Knight 1836:46) with risks to production that confronted individual households being reduced by the fact that production was not restricted to one space only, nor indeed, did production occur in spaces beset by the same sets of physical characteristics.

Not only were risks to household production reduced by the fact that the cultivatable strips held by them were of mixed characteristics and in different locations, but also, historically 'when the right to use, in contrast with the idea of a fixed share, was an important principle in land ownership, the infield strips and meadow plots were reallotted periodically' (McCourt 1955:374-5).

> Tenants … started afresh every few years, throwing all their land into a common pot, so they did not have to put up with any more fragmentation than they found useful. Lot-casting … protected families from the inefficiency of travelling ceaselessly among a growing number of shrinking plots. (Yager 2002:171).

[60]A system of gavelkind operated within the rundale system to ensure that members of the rundale community received equal accessibility to communal lands not access to equal amounts of land (Slater and Flaherty 2009:12); The crop ground was divided into collops – the collop being the 'grass of a horse, or a cow, or two year-old heifers, or six or eight sheep' (Yager 2002:157). Depending on the number of collops that a household had they were given an equivalent share in the commonage (Yager 2002:157); 'The concept of the collop is not really a measurement of land area … but it is a measurement of the physical output of land, taking in the quality of the land necessary to keep a family or a cow. Consequently, its spatial dimensions may vary from location to location depending on the quality of the land. But probably its most crucial characteristic is its ability to be flexible, not only with regard to soil qualities but also with regard to ensuring an equal standard of living among rundale members' (Slater and Flaherty 2009:16); The "collop" or "sum" was the measurement used to 'define the amount of stock that each family was allowed to have on the pasturage so as not to overstock it' (Whelan 2012:453); 'The total allocation of sums to a given landowner is the stint' (McKenna et al. 2007:158); 'the proportions of collops held by different individuals in a village [were] … extremely various … few rising above ten, and … some as low as one-half or one-fourth' (Knight 1836:47)

This practice meant that, no one family continually worked the same sections of land[61] (Otway 1841:35; Yager 2002:154).

(4.6) *Redistribution of Arable Land and Regulation of Agricultural Practices*

This plot interchanging occurred under the instruction of a local headman/king[62] who headed a local council of elders. This headman was a local person elected for his personal qualities and skills (Knight 1836:48; Slater and Faherty 2009:13; Yager 2002:158; 164). The headman represented the community in relations with outside authorities, oversaw the distribution of land within the community, and also in coastal contexts, oversaw the apportioning of fishing and shore rights (Ó Danachair 1981:25–6; Slater and Flaherty 2009:14). Additionally, under rundale …

> there was little room for personal initiative. Individuals were locked into a common rhythm with the mass of people who surrounded them. The very land one cultivated was assigned by lot, and the crops one grew were dictated by the community crop-rotation plan. It could not have been otherwise. (Yager 2002:161).

The three field crop rotation system practiced by rundale communities needed to be regulated at some level, to ensure that the same crops were being produced in the same fields within the infield area at the same time, because with the boundaries constantly shifting between plots, and with plots continually changing hands, the only way that production could be safeguarded was if the entire community followed a common crop rotation plan within which the open fields produced particular crops in particular years (Yager 2002:161).

Under communal regulation entire communities 'followed a common crop rotation plan: One field for potatoes this year, another for grain' (Yager 2002:155); potatoes could be in one field, while rye might be in another, and hay in another (Coll and Bell

[61] 'In the early nineteenth century, most Erris communities held their land in common, casting lots every three or four years to reassign family plots' (Yager 2002:154); Changedale was the term used to describe the 'system of periodic redistribution of land' (Slater and Flaherty 2009:12)

[62] The head person was sometimes referred to as the King (Yager 2002:158), the *airgead-rí* ("money king") (Williams 2008:99), or the *maor.* Although the situation of the maor was somewhat ambiguous because he seems to have represented both the community and the landlord and so might be better understood as an agent than a local king (Yager 2002:164); Additionally, a queen rather than a king sometimes held the position of head person (Slater and Flaherty 2009:13)

1990:81–2) which gave the appearance that at the level of rights to land that the fields were undivided when they were not (Yager 2002:155).

> Knight describes a three-year rotation but mentions only … two crops [potatoes and grain], so a third field probably lay fallow, gathering strength for the next year's crop. Villagers marched through the year in unison. If potatoes were to be planted in a given field this year everyone did it. (Yager 2002:155–6).

This was not as Yager (2002) suggests because of a culture of co-operation that existed within rundale communities, but rather, it was essential that everyone follow the same agricultural practices because of the fact that agricultural production was occurring in the context of the open field system of individualized production where the cultivatable plots belonging to individual families were unfenced (Yager 2002:163; Sammon 1997:33), were very narrow[63] (Evans 1973:97), and, were adjacent to each other (Taylor 1980:170; Yager 2002:161).

It was also necessary to regulate the timing of planting and harvesting of crops because the infield – where crops were produced - was used in conjunction with the communal outfield and booleying area – which predominantly supported livestock production: Livestock were grazed on the outfield and mountain land over the summer and were grazed on the crop stubble of the infield over the winter, in this way affording those livestock an important source of additional grazing. The fact that livestock production relied on access to the infield area meant that there had to be set dates for crop planting and harvesting (Flaherty 2014:36; Slater and Flaherty 2009:15; 16; Taylor 1980:171). Typically, livestock were brought back from the outfield/booley to the infield around Halloween (end of October/start of November) and put out on the outfield/booley around Saint Patrick's Day (March 17th).

> The absence of hedges and field boundaries within the rundale system meant that once the … animals were allowed to return to the infield that the whole land became a commonage until the following St. Patrick's Day when the animals were removed from the infield area once again. (Yager 2002:158).

[63] Evans (1973) identified that in 'extreme instances the strip might be several hundred yards long and not more than a few feet in width … [maybe] only seven or eight feet wide' (p. 97)

While the communal system underpinning production within rundale may seem puzzling to outsiders if they try to understand it from an individual point of view it makes sense if one understands that the objective of rundale was to use land and other resources in a way that benefited the community as a whole (Yager 2002:171). Not only did the periodic redistribution of plots within rundale facilitate the continuation of a communal way of producing because it made it impossible for rundale community members to develop a sense of possession over particular sections of land and thereby encourage individualisation, but also, the way that property was organised in rundale helped the society to meet the cost of their joint rent (McCourt 1955:375).

However, despite land and access to resources being distributed, and regulated, in a way that offered all members of the community the chance to reproduce themselves, an endemic feature of rundale that acted to undermine its potential to reproduce itself in the long run, was that, rundale households had a tendency toward dividing family land over generations, so that eventually individual households often owned land located all over the area (fragmented land[64]) with the size of the original holding being much reduced so that in the end each member had a much smaller piece than their predecessors (parcellised land[65]) (Almquist 1979:708; Taylor 1980:172–5; Yager 2002:180). This fragmentation and parcellisation of land resulted in uneconomic holdings which could not support whole families:

> On many estates in the West, especially where the land is poor and a dense population has been in undisturbed possession for many generations, the people have sub-divided the holdings from time to time in their own way, and the result is that often the holding of one tenant does not consist of one or two or even three separate portions of land, but of many detached fields or plots within fields, lying amongst similar fragments of other scattered holdings. A field of one acre may belong to a dozen persons, each of whom owns his particular plot, and very frequently matters are still further complicated by "undivided shares" in various fractions of plots. (Shaw 1901:153).

[64] 'Farms had a malignant tendency to become fragmented as generations of heirs acquire[d] a plot here, a plot there. Nineteenth-century writers complained that Irish farms had become hopelessly scattered. In an extreme case, a Donegal tailor "had his land in forty-two different places and gave it up in despair, declaring it would take a very keen man to find it"' (Yager 2002:170); 'In the nineteenth century if a village or group of families held a joint lease, individual tenants usually kept the same bits of land indefinitely … Redistribution was so unusual that rundale's critics frequently cited fragmentation of holdings as one of its most vexing evils. For instance, the Devon Commission reported that a single Donegal farm of 205 acres was divided repeatedly over two generations so that in 1844 it consisted of 422 separate pieces held by 29 different tenants' (Yager 2002:180)

[65] Sub-division of rundale holdings among farmers' sons resulted in the farmer dividing his land in such a way that each son received a smaller portion of land than had belonged to the father (McCourt 1953:71)

This tendency toward subdivision of land into fragmented holdings was particularly notable prior to the Irish Famine[66] and was associated with the pattern of partible inheritance[67] prevalent at that time (Kennedy 1991:480): A 'townland of 1 square mile in Co. Mayo had one thousand five hundred plots of land owned by fifty-six people, among whom one farmer had 2 acres in eighteen plots and 14 acres in thirty-five plots' (Freeman 1947:44).

(4.7) *Consolidation*

Faced with the tendency of rundale toward fragmentation and parcellisation, the Irish peasantry were viewed as the 'enemies of every improving landlord' (Senior 1868:viii). In line with this view, some landlords made efforts to consolidate the scattered holdings of their tenants (McCourt 1953:75; Johnson 1958:565), so that, from the late nineteenth century striped holdings assocated with consolidation became common in the 'western upland districts' (Gillmor 1977:53). In some places, landlords …

> intent on improving their estates, would put whole areas of land into the melting pot, consolidating holdings and sometimes evicting the surplus population. Frequently the new holdings were arranged up and down the slope of the land, an arrangement that has resulted in the characteristic striped appearance of much of the modern Irish landscape. (Johnson 1958:565).

Ladder farms over the West of Ireland are a direct result of this process of linearization of the landscape began by improving landlords (Whelan 2012:467).

> The over-riding argument for the strip system was that it enabled the tenants to retain equal rights of access to the common lands beyond the limits of the infield, in particular to the *machair* and the seashore, or, inland, to running water and to the common meadows along a stream dividing two townlands. (Evans 1973:98).
>
> Although long, narrow strips were probably not the best possible farm shape … they represented a compromise between the traditional system of allocating each farmer a share of every quality of land and the landlords' demands for greater efficiency … [However] at the end of the nineteenth century various areas, particularly in the west of Ireland, still remained under the old system or some modification of it. This hard core [was only later affected] … by government action. (Johnson 1958:565).

[66] 'The increase in population in the West prior to the Great Famine of 1845-48 was partly due to the encouragement by landlords of numerous holdings on their estates, so that the number of voters on the Parliamentary register might be increased under legislation passed in the last decade of the eighteenth century. The political influence of a landlord largely depended upon the number of votes he could control, because tenants were obliged to vote as directed by their landlord or else be prepared to receive a notice to quit. The sub-division of holdings, or the creation of new small holdings was accordingly sanctioned by landlords' (Micks 1925:11-2)

[67] The system of partible inheritance practiced in Ireland before the Famine contributed to land fragmentation (Kennedy 1991:479-80)

The Congested Districts Board established in 1891[68] (Freeman 1943a:1) made efforts to consolidate rundale holdings in the congested districts[69] (Micks 1925:213; Freeman 1943a:1). Upon the dissolution of The Congested Districts Board - in line with Ireland's independence - in 1923, The Irish Land Commission took over from the Congested Districts Board and continued its work of trying to consolidate agricultural holdings in certain areas of Ireland (Byrne, Edmondson, and Varley 2001:vii; Scully 1971:106) - in the congested districts. Understanding that the congested districts were not necessarily those with the highest population levels[70], but rather, were those districts where smallholders had uneconomic holdings[71] (Sammon 1997:xix), Mayo can be understood as representing an 'extreme of congestion' (Arensberg and Kimball 1968:13). North-West Mayo in particular can be understood as extremely congested[72] (Freeman 1943b:94) in the sense of farmers 'not being able to draw from their holdings a safe and sufficient livelihood for themselves and their children, whose condition tremble[d] … constantly on the verge of want' (Morrissey 2001:vii) and with much of the land in the area being mountain and bogland[73] (Freeman 1943b:91; 94).

In order to facilitate the consolidation of land in congested areas to make them more productive (Curtin 1986:72; Duffy 2007:39-40) it was necessary for some families to move out of the congested/rundale areas (Sammon 1997:169): 'Small holders were granted new holdings on the condition that they gave the board possession of their former ones' (Micks 1925:138); '[a]s holdings became available elsewhere, tenants

[68] 'The Congested Districts Board was formed in 1891, when the population was 3,468,694 (53.1 per cent of the 1841 population)' (Freeman 1943a:1)

[69] 'An area was ranked as "congested" in 1891 if the rateable value was less than 30 shillings a person' (Freeman 1943a:2); 'The 36th Section of the Purchase of land (Ireland) Act, 1891, declared that where more than 20 per cent of the population of any county in Ireland live in Electoral Divisions of which the total rateable value, when divided by the number of the population, gives a sum less than thirty shillings for each individual, such divisions shall form a separate county, known as a Congested Districts County' (Shaw 1901:150)

[70] 'the density of population in the congested districts was only 89 persons per square mile, a much lower figure than the Irish average of 134' (Breathnach 2005:11)

[71] 'Throughout the congested districts the holdings consisted of two to four acres planted with potatoes or oats, but not invariably a patch of meadow, and the remainder in pasture … in most cases there were free rights of grazing on rough pasture and mountain or lowland bogland and of turbary, or cutting the turf (peat), which is the national fuel' (Freeman 1943a:3)

[72] 'North-West Mayo covers the congested districts of Knockadaff, Belmullet, Rath Hill, Bangor and Ballycroy, with a small non-congested area around Ballycastle' (Freeman 1943b:94)

[73] 'North-West Mayo consists largely of level or gently-sloping boglands studded by small lakes and surrounded by hills reaching over 1,000 feet, in places over 1,200 feet' (Freeman 1943b:94)

willing to go to them were systematically migrated[74]' (Sammon 1997:170). Then, in line with the 'land policies of the new Irish state [which] were highly re-distributive in character' (Hannan and Commins 1992:98) the land left behind by those tenants was used to consolidate and enlarge – in the majority of cases - the holdings of those who remained in the area[75] (Sammon 1997:34; 165). Initially this land was rented, but later, was incorporated into the property holdings of individual households as they moved from the situation of being tenants to being owner-occupiers of their land. At this point the strips became fixed by law as the property of specific households (Sammon 1997:177).

However, while it can be understood that where the Irish Land Commission carried out a land re-distribution scheme within a locality that the way that land was organised before the arrival of the Land Commission into an area was different to the way it was organised when they had left what should be noted is that sometimes the Land Commission had to revise schemes in certain areas where their first attempt at re-organising land in an area had not met with the success they had intended. The build up to re-arrangement schemes could take years so what sometimes happened was that the Land Commission might begin re-arranging land in an area at one time only to have to return years later to try again and it was only when the final rearrangement scheme had been completed that property – as it was newly arranged - could legally be assigned to specific individuals (Sammon 1997:34-5; Statistical Appendix 5).

Additionally, the consolidation of holdings within the congested districts had the effect of much reducing the distance involved in working individual farms[76] (Evans 1973:97) and in that way made them more efficient. However, while the consolidation of holdings reduced the distance involved in agricultural work it did not necessarily make the holdings significantly more economic, because within the process of consolidation, the Irish Land Commission, in line with the desires of the communities involved

[74] In some areas of Mayo, families were migrated to lands either in Co. Meath or Co. Kildare (Freeman 1947:44)

[75] Where a holding might have 'consisted of a large number of small plots, perhaps ten to thirty in each holding … [u]nder the rearrangement, the new holding would emerge in one or two blocks of land' (Sammon 1997:33-4)

[76] On average it was calculated that the distances to be travelled in working a fragmented farm were four times greater than those that were squared (Evans 1973:97)

(Sammon 1997:171), upheld the arrangement of land into narrow strips so that each household had 'a share of different slope and land type' (Gillmor 1977:53) as had historically been the case under rundale where a four-acre farm might be a mile long, consisting of both good and bad land worked within a communal system (Kenny 1998:34). The newly "squared" land arising out of the consolidation of rundale holdings by the Congested Districts Board/Irish Land Commission produced strip holdings where sometimes the strips might measure between five and seven acres but of this only two acres may have been arable, while maybe a half an acre might be used for pasture, and the rest only suitable for rough grazing or for collecting fuel – turf if there was bog (Taylor 1980:174).

Additionally, efforts by the state to consolidate rundale holdings were accompanied by efforts to enclose those holdings with fences (Sammon 1997:38). However, what is important to understand in relation to the area being researched within this study is that the work of the Congested Districts Board/Irish Land Commission was a long and drawn out affair that spanned decades so that enclosure did not happen all at once which meant that while some sections of land within the area may have been enclosed by a specific period, that, the majority may not have been. Instead the old system of enclosing fields with earth/sod fences – balks, mearings, and such like (Duffy 2007:40; McCourt 1955:372; Yager 2002:159) – could be expected to continue in many places up until the completion of the Irish Land Commission's work in an area.

(4.8) *Enclosure*

While it would be wrong to think about rundale areas having lacked enclosure before the state intervened to see fences erected, it would be more correct to say that, the state introduced permanent fences where there had been a general absence of them before (Yager 2009:159). The only forms of permanent enclosure to be found in rundale areas before state intervention were walls – those surrounding individual gardens which allowed for the opportunity to cultivate 'vegetables such as carrots, turnips and lettuce' (Mac Cárthaigh and O' Reilly 2001:151), and, the odd wall surrounding infields (Whelan 2012:453). Otherwise, mearings and such like were all that existed to demarcate individually held strips of land (Duffy 2007:40). As already discussed, this simple form of demarcation of private property within the rundale system allowed

individuals to identify and work their own land – even if from the outside it looked like the fields were undivided (Knight, cited in Yager 2002:155). This lack of fencing was linked to to the fact that livestock were allowed into the infield over the winter (McCourt 1955:375; Yager 2002:175) because throughout 'the nineteenth century … stock … range[d] over the farm as soon as the crop had been taken off the ground' (McCourt 1955:372). This seasonal movement of livestock was important to the rundale economy, because 'efficient rundale farming required that the animals be removed from the unfenced cultivated strips during the growing season' (Johnson 1958:564-5). The absence of fences in the infield were also essential to enabling people to access their plots because before the state intervened much of the arable land held by individuals within rundale areas was not accessible by public roads.

Part of the process of land re-organisation in rundale areas involved the erection of individual houses connected to their individual holdings and accessed by roads[77] (Duffy 2007:83; Sammon 1997: 87; images between p. 132-3). Only when it was possible to access individual holdings by road did it become possible to fence off arable land in rundale districts. However, remembering that the work of the state spanned decades in some rundale areas and often resulted in very narrow strips of land being produced what is important to note about how permanent enclosure occurred in those rundale areas was that it occurred in different townlands, and in different parts of townlands at different times, and in some regions of Mayo did not even begin until well into the twentieth century.

Also, what is important to note is that while enclosure is associated with primitive accumulation[78] and changing the relationship of producers to the means of production

[77] 'The Congested Districts Board (CDB) and the Land Commission in the late nineteenth and early twentieth centuries were deeply involved in rearranging farmholdings … in many cases a new house [was] … built on the roadside adjacent to the newly allocated holding' (Duffy 2007:83)

[78] 'The concept of "primitive accumulation" … is used to explain how capital initially comes into existence ... Marx wrote that:

> All revolutions are epoch-making that act as levers for the capitalist class in course of formation; but this is true for those moments when great masses of men are suddenly and forcibly torn from their means of subsistence, and hurled onto the labour-market as free, unprotected and rightless proletarians. The expropriation of the agricultural producer, of the peasant, from the soil is the basis of the whole process. The history of this expropriation assumes different aspects in different countries, and runs through its various phases in

(Akram-Lodhi and Kay 2010a:182; Wittman 2009:808) the society being investigated here was not without property and so did not consist of free labourers (Marx 1964:81-2). Rather, as previously discussed, property existed and was held both individually and communally in line with the primitive communal mode of production (Shanin 1983:109; 119) that existed in rundale areas.

Also, unlike the historical situation where enclosure was associated with physically separating producers from the land making it necessary for them to live in towns and urban centres where they had to sell their labour to survive (Moore 2000:125; Akram-Lodhi and Kay 2010a:182) what happened in terms of enclosure as it was promoted within the process of the Irish state's efforts to consolidate land in rundale areas was that while attempts were made to promote individualism within rundale areas and to make individual households more economic (Sammon 1997:253-4), efforts were not made to separate individuals from the land.

Moore (2000) links enclosure to the subjection of rural producers to the law of value so that agriculture becomes market responsive (p. 125), while, Wittman (2009) calls attention to the fact that, enclosure contributes to the 'conversion of agriculture from a localised and diversified reproductive strategy into a highly productive, market-oriented, and eventually globalised commodity' (p. 808). In order to compete on the market, agricultural producers must specialise in their production enterprise so that they can cater to a specific section of the market. However, not all agricultural producers are capable of specialising and competing to the same degree which has had the effect that some groups have ended up producing for the market while others have strived to maintain their subsistence under increasingly difficult conditions (Akram-Lodhi and Kay 2010a:187). The size of the arable land available to individual households within rundale areas, combined with the fact that private holdings were held in the form of long narrow strips of land meant that these households were never going to be able to

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different orders of succession, and at different historical epochs. Only in England … has it the classic form.' (Marx 1976, 876, cited in Akram-Lodhi and Kay 2010a:181)

'Primitive accumulation in England used dispossessory enclosures by predatory feudal landlords, later supported by the state, to reconfigure the relations of production in order to physically expel a prosperous yeomanry from the land and create a propertyless class of rural waged labour that faced a class of capitalist tenant-farmers, beneath the dominant landlord class' (Akram-Lodhi and Kay 2010a:182)

compete on the market. Rather, their best chance for survival was to continue to use land in the area along historical lines, which meant using their individual strips within a communal framework of production where these strips were not separated by fences.

Additionally, what is notable about enclosure as it occurred within the context of state policies aimed at creating more individualised production conditions was that while on the one hand land in the congested districts/rundale areas was being consolidated and enclosed at the level of arable land, on the other hand vast tracts of land within the same areas continued under state direction and community insistence to exist as unfenced commonage (Sammon 1997:171). As previously discussed, much of the land in rundale areas was historically held as communal land. Under the Irish Land Commission this land was not divided into individual sections belonging to individual households, but rather, it retained its feature of communal accessibility and continued to be held as commonage (van Rensburg et al. 2009:348). Commonage which was a feature of many congested districts (Freeman 1943a:3) was especially prevalent in mountainous and upland areas in the west of Ireland (Gillmor 1977:60; Sammon 1997:38) where it was used for grazing cattle and sheep, for hunting (Hynes, Buckley, and van Rensburg 2007:3), and for collecting fuel (Taylor 1980:171).

Rundale communities in Ireland retained access to communal land because the government bodies of The Congested Districts Board and later the Irish Land Commission ensured continued access to communal resources within the restructuring of agricultural holdings as affected by them (van Rensburg, Murphy, and Rocks 2009:348). Important to note is that, those families who migrated out of rundale areas to elsewhere in the country under the Irish Land Commission scheme (so that the holdings they left behind could be divided among those who remained), not only left their private property behind to be shared, but also, they left behind their commonage shares.[79] These shares were then distributed to individuals within the community in line with the amount of land held privately by them (in the form of the strips they now owned).

[79] 'The seventeen migrants surrendered to the Land Commission 310 acres, together with various commonage shares which are equivalent to 120 acres; the total area made available for distribution in the West as a direct result of this scheme therefore amounted to about 430 acres' (Sammon 1997:165)

Tendencies towards individualism and familism were impeded where commonage was maintained in rundale areas in the wake of the Irish Land Commission. This was so because there is a link between enclosure and individualism/familism: The more enclosed a region the more one would expect to see greater degrees of individualism and familism (Hopcroft 1999:25). Additionally, where communities continue to use communal spaces within production the communal character of the area is reinforced at the level of the labour process (Slater and Flaherty 2009:8-10) because using communal space in the performance of labour re-affirms the continuing right to utilize communal resources and contributes to the continuance of a communal system of production over time (Slater and Flaherty 2009:8-10; 15; 19; Taylor 1980:177).

While commonage was sometimes divided among community members and added to their holdings as private property, it was common for rundale communities to insist that commonage be maintained, and that arable land be striped, within the rearrangement of local land by the Irish Land Commission (Sammon 1997:38; 171). However, this should not be understood to mean that these communities existed without individualistic tendencies because they did not[80] (Sammon 1997:171), but rather, it signified their understanding that access to commonage was vital to their engagement with agriculture because without it they could not hope to continue the mixed crop and livestock system that had long been practiced by them. Likewise, their preference for retaining the land in strip form was directly related to the fact that land in the area was of marginal quality so that the best chance for production was if individual households had access to different types of land and different resources from different areas within the locality. But also, people favoured the continuation of commonage and the creation of stripes of land of mixed soil quality and elevation because they were already familiar with producing under these conditions of production.

[80] '[T]hirty-three tenants were involved in … negotiations and whilst they all agreed that their holdings should be "striped" into a convenient and workable pattern, it was only natural that each tenant would bargain shrewdly for good terms for himself. Competing claims were examined and discussed, and such adjustments as were practicable were made … it must not be forgotten that all these rearrangement schemes [had] … to be based largely on the consent and agreement of the tenants concerned. It is true that the Land Commission possess[ed] sweeping compulsory powers to deal with recalcitrant parties, unfortunately not rare, but [they] were naturally reluctant to apply them' (Sammon 1997:171)

(4.9) *Conclusion*

People were familiar with producing under the primitive communal mode of production (of the most developed type from its archaic form) that was rundale and key features of production under rundale were dealing with a mixture of production conditions and spaces across individually worked crop producing land and communally used commonage. As previously mentioned, one of the strengths of using a mode of production framework to explain occurrences at the level of the agricultural labour process is that it allows for a focus on natural processes and social processes as they interact together to affect the labour process. Where the mode of production framework is applied within a social formation context the strength of the model to reveal the dynamics shaping the metabolic relationship and ecological sustainability is increased because a focus on history as it affects these relationships is included.

What is clear from how land in rundale areas was reorganised under the Irish Land Commission's Scheme of land re-distribution and agricultural development is that local history acted as a force to affect how that scheme was carried out in concrete property terms: Within the process of privatisation - driven by the state - the community called for the maintence of commonage within the area; within the process of consolidation the community insisted that privately held land be organised in such a way that individual producers retained access to different soil conditions and elevations across private production space; and, as regards the process of enclosure, the continued presence of commonage alongside private land meant that much of the landscape remained physically open.

In other words, where an area had a rundale history this history of rundale shaped how land in the area was redistributed under the Irish Land Commission, but more than that, it not only shaped how land was organised but it affected how modernising processes impacted on the community as a result. A community's rundale background acted to impede the growth of individualism/familism within production because where a community insisted that the stripes contain a mix of soil conditions and elevations this ensured that no one individual/family was advantaged over others within the process of land redistribution, because it meant that everyone was dealing with the same general types of issues within production. But also, because a community as a whole continued

to use commonage within production the community as a whole continued to influence the course of development of separate farms within the locality. In other words, commonage acted as a structure which curbed processes of individualisation within certain areas, but it was communities as institutions that insisted on the maintenance of that commonage and encouraged the production of stripes containing mixed conditions of production because of a local history of rundale. Thus, in rundale areas local history acted as a structure which curbed the development of capitalist tendencies towards individualisation within local agriculture in modernising contexts. And instead, promoted the continuation of production along traditional lines with mixed physical environmental production conditions and access to communal space continuing to be a feature of agriculture. As will be demonstrated later on in my thesis, this fact was extremely relevant to affecting agricultural nature-society interaction at the metabolic level and at the level of ecological sustainability in general. But for now, discussion moves from this theoretically informed chapter to an empirically informed one which deals with the same issues as addressed here, as the true strength of theory is if it holds up in the face of reality. As such the following chapter asks: Did the specific community of interest to this research have a rundale past? If so, did the state carry out any land redistribution schemes there? If so, what effect on the organisation of property in the area c. 1930s-50s did this have?

Chapter Five

Property Relationships in North-West Mayo

(5.1) *Introduction*

In the previous theoretically informed chapter rundale was identified as a particular expression of the most developed form of the primitive communal mode of production: I demonstrated how in its more developed form that rundale membership was not kinship based. I highlighted the co-existence of private and communal property within rundale, I explained that rundale involved agricultural production and that agricultural production was guided by a communal framework. I clarified that even in contexts where arable land was no longer being periodically redistributed among community members, that, where commonage was retained as a feature of production agricultural work was carried out in a communal way with community members carrying out the same practices and co-ordinating the timing of those practices.

This empirically based chapter explores whether the community in North-West Mayo c. 1930s-50s that is being investigated in my research had a rundale past, and whether they were affected by state land redistribution schemes, and how if a local history of rundale existed how this might have affected how property was reorganised under state land redistribution schemes if they had been carried out in the area?

(5.2) *Rundale in the Area*

As identified in the previous chapter, rundale had historically been very common in Mayo, especially in North-West Mayo in the area of Erris (Knight 1836:4) – which is the region of Mayo that this research is interested in. Furthermore, records indicate that well into the twentieth century that rundale continued to be common in many parts of Mayo. As noted in the *The Irish Press* (1937), which was a national newspaper:

> the rundale system of land tenure still … [reigned] supreme [in some areas of Mayo in 1937] (Gildea, Irish Press, Oct 26, 1937:6)

However, not only was rundale still prevalent in Mayo in the late 1930s, but, it still existed within North-West Mayo where the …

> people of Erris [still had] … their rundale … holdings (The Ballina Herald, March 7, 1937:2)

But also, within Erris itself …

> holdings [were] held under the rundale system in the Carter Estate, Bellmullet, Co. Mayo (Connaught Telegraph, November 28, 1931:3).

This is significant because some of the townlands involved in this study formed part of that estate (Ó Catháin and O' Flanagan 1975:9). So it is no surprise (because the area being investigated here/Dún Chaocháin is located in Erris) that land in this area was historically organised along typical rundale lines. Historically …

> all the villages were divided up into commons area and a housing area and then inside … was the agricultural land so that was a typical rundale set up (John)

While by the 1930s land was no longer divided so that a specific housing area existed among it, it was still held under rundale organisation, because it contained a mix of open fields, scattered plots, and commonage at that time. In line with the area's rundale features the Irish Land Commission came to the area to try to resolve the "problem of rundale" there.

> The Land Commission first came … to Curraunboy and Carrowteige in the 1930s to sort out the land … to sort out how it was arranged (Francis)

The Irish Land Commission aimed at 'sorting out the land' and arranging it in a way that could foster agricultural development.[81]

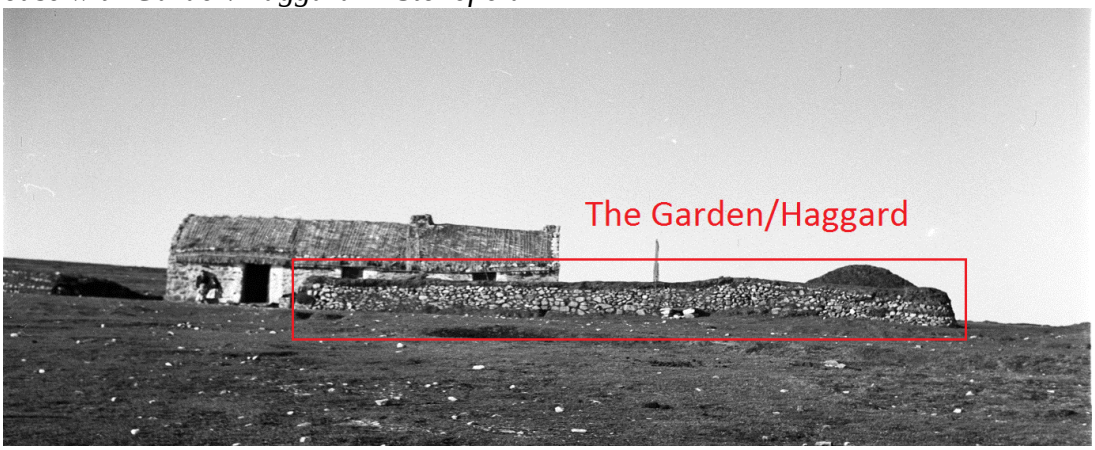
The situation that confronted the Irish Land Commission when they came to the area was that houses and associated gardens were privately held with gardens being

[81] The Irish state viewed rundale and the way that land was organised under rundale as an "evil" that acted against holdings becoming economic (Irish Press, April 13, 1946:6). As such, the Irish state wanted to abolish rundale wherever it existed. As stated by 'Mr. Blowick, Minister for Lands [in the year 1949] … the Rundale system would be abolished wherever it existed. The Land Commission was now in full swing and doing excellent work' (Irish Press, September 13, 1949:12)

permanently enclosed. But, other land tended to be generally unenclosed with much of it still held communally.

> Everyone had their own garden to themselves … the gardens were with the house … you could keep any tools or equipment and things you might have there (Francis)

Plate 1:
House with Garden/Haggard in Stonefield



Source: Folklore Photograph Collection,
National Folklore Collection, UCD, 2013

Individualised production - in the form of the cultivation of vegetables for household needs - was commonly carried out within individually held enclosed gardens.

> You would have people growing cabbage, carrots and different vegetables in the gardens for themselves … they would grow whatever they wanted for the house (Francis)

Different families would grow a different mix of vegetables depending on household preferences and requirements: Turnips, onions, cabbages and carrots were popularly grown, but also, lettuce for instance, was grown by some, and, peas by others.

> There were the carrots, turnips, cabbage and onions (Sarah)
>
> We had onions, turnips, carrots and cabbage (Seamus)
>
> Lettuce and carrots and onions and turnips … and cabbage (Seán)
>
> I remember they had peas growing (Eileen)

As well as the individually owned and enclosed gardens that families possessed, they also had access to other areas beyond those gardens where they could grow crops. Each household owned arable land within open fields: The plots they owned within those fields were held alongside those of other families.

> Everyone had their own … their own piece of the arable land where they'd grow their crops. Families would have pieces of land beside each other … but it was all open fields (Francis)

Households would own a number of strips of arable land located across different open field areas.

> People had their land in strips before the Land Commission came, but, they might not have been together (Francis)

> There was places where you would have … land here and another bit away from you … scattered (Sarah)

In other words, land in the area was fragmented. But also, some strips of land were very small/parcellised.

> Some bits of land were only small, but you could have a few small bits and that was your holding (Francis)

While people were able to locate their plot it was slightly more difficult to know exactly where the boundary of one person's land ended and another's began because the strips of land were unenclosed and only demarcated by mearings.[82]

> There was a lot of mearings (Jean)

> The mearing was the mark … The mearing was a little ... it was a kind of a height there in the ground and you'd go another bit and there would be another one again and you'd follow that straight and that was what was telling you where your land was and my land. It was only a little bank ... a hump of clay ... and then another hump of clay. I don't think it used to be even straight ... it would be all over the place … but that was the mark. When we were small … we wouldn't know the mearing … because we weren't sure about the mearings (Eileen)

The mearings were so innocuous on the landscape that, from the outside the fields appeared undivided, despite containing individual strips belonging to different families. As can be seen from *Plate 2* (of fields in the area), while the boundaries demarcating the fields were visible, internal field divisions were not.

[82] Although enclosure is often associated with hedged or walled fields – where enclosure has been happening for a while - mechanisms for enclosure – where enclosure has only begun - can be as simple as the presence of mearings between field boundaries (Duffy 2007:40) which were 'small earth banks' (Bell 2008:50). These small earth banks/mearings were also referred to in some places as '"ribs", "roddens", "teelogues"' (Slater and Flaherty 2009:16), 'bones, rowins, or keelogues' (Bell 2008:50) 'There were no fences separating one family parcel of grass from that of his neighbor, for a very logical reason, as one old resident put it. "They could not afford to waste the land which would be covered by fences." A raised sod separates one holding from the next' (Irish Press, October 9, 1937:9)

Plate 2:
Undivided Fields

Source: Folklore Photograph Collection,
National Folklore Collection, UCD, 2013

> There was no fences on the land … no wires (Francis)
>
> It was all open fields. There was no wiring or fencing or anything like that (Seamus)

The boundaries of the open fields were constructed of sods and stones sourced from the landscape.

> They had stone walls and sod fences around the fields (Francis)
>
> They'd dig the sods and build a fence with the sods and there was stone in the area (Sarah)

Given that the materials for the field boundaries were locally available it was not because of a lack of construction materials that strips within the infields remained unenclosed. Yet, unenclosed they were, so that, while individually possessed they continued to be communally held as one field.[83]

Likewise, other sections of land in the area had a communal character: Apart from privately held land – in the form of the gardens and the arable strips – land also existed in the area as commonage. The townland in general had the right to use this commonage in the course of production, because …

> everyone owned the commonage (Seán)

[83] 'The individual is therefore only a possessor. What exists is only *communal* property and *private possession*' (Marx 1964:75)

Within the commonage there were different areas which allowed the community to access different resources – livestock grazing areas, turf producing areas, shore areas that allowed access to the resources of the sea, such as fish, but also, seaweed, sea sand, and sea shells which could be used for agricultural purposes such as liming and fertilising land.

> The commonage was important because it was somewhere you could let the animals graze, and you get turf there, and then there was the seaweed and sand and shells you could get from the shore and you could use on the land. Then there was the sea as well and you could get all the fish you wanted there. Everyone used the commonage because everyone was allowed to and because it was so important (Francis)

However, although everyone may have "owned" the commonage, not everyone had equal right to level of use therein. Access to the commonage was based on a shares system within which shares of the commonage depended on the amount of arable land held by families.

> Some would have more commonage shares than others which meant they could have more use of it than others. Rights to commonage depended on how much land you had. It went on a percentage or something like that. Everyone let their sheep and cattle out on it (Francis)

Not only was the commonage accessible to all as a matter of right, but it was physically accessible to all by the fact that it existed as unenclosed space.

> There was no fences on the commonage. You couldn't fence that because everyone owned it (Francis)

Well almost everyone owned it. There was one family in the community that had no legal claim to the commonage, but this can be explained by the fact that, historically the land held by this family was land that had belonged to a landlord's agent rather than a farmer tenant which meant that commonage rights were not attached to their land.

> They hadn't any commons. Legally they had no commons (Jack)

Essentially, in terms of the way that landed property was still held in the area prior to the arrival of the Irish Land Commission what existed was unenclosed commonage, individually held unenclosed plots within enclosed communal fields, and enclosed gardens, all of which were common features of rundale.

Also, by the time the Irish Land Commission came to the area land held by individual families was very fragmented and parcellised.

> The land was scattered before the Land Commission (Sarah)
>
> Some pieces of land were very small and the land you might have would be all over the place (Francis)

This feature of property organisation was problematic to agricultural development as it resulted in agricultural inefficiency. But also, it was this feature of property organisation that encouraged state intervention into the area in the form of the Irish Land Commission.

(5.3) *The Irish Land Commission: Consolidation and Enlargement*

Chief among the aims of the Irish Land Commission was to consolidate and enlarge old rundale holdings where possible.

> The Land Commission wanted everyone's land together … everyone to have their land in one block … not all over the place … and they might try to give you a bigger piece as well (Francis)

In order to facilitate this objective the Irish Land Commission required for some land holders in the area to out-migrate from the locality to elsewhere in the country so that their land could be used within the process of consolidating and enlarging the holdings of those who remained[84].

> Nine or ten families went from [Kilgalligan] to Meath and Kildare. They got land in Kildare and Meath ... then … the land they [left was] divided … [between those] … that [remained] … They gave them their own piece (Seamus)

[84] The migrant families had each holdings of about eight or nine acres, or no more than £5 valuation, and only half their land was arable. At Gibbstown [which is an area of Meath they were relocated to] they have been given 22 acre farms, all good land. The holdings which they have left will be divided among the remaining uneconomic holders. It will now be possible for the Land Commission to convert them into compact holdings' (Connaught Telegraph, April 3, 1937:5). Meanwhile those that migrated out of the area were resettled on land elsewhere and were given 'a weekly allowance to tide them over the initial period of settlement on the newly-established … colony' (Irish Press, March, 1937:9). Before they took the opportunity to migrate it was common for heads of households to first visit the area that they had the opportunity to move to in order to assess its suitability: 'Twelve heads of families from three townlands in the heart of the Erris Gaeltacht travelled by motor car on Friday to view prospective new homes in County Meath' (The Ballina Herald, February 24, 1940:3). Then, when the time came for families to actually migrate, they were facilitated in this endeavour through the provision of a bus for this purpose: 'On Friday last, ten small land owners from the congested districts, [including] … Kilgalligan, left by special bus to take up their residence in the new holdings provided for them in Gibbstown, County Meath' (The Ballina Herald, March 27, 1937:2)

Within the process of consolidation and enlargement the individual fragmented and parcellised strips of arable land belonging to separate households were reorganised into consolidated blocks of land.

> Anywhere the Land Commission came in … they put the [land] … mostly together … They straightened it out a bit (Sarah)
>
> The Land Commission idea was to have everyone have their land all in the one block so they swapped the land … organised all of that, the deeds and everything (Francis)

In consolidating/enlarging holdings in the area the Irish Land Commission adopted the path of least resistance at the level of the community by arranging land in a way that allowed people to produce under conditions that were relatively familiar to them. In other words, the way that land was consolidated fit with the conditions of production that were already familiar to people in the area: Prior to the arrival of the Irish Land Commission people had been used to dealing with different physical conditions of production across the various scattered strips of land that they held in different locations across the open fields. With this in mind, the Irish Land Commission consolidated land in such a way that each holding continued to contain a mixture of sites that differed in terms of their accessibility to resources, and therefore, activities.

> The Land Commission striped the land (Seamus)
>
> The stripes could be running from the shore inland … or they could be running from the top of a hill to the bottom. On the slopes the bottom of the strip could be wet (Francis)
>
> The land near the shore was good sandy land (Fintan)

However, the fact that everyone was dealing with mixed conditions of production does not mean that everyone had an equal amount of arable land because they did not.

> Some might have more land than others … bigger stripes … and maybe a stripe the size of two stripes somewhere else (Francis)
>
> Everyone wouldn't have the same size of land. There would be ones that would have more and ones with less but all of it striped (Peadar)

To the present day, the local landscape bears testimony to the practice of striping the land as carried out by the Irish Land Commission. The striped field systems are clearly visible on the landscapes of Kilgalligan and Rossport (see *Plates 3* and *4*).

Plate 3:
Striped Landscape of Kilgalligan

Source: Own Photograph

Plate 4:
Striped Landscape of Rossport

Source: Comhar Dún Chaocháin Teo, 2011

However, although efforts were made to improve productivity by consolidating the arable land - from its previous scattered state – into the striped fashion depicted, this did not necessarily result in all holdings becoming more productive. Rather, one of the problems that faced the Irish Land Commission was that it required a certain number of families to vacate land in the area so that the holdings they left behind could be used

within the process of consolidation/enlargement/privatisation/redistribution of land[85] and sometimes not enough families were willing to leave the community, or indeed, the land they already occupied.

> They wanted ten to move out from Carrowteige … They would come with an idea of how many they wanted to leave (Seán)

However, the choice to out-migrate was optional and so sometimes not enough families left a townland for the Irish Land Commission to carry out their landed property redistribution plans as they might have originally intended.[86]

> The people had a choice that time if they wanted to go but no one went from … Rossport (Fintan)
>
> They wanted ten to move out from Carrowteige but only seven went ... but, they wanted ten (Seán)

In fact, the Irish Land Commission sometimes made repeated attempts across different years to get people to move from the area years after others had first moved.

> In Curraunboy they took families in 57 and they had taken the first … out of there in 37 too and then came in again and took a few more out of it in 57, twenty years later … and in Carrowteige the Land Commission moved people in the fifties, and that was after other families had moved earlier (Seán)

These repeated efforts by the Irish Land Commission to free up land in the area – for use within their redistribution scheme - signifies their acknowledgement that for the

[85] A point that is important to understand is that although the 'migration of families from these districts [was] … necessary, as in no other way [could] … land be made available there to facilitate the re-arrangement of the intermixed holdings, the abolition of rundale [or attempted abolition], and the improvement of conditions generally' (Kerryman, October 26, 1957:8), the Irish Land Commission was not willing to migrate from these districts any family that wanted to migrate. Rather, some families were offered this opportunity while others were not, based partly on the fact of how useful their land was within the process of consolidation/enlargement being carried out in the area: 'Seventy holders [from different areas of Mayo, one of which was Carratigue] had applied for transfer to the Meath colony, and [only] … fourteen families were selected who would leave the most land behind to relieve congestion in the area' (Connaught Telegraph, April 3, 1937:5). 'The Land Commission did not migrate anyone except in a case where the acquisition of their existing holding was the only solution for congestion in their area. The same applied to rearrangment' (Irish Independent, June 8, 1955:3)

[86] 'Two other families were to have travelled with the migrants, but at the last moment Widow Bridget Naughton, Carratigue, and Michael Broderick, Emlybeg South, found it beyond them to part with their friends, although it meant leaving behind them a district where for hundreds of years their forefathers had toiled for a miserable existence' (Connaught Telegraph, April 3, 1937:5). 'Dealing with the work of re-arrangement Mr. Childers [Minister for Lands in the year 1958] said that the main factors impeding progress were the scarcity of suitable land in the rundale districts and reluctance on the part of suitable holders to migrate to other districts' (Nenagh Guardian, July 12, 1958:3)

process of consolidation/enlargement (as carried out by them) to be most effective more land needed to be made available for their use.

Also, despite the Irish Land Commission's desire to consolidate holdings into individualised blocks it was not always possible to provide these individualised blocks as single consolidated blocks. Rather, sometimes even after the Irish Land Commission had redistributed land in the area some families continued to own arable land in different places.

> They would try to get people's land close to where their house was so they would switch land around. The land wasn't always put into one. Some would have their land in maybe two spots (Francis)

Another difficulty confronting the Irish Land Commission in creating more productive plots was that sometimes the stripes contained very little arable land.

> There might be an acre or more for the crops (Sarah)
>
> The fields might be four or five acres and there could be more in some (Francis)

Compounding this problem was the fact that in order to give the people the mix of production conditions that they had been used to, some of the stripes ended up being very narrow.

> The fields might be about a quarter of a mile long but only narrow (Francis)

Plate 5:
Extreme Striping in Carrowteige

Source: Own Photograph

The narrowness of some of the stripes acted against their being fenced (at the time when these stripes were produced under the Irish Land Commission) because within the agricultural system of which they were part they were used to produce crops at that time, and fencing of them would have been counterproductive to this practice. As such, these types of extremely narrow stripes remained unfenced even after they had been assigned to individual households by the Irish Land Commission,[87] with them only being fenced decades later in line with changes to agriculture as it was pursued in the area (when the stripes were no longer used for crop production).

> The stripes weren't fenced off … but they were supposed to be owned by individuals at the same time (John)

[87] The fact that these striped areas remained unfenced was in contravention of how the Irish Land Commission would have liked the land to have been arranged, which was, for it to be enclosed: 'The efforts to divide the greatest possible area of untenanted land rendered necessary a big expenditure in equipping the new holdings with fences, drains, roads, houses and outoffices, as well as the fencing and general improvement of parcels of untenanted land allotted for enlargement of uneconomic holdings and of rundale holdings of tenanted land rearranged into more convenient and economic units' (Irish Press, May 6, 1936:9)

Borrowing Marx's idea of the formal and real subsumption of labour - the two processes whereby labour is subsumed under capitalism with the formal subsumption of labour occurring first and involving 'the monetization of all factors of production, and the dispossession of workers from all means of production' (Chevalier 1983:164), and the real subsumption of labour being the second process and involving 'a revolution … in "the development of the social relations of production of labour", hence a complete transformation which brings about large-scale production and the direct application of science and advanced technology' (Chevalier 1983:173) – what happened in Dún Chaocháin in relation to development processes associated with agriculture and landed property was that the "formal" subsumption of landed property under capitalist development occurred before the "real" subsumption of landed property did.

In other words, the formal structure of the state accomplished its objective of moving agriculture towards capitalism by ensuring landed property was privately owned and consolidated, and therefore, formally subsumed under capitalism. However, at the level of actual production, the changes it made were such that only some areas of landed property were privatised, while other areas remained communal property, but also, even where land was privatized/individualised it often remained unenclosed, and so, at the real level/at the level of relations of production, people were still organising labour as they had traditionally done and were continuing to exhibit communalism at the level of practice, which meant that the real subsumption of property relationships did not occur as a direct result of the work carried out by the Irish Land Commission in the area.

(5.4) *The Irish Land Commission: Enclosure*

The stripes shown in *Plate 5* were only physically enclosed in the 1970s in connection with the REPs scheme[88] (The Rural Environment Protection Scheme) which encouraged livestock production rather than tillage. So, while the literature (see Sammon 1997:34; 172) presents the idea that the Irish Land Commission enclosed the land that it consolidated/enlarged at the time when it consolidated/enlarged it, this was not always what happened. While the normal course of events was for the Irish Land Commission

[88] The … REPS … is the Irish Government's response to its obligations under EU Regulation 2078/92. The measure was introduced in 1994 in order to encourage farmers to extensify and farm in an environmentally friendly manner' (van Rensburg, Murphy, and Rocks 2009:345)

to consolidate/enlarge arable holdings and then enclose them with fencing it is clear from the above example that there were exceptions to this case.

This is not to say that The Irish Land Commission was not responsible for enclosing cultivatable land in the area, because in large part they were:

> The Land Commission it was that fenced the land (Francis)
>
> There was no wire on the land before the Land Commission (Sarah)

Rather, while acknowledging that the Irish Land Commission promoted enclosure and fencing within the area what is important to understand is that despite its efforts at enclosure not all of the stripes created by them were enclosed immediately subsequent to their creation.

Additionally, at the same time as the Irish Land Commission was promoting enclosure of some spaces within the locality it was facilitating the maintenance of commonage elsewhere within the locale by legally recognising its presence. As evidenced in *Plates 6, 7,* and *8,* unenclosed commonage continues to occupy sections of the local landscape into the present day. This commonage was of marginal soil quality being composed either of poor shallow mountain commonage, overly sandy land in the form of the shore commonage, or overly acidic and wet land in the shape of the bog commonage.

Plate 6:
Unenclosed Mountain Commonage

Source: Own Photograph

Plate 7:
Unenclosed ShoreLine Commonage

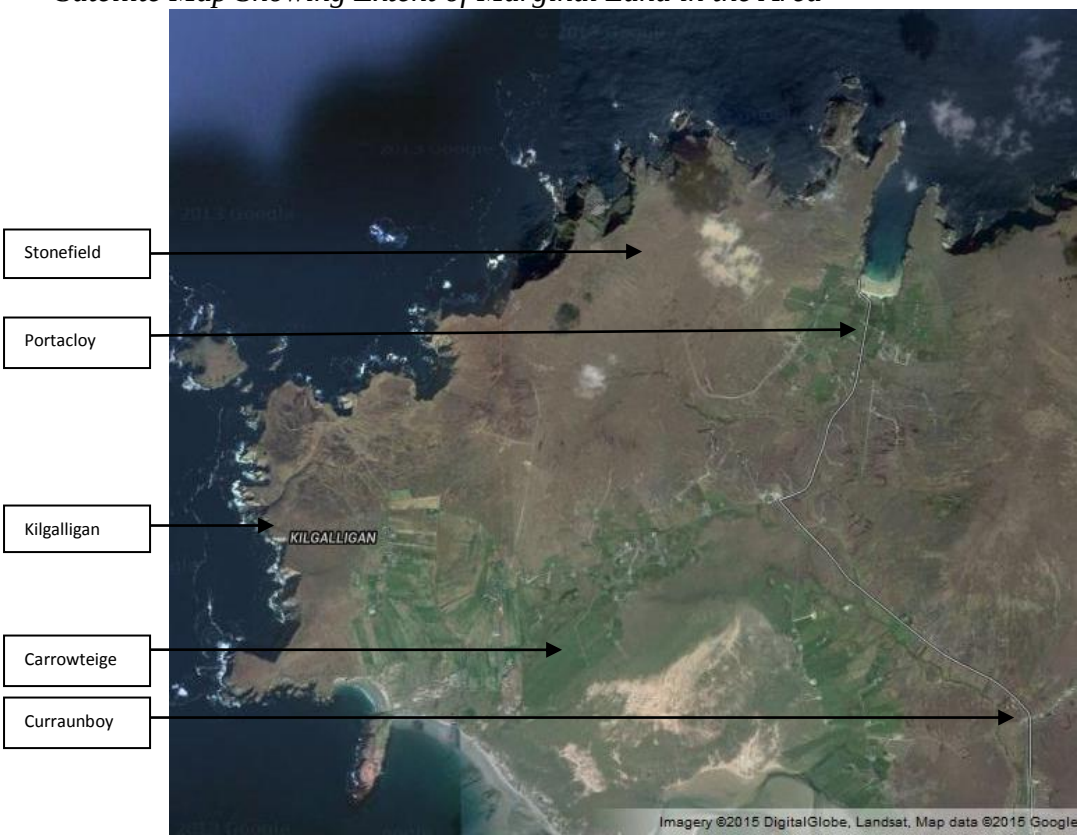
Source: Own Photograph

Plate 8:
Unenclosed Bog Land Commonage

Source: Own Photograph

Map 1 (following) presents a satellite image of the townlands being investigated here and demonstrates the degree to which marginal land existed in the area: The brown area is marginal land, the whitish-grey areas are sections of shore, the dark blue is the sea, and the green area denotes the better land. The extent to which brown is shown on this map in comparison to green highlights just how much of the total area of land within the community was poor.

Map 1:
Satellite Map Showing Extent of Marginal Land in the Area



Source: Imagery @2015 Digital Globe, Landsat, Map data @2015 Google.

Source: Imagery @2015 Digital Globe, Landsat, Map data @2015 Google.

Without exception, the townlands of Kilgalligan, Stonefield/Carrownaglogh, Portacloy, Carrowteige, Curraunboy, and Rossport/Rosdoagh continued to have access to

commonage under the redistribution of local land as carried out by the Irish Land Commission. In fact, what is important to point out is that, those families who out-migrated out of the area so that their land could be divided among those who remained not only left their privately held arable land to be redistributed, but also, any shares that they held in commonage.

> Commonage shares went with the rest of the land so when people left the area and their property was divided then whatever land they would be leaving they would be leaving shares in the commonage as well (Francis)

Shares in the commonage as described here refers to the amount of livestock an individual was allowed to graze on the commonage, but furthermore, what is important to understand is that these commonage shares not only translated into the use of one type of commonage space, but multiple ones, because commonage in the area was varied.

Additionally, although the different townlands involved in this study varied in the amount of commonage they possessed, another point to note is that, they all contained commonage as a feature of their landscapes.

> The Curraunboy commonage is very big (Peadar)
>
> You had a very small amount of commonage in Carrowteige (Eileen)
>
> The Stonefield commonage was the biggest commonage in the area (John)
>
> There was a lot of commonage in Stonefield and very little in Carrowteige (Martin)
>
> In our village we had a lot of commonage. That was the side of a big mountain – four or five hundred acres (Francis)

Map 1 indicates just how much of the land in the area was held as commonage: Only the section of land that depicts enclosed fields was privately held i.e. only a section of the limited green area was private land. In other words, the commonage – of the land, shore, and cliff type – far exceeded the area of land that was privately held.

As had historically been done, this commonage when redistributed under the Irish Land Commission scheme, continued to be used for collecting fuel – in the form of peat - but also, and crucially, it continued to be used within agriculture. For instance, seaweed, sea shells and such like for use as fertiliser were sourced from the commonage shore area, and also the commonage land continued to be used to graze livestock.

> The commonage was where you would get the turf (Francis)
>
> Everyone grazed the animals out on the commonage (Seamus)
>
> You could get sand, seaweed, shells and that on the shore and you could use them for the land (Martin)

Livestock were not restricted to certain parts of the commonage. Rather, they had the run of it with no fences on the commonage to block their travel.

> The cattle and sheep wandered about on the commonage because there was no fences to stop them (Francis)

The only exception to any area of commonage being enclosed was where horses were allowed onto the low lying commonage in the summer. In that situation a common bank was built round that certain area to contain all of the horses belonging to the community and whether this actually managed to contain the horses or not, what is important to note about this "common bank" is that people co-operated to create it, so that, the construction of the bank was a communal activity, and, the bank was constructed for a communal purpose within a communal space.

> The horses would be down the banks mostly in the summer time but they would be housed in the winter. There was a sort of common bank built right around the fields down below and that would be kept up and every year that would be built up and every year everyone would do their bit to keep that built up and that would keep the horses out from the crops (Seán)

In contrast to the horses, other livestock, such as cattle and sheep, generally had the run of the unenclosed commonage. However, they too were allowed entry to 'enclosed spaces' at times. Cattle in particular tended to be allowed onto the stripes at winter time (because at this time crops were already harvested from there).

> The cattle were brought back from the mountains once the crops were harvested (Sarah)
>
> The cattle were brought in from the commonage in the winter time and allowed into the fields where the crops had been (Francis)
>
> When all the potatoes were dug and pitted the winter season was in full blast and as there were no proper hedges dividing the different holdings, many of which were in rundale, the whole land

> became a commonage until next Patrick's Day. Cattle and sheep were free to roam over miles of tillage lands without fear of molestation by the owners of the soil, and even to the present day the practice exists but in a gradually decreasing degree as the years roll by (Iml. 1253:66)

This allowed the livestock to graze on the stubble of crops that had earlier been harvested. In other words, livestock production space and crop production space were not strictly segregated at all times, because sometimes livestock had the use of crop producing space even if crops were never grown on commonage.

> You didn't sow out on the commonage. You sowed on your own … on your own ground. Out on the commonage … if you sowed out there then every animal in the place would walk over it because they had the whole run of the place (Francis)

Additionally, the fact that livestock were allowed onto the stripes at the post-harvest stage affected the way that the boundaries surrounding fields were constructed.

> They would make a gap between the sod fences with stone. You see they wouldn't be able to knock the … sod fences but the stone … they would put in the gap so if they were letting in a cow or something they had the space of the cow and they would let the cow in and then they would close it up again … there was no gates … The fields were divided with stone walls and where there wasn't a wall they were divided with sods … If the fences were high enough they would keep the animals out (Sarah)

In other words, even in the construction of enclosures (as carried out by locals) there was an implicit recognition that private and communal production space did not stand apart from each other within the overall framework of production being carried out within the community. And, the reason for private production space overlapping with communal production space at the level of agriculture was because of the area's rundale history.

(5.5) *Communal Work Patterns*

Additionally, the particular form of agriculture pursued – which was mixed crop and livestock production – affected how private land was used in relation to the commonage: Given that livestock production involved livestock having access to the arable land over the winter there was a necessity for co-operation around which crops to grow, and, when to plant and harvest them because these crops had to be removed from the fields before livestock's entry onto them where these stripes were unenclosed

(which could have been because they were very narrow even following the Irish Land Commission's work in an area, or else, were unenclosed because the Irish Land Commission had not yet begun their work in a particular townland, or else, had not yet finished their work there).

> Everyone would want their crops off the fields before the cattle were let in because otherwise their crops would be ruined … walked on … grazed on … gone (Francis)

Also, because different crops have different production cycles, so that, one or the other will grow at one time or the other when another will not, the choice about which crops to grow was also shaped by natural processes associated with the development of particular crops, because whatever crops were grown had to be able to grow to maturity under the time frame set for their development and at the time of year that facilitated livestock use of arable land across the winter.

> They had potatoes and oats and barley[89] and rye[90] (Seán)
>
> They were growing potatoes, oats and barley, and some people were growing rye (Francis)
>
> There was oats, barley and rye and everybody had potatoes (Sarah)

If the example of potatoes is used what is demonstrated is that the entire community followed a common timetable (which suited livestock use of arable land at winter time) in planting and harvesting potatoes.

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[89] They'd be making potheen and the barley was used for that (Sarah); Rye and barley was the boys for the potheen (Peadar)

[90] The rye was fed to the animals (Francis); They'd be making potheen and the rye used to be used for it (Sarah); The rye would be steeping and the potheen would be made (Seamus); They used to mill the rye and make flour for bread ... or meal for the flour to mix for baking (Seán); In them days they would mill the rye. They would dry it at the fire in a pot. I remember seeing my mother, The Lord Have Mercy on Her, turning them pots. They had the milling stones as well. We still have them back in the garden. I remember seeing my mother ... she had the old pot ... the pot you would boil the potatoes in and she used to keep turning it so that it wouldn't burn on one side more than the other and she'd keep turning that and mixing it around from time to time so that it wouldn't harden. They knew when to ... when it was fit to ... I remember seeing my father ... in the old house on the floor in the kitchen ... a big sheet on the floor and these two stones and a stick on the top one and he kept turning and turning it and turning it and it was coming out. It was good when mixed with the flour. It was strong ... you know very coarse ... it was strong. She had about a stone of rye or thereabouts in the pot and she used to keep turning the pot ... say the pot was at the fire for so long and then maybe she would turn it according to how the fire was too ... the heat of the fire ... she would keep turning it so that it would heat all around. The pot was just beside the fire ... not too near ... and not too far away from the fire but enough to dry it out. It would be there I suppose for a couple of days and a couple of nights. Then they would mill it when it was fit for it when it would be hard enough to get a good powder from it (Seán)

> The potatoes would be set on Good Friday (Eileen)
>
> They'd be planting the potatoes on Good Friday and … on the 15th of August they might dig the potatoes (Jean)
>
> The moulding of the potatoes was completed on or before St. John's Day (Iml. 1243:90)

This common timetable for producing potatoes (and crops produced on the arable land in general) was vital within a context where livestock and crops were produced together and where livestock needed access to arable land at some point. Thus, the fact that commonage continued to exist in the area – and was used for the purpose of livestock production – encouraged people to continue to co-operate around which agricultural practices they would perform and when, as everybody was using the commonage in conjunction with their privately held plots. But, in terms of the Irish Land Commission's influence in shaping how the community as a whole carried out agriculture what is important to note is that the community comprised of a mixture of townlands and that the Irish Land Commission came to some of those townlands decades later than others, and that sometimes it revisited the same townlands decades after first arriving into them.

> The Irish Land Commission were in Curraunboy in the thirties and then again in fifty-seven (Seán)
>
> The Land Commission came to this village [Curraunboy] in fifty-seven (Sarah)
>
> When the Land Commission came [to Curraunboy] in the fifties they made changes, you know? … They made fences … The Land Commission put the fences in around here. They put them in Stonefield in the forties (Peadar)
>
> The Land commission came here [to Kilgalligan] in the fifties (Seamus)
>
> In Carrowteige, The Irish Land Commission came in the fifties but they had been here earlier as well (Seán)

The fact that the Irish Land Commission came at different times (spanning over the decades from the 1930s to 1950s) to the various townlands being investigated here is significant in terms of how the mode of production present in the area c. 1930s-50s was affected, because it means that at the level of the community (which these different townlands comprised), that, the process of consolidation/enlargement/privatisation of holdings as carried out by the Irish Land Commission was an uneven process within which some areas of land within the community were being consolidated and enlarged at times when others were not, but also, what is significant to note is that, the work of

the Irish Land Commission in the community was still ongoing in some sections of the community in the late 1950s. Thus, it must still be accepted that, some form or level of rundale still existed to some degree in the area up until at least the late 1950s.

The fact that the Land Commission was still working in half of the townlands involved in this study – in Curraunboy, Kilgalligan, and Carrowteige - as late as the 1950s indicates that at least until the 1950s much of the property in the area continued to be held under rundale, so that much of the arable land would still have been unenclosed at that time, which would have acted to encourage even those members of townlands where enclosure of arable land had begun, to continue to follow already established timetables for agricultural practices, and already established ways of producing on land available to them because most of the community still had no choice but to continue to produce like this as their stripes were not yet enclosed.

Both the marginal quality of much of the land as well as the actual physical conditions within this rundale area acted against this area changing from producing the crops that had traditionally been produced there. For instance, wheat production because it relies on good quality soil could not be pursued within this specific locality because of the low soil carrying capacity that existed there in relation to the production of that crop.

> Wheat is a devil on the soil (John)
>
> They had no wheat. There was no place for wheat around … The land wasn't good enough for wheat … There might ... maybe there would be some ... some of my land would be good enough for wheat but there wouldn't be an awful lot in it because the most of my land is mountain and it wouldn't grow wheat but I did see some wheat grown in Curraunboy. I seen a stack of wheat and it was thrashed up and looked after and they got good wheat out of it ... good grain out of it ... but the land really wasn't good enough for wheat ... Some of it was heavy soil and some of it was wet ... was damp (John)

On the other hand, potatoes for instance, are good in poor soil conditions, while sandy soil favours the production of most crops.

Of course, the crops grown on the stripes were not the only ones being produced in the community, because individual households were producing various different vegetables within their gardens. However, in terms of assessing the degree to which crop production practices can be used to indicate changes to the rundale system that had

historically existed in the area the fact that different households were producing different vegetables in their gardens c. 1930s-50s is less telling than the fact that they were still producing the same crops on the stripes before and after the arrival of the Irish Land Commission into the area, because even under rundale, garden production was relatively individualised whereas production on the arable land while exhibiting individualism through the fact that individual households cultivated their own plots, demonstrated communalism through the fact that co-ordination existed around the choice of crops produced, the timing of planting and harvesting those crops, and, the manner in which use of the commonage and arable land was co-ordinated to fit around each other.

Also, while the Irish Land Commission did affect changes to the location of gardens they did not affect the practices performed within them: Where the Irish Land Commission considered the location of houses in the area as problematic to their work they arranged for new houses to be built elsewhere, usually at the top of the newly formed stripes, and in moving the houses they moved the gardens.

> There would be the road going into the village, and there might be the odd house off the road down a boreen but generally the houses would be kind of dotted along the road because in a lot of cases the houses were there before the roads were built at all. There would be only paths and dirt tracks that would have been in it years ago. And then the road was brought near to wherever the houses were to just accommodate the houses. The land could be all around the house and then going far down the way away from the house depending on how much land was involved (Francis)

Additionally, when these new houses were erected access to them was facilitated through the construction of roads. This meant that individuals no longer had to cross over each other's land (trespass) to access their own[91], because their land could now be accessed from a road. However, although having to cross over each other's land had encouraged communalism within production these roads had little effect on reducing the communalism that existed in relation to production in the area, because the way that the stripes were actually located in relation to each other, and the way they existed alongside commonage and were a feature of a mixed crop and livestock system that

[91] In some areas of Mayo in line with rundale that existed there a family might hold 'its land in 18 plots, and to get from one of these to another the farmer might have to pass around or across the holdings of dozens of his neighbours' (Connaught Telegraph January 16, 1943:3). In North Erris, in County Mayo, people commonly took shortcuts through fields where there was a network of paths (Corduff 1974:16)

relied on livestock grazing across both the commonage and stripes meant that, there were stronger forces at play than roads in encouraging the direction that development took.

So where does all of this leave us in relation to understanding whether the system in operation in this community can be understood as still pursuing primitive communal production in the form of rundale c. 1930s-50s? And, what difference to the metabolic relationship and ecological sustainability does this make?

(5.6) *Conclusion*

I have demonstrated that, up until c. 1930s that all landed property in the area was organised into individually held enclosed gardens, into individual arable plots located within communal open fields, and, into commonage space that was held communally. Additionally, I have explained that individually held plots were often scattered and parcellised at this time. From c. 1930s onwards the Irish Land Commission began effecting changes to this organisation of landed property within the area. It consolidated/enlarged/privatised holdings, and sometimes relocated houses/gardens. Yet, it retained commonage within the area with the effect that production continued to be dominated by the primitive communal mode of production that was rundale: The Irish Land Commission may have changed many of the area's physical/spatial aspects, but it did not eradicate commonage and did not displace that area's essential communal productive activities.

But also, what is important to note about how the Irish Land Commission carried out their work was that they operated their scheme on a townland by townland basis. However, this study is not interested in individual townlands, but rather, in a group of townlands that comprise the community being researched here which means that at the level of this community analysis the work carried out by the Irish Land Commision must be seen as a very uneven process because changes may have been occurring in one townland within that community while they may not have even begun in another.

But also, even in the townlands which had first been visitied by the Land Commission in the 1930s it was not a case of rundale being eliminated from them by the 1950s because even where property relationships and the organisation of property may have been altered to some extent before the 1950s, rundale could still have existed because rundale was not only about a way of organising property but instead was also a way of producing, so that, even where the Land Commission affected changes to property organisation and ownership this did not necessarily result in changes to how that property was used within agricultural production. People in the area still continued to pursue a mixed crop and livestock system of production, and still continued to use the commonage predominantly for grazing purposes and the arable land predominantly for crop production, but also, they continued to use the crop producing ground to graze livestock in the post-harvest period, and used the commonage to supply fertiliser to the crop producing space. The fact that individual production continued to follow the same agricultural model as the rest of the society and the fact that commonage and private land continued to be used together demonstrates that the rundale way of producing still existed even in the face of changes to the organisation of property. In other words, at the level of property management rundale practices continued to be pursued.

However, within any mode of production context development is not only affected by people's use of the forces of production, but rather, movement (or not) from one mode of production to another involves the articulation of both the forces of production and relations of production that exist within a society. But, thus far relations of production have not been considered. As such, I now turn to discuss relations of production as they exist within the primitive communal mode of production (of the most developed form from its archaic form). By establishing that relations of production within the community of Dún Chaocháin c.1930s-50s still fit with what would be expected of rundale I offer increased insight into the forces affecting how that community interacted with nature at the level of socio-ecological relationships (which are discussed in more detail later on)

In order to understand whether a society exhibits relations of production characteristic of a primitive communal mode of production/rundale society, the specific questions that the next chapter seeks to answer through an exploration of the literature are: What

relations of production are associated with primitive communal/rundale producers? What structures and institutions act to shape primitive communal/rundale relations of production? How might primitive communal/rundale relations of production operate in response to modernising processes?

Section 4

Economic Systems

Chapter Six

Primitive Communal Production: Production Relationships

(6.1) *Introduction*

In the last chapter I established that, at the level of social processes (the property relationships), that, there is much to indicate that rundale/primitive communal production existed in Dún Chaocháin c. 1930s-50s: The manner in which landed property and agriculture were organised were telling in this regard. However, understanding the way that landed property and agriculture were organised only brings discussion so far in understanding the structures, institutions, and processes shaping production within the area.

Working from Marx's (1964) understanding that 'in all … forms, where landed property and agriculture form the basis of the economic order … the economic object is the production of use value, i.e. the reproduction of the individual in certain definite relationships to his community' (p. 80-1) this chapter builds on those that have preceded it and offers insight into economic relationships as they played out to affect development within primitive communal production contexts. In other words, while the last two chapters explored social processes that operated to affect production this chapter explores the economic processes involved because social processes interact with economic processes within any mode of production context to affect development (Slater and Flaherty 2009:11).

Earlier I established that the organisation of landed property and agriculture within rundale had its corollary in the form of the Russian commune which has been identified by Marx as the most developed form (from its original archaic form) of the primitive communal mode of production. Now at the beginning of this chapter, I investigate the Russian commune at the level of the structures shaping production within it, but this

time, with a view to revealing the economic structures, as opposed to the social structures that have already been identified. By examining the Russian commune at this level I reveal that it and rundale settlements bear striking similarities to each other. This adds further weight to the argument made earlier that both forms of agrarian communities are expressions of the same primitive communal mode of production.

Then having demonstrated the overlap between the economic structures of the Russian communal and rundale forms of production, I explore the level to which rundale economic structures were still shaping production in areas of Mayo c.1930s-50s. I develop this understanding through an exploration of what rundale relations of production actually looked like, what strutures and institutions were to be expected in rundale contexts, and how a rundale community responded to modernising processes at the level of relations of production.

(6.2) *Morality, Action, and Regulation in the Context of the Russian Commune*

However, looking first to the economic level as it operated within the Russian agricultural commune what is found is that this was a community within which a dual structure operated to affect economic relationships tied to production: One the one hand there was a formal (official) structure; on the other hand, there was an informal (unofficial structure). The formal structure was concerned with ensuring that the commune reached governmental goals set for the commune. The informal structure helped the commune to maintain a high level of autonomy in relation to the state, upheld customary law, and crucially for this thesis, it shaped how the commune performed everyday practices (Mironov 1985:10-11). At the level of both the formal and informal structures that acted on the commune 'each structure contained three component elements: law and morality (behavioural norms), modes of action (which enabled the peasants to correlate behaviour with law and morality), and leadership' (Mironov 1985:11).

Given that everyday life in the commune was shaped by the informal structure, the law and morality, modes of action, and leadership shaping this level are important to consider. In terms of the law as it operated within the day-to-day life of the commune it

was customary law that exerted most influence. Rather than customary law existing in codified form it was shaped by the individuals involved, and, the ideas they had about justice (Lewin 1985:1). In other words, different communes because of their different histories had different ideas about what was just, and, these ideas were reflected in the way that the law operated at the informal level of any specific commune: Where norms of conduct specific to the commune were transgressed by an individual they were in breach of customary law (Mironov 1985:11).

> Customary law, being largely unwritten law … [existed] only as embedded within ethical norms, religious beliefs, social representations, economic views … and labour habits (to mention [some of] the main dimensions of [it]). All of them [were] … intertwined, and represent[ed] inseparable parts of a whole. (Confino 1985:36).

As understood by Lewin (1985):

> Underlying the practice of popular law was a perception of a specific legal order … which found expression in [the] ways the commune and peasant household handled problems concerning land, the division of homesteads, economic and social conflicts, and relations within the family. (p. 5-6).

While individual communes differed in terms of their respective customary law systems and ideals (Lewin 1985:11) there were some things they all had in common, and they were that, no individual should be allowed to threaten the economic vitality of the commune, nor, should they be allowed to question the authority of the elders who regulated conduct within the commune (Moon 1999:227) and who headed its justice system in the form of the 'courts of elders' (Czap 1967:151). It was the township court that dealt with all claims involving real estate and immovable property (such as land) which existed within the space of the commune. Additionally, the township court could hear claims relating to private property up to the value of one hundred rubles, but after that, all dealings relating to private property claims were heard in state courts where official law rather than customary law shaped proceedings (Czap 1967:152).

Official law upheld the idea of property existing privately, so that, individuals were each individually understood to be responsible to the state, customary law upheld a different idea of property and accountability to the state. The fact that communal property underpinned communal life was reflected in customary law through its recognition of collective responsibility (Mironov 1985:12). This feature of communal life meant that while commune members could demonstrate individualism beyond the

confines of the commune (such as when they went to the market or were working outside of the commune), and, could order their own affairs within their individual households (as long as they did not act against custom or threaten the interests of the commune), that, commune members in general were expected to adhere to set rules of conduct in relation to each other (Mironov 1985:19-20; 26).

Commune members expected other commune members to be honest in their dealings with them, not to steal from them, and not to interfere with their property (Mironov 1985:12). But also, they expected to receive help from the commune during times of crisis and at particular times within production (Mironov 1985:22; Moon 1999:226). A feature of production within the Russian commune was the *artel*. 'The term "*artel* relationship" is used broadly to refer to all types of traditional co-operation in production, ownership and landholding, inclusive of the peasant land commune' (Shanin 1983:125). Beyond the existence of *artel*/co-operation was "*pomoch'*" which can be understood as assistance available to commune members (Moon 1999:225).

> Communes organised assistance (*pomoch*') for households that had fallen on hard times by arranging for some villagers to help out with arduous tasks, or to cultivate land for families that lacked the labourers to do it for themselves. Households that received assistance rewarded their helpers with food and drink, especially vodka. More importantly, peasants who helped their neighbours earned the right to turn to the commune for assistance should they fall on hard times. Thus, *pomoch*' was a kind of mutual insurance policy. (Moon 1999:225-6).

However, while the existence of *pomoch*' offered commune members a safety net against production risks, what is important to understand is that, access to *pomoch*' was conditional: While commune members were willing to provide short term help to those in need there was a reluctance to help those that they thought would be unable to offer assistance to them should they need it. In other words, *pomoch*' was underpinned by an expectation of reciprocity so that households who did not reciprocate help were soon left without communal assistance themselves. As was the case with the periodic repartitioning of land in line with changing family composition, *pomoch*' was not an expression of egalitarianism and communalism, but rather, was a communal risk reduction strategy aimed at achieving the reproduction of the commune as a whole over time (Moon 1999:226).

Failure to participate in *pomoch*' can be understood as acting in contravention to customary law which sought to protect the long term viability of the commune, and thus, if a household did not participate in *pomoch*' not only would they be left without assistance from the commune, but they may have been treated with disdain, subject to name calling and nasty remarks (Mironov 1985:13), or some other form of public shaming and humiliation (Moon 1999:227) because participation in *pomoch*' was not a choice it was an obligation (Male 1971:6).

Not only were there specific economic expectations around *pomoch*'. But also, *pomoch*' itself can be understood as a levelling mechanism within the Russian communal context because *pomoch*' helped to ensure that individual households did not fall under during times of hardship. For instance, the more prosperous members of the commune were expected to provide assistance to the less fortunate (Mironov 1985:21; 22). In general, '[r]egulation was in place to curb differentiation' (Mironov 1985:26): Individuals could not act against what was expected by the commune[92] because if they did they could find themselves in a very hostile relationship with it (Mironov 1985:13). In fact, what is very interesting to note about customary law as it operated within the commune is that certain acts which were not considered illegal in the wider state were considered illegal at the level of township courts: Members of a commune could be prosecuted for being drunk and for wastefulness, but these acts were not considered criminal at the level of national law (Czap 1967:177). This speaks volumes about the degree to which the customary law of a commune aimed at reducing risks to production (Czap 1967:177), and by extension, aimed at supporting the commune.

(6.3) *Morality, Action, and Regulation in the Context of Rundale*

Different norms of behavior, of action, and of leadership existed within the rundale commune because of the simple fact that all societies develop in their own particular way based on their own historical conditions of development (Stahl 1980:2). Yet, strong similarities can be observed between the economic structures shaping the Russian agricultural commune and that of rundale settlements. Just like the Russian situation,

[92] 'Social control was so powerful that it was impossible for peasants to exist – physically or psychologically – if they found themselves in a hostile relationship with the commune' (Mironov 1985:13)

rundale had a dual structure which operated to affect its reproduction. Rundale as it existed historically (pre 1930s) had a formal structure which saw the king/headman negotiate and interact with landlords to affect rent required from the community as a whole – because rent was a collective responsibility (Whelan 2012:461). On the other hand, it had an informal structure which saw traditions and beliefs shape interaction among community members (Slater and Flaherty 2009:14).

At the formal level, production within rundale communities was affected by landlord objectives which not only saw rundale communities having to produce exchange value goods to pay rent, but also, landlords could affect production through eviction by forcing people off the land (Freeman 1947:41):

> Holdings were given to the bidders of the highest rents, occupants being evicted if they did not agree to pay, and pay, such rents as were demanded or offered. If a tenant made any improvements beyond the construction of a cottage or hovel, or if he appeared to live in any state of comfort beyond the low average of the district, it was assumed that he could pay a higher rent, and the rent was accordingly raised. (Micks 1925:10-1).

However, while the formal structure affected production on this level, it was the informal structural level that ordered economic relationships between community members across everyday life. For instance, a community crop rotation plan operated to affect individual practice within rundale contexts, which affected when individuals planted and harvested crops and how arable land and pasture land was used in relation to each other. But as well as individuals being expected to adhere to certain agreed practices across the different production spaces that existed within the community, they were also expected to behave in a particular way within the performance of labour (Slater and Flaherty 2009:8; 14). The king/headman and council of elders were responsible for overseeing that the community as a whole followed a particular pattern of behavior with the king/headman and council of elders upholding traditional laws and sanctioning those who acted against them (Ó Danachair 1981:25-6; Slater and Flaherty 2009:14).

Additionally, as well as authority figures acting to regulate the community it was also regulated by the fact that people within it held strong beliefs that a supernatural world with supernatural beings existed alongside their human world. This supernatural world

was understood to be inhabited by fairies[93] who liked to see human behaviour ordered in a particular way, which meant that, certain protocols had to be followed by people within everyday life, because failure to comply with fairy expectations could result in fairy anger, and, if the fairies became angry they might cause harm to the offending person, their family, their property and their efforts at production (Glassie 1982:546).

This looming threat of fairy malevolence created a situation where certain spaces, such as boundaries which were thought to be protected by fairies, were spaces that people would rather not be near: People did not much like to have to work land that was too close to these boundaries. Likewise, the "presence" of fairies affected where houses were located and where crops were produced (Slater and Flaherty 2009:14). In short, at the level of informal structures governing everyday life in rundale communities the actions of individuals there were partly shaped by the fact that they believed themselves to exist within a community that contained not only other human beings, but also, supernatural beings.

By the the middle of the twentieth century many of the formal structures which had previously shaped economic relationships within rundale communities had changed because of the fact that the Irish state through the Irish Land Commission (from 1923 onwards) had fixed the boundaries of contemporary commonage in rundale areas (van Rensburg, Murphy and Rocks 2009:347): The Irish Land Commission arranged for tenant farmers to become owner occupiers, through the purchase of estates by them and through redistribution of land within those estates among rundale community members. The Irish government provided loans to people to purchase these estates. The loans were

[93] Different countries have different beliefs so that different groups fall into the category of real depending on the country in question. In Ireland the group most commonly believed in were the fairies (Thompson 1946:243) who in the context of traditional agricultural production were understood to affect production in numerous ways – sometimes for the good and sometimes for the bad. While there may or may not have been fairies people acted as though they existed (Glassie 1982:547) and their believed existence affected agricultural practices (Devereux 2004:7–8) and so a focus on fairies is incorporated here, where, following Harwood (1976) 'the meaning of a myth is … equated with its use; it is not what members of a culture *say* about a myth, but what they *do* with it which is important' (p. 785). Understanding that 'myths codify and sanction a set of activities' (Harwood 1976:785) and that institutions are formed around myths (Harwood 1976:785). this thesis draws attention to the way that belief in the fairies shaped agricultural life

repayable to the Irish government through annuity rates[94] (Sammon 1997:xxi-xxvii). However, while significant changes may have occurred at the formal structural level of rundale societies as a result of actions carried out by the Irish Land Commission, this is not to say that the Irish Land Commission had the same level of influence to affect changes at the informal structural level of such communities. This is because of the various structures that existed within these communities to encourage adherence to norms of behaviour.

Just like the informal structures that operated to affect production relationships within the Russian agrarian commune, rundale systems also involved norms of behavior, of action, and of leadership that together ensured that life within rundale was ordered in a particular way (Ó Danachair 1981:25–6; Slater and Flaherty 2009:14) – in a communal way. Individuals carried out individual production within their own gardens which meant that in this particular space they could exhibit individualism. Also, within work carried out on the individually held arable plots families expected to be allowed a certain level of individualism to order how production was carried out there, such as deciding how labour was to be organized within the family. However, the individualism experienced within crop production on the arable plots was a tempered form of individualism, not only because households had to co-operate around which crops they grew and so on, but, as well as co-operating around which agricultural practices were to be performed they had to co-operate within the actual performance of some tasks relating to production (Slater and Flaherty 2009:15).

Collective community labour was a feature of production on the arable plots because although cultivation in these spaces relied predominantly on family labour there were points within production when community labour was involved. Co-operation within labour was an established custom in rundale communities and was expressed in such activities as bringing in the hay, and so on (Slater and Flaherty 2009:15): Where Russian communes were expected to engage in *artel* and to provide *pomoch*' in line with custom, rundale communities were shaped by a similar set of economic

[94] 'The land annuity is the amount or sum payable for a specified or set term of years by an allottee, in payment of the advance made by the LC for the purchase of an allotment. Annuity rates varied with interest rates. The most common rate, in LC terms, was 4 ¾ per cent made up of 4 ½ per cent interest rate and ¼ per cent sinking fund. The 4 ¾ rate amortised in 66 ½ years; this means that the advance being paid was fully paid over that period' (Sammon1997:xxi)

mechanisms that acted to shape production relationships in the same way; the corollary of *artel* in the rundale context was the *meitheal*, while the equivalent of *pomoch*' can be found in the act of *cooring*.

A meitheal can be understood as a group of people who acted together to perform co-operative tasks without money being exchanged for services rendered (Arensberg and Kimball 1968:252- 5). Co-operative work provided by the meitheal could extend to lending help 'gathering … sea wrack for fertilizer, cutting turf, driving stock to summer pasture, mowing hay, harvesting, and … opening up … infield parcels to winter pasturing' (Dowling 1999:176), as well as 'planting potatoes, shearing sheep, reaping oats, bringing in the hay, making hayricks, digging potatoes, [and] threshing with flail or machine' (Yager 2002:162) to name but some of the work that was carried out collectively by the meitheal in rundale contexts.

Understanding meitheal to be a noun, cooring can be understood as its verb equivalent because while the meitheal referred to *the group* who co-operated to perform tasks, cooring referred to *the act* of reciprocating help (Arensberg and Kimball 1968:255). However, there was also another difference between the meitheal and cooring and that was that custom underpinned the meitheal so that the meitheal would form to provide labour to members of the community without expectancy that this labour would be returned in like measure, whereas, cooring was firmly grounded in the idea that work would be given for work (gifts and services of one kind or another could also be given in lieu of work, but, some material return was required) (Arensberg and Kimball 1968:255).

Whelan (2012) has argued that co-operation within rundale should not be understood to denote the existence of primitive communism because this co-operation was not about altruism but reciprocity (p. 460). But, what Whelan does not understand here is that, co-operation within primitive communism was not about altruism either, but instead, was about risk reduction in difficult production contexts, so that, reciprocity underpinned co-operative practices carried out there.

As with the Russian commune, the cooring system was not about egalitarianism, but rather was about risk reduction across production:

> In Ireland, as in similar communities, the chief function of mutual aid was not that of easing a man's personal burden of labour; it was that of providing a degree of security to the people that was not obtainable from an individual patron, nor from the state, nor from the natural environment of climate and soil in which they lived. (Hutchinson 1970:522).

Understood as essential to the reproduction of the rundale community, those households who failed to participate in the cooring system were sanctioned in much the same way as those who failed to engage in *pomoch*' in the Russian commune. Failure to participate in cooring brought social stigma and exclusion to the non-participant party so that non-participation was generally avoided if possible (Arensberg 1937:68; Arensberg and Kimball 1968:71; Byrne et al. 2001:lxxxiii; Curtin 1986:60).

Cooring can be understood not only as a risk reduction mechanism available to Irish agrarian communities, but also, as a levelling mechanism that acted to impede the development of individualism within the rundale communal context. Slater and Flaherty (2009) have identified that, depending on the degree to which individualisation has occurred within communal contexts it is possible to assess whether or not a system that was once communal can still be understood as such: Where labour is primarily employed on private holdings for the benefit of individual households, that labour can be understood as contributing to increasing individualisation; conversely, where labour is primarily employed on communal holdings and often involves the labour of non-family community members the practice of performing labour in this way fosters continued communalism because it helps to maintain the existing social relations of the commune (p. 8-10). In short, where labour was performed collectively the actual act of performing work in that way contributed to the continued existence of communalism where it already existed. Building on this idea, I now explore in the rest of this chapter whether agricultural production in rural Ireland c.1930s-50s can be understood to have operated within a communal framework.

(6.4) *Cooring in Rural Ireland c.1930s-50s*

In chapter five I established that rundale continued to exist in North-West Mayo c. 1930s-50s, because although arable plots were no longer subject to periodic redistribution among community members, and so, could no longer be thought of as communal property, the practices performed in relation to them continued to fit within a communal framework of production. Likewise, people continued to have communal access to productive locations/activities beyond the individualised plot as created by the state. Additionally, gardens continued to support individualised production as had historically been the case under rundale, and, the commonage continued to exist as communal property used by all within the overall production systems being followed by individual households, which was exactly as had happened under rundale. In other words, landed property was still being used in the same way as it had historically been.

Also, as has been identified co-operation continued to exist c.1930s-50s around which agricultural practices to perform. Together all of these issues demonstrated that, communality was still the guiding principle underpinning agricultural choices and practices performed within the area of North-West Mayo c. 1930s-50s being examined within this research. Likewise, communality continued to underpin production relationships.

Yager (2002) reports that, in an area of North-West Mayo (observed by him), where rundale had historically existed, that, mutual aid continued to be a feature of everyday life there into the late twentieth century (1976 to be precise). People not only continued to share a common pasture, but they co-operated communally to bring in turf, and they continued to lend tools such as rakes to neighbours, or did such things as help them to bring in hay, with the expectation that the neighbour would do likewise for them (p. 154; 174). Again, 'reciprocity rather than generosity [being] … the engine of mutual assistance' (Yager 2002:174).

Yet, despite the fact that rundale practices were still in operation in the West of Ireland up until the late twentieth century there have been discussions of rural Ireland that have often extrapolated the practices performed there from their historical origins. A prime

example of this is offered in Arensberg and Kimball's, *Family and Community in Rural Ireland* (1968). *Family and Community in Rural Ireland* (1968) was produced on the back of ethnographic research carried out by Conrad Arensberg and Solon T. Kimball on three rural communities in county Clare (Luogh, Rynamona, Corrofin) during the 1930s. This work has long been lauded as the seminal work for understanding rural social life in Ireland at that time[95] (Gibbon and Curtin 1978:431; McDonagh 1998:50–1; Taylor 1980:169; Tovey 1992:96; Wilson 1984:1; 3). Arensberg and Kimball 'emphasised the familial nature of the local form of farming as the basis for understanding the rural social system' (McDonagh 1998:50–1) exploring in the process how the family was related to other community institutions (Wilson 1984:7) and how 'events in one part of society affect[ed] those in another' (Byrne et al. 2001:1xxiii).

They identified the family and community as the main social institutions ensuring system continuity (Tovey 2001:308): The family, with its stem family impartible inheritance system was understood to contribute to social continuity and the maintenance of equilibrium within the system by keeping the family name on the land, which involved one off-spring inheriting the land and the other off-spring being dispersed beyond the farm either to other farms in the area through the dowry system, or, by being emigrated out of the area altogether (Arensberg and Kimball 1968:61; 63; 66; Kennedy 1991:482; 487–8); the community was understood to foster the social reproduction of the system already in place through the promotion of the practice of cooring, which in the 1930s still involved reciprocal relationships of labour exchange between households. As had historically been the case under rundale, failure to participate in cooring brought social stigma and exclusion to the non-participant party so that non-participation was generally avoided if possible (Arensberg and Kimball 1968:71; Arensberg 1937:68; Byrne et al. 2001:1xxxiii; Curtin 1986:60).

Only where a farm was big enough to survive without the aid of cooring – as was the case of the rancher with three hundred acres in Luogh – would a farm abstain from participation in this system (Frankenberg 1966:36). Elsewise, only farms lacking the

[95] 'The ethnographic validity of Arensberg and Kimball's account went unquestioned for thirty-three years. Later studies "demonstrate either an implicit or explicit acceptance of the model and ethnographic accuracy of the original Clare study" (Wilson, 1984:3)' (Curtin 1986:61)

resources needed for reciprocation were excluded (Curtin 1996:253; Frankenberg 1966:37), because the presence of cooring did not indicate a natural tendency toward co-operation within a community and was not, as understood by Arensberg and Kimball (1968) about '"friendliness" of the place' (p. 72), but rather, it was necessary to the survival of individual households and was largely driven by self-interest (Curtin 1996:252–3), so that, although cooring in the 1930s acted as a levelling mechanism that might seem to demonstrate a commitment to egalitarianism and communalism, it should be understood instead as a 'strategy aimed at the long-term survival of the village community' (Moon 1999:226). Cooring 'like all mutual-aid systems, can be understood as a pre-industrial or pre-money banking scheme' (Brody 1973:135), which in the absence of money offered a functional alternative to it (Brody 1973:141), so that, in systems where cooring exists the defining feature of agricultural labour is that it is non-monetised.

(6.5) *Social Mechanisms Underpinning Cooring*

Arensberg and Kimball (1968) stress the non-monetised aspect of production relationships they observed in County Clare in the 1930s. They highlight that money was not exchanged within cooring (p. 252): Lending a boy to help with work was a common form of co-operation (Arensberg 1937:64), but, the most obvious form of co-operation was when groups would gather to perform tasks such as cutting the hay and then collectively bringing the hay to the haggard (farm yard) to make hayricks together there (Arensberg 1937:64).

As well as the system of cooring – as it existed in rural Ireland in the 1930s - which operated within the agricultural working day (Curtin 1986:60), the system extended to include serving food at weddings and wakes, digging graves, and any number of other things (Arensberg 1937:67; Arensberg and Kimball 1968:255). In so much as the meitheal co-operated to perform tasks both inside and outside of agriculture it helped ensure cohesiveness and co-operation among community members through interaction with each other on a regular basis. As understood by Brody (1973) the 'activities of all seasons, including winter, were part of a single social and economic whole' (p. 29).

Arensberg (1937), talking about the Rynamona of the 1930s, described a custom known as the gamble that would unite the community:

> As often as once a week, a gamble is held in or near Rynamona. Each household in its turn throws open its doors to the card-players. Admission, usually a shilling, goes to defraying the expense of a supper and tea for all and goes toward the prize … The prize may be a turkey, or two geese, even a young pig or calf. (p. 141).

While McNabb (1964) found no profit was to be made from these gambles even though guests paid their way (p. 235), Arensberg and Kimball (1968) identify that, the admission charge often resulted in profit and that the gambles can be understood as a certain form of commercialisation (p. 187). However, for both Arensberg and Kimball (1968) and McNabb (1964) the key importance of these gambles and other forms of socialising within the community was that they helped to foster continued co-operative relationships within work, and specifically, within agricultural work. However, they not only encouraged individual community members to co-operate, but rather, they also encouraged communal activity.

Also, during the winter when agricultural work was essentially at a standstill, community members would visit each other's homes on a regular basis, whether to meet to play cards as was common among the younger men (Arensberg and Kimball 1968:187), or, to meet as the old men did in the form of the *cuaird* (Arensberg and Kimball 1968:173; 183). The cuaird, or, "old men's house" sometimes referred to as the "*Dáil*" or "parliament" referred to the house of one of the older men in the community where a group of elderly males would gather to discuss various topics (Anderson and Anderson 1962:1020). These older landowners who formed a 'core of conversationalists' (Anderson and Anderson 1962:1019) held more power than younger men in the community, who often sat around silently listening to the older men talk. It was these older men that had the most power to influence decisions about everyday life (Anderson and Anderson 1962:1019). In particular, they had the power to influence agricultural behaviour within the community within their discussions about the best times to sow, reap, and harvest, which seeds were better than others, and the merits of traditional farming methods when compared with more modern techniques (Arensberg 1937:138-9; Arensberg and Kimball 1968:183-4).

In other words, agricultural practices were regulated through the cuaird (Arensberg and Kimball 1968:185) which can be understood as the twentieth century equivalent of the king/headman that had historically regulated practices and customs within rundale (Ó Danachair 1981:25-6; Slater and Flaherty 2009:14), and as the Irish twentieth century equivalent of the council of elders that performed the same function in the Russian agrarian commune. Even their use of legends, proverbs, and such like to support tradition (Arensberg and Kimball 1968:184) was the same as in the Russian communal context where the council of elders used proverbs to support their position and authority and facilitate the continuation of established custom[96] (Moon 1999:243). Proverbs and such like were important tools for promoting adherence to already established norms, because as understood by Byrne et al. (2001) this was an Ireland that was at that time still 'firmly in the grip of customary beliefs and practices' (p. 53). Arensberg (1937) draws particular attention to the capacity of folklore (fairy faith to be precise) to influence behaviour in rural Ireland in the 1930s (p. 181-216). Fairy faith acted as a structure to affect social behaviour, but also, the accepted authority and wisdom of the elderly male population at that time was another structure encouraging compliance with custom.

(6.6) *Cooring and Agricultural Development*

Brody (1973), using Arensberg and Kimball's study as a baseline to compare his findings against, carried out a study of rural Ireland decades after Arensberg and Kimball had conducted theirs. Tracing the effects of modernisation on Irish rural society Brody (1973) lamented the breakdown of rural social structures which had previously upheld the authority of the older generation to shape rural life (p. 123; 126; 164). Gibbon (1973), rejecting the accuracy of Arensberg and Kimball's data, attacked Brody for accepting any information provided by Arensberg and Kimball because in his opinion it ranged from the 'inaccurate to the fictive' (p. 491).

[96] 'The social hierarchy in village communities was not just maintained by punishment, exploitation and bribery, but by socialisation. Respect for elders was an important part of peasant culture. It was reflected in proverbs such as "The opinion of the older generation is always right" and "Where there is age, there is also law"' (Moon 1999:243); 'The high prestige of the older peasants is explained by the fact that communal life was based on an oral tradition handed down from father to son' (Mironov 1985:15)

Gibbon (1973) used the example of economic relationships tied to cooring to argue that, production in rural Ireland during the 1930s was not being shaped by cultural structures, but rather, was being determined by capitalist economic relations of production (p. 486-7). In opposition to Arensberg and Kimball's claim, Gibbon made the point that money was a feature affecting production relationships in rural Ireland during the 1930s. However, while money was affecting production (with rent and such like long being a feature of life in rural Ireland at that time) money did not underpin production relationships. Gibbon was wrong in emphasising money and dismissing the importance of tradition, custom, and the influence of the older generation in affecting production and production relationships.

While Arensberg and Kimball's (1968) understanding of cooring as a cultural mechanism exhibiting the friendliness of place is overly romanticised and not representative of the fact that cooring relationships, were in the last instance, about risk reduction in difficult production contexts, and, about survival, what they were correct in arguing was that cooring operates to retard capitalist development within social systems, and therefore, helps to safeguard their continuation in a pre-capitalist form.

Gibbon (1973) has argued that cooring systems contributed to capitalist development because as a system they were wrought with inequality and conflict, so that, they contributed more to growing social differentiation than system maintenance. He makes the point that, those with access to greater resources within cooring relationships benefitted by receiving help before those who had less. This ordering of turn-taking in relation to help received meant that those with greater access to resources, such as machines, were less exposed to weather threats within production because their crops were harvested first (Gibbon 1973:486–7). Also, he makes the point that, those with access to machines, for instance, did not have to utilise the same amount of labour within their household to fulfil their obligations within the cooring system[97]: In short, based on the fact that cooring was not an egalitarian system, and, was a system which offered the potential for conflict to emerge within it, Gibbon (1973) understands that

[97] One days' use of a machine might equal the work of one family within the cooring system. This meant that although the family who owned the machine had to provide the labour of one family member to operate the machine the rest of the household's labour could be put to some other use by them outside of the cooring system (Gibbon 1973:487)

where cooring existed it acted against the reproduction of pre-capitalist societies (p. 495).

However, pre-capitalist systems can accommodate conflict and still be understood as both pre-capitalist and capable of achieving their reproduction (Hannan 1982:147). The crucial point to note is that, even though cooring can be linked to inequality and conflict (or the potential for conflict) that systems where cooring operated are better understood as peasant because only when labour relationships between community members are shaped by the money economy is the system capitalist (Chevalier 1983:158–9). While Gibbon was right to criticise Arensberg and Kimball for presenting cooring as an egalitarian and conflict free system, Gibbon was wrong to link cooring with capitalist development.

Additionally, while it may seem that because cooring was not an egalitarian system and was a system that favoured those with access to greater resources within it, that, it was irrational for those with access to lesser resources to participate in the system at all, what must be remembered is that, in pre-capitalist societies individual action is guided by overarching moral rules that exist at community level. In line with the argument being developed throughout this chapter, the situation is that the decisions and behaviour of individuals within pre-capitalist societies are not so much a reflection of individual choice as they are a reflection of the normative values held by the society as a whole (Salazar 1996:239).

However, although pre-capitalist systems because they are shaped by the moral economy and reflect a group mind set at the level of action are generally understood as the antithesis of capitalist systems where the money economy and individualism guide behaviour, what must be appreciated is that, these two separate economies can overlap with each other to affect social behaviour. Taking the Russian agrarian commune/rundale as an example, while relations of production between community members were guided by the moral economy, they were also shaped by the money economy because the moral economy itself was structured to meet the reproduction

costs of the social system. Hence, the moral economy and money economy while separate to each other articulated with each other.

> Peasant villages are economies because their governing objective is not individual maximization of wealth but the protection of the community as a whole against a collapse of subsistence. The end is "moral" and so, presumably, inaccessible to economic reasoning. Yet if we look at … these villages, it becomes apparent that many of their behaviors and institutional forms are economizing responses to a situation of severe risk in regard to subsistence goods. They may well subscribe to the proposition that justice demands that all be preserved from hunger, but it is the scarcity of means to ward off this ill that produces their economizing decisions, including their resistance to the intrusions of the market with its threatening fluctuations and unacceptable disruptive outcomes. Alter those scarcity constraints … and the structure of the village becomes redundant. The village, in short, is governed by risk aversion … and it economizes around its principal constraints. The specification of the end is, to be sure, a matter of "moral vision," of a certain perception of justice. But given that end and the scarcity situation that confronts the village, the resulting choices are amenable to economic analysis (broadly speaking). (Booth 1994:659).

Following this logic, the main problem with Arensberg and Kimball's analysis of cooring, is not their idea that cooring helped to reproduce pre-capitalist relations of production, but that, they presented the idea that pre-capitalist systems stand outside of market influences and the need for money, as if the moral economy that exists within them is in no way affected by economic influences. But also, the moral economy itself has its own particular expression of an investment logic which while not involving money does nonetheless involve building up "credit" in the form of labour, services, and goods/gifts that individuals hope to draw on themselves when needed, because of their giving them "freely" to others when they require them. Or, in Salazar's (1996) words:

> Relations of generalised reciprocity, as opposed to contractual agreements, do not involve any fixed and predeterminate form of payment. But what they certainly involve, however, is an expectation that some form of counter-service will flow in the long run. That is why a trust bond constitutes the basis of a relation of generalised reciprocity. (p. 240).

Instead of exchanging commodities, communities can exchange "gifts" of goods and services for which nothing specific is expected in return, but, with an expectation that mutual debts will be balanced in the long term (Salazar 1996:243–4), and, where "gifts" are not returned when expected within the reciprocal relationship this can affect economic outcomes. As understood by Kennedy (1991), 'because the kinship and economic spheres interpenetrated, there was an ever-present danger that conflict in one

might overflow into the other, thereby rupturing production as well as personal relationships' (p. 496).

Jackson (1967) in his discussion of the forces affecting economic decisions within Skibereen – an Irish town within which relationships tied to production mirror those of the Irish rural societies at issue here - also calls attention to how economic and cultural considerations cannot be divorced from each other within systems underpinned by custom (p. 1-33). As he reports, '[o]ne business in the town mentioned that he had been offered a holiday in America but did not dare take it for fear he might be away when he was needed and so offend a whole kinship group' (Jackson 1967:27).

Essentially, while Arensberg and Kimball understood that cooring operated within rural Ireland to help reproduce the social system they observed there, the problem is that they over-emphasised culture as integrated rather than understanding culture synchronically – as an ongoing process involving people relating to each other (Peace 1989:105). Instead, a Durkheimian character anthropology which emphasised (Arensberg and Kimball 1968:xii) 'Durkheim's traditional social form based on mechanical solidarity' (Peace 1989:94) dominated their research.

Arensberg and Kimball's (1968) analysis, because it was situated within a structural functionalist framework presented a view of society 'as an integrated system of mutually interrelated and functionally interdependent parts' (Arensberg and Kimball 1968:xxx). This view of society tends to exclude a focus on conflict and change and encourage a focus on relations, because, what the 'structuralists are concerned with is the "relations between co-existing elements or terms. They are about *relations*' (Massey 2005:39). However, they are really only interested in certain aspects of relationships that exist within societies.

> The conceptual synchronies of structuralism are relations imagined in a highly particular way. Above all, they are characterised by relations between their constituent elements such that they form a completely interlocked system. They are closed systems. It is this aspect of conceptualisation – in conjunction with a-temporality – which does the most damage'. (Massey 2005:39).
>
> Structures rob the objects to which they refer of their inherent dynamism. They … try to "hold the world still" but this eliminates … any possibility of real change. It [is] … evidently undeniable that the world moves and changes. Yet what structuralism famously made of this was

> a conceptualisation of the world in terms of an invariant model on the one hand and variable history on the other. (Massey 2005:38).

By trying to demonstrate 'the coherence of each society as a structure in its own right' (Massey 2005:37), structural functionalist arguments oppose historical narrative (Massey 2005:37; Tucker 1989:284). Arensberg and Kimball (1968) failed to account for why production may have been organised in a specific way within the communities they investigated because of the local history of those communities (Brody 1974:5). Instead, presenting a discussion of change as if change occurred, but, did so in a way that was absorbed by the society rather than changing it (Arensberg and Kimball 1968:262; 300; Byrne et al. 2001:iii; lxxi) the idea put forward by Arensberg and Kimball is that the society they were investigating had stood still for eons.

Peace (1989) has drawn attention to the fact that, Arensberg and Kimball's work was situated within the anthropological tradition popular at that time of presenting cultures seen as "other" than developed western societies as exotic and esoteric. Within this tradition seemingly irrational behaviours of society members when presented within an overall discussion of the customary codes and norms of a society can be understood to reproduce a rational social order (p. 90). Peace (1989) identifies that this "othering" of Irish rural society fit into the modernisation framework of development whereby the 'authentic Celt [was] … increasingly conceptualized as a member of an Other population who epitomizes in the present Our historical past' (p. 91). The problem of course is that, the idea of a community as "other" suggests that the culture which makes it distinct will die out in the face of development. And within this focus on rural Ireland as "other", as primitive/not yet developed (Arensberg and Kimball 1968:xxix), and as relatively static, rural Ireland was put forward by Arensberg and Kimball as 'a distinctive and characteristic variant of western European Civilisation [with] … a long relatively unbroken tradition dating back to pre-Christian and pre-Roman times' (Lysaght 2002:258).

(6.7) *Rundale in Luogh?: An Ongoing Discussion with Arensberg and Kimball's Work*

This fact, compounded by the fact that Arensberg and Kimball represented the findings of their study as if they were representative of 1930s rural Ireland as a whole detracted attention away from local history as contributing to shaping production relationships in different communities in rural Ireland in different ways. While they never actually argued that, their 'analysis and conclusions stood for aught but Clare (… their liberal use of "Irish" instead of "Clare" as an adjective did tend to confuse)' (Wilson 1984:2), so that, 'their readers viewed their work as if they were reading about a microcosm of Irish rural society as a whole' (Wilson 1984:2). Wilson (1984) has defended Arensberg and Kimball by arguing that their data was only suggestive of cultural relationships among small farmers in other parts of the country, and that, their data is valuable because while only suggestive of cultural relationships elsewhere in the country was accurate for the area of Clare that they studied (p. 2). However, this is questionable.

Taylor (1980) asserts that, 'anthropologists working in other communities in the same general area of Ireland have reported significantly different settlement patterns and social relations' (p. 169). Perhaps, the presence of rundale in some areas and not in others may have had something to do with this. Taylor (1980) argues that the cooring witnessed by Arensberg and Kimball in Clare in the 1930s was an atrophied version of the communal labour of rundale (p. 173). Yet, rundale is not mentioned by Arensberg and Kimball (1968).

Arensberg (1937) stated that the common settlement type to be found in Ireland in the 1930s was that of the isolated farm building 'standing upon its own ground and forming an integral part of the holding' (p. 43). However, he acknowledged that other types of settlements were also to be found and that one of them was 'the crazy-quilt pattern of "rundale"' (Arensberg 1937:43). While Arensberg and Kimball (1968) never allude to the areas' they investigated ever having had a communal past, it is interesting that Arensberg (1937) makes reference to rundale and acknowledges that it existed in certain parts of Ireland at that time (p. 43).

Also, historical records encourage the idea that at least one of the areas researched by Arensberg and Kimball (1968), namely Luogh – which was the 'townland described most closely' (Harris 1988:420) by Arensberg and Kimball - quite probably had a rundale past. Data indicates that in 1838 in the union of Ennistimon in county Clare – which is the union that Luogh, Rynamona and Corrofin are part of – that 52.62% of land was held in common or under joint tenancy which is way above the country average of 8.004308%, that 18% of holdings were valued under £2, while the country average was £29.91057, and that a much higher degree of relief was offered to people in Ennistimon than in the country in general (First Report of the Relief Commissioners, constituted under the act 10th Vic., cap. 7. 1847; Second Report of the Relief Commissioners, constituted under the act 10th Vic., cap. 7. 1847; Third Report of the Relief Commissioners, constituted under the act 10th Vic., cap. 7. 1847). The fact that so much of the land in Ennistimon was held in common – which is a feature of rundale - was rated at such a low value – which is significant because rundale is associated with marginal land – and that relief levels were high – which is important because rundale was susceptible to stress – can be taken to suggest that rundale may have existed in much of Ennistimon. But also, looking at map evidence there is even more to suggest that Luogh may once have been a rundale area.

Looking at maps of Luogh, Rynamona and Corrofin what is noticeable is that the land within Luogh is striped while the fields in Rynamona and Corrofin exhibit a more irregular pattern (see Ordnance Survey Ireland 2014). This stripping of land as discussed in previous chapters can indicate a rundale past. Furthermore, while Arensberg and Kimball (1968) make no mention of Luogh having had a rundale history perhaps it did. Similarities can be drawn between the historical data on Ennistimon, and Luogh specifically, and that of the area investigated within this research. In 1838, the community being investigated in this research was situated in the union of Ballina. Records indicate that 52.62% of land in that union was held in common or under joint tenancy, that 18% of the land was valued at under £2, and that relief was higher than the national average. Additionally, land in the area of interest to this study is striped.

Essentially, there is much to suggest that Luogh may have had a rundale history and that this may have been the reason behind the presence of cooring in the area observed by

Arensberg and Kimball. However, if Luogh did have a rundale past the problem with Arensberg and Kimball's approach is that they extracted cooring from its communal economic base and instead focussed only on cooring as an expression of culture and as a cultural mechanism that contributed to the reproduction of rural Ireland in the 1930s, when in fact, the cooring they witnessed may well have been more of response to material conditions and a result of a history of rundale than anything else. If so, perhaps they should have stressed communal rather than community structures as affecting production within Luogh, and should perhaps have stressed how the "whole"/the communal society shaped individual behaviour, rather than, how the separate actions of separate individuals shaped the community.

(6.8) *Conclusion*

Individual behavior within rundale contexts was very much shaped by the rundale system as a whole involving a shared way (shared by the individual and the rest of the community) of relating to other community members. Cultural structures and institutions were in place to encourage adherence to cultural norms and values: Honesty in dealing with other community members was expected; participation in community aid groups was required; money was not exchanged for labour among community members; the giving of gifts and services to others was common place; in general, the values of sharing, obligation, and reciprocity underpinned relations of production.

Adherence to local norms and values was actively encouraged at local institutional level. For instance, regulation/sanctions were in place to ensure participation in cooring (isolation from the rest of community could result from failure to partake in cooring). Likewise, there was a community expectation that where individuals gave gifts and services to others as needed that they in turn would receive gifts and services from the community as required. But also, social mechanisms such as coming together to play cards encouraged adherence to tradition because they encouraged co-operation at the level of the community. Also adherence to cultural norms was promoted at the level of belief in supernatural beings. Additionally, the elders of the community encouraged adherence to tradition and especially adherence to traditional methods of agricultural production.

Overall, it can be said that adherence to the rundale values of obligation, sharing, and reciprocity were fostered across multiple informal institutional levels involving a variety of actors. What these values reflect and encourage are an ethic of care towards other community members. This ethic of care helped the community as a whole to reproduce itself and to meet its needs without relations of production tied to agriculture having to be monetized so that individualism would develop within agricultural production. Of course, this is not to say that the moral economy did not articulate with the money economy, but rather, it is to stress that although aspects of agricultural production involved responding to the market, local relations of production were not structured according to capitalist principles. Instead, relations of production were shaped by the local rundale context of production and its associated structures/institutions/traditions which affected how community members interacted with each other to perform agriculture, which was to incorporate an ethic of care into the production relationship, as opposed to the relationship being driven by financial consideration.

However, this argument is theoretically based and so to test the accuracy of it and preceding conclusions it is important to apply insight gathered here to actual happenings as they occurred in a real life situation, which is why the following chapter offers on the ground (empirically informed) analysis of relations of production as they occurred in North-West Mayo c.1930s-50s, with the questions asked being: Can relations of production as they presented in this community be understood as those associated with rundale? What structures and institutions were acting in that community at that time to affect relationsions of production there? How were relations of production being affected by modernizing processes?

Chapter Seven

Production Relationships in North-West Mayo

(7.1) *Introduction*

This chapter explores relations of agricultural production as they existed within an area of North-West Mayo c. 1930s-50s with a view to understanding the main driving forces behind how relations of production were organised in the area at that time and with what effect for agricultural development. I examine the structures, institutions, and processes that came together to affect the degree to which labour was carried out individually or as part of a group. I look at collective labour to see who was involved in that labour – immediate family members, or members of the wider community. Additionally, I investigate why individuals involved themselves in collective labour Also, I consider some of the social mechanisms that encouraged co-operative non-monetised labour even though commercialisation was a growing feature of life.

I begin by assessing the degree to which labour was performed individually or collectively.

(7.2) *Individualised Labour*

The different production spaces of the garden, arable plots, and commonage, were of a more or less individualised nature depending on the production space in question. Starting with a focus on labour as it occurred at the level of garden space the situation was such that work within the gardens was individualised with only those who owned the gardens carrying out work there.

> You'd do all the work in the garden yourself. You'd have your vegetables planted there and you'd go out … well whoever in the family … would be doing their bit getting that ready for the vegetables and then pulling the vegetables … bringing them in when you might need them. You might pull a cabbage or some carrots for the dinner as you'd need them (Francis)

However, while work in gardens was individualised to the extent that it was performed by family labour only, family labour itself was also individualised with division of labour existing within the family to shape who performed which tasks and where.

> The women would be involved [on the land] if they could go out, but then, they had to look after the children … My sister used to be cleaning the stable and bringing in the water … When you would get home from school your job would be left for you and you'd have to do this and do that and everyone would do their own (Sarah)

> The women might be doing a bit more in the garden because it was near the house because she would have the children to look after (Francis)

In terms of family labour on the arable plots what occurred was that families divided work there, so that, different members of the family tended to be assigned particular tasks within the performance of labour across that production space. The example of potatoes offers a case in point:

> Men dug the land for the potatoes (Francis)

> They dug the land with the spade … hard work … the man with the spade (Sarah)

> The children pitched the potatoes … They made the holes and the children threw the potato bits in and covered them up … Men and women worked and children helped a lot (Jean)

This same type of division of labour within the household occurred in relation to grain production.

> The young ones might be bringing in the sheaves … them all tied up … bringing them into the garden and you might get a day off school to do that and you'd bring them into the garden. Then it was the men who would trash them (Francis)

It was also the men who made the drains on the arable land wherever they were needed.

> The men would be making drains and things in the fields (Sarah)

Additionally, just as division of labour existed within the family in relation to work carried out across the arable plots and gardens, there was division of labour within households in relation to agricultural tasks associated with the commonage. For instance, where livestock were kept on unfenced commonage this necessitated periodic checking on livestock by household members - to ensure that livestock had not wandered too far, were not grazing in too dangerous an area, or, were not already in need of rescuing from a dangerous location where perhaps they may have become trapped. However, while checking on livestock was important to the household in general, it tended to be the children of the households who were assigned this task.

> Every house would have cattle and sheep on the commonage and they'd all have to check on them. Often the children from the houses were the ones that were sent to check on the cattle and sheep (Francis)

In sum, family labour was individualised to different degrees within the family across the production spaces of the gardens, arable plots, and commonage. Likewise, there were certain tasks which only the family carried out. Conversely, there were other tasks which were performed collectively with non-family members. In contrast to the gardens where only family labour was involved, the situation was different on the arable plots. While labour was predominantly performed by the family there, non-family labour was also a feature of production in that space at certain times in relation to certain tasks.

> You'd be growing your own crops on your own land … oats, barley, potatoes, rye … and you'd be doing most of the work yourself … just the family … but other people would help with some jobs (Francis)

(7.3) *Collective Labour*

One of the tasks performed collectively was sheep shearing.…

> all the team with the village would be shearing sheep (Seamus)

Also, people in the community would unite in their efforts to secure the hay harvest of individual families.

> People would do work with each other …in meitheals … They would do hay together. They would get together and get the hay in on a fine day and would have reeked it and all and it would be the same thing with oats or whatever they were at. They would help one another out. Everybody wouldn't cut the hay the one day. They would be coming in on different days and two or three or four ... locals around ... would get together if they seen you out at the hay at all (Francis)

This is not to suggest that meitheals somehow formed organically out of nowhere because they did not. Rather, custom dictated the formation of meitheals in relation to certain tasks, so that, even in the absence of requests for help with that particular task help was forthcoming.

> You didn't have to ask anyone for help. They would just see you at it and everyone knew the way the whole thing operated and that they didn't need to ask anyone, but, a group would get together and get the hay in (Francis)

Of course, while custom and the cultural context of production decreed that the community provide labour in this way what should be remembered is that this custom did not reflect altruism, but rather, was a response to dealing with difficult physical conditions of production. Very little arable land was available to households for crop production, and so, every opportunity to maximise the potential for production on those plots had to be grasped. The existence of the meitheal meant that families did not need to worry that labour shortages at particular times within their households – perhaps due to sickness, or such like – would result in an inability to fully utilise the arable plots that were available to them.

Having a way to secure labour was crucial because this was a society which used very little technology within production. Hand tools were the mainstay of production in the area.

> There was no tractors around … that time only the donkeys and carts, and, it's not everybody that had a donkey and cart. They were doing it all by man power (Seamus)

> Everything was done by hand. There was no machinery. I remember the first man that came here with a tractor cutting grass. He was over there and there must have been about thirty on the road beyond watching him. That would be back in the fifties. It was like going up to the moon seeing that (James)

Plate 9, shows men in Dún Chaocháin with scythes.

> The scythe was for cutting the grass, and the oats and the barley (Sarah)

Plate 9:
Working with Scythes

Source: Comhar Dún Chaocháin Teo, 2011

As well as scythes, they had other hand tools for other agricultural tasks.

> They'd have to shake the hay one time with the pike[98] and turn it and be shaking it (Jean)

Likewise just as hand tools were used to cut and shake the hay, hand tools were also used by the meitheal in the performance of other collective tasks such as trashing the grain. In fact, not only were hand tools used to perform this task, but, rudimentary homemade hand tools were used.

> We had a thing for trashing the barley ... It was two real hard timbers ... one about that length ... and the other would be longer then and then there would be a rope between ... in the space ... you'd have a space the way that you could have the pressure on. The sheaf of barley would be on the floor. They'd hit the barley. Two pieces of timber and one ... and the other one longer ... Strong timber so that it wouldn't crack. You would have the rope from one to the other. You would cut the timber near the top of each and put your rope around them on each side and keep them a bit apart and when you would put the rope on either side you would tie it then with a string so it wouldn't loosen, and, then when you would swing it then the other one would go around as well and you'd put it down ... bang it on the floor ... There was space between them and that was pressure and the more pressure the better for the barley ... that would knock the grain out of the barley. You couldn't do that with any other thing only the barley because the heads would fall off. You could trash the others with a stone or a barrel. The barley, rye or the oats you could trash on the barrel. That was the way they did it. The barley was different (Anthony)
>
> How they would trash [oats] is they would have a barrel and they would turn the barrel on its side and they'd start belting it on the barrel and the seed would fall out of it. Then they would go

[98] The pike was an instrument with a long handle topped by metal prongs. Some pikes might have only two prongs and others might have four

> out and winnow it ... the wind would blow the chaff out of it ... and the seed would fall down and that's how they used to get their seed for oats (Seamus)

In the same way that the trashing of grain relied on homemade equipment, so too, were some of the other pieces of equipment used within the area homemade. For instance, sometimes harrows[99] were homemade.

> When they would shake the grain they would get the harrow to harrow the ground to level it off so that the seed would ... along with covering the seed, it would level the ground … and some of them would make their own harrows (Sarah)

In contrast, people were unable to make ploughs for themselves which is perhaps one of the reasons why they were so rare in the area.

> They wouldn't make the plough … They needed cash to buy them (Sarah)

> Very little had ploughs that time. You would be lucky to get one in a village and maybe there would be villages that had none (Peadar)

The fact that this society relied so heavily on hand tools is not surprising because electricty was not even a feature of life in the area until the late 1950s. Other areas of Mayo – such as Knock and Ballycastle - had electricity in the 1940s (see *Newspaper Exerts 1 & 2*), but, the community of interest to this research was not connected to the national electricity supply until a decade later.

Newspaper Exert 1:
Rural Electrification Notice for Knock, County Mayo


RURAL
ELECTRIFICATION
IN THE AREA OF
KNOCK
KNOCK, CO. MAYO.
ELECTRICITY SUPPLY BOARD
RURAL ELECTRIFICATION
OFFICE
KNOCK CO. MAYO

Source: The Ballina Herald, September 10, 1949:2

Newspaper Exert 2:
Rural Electrification Notice for Ballycastle, County Mayo


RURAL
ELECTRIFICATION
IN THE AREA OF
BALLYCASTLE
E.S.B. OFFICE,
KILLALA,
CO. MAYO.
ELECTRICITY SUPPLY BOARD
RURAL ELECTRIFICATION
OFFICE
KILLALA, CO. MAYO

Source: The Ballina Herald, August 6, 1949:2

[99] A harrow is an instrument used within agriculture to break up and smooth soil

> Only in 1957 the electric light came … to Kilgalligan (Seamus)

However, while Kilgalligan was late receiving electricity Curraunboy was even later. Electricity only came to Curraunboy in 1959.

> Father Mark Diamon, C.C., Cornboy[100], was present at the Aughoose switch-on ceremony performed by Very Rev. J. Holmes, P.P., Pullathomas. "I wish the E.S.B. would speed up the lighting of Cornboy area" he said (Sunday Independent, February 15, 1959:4).
>
> Sir – In reference to the news story in your issue of February 15 … May I point out that the 29 houses in Cornboy, Co. Mayo, the village in question were connected to the electricity network on February 10 (E.A. Lawler, Public Relations Officer, E.S.B., Dublin, Sunday Independent, February 22, 1959:11)

Essentially, the reality of life in Dún Chaocháin was that, in the final instance, people who lived there had very little access to technology, and this fact, contributed to the meitheal being an important feature of production.

Plate 10:
A Meitheal of Adults at Hay

Source: Comhar Dún Chaocháin Teo, 2011

[100] This spelling "Cornboy" is as Curraunboy was spelled in the above newspaper articles and is not a spelling error made within this thesis

The preceding picture shows a meitheal in Dún Chaocháin in the process of making a hay rick. However, meitheals not only formed in relation to agricultural production.

> Turf cutting was [also] done as a group[101] (Seamus)
>
> Did people assemble in numbers to help a neighbour in certain kinds of work, such as making haystacks or threshing? If so, for what kinds of work? What was such a gathering called? Yes, until about 1950, for turf cutting, making hay ricks, the thatching, [and they] called it a meitheal (Iml.1825:64)

Plate 11:
A Meitheal of Boys on the Bog

Source: Comhar Dún Chaocháin Teo, 2011

Likewise fishing was a group activity[102]. While each of the fishermen involved were entitled to a share of the catch, and, where sometimes if one of the men owned the boat

[101] 'In many country places the people prefer this co-operative system of working to individual effort. Even this year (1946) I notice that most of the turf is being cut by "mihills". These companies of workers of about eight or ten each go around from day to day to one another until all is finished. I doubt if the result is anything better than if every man had cut his own turf. In fact I think the latter system would be the more productive. But for the young men who are usually the turf cutters the communal system of the "mihills" offers many attractions. There are the social and sociable advantages of company, conversation and fun to be derived from an assembly, as compared with the lone life of a labourer in a lonely bog' (Iml. 1244:452)

[102] 'Fishing is another form of occupation which was and still is [c.1930s-50s] carried on more or less collectively. In most cases ownership of curraghs is in partnership. The craft belongs to the crew and not to any particular individual, but nets, lines and fishing tackle are individual property. Catches of fish are divided equally among the crew, except where a buyer comes on to the shore before the fish is distributed. It is counted and the proceeds of the sale divided amongst the crew. Where the fishermen

he might get a bigger share of the catch than the others, people fished collectively and money did not exchange hands for co-operation during fishing, and, for making up a crew.

> You wouldn't go fishing on your own … there would be three or four men in a curragh (Francis)
>
> They would go out in a curragh about four of them … maybe there would be one that would have it and he might bring a few along with him and he'd have a second share (Peadar)
>
> Three men would go out together in a small curragh anyway … but maybe in a bigger curragh there might be four. They would never go out on their own (Seán)

Plate 12:
A Fishing Crew

Source: Comhar Dún Chaocháin Teo, 2011

The communal character of fishing extended beyond the practice of fishing to the giving of fish to those within the community who could not provide fish for themselves.

> Not everyone fished and some that did the fishing would give fish to the other ones at different times. They might give some fish into them when they were passing their house on their way home (Francis)

Different types of fish were caught by those that fished, and different types were more or less available to those that did not. For instance, the non-fishing families could obtain herring from the local shop where it was sold, but, salmon was not for sale there. Instead, salmon was sold to markets outside of the area. As such, the non-fishing

---

fail to agree on the price tendered by the buyer, distributon takes place, and then every man disposes of his share in whatever manner he choses' (Iml. 1244:451-2)

families could not through their own means have had access to this type of fish locally. However, this is not to say that they did not along with their local fishermen counterparts enjoy consuming this fish, because they did, as salmon was sometimes provided to them by these sea goers.

> When they would be passing by they could throw a salmon into the house and many a times they did that because we didn't fish (Peadar)

In providing salmon (in particular) to the non-fishing families, the fishermen, provided the non-fishing households with a gift of food that they otherwise could not have obtained. In sum, the activity of fishing was done collectively, and so, contributed to communality at the level of practice, but also, the practice of giving gifts of fish to others encouraged the continuation of a communal mindset which revolved around the idea of looking after each other. This idea of caring about what happened to others within the community is also clearly expressed in the example of potheen distilling.

Potheen distilling was an activity that was carried out collectively.

> There might be a few people making potheen together in different places around at that time (Seamus)

However, not only did community members co-operate with each other at the level of the labour process involved in distilling, but, the community as a whole co-operated to ensure that this practice could be carried out without negative repercussions for those involved (because the practice of distilling potheen was illegal).[103]Members of the community who were not themselves making potheen, assisted others in this endeavour by warning them of approaching police. Whoever warned the distillers of the approach of the police risked prosecution themselves. Yet, warn them they did.

> Illicit distillation being so rife in North West Erris from olden times, there were many raids by the officers of the law from the days of the Revenue Police of over a century ago down to the present day Police Force of the Civic Guards for the suppression of the illegal practice and the detection of the offenders. In this connection timely warning was often given, by whistle signals to the distillers and those engaged in the traffic of the approach of the enemy, and many a man and woman too owed their escape from being caught, to the warning blast from the finger whistle. Of course, any one detected signalling to potheen makers or traffickers whether by

[103] 'The production of [potheen] … was aided by the communality of the rundale system, and the subsequent difficulties that the Revenue officers had in identifying the individuals involved in producing this illicit alcohol was due to the communality of landholding under the rundale system' (Slater and Flaherty 2009:19)

> whistle, horn, or voice was liable to prosecution and heavy penalty. The whistle had an advantage from the signaller's point of view, in that it could be sent out on the air by day or night by an unseen operator. At night the latter could not be seen by the police, and in the day time he could easily conceal himself in some ambushed position, and the whistle signal would be equally effective in either case (Iml. 1395:485)

While issues of evading the law because of potheen distilling were not everyday occurrences - because the police were not in the area every day, and in fact, sometimes police would know that potheen was being distilled but would turn a blind eye to it - the point to note in relation to this thesis is the degree to which the community as a whole co-operated so that this practice could continue at all.

> There was a lot of potheen made in Curraunboy and the cops that was there that time kind of knew who was doing it but as long as there was no hassle they didn't bother too much, but then, this new sergeant he came in and he was going to raid and close it all down and he got all the cops out and they searched around the place … but when they came into the village there would always be somebody … a young buck … sent with a bag … a guano bag made out of material … a bag for fertiliser for the ground and there would be a few of them bags lying around and when they would come into the village if people knew that there was potheen lying on private property[104] … so what they would do would be send some young buck with some sods of turf in the bag and he would run away towards the mountains to draw the attention of the cops and when the cops would follow him they would think he was going with potheen in the bag … so to get them away from the area and give the locals a chance to get potheen off their land or out of their house or whatever (Francis)

In other words, while the signallers may not have taken part in the actual act of distilling potheen they provided a service that was essential to the survival of the practice.

Similarly, just as the signallers provided a service to the potheen distillers, so too, did the community as a whole provide other services to its members. Custom dictated that the community gather to pay respects to the dead and their families by attending wakes[105] and funerals. However, custom not only dictated attendance at these events, but also, encouraged services to be performed in relation to them.

> Food would be made by people and brought to the wake. Everyone would all have to smoke the clay pipes that would be going around at the wakes, and, people in the area would have to dig graves for whatever family had lost someone (Francis)

[104] If potheen or equipment used to make potheen was found on private land then the person who owned that land could be prosecuted. However, if these items were found on the commonage it was not possible to prosecute anyone (as the following report confirms): 'while the Rossport Guards were on revenue duty in the mountainous districts in their area, they discovered a still and worm [which are equipment used in the distillation of potheen]. They were located on a commonage and therefore no court proceedings will result' (Connaught Telegraph, November 19, 1949:5)

[105] A wake was a ceremony that occurred in the houses of the deceased and involved their bodies being present at the time. The community would come to the house to comfort the family and be with them at this time. Also, family members and members of the wider community would say prayers for the deceased during the wake

> Well the Lord have mercy on everyone that's gone, but, the wakes that time ... there would be bread and jam and tea at the wakes and there were chalk pipes that time that would be at the wakes and there would be tobacco. They would be going around with a plate and tobacco on it. It wasn't cigarettes ... but tobacco cut up, you know? You'd get a chalk pipe that time when you would go into a wake house. There would be loads of chalk pipes that time ... [and you'd] fill them up and light it (Peadar)

As well as the meitheal and general services which were provided to individual households within the community because of custom, and which, did not result in individual households building up "service debts" to other households, there were also relationships which existed between different households within the community which were underpinned by the expectation of reciprocity - whether in the form of labour, services, or gifts being exchanged. It was a fact of life that …

> the ones you'd help … if you helped them with the work it would be remembered (Francis)

In other words, reciprocity was at play in affecting social interaction.

(7.4) *Giving Gifts, Goods, and Services Encouraged Reciprocity within Production Relationships*

Community members practiced giving gifts/goods to each other without expectation of financial payment, but, with the expectation that this "kindness" would be repaid in some material way at a later stage. Often labour was given in return for gifts/goods.

> A man never charged for making a creel[106] for a neighbour, but usually he was rewarded by giving him a day's work on the land or bog instead, or by paying back the compliment by a present or gift of some kind (Iml. 1340:275)

Also, the giving of the "gift" of food to each other was a common occurrence.

> There might be a house where there was young kids or a young child in a house and they mightn't have milk … and they would get bottles of milk given to them. People looked after one another like that (Francis)

> If you wouldn't have milk and if you had a neighbour that would have milk left over you'd go to the neighbour and you'd get milk, a five gallon bottle of milk, and that was kept for the tea … For the tea, and where there was a child in the house maybe there would be another neighbour that would give you a bottle. There was no Cow and Gate[107] in the times gone by. They had their own milk (Sarah)

[106] A creel was a wicker basket commonly used in the West of Ireland to carry various different things such as turf. 'Indeed, very often a small mat was placed between the "creel" and human back [to allow people to carry loads without chafing their backs]' (Iml. 1340:275)

[107] Cow and Gate is a brand of powdered infant milk formula

The sharing of milk as just described was not about altruism, but rather it was about survival. It offered household necessities to those households who at a particular time could not produce them themselves, but also, the giving of gifts/goods was a way of reproducing the community in general, because it encouraged adherence to an overall ethic of care which ensured that individualism did not take hold to undermine relations of production and it meant that the community/community members did not have to look to the market to meet its needs.

Also, certain people within the society tended to receive gifts/goods more readily than others because they were considered vulnerable and in need of help which was a fact that the community was quick to respond to. For instance, gifts of milk, vegetables, and turf were often delivered to the houses of widows.

> Anywhere there was a widow, or if someone was sick or injured you would see the neighbours helping them out and giving them what they could. They might give them turf, or milk or vegetables or anything like that (Francis)

Also, what is important to note is that, those same people who were the receivers of gifts/goods at one time might have been donators themselves at other times. For instance, where milk was concerned, because …

> a cow wouldn't give milk all year … because the cows would run out of milk … naturally … when they would be going to calf … every couple of months then maybe some from the neighbours would tide you over until the cow calved or whatever (Sarah)

It was essential that people within the community could rely on each other to provide milk if they were unable to provide it for themselves (or provide enough of it themselves) to meet family needs because …

> there was no milk from the shop (Sarah)
>
> You weren't running to the shop because it wasn't there to get … there was no milk for sale in the shops … you would never see milk for sale in the shops … never, never … it was all between neighbours. They would share what they had (Jean)

This was important because the reality was that …

> when the cow is in calf she goes dry and when she calves she gives milk (Francis)

This meant that a family could be left without milk for the period the cow was in calf. Of course, people were aware that …

> when the cow would calf she would give milk and she might go on for three or four or five months and go dry (Francis)

Because of this they made concerted efforts to try to ensure that …

> they would have another cow coming on … calving again to take over from the one who had calved earlier (Francis)

However, even despite their best efforts to ensure that they could meet their own household requirements for milk there was always …

> the risk that a cow could be dry or a cow could die or anything could happen (Francis)

It was in situations like this that the gift of milk from neighbours was so important. In fact, the system worked so well that …

> there was a woman and she used to say that she would have more milk when the cows would be dry ... two cows she had and if they were in calf at the same time maybe she wouldn't have any milk but the cows would calf then and she wouldn't have enough because she would have had more from the neighbours giving the milk because everyone would be giving her some and even the Kilgalligan people that time they would be coming to the shop and maybe they would have a little bottle of milk or a gallon of milk and bringing it to her and this sort of thing but then when the cows calved they said sure she has plenty of milk now but she wouldn't because she used to have to give it to the calves (Martin)

Additionally, milk was not the only food shared between households within the community. Potatoes were another item commonly given.

> Everybody had potatoes … if they were short if they had a good neighbour they'd get a few bags off them … but when April would come, or maybe the beginning of May they wouldn't have their own spuds … their spuds would have ran out and they'd buy the Indian Meal[108] (Sarah)

Likewise, as the earlier discussion about fishermen giving fish to non-fishing families revealed fish was also given as a gift. But, these gifts not only acted to provide people with resources that they could not at particular times provide for themselves. Rather, gift giving contributed to reproducing the community in general because at any point in time any member of the community might need community gifts.

[108] They used to call it in Irish the Starraí Buí, the Yellow Meal … the pure Yellow Meal (Sarah); You wouldn't buy that all year but when you had nothing else (Seamus)

Also, as well as providing gifts to help others meet their basic needs, this was a community within which certain foods were required to meet religious commitments, and, sometimes gifts of food were exchanged between community members for the purpose of ensuring that those religiously significant foods were available to all.

> At Christmas time they probably killed a goose or whatever (Jean)
>
> The geese was all for Christmas. Raw potatoes or boiled potatoes would help the goose and they'd have three or four geese then well fed for Christmas (Sarah)

But also …

> they would rear a few chickens and kill … the odd hen or pullet or a cock … they might kill them a couple of times in the year … more or less for special occasions ... for Christmas surely and maybe for Easter time and a feast day (Seán)

Similarly …

> they used to have pigs and maybe they would kill the pigs too (Jean)
>
> Most of the people would kill a pig at Christmas or kill an old cow (Seamus)

Additionally …

> they'd want to kill a cock for St. Martin's Night (Francis)
>
> On Saint Martin's Night they'd always kill a cock to draw blood for Saint Martin (Sarah)

In other words, certain foods were required for certain feasts, but, the problem was that, sometimes a family might not have the particular food they required, and so there was the risk that they would not be able to celebrate the feast as dictated by custom. In this instance, it was common for other households to provide the necessary food item to those who were without it.

> If you didn't have a bird you could kill yourself you would be given one by one of your neighbours so you wouldn't be stuck (Francis)

This point is significant because the giving of food in this way, so that, people could "properly" celebrate events that were important to them, acted to cement the cooring relationship that existed at the level of production relationships because it fostered a feeling of trust between households, and, a commitment to helping each other. In short, it cemented the trust relationship – trust that you would be helped when you needed it - which was the foundation upon which cooring relationships rested, and which was what encouraged cooring relationships to continue.

However, while everyone in the community was generally exposed to the same types of risks across production there were some who were more at risk than others. Those who had ploughs were in a favourable relationship within cooring relationships because …

> if you had the plough the job would be done quicker and it wouldn't be as much hard work (Francis)

As such …

> the plough was a big thing ... and they were happy if they had one (Sarah)

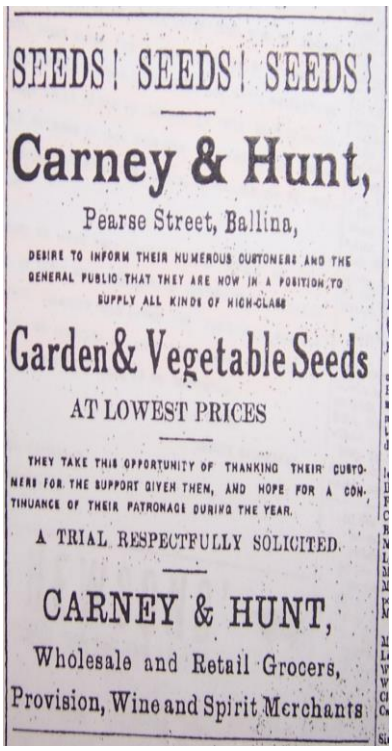
However …

> they shared them ... maybe there would be only one or two in a village but they would help out them if they got to use the plough (Sarah)

The fact that ploughs were owned by some within the community, and that, this put them in a favourable position within cooring relationships fits with what Gibbon (1973) identified in his analysis of production relationships in rural Ireland. However, returning to the issue of how food was shared among community members what can be seen is that access to resources within cooring relationships was not always a fixed thing. Rather, situating a focus on food what emerges is that, the same family might at one time have resources available to it that could be offered by that household within the cooring system, but, at other times they could be the ones needing help.

These fluctuations in household resource levels made everyone, including those with ploughs, keen to participate in cooring relationships. Additionally, just as the sharing of food was about risk reduction, so too did issues of risk reduction affect seed exchanges at community level. While seeds were available on the market (see *Newspaper Exerts 3 & 4*) members of the community being investigated here preferred to source seed locally where possible.

Newspaper Exert 3:
Carey and Hunt,
Seed Advertisement,
Ballina



SEEDS! SEEDS! SEEDS!

Carney & Hunt,

Pearse Street, Ballina,

DESIRE TO INFORM THEIR NUMEROUS CUSTOMERS AND THE GENERAL PUBLIC THAT THEY ARE NOW IN A POSITION TO SUPPLY ALL KINDS OF HIGH-CLASS

Garden & Vegetable Seeds

AT LOWEST PRICES

THEY TAKE THIS OPPORTUNITY OF THANKING THEIR CUSTOMERS FOR THE SUPPORT GIVEN THEM, AND HOPE FOR A CONTINUANCE OF THEIR PATRONAGE DURING THE YEAR.

A TRIAL RESPECTFULLY SOLICITED.

CARNEY & HUNT,

Wholesale and Retail Grocers,

Provision, Wine and Spirit Merchants

Source: The Ballina Herald, March 27, 1937

Newspaper Exert 4:
Thos. Archer,
Seed Advertisement,
Ballina

OUR MOTTO :—

"Nothing but the Best."

CARTER'S

Tested Seeds

GARDEN
CORNFLOWER BLUE.
VIRGINIA STOCK.
SWEET-PEA, ETC.
(IN PICTORIAL PACKETS).

MANGELS
LORD WARDEN
ORANGE GLOBE
WINDSOR YELLOW GLOBE

TURNIPS
TIPPERARY ROSY TOPPED GLOBE
BEST OF ALL.
(IN SEALED BAGS).

VEGETABLES
ALL VARIETIES.

All Carter's Seeds tested in accordance with the provisions of the Seeds Act, 1920.

To be had only from

Thos. Archer,

SEEDSMAN,
KNOX STREET,
BALLINA

Source: The Ballina Herald, March 21, 1931:2

Looking at the example of potatoes, what is clear is that, people in the area produced potato crops from their own potato seed.

> See where the people would get their seeds ... when they would be sowing the potatoes ... they'd sow the potatoes first ... they'd pick the medium or small sized [ones] and put them in boxes and that's where they would get their seed (Seamus)
>
> They used to be slitting the potatoes … and they'd keep the eye part (Jean)
>
> They used to split the potatoes to make them plentiful. When they would be digging the potatoes they'd put the smaller ones for themselves for the first seed and then if they hadn't enough of the small ones then they'd slit the big ones and maybe they'd get two or three out of the big ones ... they'd cut the eyes and then they could use them (Sarah)

Additionally, just as the production of potatoes relied on using last years potatoes as seed for the next year, the same practice was performed in relation to grain seed sourcing.

> How they'd get the seeds for their oats ... they'd trash it ... they'd stack it in the garden first ... they'd cut it and stack it in the garden and [then] trash it (Seamus)

> When they grew their crops they held onto seed from the year before. Now you could buy seed but some people couldn't afford to buy it. It would be fairly expensive. They had the oats and the barley from the year before and they would re-sow it again the next year ... some of them did it that way ... well a lot of them did (Francis)

This practice of relying on one's own potato and grain seeds from the previous year occurred despite the fact that the government made seeds of both types available to this community at a low cost.

> They used to give you some sort of subsidy that time … the government … for seed. You'd get a couple of hundred seed potatoes and a couple of hundred seed oats for a very small price. You wouldn't pay much for it and you would have to show the demanding note that time for it. That was where you had land and you had it registered. It was the land registry paper and then there was the paper with the red writing on it ... something like that to prove that you had land so you could get this grant. You'd maybe get a hundred oats for half price ... seed oats ... or a couple of hundred oats or a couple of hundred seed potatoes for half price ... they were kind of a help. It was in the North Western Seaboard ... all along it ... and the Gaeltacht then ... if you were in the Gaeltacht speaking area you would get maybe an extra hundred seed. They were doing that right up until about 1960 or 65 maybe, and, that started before my time (Seamus)

The government was keen to encourage people to buy seed from the market, especially potato seed of immune varieties:

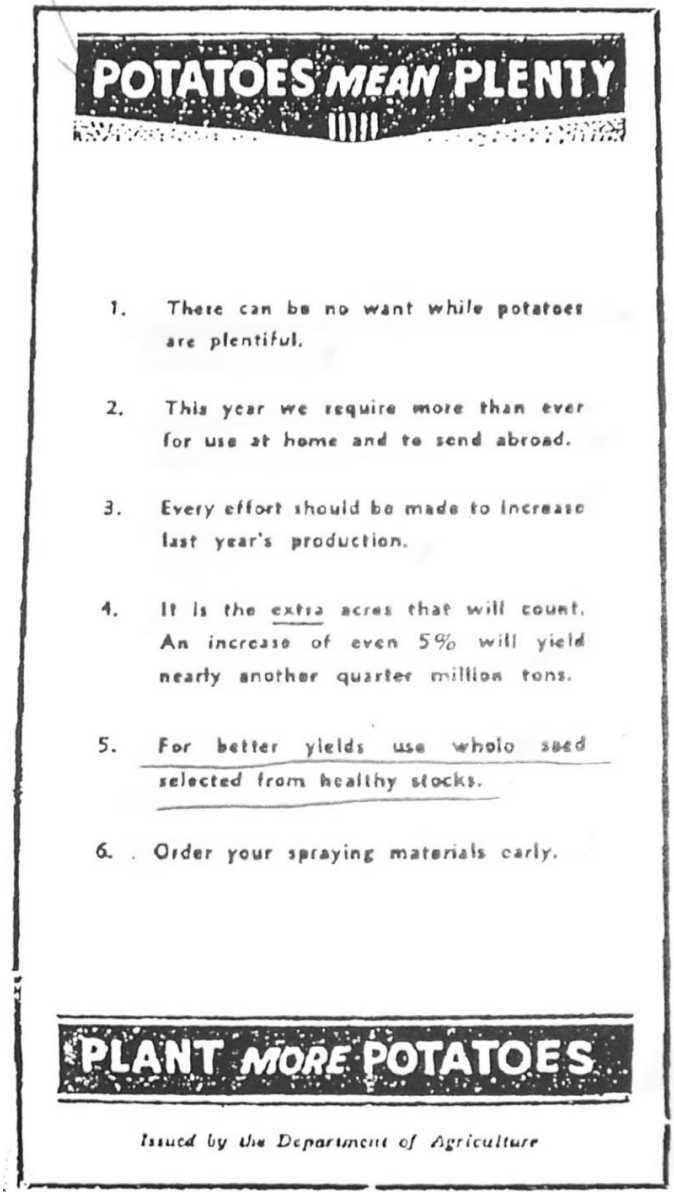
> The Department has made arrangements for the immediate distribution … of the highest quality seed oats among the small farmers of the congested districts and at the same time they have ready 700 tons of seed potatoes of immune varieties[109] (The Ballina Herald, January 31, 1931:2)

Newspaper Exert 5, demonstrates well the Department of Agriculture's stance on using whole stock: "For better yields use whole stock'.

However, while the government tried to encourage the purchase of seed, the reality was that people were producing their own seed. In recognition of this fact, the government urged people to at least use whole potatoes as seed rather than slit ones where possible.

[109] By immune varieties what is meant are varieties of potatoes that are immune to certain diseases which were a threat to potato production

Newspaper Exert 5:
Promotion of Use of Whole Potato Seed by Department of Agriculture



POTATOES MEAN PLENTY

1. There can be no want while potatoes are plentiful.
2. This year we require more than ever for use at home and to send abroad.
3. Every effort should be made to increase last year's production.
4. It is the extra acres that will count. An increase of even 5% will yield nearly another quarter million tons.
5. For better yields use whole seed selected from healthy stocks.
6. Order your spraying materials early.

PLANT MORE POTATOES

Issued by the Department of Agriculture

Source: The Ballina Herald,
March 30, 1946:2

Yet, despite the government's efforts to get people to at least use whole potato seed, people continued to slit potatoes for the purpose of seed. Essentially, earlier potato harvests provided the seed for later ones. But importantly, where people did not have potato seed of their own they made efforts to source it locally from others within the community rather than looking to the market for it.

> You'd have the seed of the spud yourself and if you wouldn't you would buy them locally around. Everyone would have some left over and you could buy ones off them … potato seed (James)

> You'd know who would be growing what and what they might have they might sell to you if you were short (Francis)

Where seed was available to them, either from their own harvests or from the harvests of others in the community, they were then as a result less exposed to market uncertainty around seed sourcing, because, sometimes market demand outweighed the level of seed available which meant that if you were relying on the market to provide seed you might be left without anything to grow at all (or at least not as much as you needed), because seed of one kind or another was sometimes only available in limited quantities on the market.

> Grass and clover seeds will be scarce this year. Farmers are requested to place their orders at once (The Ballina Herald, Jan 11, 1947:1)
>
> YMER Barley … supplies of seed of this variety are limited. Place your order for seed with your seed merchant at once (Department of Agriculture, The Ballina Herald, January 14, 1950:2).

As well as selling seed to each other people also swapped seed amongst themselves.

> People would keep seed of their own … but they would [also] swap seed with each other and that was a regular enough thing (Fintan)
>
> If they wanted new seed they would change over with their neighbour. Maybe their neighbour might have new seed and they'd change over with them for new seed for their field (John)

The fact that people were in a position to avail of seed of which they knew its conditions of production, meant that, they did not have to rely on seed produced in foreign environments which when transplanted into the local environment might not fare well. Additionally, what is important to note is that, people in the area were probably quite aware of soil conditions across different pieces of land outside of theirs because rundale had long been practiced in the locality, which meant that historically, different households had worked on different soils outside of the arable land they now owned, which meant that people in the area would have been more aware than they otherwise would have been about the soil conditions across particular parts of the landscape, because under rundale's historical expression rundale communities had knowledge of soil in the area in general because they were not restricted to knowing what type of soil was on "their land"only because "their land" was part of a communal pool that spread across the townland, and because where they produced across that townland area changed periodically.

Of course not all seed was sourced locally. Instead some was bought on the market.

> Cabbage seed was bought (Fintan)
>
> Well the cabbage I suppose they used to get them at the market ... or at the fair ... they'd get the cabbage plants and turnips even. They wouldn't have that of their own (Sarah)
>
> You'd buy a hundred of plants they used to call it … they'd be young all … and you'd replant them then … and that's how they would get the cabbage … and they'd buy the carrot seed and the turnip seed … they'd buy them in the stores … maybe in Ballina or Belmullet. You wouldn't get them in the local shop (Seamus)

Even oats and barley were bought where not enough seed was left from the previous year.

> They wouldn't have much grain of their own. They used to buy that. Whatever bit they had they'd have it used and they wouldn't be able to ... they wouldn't have any seeds left ... there would only be the odd one that would ... they'd have it used and they wouldn't have it (Sarah)
>
> They were buying the oats and barley … because it was always eaten with the cattle and that like (John)
>
> A lot of the people used to trash their own oats and have a bag of oats themselves. More ... if they wouldn't ... they would buy a bag or two bags if they wanted them. Belmullet would be the nearest place you would get it now ... the like of oats. There was a big supplier that time in Belmullet. A hundred weight of oats. If you bought it off them they would deliver it (James)

However, while it is important to point out that seed was not only sourced within the area, but, was also bought from outside of it, the crucial point to note is the degree to which seed that was available locally was exchanged among community members in one way or another – either being bought or swapped – because this act of seed exchange among households reflected a reliance on each other, which fostered and cemented the tendency toward co-operation each time these acts were performed.

(7.5) *Visiting as a Social Mechanism Underpinning Cooring Relationships*

Also, just as cooring relationships within agriculture were fostered by the exchange of produce between families, so too, were there other ways in which cooring relationships were encouraged within this community. This was a community within which members socialised intensively with each other, especially across the winter period, when they would visit each other's houses.

> Gatherings of many kinds for work and pleasure distinguished the rundale communities. Every village had its musician, piper, or fiddler, who was often maimed in some way and supported himself by his skill. Folk songs, occupational airs and epic tales were kept alive in this way. Old

> customs die hard, and it is pleasing to record that among the features of peasant life which survive changes and reforms of late years, is the nightly gathering or "kaleying", but this last word is not used in Erris except as an imported one. Instead we say "visiting" (Iml. 1244: 454)

But, music was not the only form of entertainment available through socialising.

> We used to be playing cards in different houses … They would start playing around the first week of November and they would be at that then until March (Peadar)

> Winter was the quiet time around here … Long nights and they would be playing cards. They would go from house to house (James)

However, although people went from house to house playing cards over the winter it was not as if every house in the area threw its doors open for card playing like this. Rather, in each townland there would be one or two houses which were known as the houses where cards were played, and, it was from one of "these" houses to the next of "these" houses that people moved around playing cards on a regular basis across the winter.

> There was a house in [Curraunboy] … where they used to play cards … always the same house unless there was something on, but, it would be that house every winter … that was where they would be (Sarah)

It was really only in relation to playing cards as part of the "gamble" - as referred to by Arensberg and Kimball (1968), or, in the vernacular speech of the people of Dún Chaocháin the "raffle" - that different houses in turn threw open their doors for the community to come and play cards within them.

Arensberg (1937) tells us that the community of Rynamona was united through the custom known as the gamble as often as once a week when different households one-by-one opened their doors to the community to come into their homes to gamble for some prize that could be won by playing cards there (p. 141). The same thing happened in Dún Chaocháin where sundry items were commonly put forward as the prize to be had from winning cards at the raffle.

> They used to play cards for different things … say a clock or maybe someone might buy a pair of boots and they might be too small for them or too big for them and … raffles they used to call it and a gang would come to the house and they might pay a shilling or less and that would pay for the boots or whatever it would be … it could be a jacket or anything (Francis)

> They would buy a pair of shoes in the town and they wouldn't go that time to get the shoes fitted on and say you went and bought a pair of shoes for me and then brought the shoes home and they didn't fit and what they would do then was have a game of cards on the shoes, and, if I won the shoes and they weren't fitting anyone in the house I would have no one to give them to. Then there would be another game of cards played (Sarah)

Depending on which household had possession of the unwanted shoes, or whatever item it was that they wanted to dispose of, then, they were the ones who held the raffle at that time.

> If the shoes was in my house then I would have the game of cards in my house (Sarah)

These raffles united the community by bringing them together in socialising contexts, but also, they were a form of commercialisation because those who held the raffle tended to make some profit from them.

> There would be maybe two shillings or half a crown and each one would pay two shillings and neighbours from different villages if they heard there was a pair of shoes … sure a pair of shoes was a big thing … [and the people who had the shoes got the money given to enter the raffle which was often] a lot more than they paid for the shoes (Sarah)

On rare occasions, raffles were also had for meat …

> The neighbours used to come to play cards for the pig. You bought into the game and you'd have the chance to win the bit of pig and maybe the one who would win it … the last two who would win the final they might more or less share it then. They would play as partners (Seán)

> If there was one that might have a cow there would be maybe a bit of the meat played for … they'd play twenty five and you'd put so much in for a stake for the meat you'd be playing for. It wouldn't be a lot but anyhow. It wasn't too dear to get into the cards. People that time might kill a heifer and they might salt some in a barrel for their own use …If you won then you would have it with you. If you won a leg of mutton it was a fine thing that time. You'd share it with your partner. They would weigh it to make sure they were getting the same share. The family would be happy if you won … [but] it would be only once in a blue moon that you would play for the pig meat or the sheep meat (Peadar)

In that case, it was the house who had the meat to dispose of that held the raffle and afforded the community the opportunity to come together.

> Whoever owned the meat was where the card game would be (Peadar)

> There would be a house in the village and they would play cards. Everybody would put so much on the cards and somebody would win ... a stone or two stone [of meat]. If I was your partner now there would be eight others at the table and we'd win maybe a half a stone of beef (Seamus)

As was the case with the raffles for sundries, the raffles for meat also exhibited a degree of commercialisation.

> The man "selling" the meat could make some money (Anthony)
>
> It was money for the man that was having the card game … If both of us as partners won the game we would have a half a stone of meat. Then they would make a few pound. They'd make the price of the cow and all that would be left then would be salted (Seamus)

However, besides the money that was to be made, or, the chance of winning meat that was provided through the raffle, the crucial point to note here is that, the sale of commodities between community members themselves was mediated by community structures and the communal process of socialising. Additionally, so normal were these events of raffles and visiting each other's homes that they were considered part and parcel of belonging to the community with those who "failed" to attend and participate in these events being labelled as "odd".

> It was a great life going from one house to the other visiting. There would be the odd one that would be kind of odd and they mightn't mix well but they had a great life (Francis)

Except for these few "odd" people the community as a whole socialised intensively with each other especially across the winter, and, this socialising contributed to the co-operative labour that existed within the community. In short, the visiting, card playing, raffles and so on, all facilitated socialising, reinforced collective identity, and encouraged an ethic of care toward fellow community members, and thus, supported the productive activity of cooring and the non-entry of money into relations of production between locals.

To add to this, stories and such like were told, and, opinions put forward at these socialising events that, encouraged adherence to traditional methods of production within agriculture. Looking to the situation of the raffle, not everyone who attended these card games could participate in them at once, because, cards were played around a table which could only accommodate so many people at any one time. This meant that those from the different generations who were gathered there, but, who were not playing cards were free to engage in other activities such as talking to each other and telling stories.

> In the old house down there there used to be big crowds down there and there would be a big table in the middle of the floor and there would be nine or ten people card playing and it would be a penny a game or something like that and when somebody would get broke he would come out and another man would be ready to step in from the fire and they would be telling stories around the fire (Seamus)

These stories often involved reference to a supernatural world that the inhabitants of Dún Chaocháin c. 1930s-50s believed to exist alongside their human one. Stories about fairies, in particular, were commonly brought up at these events.

> They would always be telling stories about the fairies wherever they met (Francis)

> The turf [to keep the fire going] would be outside and you would be so afraid that you wouldn't want to go out for a handful of turf … you were so afraid (Seamus)

Slater and Flaherty (2009) make the point that, belief in the fairies affected what practices were performed in certain production spaces and how individuals felt about producing in certain areas. This is a point which will be returned to later on in this thesis, but for now the thing to note is that, in the very same way that socialising can be understood to have encouraged cooring relationships, the stories told about fairies also encouraged them because one of the things that fairy stories did was encourage reciprocity in relation to production:

> There was an old man back there and the Lord Have Mercy on Him he's dead now but he was a great mate of mine and he fished with me for years and … there used to be pits of potatoes down there that time, and, he never had a lot of tobacco and it was in the month of April, and, he had a crooked pipe and we were getting the spuds for seed out of the pit and I'll always remember he was very superstitious and he always believed in pisherogues[110] and he was a nice man and I always believed in him, and, he was putting a grain in his pipe and no matter what he would eat or what he would drink or anything he would throw a little bit of it away, even out on the boat he would throw a little drop of the tea away first for the fairies, and, he was putting a grain in his pipe and he said sure I only have one leaf of tobacco today, so he put the leaf in the pipe anyway and it's a pity [he said that] I don't have a leaf to throw away but I haven't, but he cracked the match and lit the pipe, but sure didn't a wasp or a bee come along and try to lie on his nose and he put up his hand to his nose to swipe away the bee and then he hit the top of the pipe and he had nothing … it was gone ... they had it with them. But, at the potheen too … this bucko was after coming from England and he didn't believe in anything but you are supposed to throw the first glass of potheen away and that man that I was just telling you about who is dead now he would be spilling on a nice green place for the lads … for the fairies … asking for a good year of spuds and for the fishing … praying like … but this other bucko … well he took the glass and threw it back … and you know them old quart bottles well he had it made up about six quarts and put in a bag and there was a kind of a step down from the door and he had the six quarts in a bag and when he was walking out the door wasn't he tripped on something and two of the quarts broke … now the man said will you throw out any drop the next time? (Seamus)

[110] Pisherogues were the practice of 'wicked magic. A human being may perform a rite or omit a precaution in such a way as to bring about a visitation of ill-luck and disaster' (Arensberg 1937:193)

In short, the fairies expected some due for non-interference with production, where this due was unforthcoming production was adversely affected. The moral of the story being that, customs of reciprocity must be maintained within production or else disaster may loom.

(7.6) *Commonage Practices that Supported Co-operation and Communality within Labour*

Not only was co-operation and communality fostered where people came together in the context of socialising within houses, but also, when people gathered on commonage spaces co-operation and communality were promoted. For instance, looking to the situation where children were sent to check on livestock being grazed on the commonage what emerges is that, while individual children from different households may have had this individual task to perform, they did not usually perform it in isolation from other children in the area. On the contrary, children from several households might converge on the same commonage area at the same time, which meant that, the actual task of checking the livestock while being carried out individually was often occurring within a collective context. But, more than that, because different children from different households converged on the same space to perform the same task at roughly the same time meant that the performance of the task was fun for them.

> The minute you came home from school in the evening you were out [working] … and then you went to the mountain and back to the burrow beside the sea and rounded up sheep and cattle … If I had time I might do it before school as well (Francis)
>
> When we would come home from school we had to go out on the land and work … out after the sheep and doing things like that (Anthony)
>
> When you went back out to the mountain and back to the burrow beside the sea and rounded up sheep or cattle … there would be lots more back there. There was great crack there that time. Jumping on sandy banks and that sort of thing and messing (Francis)

Just as different forms of adult socialising encouraged the continuation of cooring within systems where cooring existed, so too did children's socialising. Yet, for instance, Arsenberg and Kimball's (1967) study which focussed heavily on the issues affecting cooring relationships in rural Ireland never mention the idea that childhood experiences might influence these relationships – probably because children did not make the decisions about farm tasks. However, it is important to think of the role of children in this regard because children grow into adults after all, and so experiences in

childhood can affect adult behaviour: The fact that children who were sent to check on livestock often ended up in the company of other children while performing this task, and often had fun at the same time, suggests that they would at these times have been developing positive feelings towards working collectively within their community, which could well have influenced their orientation toward co-operation and communality later.

Additionally, while the purpose of individual households sending members of their household to the commonage was to check on their own livestock and keep them safe, what sometimes happened was that members of different households would end up performing certain tasks collectively in relation to the safety of livestock grazed on the mountain land.

> The danger for the sheep was if they went down the cliff … what they called a strapa … a ledge going down straight. I remember a day I went out and one sheep … it was down on a strapa … and I was shouting and she came up but that was the danger (Peadar)

Sheep belonging to one community member or another could find themselves in danger of being trapped on these strapa, or, falling to their death from them. As such, where sheep ended up trapped on these ledges it was common for community members to come together as one to try to rescue the sheep. The idea being that this would reduce losses to the household to whom the sheep belonged.

> Sheep would go down on the cliffs, not many, but, they would go down and there were men who nearly got lost trying to get them up, and, if there was a valuable sheep down the cliff and you wanted to get them back up a couple of lads went with a long rope, and with a rope wrapped around you you'd slide down the cliff to where the sheep was and drive the sheep back up. The others would have a bar stuck in the bank and a rope around the bar and they'd let you off. Three or four or five of them would get together and pull you back up again, it was deadly dangerous ... this would be nearly two hundred feet of cliffs and if you went you were just gone (Francis)

Arensberg and Kimball (1968) provide no information on practices such as this, but, it was a fact of life in some areas in the West of Ireland. Additionally, if Arensberg and Kimball's (1968) discussion of co-operation within production is examined, what is found is that, they restrict their analysis to co-operation within individual townlands. However, while evidence produced here supports the idea that co-operation would have existed at the level of individual townlands, what also emerges is that, a large degree of

co-operation occurred across the various townlands investigated in this study. This was because these townlands together comprised a community.

This fact is significant because it means having to widen the analytic frame for understanding community as it existed in the West of Ireland at that time: Perhaps, in line with Arensberg and Kimball's (1968) focus, there were areas where co-operation only existed within townland boundaries, but, this was not the case in the community explored in this study. Instead, because the community was composed of several townlands, community co-operation extended beyond single townland boundaries. Members of the different townlands involved in this study co-operated with each other to support production in other townlands outside of theirs because these townlands were part of their overall community.

> Even people from the next village would have their sheep and cattle out on the same commonage and no one would really mind. There might be an odd awkward person who would be whinging or complaining but no one took any heed of them so they were on their own then and they could do nothing about it (Francis)

While not everyone may have been of a mind to allow non-townland members the use of the commonage, the majority opinion prevailed to allow the practice to occur.

One of the things encouraging this co-operation across townlands in relation to livestock grazing was the absence of fences between townlands, because, this absence of fencing made it very difficult to keep livestock from wandering between the townlands.

> There was only mearings separating the townlands (Francis)

Plate 13:
A Townland Mearing Today

Source: Own Photograph

While a fence sits atop the mearing shown in *Plate 13* (which is a townland boundary as it exists today) this would not have been present c. 1930s-50s.

The situation in *Plate 14* (of a townland mearing in the area without any fencing) was typical for that period.

Plate 14:
A Townland Mearing in Earlier Years

Source: Folklore Photograph Collection,
National Folklore Collection, UCD, 2013

As is clear in *Plate 14*, it was sometimes the case that there was nothing to physically block livestock from moving from one townland to another.

> It would be hard to keep the animals from crossing between the townlands because there was no fences to stop them (Francis)

This absence of fencing between the townlands gave rise to a situation where people of one townland co-operated with those of another around access to their townland for grazing purposes.

> It would happen to everyone that their animals might wander across the townland mearing so no one really minded (Francis)

But also, because of the dangers associated with some commonage areas within certain townlands there was a relaxed attitude to allowing livestock from those townlands to graze on the commonage of another townland.

> Sometimes there might be places on some of the commonage on the different townlands that might be too dangerous for animals so they might keep them closer even if it meant they might be grazing in the other townland (Francis)

> I'm not too familiar with those places up there at all even though they are in Stonefield and that's where I'm from because our sheep when I was young here used to be back at Kilgalligan even though we're from Stonefield and I used to never hardly go over to them cliffs up there at the top of Stonefield at all (Martin)

Given that there was nothing to stop livestock wandering between townlands, and that some areas were dangerous to livestock it is no surprise that people co-operated across the different townland commonages around livestock entry onto them. But also, a panoptic type gaze on the livestock seems to have been encouraged with everyone's livestock being seen by individuals at once, but, without the requirement that action needed to be performed to control the movement of those livestock out of areas where they did not "legally" belong. But also, apart from livestock issues, other forms of co-operation within production also occurred across the townlands involved in this study.

> With the bog, you cut your turf there on the bog ground, on the commonage, and some of the villages had damn all bog and they came over to our village and cut their turf in our bog but no one kind of minded because there was plenty of it there - plenty for everyone that was how it worked (Francis)

What this demonstrates is that the ethic of care which operated between community members was not restricted by townland boundaries but instead could extend beyond them in certain circumstances.

(7.7) *Conclusion*

This ethic of care was a central feature guiding production relationships across the community. As already discussed it encouraged certain practices such as cooring, and ensured that people would have access to resources in times of need. These resources could take the form of gifts/goods or services. But also, where this type of ethic of care circulated within the community it not only ensured that people would be provided with goods and services as they needed them, but it encouraged adherence to a traditional way of life – to a communal way of life – because every time that people shared what they had, or received gifts/goods/services from others it reinforced at the level of the psyche that something larger than the individual was operating to affect their life experiences. The people would have understood themselves as part of a collective and as protected by the collective, and thus, individualising tendencies within production would have been reduced because the mindset of the people was not one which aimed at rising above other society members but was about being responsible members of the community, who would meet their obligations as they arose, and who would participate in ensuring the overall survival of the community and its individual members.

From the moment that they were born into the community the community's communal nature acted to affect them. For instance, the community ensured that milk was always available to infants. Likewise, the community's communal character affected them right across their life. For instance, it affected how they performed work together, how they socialised, whether they could properly celebrate religious feasts. It affected the variety of food that they consumed. It reduced risks associated with market purchases and market uncertainties. It affected which practices they could or could not perform. For instance, fishing was dangerous and involved curraghs which meant that men could not fish on their own because of safety issues, but also, practical concerns in transporting the curragh to and from the water prior to and after a fishing expedition would have been at issue. Thus, it was important that a crew act together to perform the activity of fishing. Likewise, because potheen distilling was illegal it required community co-operation to allow this enterprise to continue. Even turf production was carried out communally. In other words, their entire life and the practices they performed within production were heaviliy shaped by the communal character of the society within which they existed.

This communal quality of the society acted as a structure to shape behaviour and understandings of the world in such a way that interactions within the community operated outside of the money economy even though the society engaged with the money economy through production. Various structures, institutions, and rituals acted to encourage the continuation of co-operative practices, but also, there existed a co-operative/communal mindset that allowed relations of production to remain non-commoditised despite commodity production being a feature of life in the area.

Of course, there were also other issues at play in affecting the degree to which people co-operated with each other within production, one of which was access to technology because given local reliance on the use of hand tools within agriculture what this meant was that certain tasks could only most efficiently be performed if a number of people gathered to perform them. However, the point to note is not so much that a lack of technology may have also encouraged collective labour, but that, within that collective labour money did not pass hands and this was because of traditions of communality and the various institutions, rituals, and practices that continuously encouraged a communal mind set and an ethic of care to exist within the community.

In this chapter I have highlighted the extent to which communality existed within this area of North-West Mayo c. 1930s-50s. I have highlighted some of the various different processes through which communality shaped local relations of production between community members so that relations of production were non-commoditised. And, I have demonstrated that this society did not stand outside of the market, but instead it engaged with it. For instance, the sale of fish on the market was mentioned. Likewise the purchase of some products, such as seed, but also goods such as shoes, from the market was identified. Given that the society engaged with the market the questions that then arise are: How exactly did this type of society engage with the market? To what extent did it engage with the market through agriculture? To what extent did it engage with the market through other forms of production? And, with what effect on agriculture and communality? Did commonage affect how agriculture or other forms of production engaged with the market?

To answer these questions it is necessary to visit the literature for understanding what constitutes a farm, what relationships exist between private farm land and commonage (where commonage is a feature of agricultural production), and how farm behaviour is affected by engagement with off farm activities.

Section 5

Spatial & Productive Systems

Chapter Eight

Beyond a Restrictive Farm Model: Commonage & Issues of Agriculture, Petty Commodity Production, & Sustainability

(8.1) *Introduction*

In this chapter I examine the ability of the farm model – as it has been applied to understanding production in rural Ireland c. 1930s-50s – to accurately reflect the complexity of the dynamics shaping production there. Specifically, I draw attention to the fact that, farming was not the only form of production being pursued, but rather, multiple systems of production were in operation: These different systems of production existed alongside agriculture, so that, agriculture was one form of production among others that together met the household needs of rural producers in Ireland at this time. In other words, production in rural Ireland was not only agricultural[111] (Tovey 1992:97). But also, the other forms of production pursued alongside agriculture were not merely supplements to agriculture (acting as providers of agricultural resources), but instead, they significantly affected development themselves, and where they did provide 'resources' to agriculture they provided 'resources' which agriculture could not do without so that these 'resources' were essentials to agriculture rather than supplements to it.

Also, the farm model as it has been applied to rural Ireland c. 1930s-50s promotes an understanding of privately held agricultural space as determining production practices at

[111] 'There are a number of factors that might help to explain [why agriculture came to be equated with rural] … the fact that some of the main researchers in the area came initially from an agricultural science background, or were trained in US Land Grant Colleges … where the "farm-firm" and the behaviour of individual farm operators were important foci of study; the economic and political importance accorded to agriculture by the Irish state; the fact that much Irish rural sociology has been carried out within the setting of the state development institute for agriculture. But … the most authoritative influence on how Irish rural sociology defined itself from its earliest years was that of Arensberg and Kimball's study of small farming in Co. Clare in the 1930s which emphasised the familial nature of the local form of farming as the basis for understanding the rural social system' (Tovey 1992:97)

farm level: Research has either stressed farms as comprised solely of private space, or else, where commonage has featured in discussion it has been understood merely as a supply appendage to that area of land which is privately held. But, where commonage exists it does more than simply supply resources. It contributes to shaping social relationships.

(8.2) *Agriculture and Subsistence*

Arensberg and Kimball (1968), although interested in understanding social relationships within rural Ireland, encouraged a narrow focus on social relationships as they were affected by production on privately held agricultural land (p. 133). Emphasising that the economy of rural producers was firmly centred on the farm, they promoted the idea that production practices carried out on farms were key to revealing the social order that stood behind rural development.

So influential was there work in this regard that for decades after they had presented their findings the tendency within Irish rural sociology was to equate rural with agricultural as they had done (Tovey 1992:97, 2001:308), and often, agricultural property with private property as they had done (see Brody 1973, Gibbon 1973). Of course, more recently there has been a shift away from the dominant focus on farming as the frame through which to approach understanding development in rural Ireland (McDonagh 1998:50; Tovey 1992:108), and there has been a growing interest of late in understanding the role of commonage in this regard (see van Rensburg 2009, Hynes et al. 2007, and McKenna et al. 2007). However, within the literature dealing with the time period of interest to this research (c. 1930s-50s) rural and agricultural were generally taken to be synonymous (see Tovey 1992), and, commonage was of secondary interest in comparison to privately held landed agricultural property.

Arensberg and Kimball (1968) not only encouraged a focus on farms as private property, but, they encouraged a view of rural producers as subsistence producers by arguing that agriculture was the only form of production being pursued, and that, agriculture was subsistence based because only surplus agricultural product was being sold on the market - especially cattle reared for the purpose of selling to large farmers

elsewhere in the country for fattening before those farmers would themselves again sell these livestock on the wider market[112] (Arensberg and Kimball 1968:24–5; 29; 274; 288; Byrne et al. 2001:11; Freeman 1947:47). Arensberg and Kimball (1968) stated that in the 1930s, that aside from agriculture the only form of labour being pursued within the societies they observed was occasional work maintaining roads in line with government schemes which offered this type of contract work at times[113] (p. 54; 280). Regarding agricultural production itself, Arensberg and Kimball (1968) contended that, because agricultural production was centred on providing food and such like to meet household needs – including the needs of livestock kept – that the society they observed should be understood as subsistent.

In further support of this argument, Arensberg and Kimball (1968) argue that, this was a society that stood outside market forces as if it were self-sufficient because only very rare trips were made to the fair or market to sell cattle which was 'almost the only sources of monetary income for farmers' (p. 293) aside from the rare occasion when a 'small farmer [bought] … from another in his own community' (Arensberg and Kimball 1968:298), or earned a bit of money maintaining roads as mentioned above (Arensberg and Kimball 1968:54; 280).

However, subsistence is not necessarily the same thing as self-sufficiency (Millar 1970:225-6), and so, the fact that agricultural production within a society might primarily be aimed at meeting household needs does not mean that the society is self-sufficient and so immune to market forces. Gibbon (1973) has argued that well before Arensberg and Kimball carried out their study in the 1930s, that, agricultural producers in rural Ireland were being affected by the market. Specifically, he identifies the presence of rural shopkeepers[114] who could not have existed had there not been a

[112] 'Since the famine, Irish agriculture has possessed a distinctive regional pattern, which has become clearer as the years have passed. For our purposes, its important elements are the emergence of the west as a region for the breeding and early fattening of livestock, and the emergence of the east as a region for the preparation of these same beasts for sale on the British and now European markets' (Gibbon 1973:494)

[113] Until the 1950s part-time work on government road maintenance schemes was common (Curtin 1986:70)

[114]' Rural shopkeepers first began to appear in large numbers with the decline of subsistence agriculture of the cottier class, and with the decline of tillage production in general during the second half of the nineteenth century' (Gibbon 1973:491)

demand for goods from their stores, but, who as well as providing supplies offered a local market for farm produce (p. 491). Gibbon (1973) takes this as evidence that "Arensberg and Kimball's producers" were not subsistence producers but rather were peasant producers that were vulnerable to market forces (p. 493-7).

However, although agricultural production in the West of Ireland c.1930s-50s involved buying and selling goods on the market this does not mean that market forces should be understood as the dominant force shaping production at that time because production systems can involve market engagement, yet, simultaneously aim at the production of use value products: Subsistence is about providing food without which the community involved in the production could not survive (Branch et al. 2002:45). However, subsistence producers not only produce use value products to support their own household needs, but also, they produce exchange value goods for sale on the market (Moore 2000:125; Stahl 1980:3) because of the need for money to pay expenses such as rent (Rudqvist 1986:34), or, to meet costs associated with 'necessary expenditure items for which the production of substitutes on the family labor farm would be impossible or highly unlikely, for example, salt, condiments, sugar, milling services [and] spiritual needs' (Millar 1970:226). This relationship to the market was to be found in rural Ireland where although communities produced most of the food themselves (Arensberg and Kimball 1968:19) they also purchased such things as tea, sugar[115], Indian meal[116], and flour from shops (Breathnach 2005:41; Clarkson 1999:41; Doran 2001b:107; Roche 2001b:219).

However, Arensberg and Kimball's (1968) identification of subsistence production within the communities they observed is not so much wrong because of the fact that

[115] 'The Base Line reports prepared by the Congested Districts board in 1892 show how widespread tea-drinking had become. It was "the principal drink" near Letterkenny, County Donegal. In Glencolumbkille it was drunk, "in excess three times a day by most, and by all once or twice". In County Mayo tea was sometimes drunk without milk but with "a greater quantity of sugar"' (Clarkson 1999:41)

[116] 'Poorer families ate maize when the potatoes ran out until the new harvest (the "meal months"), or when the potato crop failed … Indian meal was the cheapest and most widely available substitute for potatoes … maize (… Indian meal) was … used for human consumption [but, its] … over-consumption caused pellagra (a dietary disease caused by a deficiency in niacin and B vitamins)' (Breathnach 2005:38) 'Indian meal had been imported occasionally in the early 19th century when locally-produced food was scarce, and it was imported on a large scale during and after the Famine. Imports continued throughout the rest of the century, and although much was used as cattle feed, "yellow Meal" became a regular part of rural diets' (Clarkson 1999:41)

they fail to acknowledge that these "subsistence" producers would have had to have sourced some of their household requirements from the market, because as has just been discussed a society can still be classified as subsistent under these conditions. Rather, the problem with their identification of these producers as subsistent is that they overemphasise the degree to which these producers were capable of meeting their household needs outside of the market.

Additionally, in terms of understanding production in the West of Ireland c.1930s-50s there is a problem with how they equated subsistence production with agricultural production in the communities they observed, because in so doing they encouraged the view that agriculture was the only form of production that was being carried out in the West of Ireland that contributed to meeting household food requirements there, when this was not true of all communities in the West at that time: Historically there were areas where fishing had been as important as agriculture (Mac Cárthaigh and O' Reilly 2001:154; Micks 1925:9).

In fact, there were congested districts in Ireland where agriculture was of secondary importance to fishing. Teelin, for instance, has been identified as a subsistence fishing community within which fishing contributed more to household needs than did agriculture (Taylor 1980:177). But, even where agriculture was understood as the primary contributor to subsistence in the West of Ireland it has been established that subsistence also relied on other forms of production outside of agriculture: Arensberg and Kimball (1968) provide no indication that any other form of production than agriculture was pursued in the area they investigated, but, if this was so it would have been very unusual because most small farms in the West of Ireland relied on other forms of production alongside agriculture to support themselves (Almquist 1979:709; Doran 2001a:69; Morrissey 2001:vii).

Lysaght (2000) in her study of the Blasket Island Group during the period 1850-1950 found that the food provision strategies of islanders involved mixing agriculture with

fishing, hunting rabbits and seabirds[117], and collecting the eggs of seabirds. Likewise the feathers of wild birds were used to create stuffing for bedding and quilts[118] (p. 198-9; 209-10). But, as well as engaging in non-agricultural forms of production to directly provide food and sundry items to the household, rural producers in the West of Ireland also engaged in different forms of production to earn money. It is on this point that Arensberg and Kimball's (1968) encouragement of production in the West of Ireland as subsistent is weakest, because, in failing to acknowledge that non-agricultural forms of production - which aimed at producing exchange value - existed alongside agriculture - which aimed at producing use value – they fostered a view of rural Ireland that was unrepresentative of the fact that much of the production that occurred there was geared toward the production of exchange value goods for the market even if agricultural production primarily aimed at producing use value products.

Pluriactivity[119] as a phenomenon has been discussed in relation to marginalised agricultural producers in the West of Ireland in the post-agricultural modernisation era. Pluriactivity is seen as a response to both economic "push" factors and socio-cultural "pull" factors (Kinsella et al. 2000:486) that have led to a situation where individuals engaged in agriculture also pursue other forms of production alongside agriculture as part of overall household livelihood strategies geared toward meeting household needs which agriculture alone cannot do. However, while the term "pluriactivity" is used in connection with household livelihood strategies developed under capitalism (Jervell 1999:100-2; Kinsella et al. 2000:481-2) the actual practice of pluriactivity is not new, and, it long existed in rural Ireland pre-agricultural modernisation[120] in the form of agriculture being mixed with petty commodity production and wage labour to meet

[117] Wild sea birds were killed in Dún Chaocháin c. 1930s-50s for their flesh. Men would go out in curraghs to the rock islands where these wild birds were to be found and kill the birds for their meat (Iml. 1243:310)

[118] 'Feathers of seagulls, cormorants and puffins were … used as bedding … Robin Flower in his book *The Western Island or The Great Blasket* … discusses the merits and demerits of "mattresses stuffed with the feathers of seabirds", as follows: "This mattress is beautifully soft when you go to bed at night, but by morning your weight has worked through the feathers, and the hardness of the boards begins to make itself felt"' (Lysaght 2000:215)

[119] While the 'causes and patterns of pluriactivity change over time' (Jervell 1999:106) so that pluriactivity patterns can differ from one region to another, from one locality to another, and one family to next (Jervell 1999:106-7; 113) the key thing to note about pluriactivity is that it involves individuals employing a diversity of income generating strategies across different forms of production alongside agriculture (Kinsella et al. 2000:481)

[120] Irish society is often understood as having modernised in the 1950s (Curtin 1986:62)

household needs at that time (Almquist 1979:715; Curtin 1986:75; Gray 2006:1; Micks 2001:43; Ruttledge-Fair 2001b:100).

(8.3) *Petty Commodity Production and Wage Labour*

Petty commodity production while not a mode of production itself can exist alongside other modes of production (Gibbon and Curtin 1983:395; Rudqvist 1986:34) including the subsistence (Akram-Lodhi and Kay 2010a:178), or, capitalist mode of production (Llambi 1988:353; Teoman and Kaymak 2008:314), or indeed, the primitive communal mode of production (Slater and Flaherty 2009:19). Petty commodity production is also sometimes referred to as domestic commodity production (Guppy 1986:353; Sider 2006:252) or simple commodity production (Llambi 1988:351). However, for the sake of consistency here, the term petty commodity production is used throughout this discussion. Petty commodity production is production carried out on a small scale[121] (Biswas 2001:123; 127) involving 'the production of commodities by local labour, primarily mobilized along lines of kin, household, and locality and using locally available, small-scale tools in the process of production' (Sider 2006:252). Very little surplus is generated from this form of production and this sets limits to its capacity to reinvest (Biswas 2001:123; 127) and so develop further.

Arensberg and Kimball's (1968) stress on the exclusivity of agricultural production in the West of Ireland (p. 15-6) stands in direct opposition to the situation that would have existed historically. As noted by Flaherty (2014) different forms of production had long

[121] Biswas (2001) referencing Lenin (1977) identifies petty commodity production as the third structural form within industrial development, the first being '"natural production", where the family or household unit produced for domestic consumption … [the second being] "artisan production", which refers to the production of articles to the order of a customer; the raw materials belonging either to the customer-consumer or to the producers, while payment is made either in cash or in kind, sometimes on a customary basis … [the third which is the petty production structural level involves] "commodity production on a small scale", where merchants gradually mediate between producers and the market; through the development of commodity exchange …[the fourth being the stage at which] further progress in simple commodity production led to the development of "simple capitalist cooperation", where production increased through the domestic system (putting-out, or parallel production in a workshop), though the technique of production remained the same as before … Fifth, "manufacture" was the further development of cooperation with an increasing division of labour, and sixth, "factory production" or "machinofacture" furthered the division of labour and enhanced the economies of scale' (p. 123)

been practiced in the West of Ireland alongside agriculture[122] (p. 37). This same situation was still happening in the West of Ireland right into the twentieth century – where petty commodity production was a feature of life in many areas of Ireland at that time (Varley 1983:381; 384) - especially Mayo (Freeman 1947:43).

Some of the forms that petty commodity production took in rural Ireland were the sale of fish[123] and potheen on the market (Curtin 1986:65; Freeman 1943a:12; Ó Catháin and O' Flanagan 1975:251; Micks 1925:35; Morrissey 2001:vii); sale of turf (Morrissey 2001:vii); and, sale of seaweed[124] (Freeman 1943a:12; McKenna et al. 2007:160; Morrissey 2001:vii). Additionally, women also engaged in butter production for sale. Arensberg and Kimball (1968) recognise this fact when they identify that women in rural Ireland often sold eggs or butter (p. 47).

This tradition of women engaging with the market in this way had long been a feature of life in the West of Ireland (Breathnach 2004:82-3; Breathnach 2005:55). However, although recognising that women in the West of Ireland were engaging with the market to sell eggs and butter in the 1930s, Arensberg and Kimball (1968) are silent on the point that it was also common practice in many areas in the West for women to also engage with the market in other ways. For instance, Arensberg and Kimball (1968) acknowledge that women were often to be found knitting (p. 39; 47; 64), but, the view they present is that knitting was carried out for the household only when it was the case that women had historically made money from this practice (Breathnach 2004:82-3).

[122] This situation of peasant production involving agriculture mixed with other economic activities is not unique to Ireland. For instance, Amazon floodplain peasant populations combine 'fishing, agriculture, ranching and wage-based activities. Each activity has a distinct pattern throughout the year, involves different members of the household, and fulfils specific purpose in the household economy' (de Castro 2006:161)

[123] However, while there was sale of fish fishing was not carried out as a commercial enterprise. 'In 1936 there were only 120 fishermen in Mayo, though many families had some share in a boat' (Freeman 1943a:12); 'At very few places on the Mayo coast is fishing possible on a commercial scale, but the catch is valuable as a food-supply for the immediate neighbourhood where fishing can be carried on. Most of the Mayo coast comprises great stretches of cliffs interspersed by exposed strands of shingle or of sand, where boats cannot be kept in safety … so curraghs … are still used' (Micks 1925:38)

[124] The practice of drying and selling kelp to commercial alginate firms was especially common along the western Irish seaboard (Freeman 1943a:12; Morrissey 2001:vii; McKenna et al. 2007:160); Seaweed was an important industrial raw material because it contained iodine (Breathnach 2005:80-1; Freeman 1943a:3)

Women in the West of Ireland were sometimes employed - through 'Lace Schools' – to knit, make lace, or make crochet goods. These "Lace Schools" were industries set up by the Congested Districts Board that could involve women making lace or doing other kinds of work such as knitting perhaps[125] (Micks 1925:70). Work was either carried out in local industrial centres set up by the Board and/or in the women's own homes[126] (Breathnach 2004:85; Brenan 1901:264). Various of these centres were set up in Erris in Mayo (Breathnach 2004:85; Micks 1925:72-3) with one of them in Carrowteige (Micks 1925:76) which is one of the areas explored within this research.

Teachers in these schools marketed the work of these women (Micks 1925:76). Arensberg and Kimball (1968) make particular mention of the fact that domestic industries that had historically been a feature of many Irish agricultural societies were at the time of their study nowhere to still be found except in Ulster and a few other places (p. 225), but perhaps they were more widespread at that time than they suggested as the Lace Schools were still doing well in Mayo[127] into the twentieth century.

As well as industries such as the Lace Schools providing money to communities in the West of Ireland, money was also earned from seasonal migration to other areas within Ireland, but more usually to the tilled areas of Great Britain[128], especially Scotland or

[125] 'Where the officers of the Congested Districts Board are the guides of the workers, the marketing of the lace is duly provided for. The workers are not only instructed in the methods of industry and supplied with suitable designs, their work is also sent to the … market' (Brenan 1901:264)

[126] 'The board distributed thread and yarn and the work was done in girls' homes' (Breathnach 2004:85)

[127] In the year 1912 the earnings at the class at Pulatomas … were £3,992 … one of the other classes, that at Carratigue … became nearly as successful as Pulatomas' (Micks 1925:76). Historically, women in parts of Mayo also earned money through spinning. This money was important to pay the rent (Gray 2005:39). At the start of the nineteenth century spinning paid the rent on many poor subsistence holdings in north Connaught but local variation occurred in terms of this supplementary industry (Gray 1993b:5). In pre-Famine Ireland 'evidence suggests that small-farm households … combined labour-intensive agricultural production with spinning' (Gray 2006:16). 'In 18th century Ireland … the most labour intensive phases of the linen industry, from cultivating and processing the raw material, to spinning the yarn, were carried out by women on small, subsistence-oriented farms. In the second half of the century, a division of labour began to emerge between spinning and weaving districts' (Gray 2003:30). Evidence from the Census 1901 indicates that some women were still engaged with spinning for the market in the area investigated here at that time. However, spinning is not listed as an occupation carried out in the area in the Census 1911. Also, by the 1930s the situation in the area investigated here was that women were still contributing money to the household but by this time the wool which they used to make garments for the market was being supplied to them and they were knitting in either their homes or the local factory

[128] The practice of seasonal migration to Britain had long been practiced in the West of Ireland. This practice of seasonal migration pre-dated the Great Irish Famine (Gray 2005:62): 'A number of scholars have noted the considerable number of Irish labouring men who were travelling to England and

England for certain periods of the year when members of Irish communities were employed as wage labour on farms there[129] (Curtin 1986:65; Doran 2001a:69; Morrissey 2001:vii). However, even the fact that communities in the West of Ireland c.1930s-50s were involved in wage labour does not necessarily mean they were not subsistence producers because wage labour can be combined with subsistence so that wage labour can act as a complement to subsistence rather than replacing it (Berman 2009:5). It is only when subsistence production falls below a certain level of overall production within a system that that system can no longer be classified as subsistent.

Borrowing Curtin's (1986) idea – which is borrowed from Danhof (1979) (Curtin 1986:66) - that development can be measured along a continuum, what is important to note is, the degree to which production aims at producing use value products as opposed to exchange value goods. Curtin (1986) argues that, a system should not be understood as commoditised until at least sixty per cent of its net product enters the market (p. 66).

(8.4) *Commercialisation and Commoditisation*

Returning to the idea that the farm model as it has been applied to rural Ireland has helped to confuse understanding of the dynamics shaping production, what has confused matters is that, debate has existed within academia as to how to even classify farms as small or medium sized. This has had significance for understanding the degree to which commercialisation and commoditisation was actually occurring on farms in the West of Ireland. Arensberg and Kimball (1968) classified farms as small where the productive capacity of agricultural holdings fell below a particular level regardless of the fact that the "small" farms they observed often occupied a lot of space, so that, if

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Scotland for remunerative work in 1841. From Mayo alone 10,430 men were making the cross-channel trek, or 26.8 people per thousand. The intention of seasonal migrants was to bring cash home; indeed, there is abundant testimony that, throughout the remainder of the century, the frugal labouring population brought back considerable sums of money to the Irish northwest' (Almquist 1978:709). 'Seasonal earnings provided cash for rent' (Breathnach 2005:15); male seasonal migration levels were still high in Mayo in the 1920s (Breathnach 2005:165)

[129] Seasonal migration was particularly common in the congested districts of the West, with an estimated one third of the able bodied population migrating for at least three months of the year. Much of the money that had historically been required to meet rent within the congested districts was acquired through this seasonal migration (Breathnach 2005:15). This type of seasonal migration to earn money was not unique to rural Ireland. 'As Shanin acknowledges, [Russian] peasant households had sources of income other than agriculture. Millions of peasants worked seasonally in the cities, mines, or railway construction. Others worked for a year or two in the cities, almost always sending money home in the meantime. More millions produced non-agricultural goods in their villages' (Bushnell 1988:80)

they had used acreage as their measurement scale these same farms might have been considered as "medium" sized farms (p. 4). Gibbon and Curtin (1978) do the opposite to Arensberg and Kimball (1968) and measure farm size by acreage[130] rather than ability to produce (p. 445). What this divergence in measurement scale led to was a situation where although Arensberg and Kimball (1968) were talking about "small" farms, and, Gibbon and Curtin (1978) were talking about "medium" farms they were actually both talking about the same basic farm type involving the same basic conditions of production: If Arensberg and Kimball's (1968) measurement scale were applied to Gibbon and Curtin's (1978) "medium" farms these farms would fit with what Arensberg and Kimball (1968) understood to be small farms.

It is important to understand that this divergence in measurement scale between both parties affected how the farms they were each discussing were classified, because Gibbon and Curtin (1978) who used acreage as their farm measurement scale linked petty commodity production with medium sized farms. But, understanding that these medium sized farms probably existed in 'hilly terrain, where much of the land may be of marginal or negligible agricultural use' (Varley 1983:383) these farms were no different to those discussed by Arensberg and Kimball (1968). As such, Gibbon and Curtin's (1978) research can actually be used to support the argument that petty commodity production would have been common on "small" farms in the West, which supports the idea that commercialisation was an aspect affecting life there.

However, although it may be possible to assess a system as commercialised because of the extent to which production within it is geared toward the market the very fact that a system is commercialised does not necessarily mean it is commoditised. Curtin (1986) understands that commercialisation can exist without commoditisation, so that, production can be heavily commercialised yet not necessarily embedded in

[130] Hannan's (1982) understanding of a peasant system involved individuals working their own land primarily for the purpose of meeting family needs, with only surplus being sold on the market, with family labour being the mainstay of production, (p. 142-3): 'A "peasant society" proper, according to Teodor Shanin, consists of "small producers on land who, with the help of simple equipment and the labour of their families, produce mainly for their own consumption and/or the fulfilment of their duties to the holders of political and economic power … The family farm is the basic unit of peasant ownership, production, consumption and social life"' (Chubb 1970:50)

commoditised systems, so that, capitalism is the dominant force shaping production[131] (p. 66). It is only where labour relationships within a system are commoditised that a system can be understood as capitalist (Chevalier 1983:158-9; Tovey 1992:99-100).

In other words, money can circulate within production systems, but, as long the formal subsumption of labour under capital has not occurred, so that, the labour power of producers has not been purchased by capital those producers are not capitalists because they are not involved in capitalist relations of production (Chevalier 1983:158–9):

> Petty commodity production may be fully commercialised and profit-oriented, but not capitalist … [A system] is capitalist most crucially in accord with the extent to which labour-power is commodified and all productive labour is performed by commodified labour-power. (Albritton 1993:427).

However, just because a society may not be capitalist this does not mean that production within it is not shaped by market forces - which is the idea put forward by Hannan (1982): Hannan (1982), supporting Arensberg and Kimball's view of the forces affecting production in rural Ireland argued that production on these small farms operated outside of market influence, and that, a peasant subsistence agricultural system was in place that ensured that local culture and not the market was determining production (p. 146-7). Hannan (1982) stresses that local culture determined every aspect of life in rural Ireland within these "peasant" subsistence systems:

> In such a "peasant" subsistence system, very little exchange takes place between neighbouring communities. Even marriage markets tend to be constrained by local community boundaries. Within each local community, given the pre-dominance of family-owned land resources as the source of livelihood, almost all residents would be born locally, as would the great majority of their parents and grandparents. In a study of 400 western farm families conducted in 1970, almost 90 per cent of all male farmers and just over 80 per cent of their fathers had been born in the parish. The local community, therefore, is composed of a number of localised "descent groups" which exist in relative demographic, social and economic isolation from their neighbours, although each one is linked to the central state and market system. This high degree of local habituation – in terms of people's origins and of the low level of social interaction outside the local community's boundaries, and so on – is a basic defining feature of a "peasant system". Only by such restriction of meaningful interaction and communication could discrepant value standards be maintained – particularly ones sufficient to guarantee that children willingly replace parents in circumstances where much more economically attractive positions exist outside the community. (p. 147).

[131] In other words, the commodification of labour underpins deeper processes of commodification across the rural economy as a whole and the concomitant transformation in the purpose of farm production from production for use and household reproduction to production for exchange and accumulation' (Akram-Lodhi and Kay 2010b:257)

Of course, local culture was an important feature that affected development, but, Hannan's understanding of the dynamics shaping agricultural production in rural Ireland are far too Chayanovian[132] to be accepted (Tovey 1992:99). Curtin (1986) identifies that because small farmers were reliant on the market to support themselves that their production was not only driven by an internal logic and the subjective equilibrium of the family farm, but rather, was also responsive to external demand which means that understanding structure and change in the West of Ireland involves incorporating a focus on both internal and external forces as they interacted with each other at the level of society there (p. 58; 74; 152). In sum, Curtin (1986) argues that, 'the notion of an independent peasant farm with a specific rationality cannot be sustained, since the prices of commodities entering and leaving the peasant farm are not determined within that farm alone' (p. 64). For this reason, Curtin states that, 'Hannan's identification of peasant farming with "subsistence production" was a major mistake' (Tovey 2001:309). Instead of seeing subsistence production as the main feature distinguishing peasant farming, Curtin (1986) sees commercial family farming as more appropriate (Tovey 1992:99).

However, in contrast to Gibbon (1973) who perceived this commercial aspect to family farming to mean that a class based production system was in place, so that, the market controlled relations of production between community members, and, controlled the economic and agricultural practices they performed (p. 485; 495-6), Curtin (1986) does not award the market as much weight as this to affect production dynamics (p. 66). For Gibbon (1973) the commercialised aspect of production in rural Ireland indicated to him – from his '"classic" Marxist position' (Tovey 1992:99) - that eventually these small scale producers would be displaced by their larger counterparts because of

[132] 'Chayanov argued that indices of apparent inequality among Russian peasants – in particular size of land farmed and stock of instruments of labour (draft animals and equipment) – were not due primarily to class formation but reflected the locations of households in the demographic cycle, traced in the "labour-consumer balance" or ratio of producers (working adults) to consumers (working adults plus dependents: children and the old) at different moments in the recurrent process of generational reproduction. This links with another fundamental element of Chayanov's "theory of peasant economy": that the aim – or "motivation" (a term he used) – of peasant households is to meet the needs of (simple) reproduction while minimising "drudgery" (of labour)' (Bernstein 2009:59). 'Chayanov's position is that peasant economy constitutes a "special economic system where land, labour and means of production are combined following a natural process of family development" … The degree to which peasants exert themselves is determined by demand satisfaction and the drudgery of labour' (Curtin 1986:63). 'The problem arises in the theory's almost exclusive focus on internal mechanisms and subjective factors in explaining the "rationality" of the peasant farm' (Curtin 1986:64)

commoditisation (Gibbon 1973:494). Curtin (1986), on the other hand, understands that commoditisation does not necessarily lead to the displacement of already established systems of production. Rather, as Leeuwis (1989) - building on the commoditisation theory approach used by Curtin (1986) – argues, marginalised agricultural producers in rural Ireland can not only continue to exist under capitalism but can develop production strategies that support their continued engagement with agriculture (Tovey 1992:104).

Akram-Lodhi and Kay (2010a), using the same logic have demonstrated that although petty commodity production aims at producing commodities for the market this does not necessarily mean that pre-capitalist systems that engage in petty commodity production will become capitalist because the penetration of capitalism into a system can create different hybrids in different places (p. 182). For one thing, the specific forms of pre-capitalist social relations and practices that existed there prior to the introduction of capitalist forces into the system will affect how that system develops (Llambi 1988:353).

What must be remembered about how petty commodity production can affect development is that petty commodity production is not the same thing as petty capitalist production:

> I am not denying that some similarities exist between 'petty commodity' and 'petty capitalist' producers, not only in their small scale of operation (sometimes confused with family labour supply) but also in their role as commodity producers, whose economic performance is partly determined by competitive market mechanisms. To make things worse for clear theoretical and empirical specification, they sometimes coexist within the same economic branches and are subject to the same economic and political regulation, and, besides, they both use the same labour pool: the owners' household and the labour markets. Nevertheless, they differ in important respects. First, petty capitalists tend to enjoy better resource endowment, not only material means of production but also skills and knowledge of the technical and economic factors affecting their enterprises. Second, their performance and results differ because, while petty commodity producers may eventually accumulate financial surpluses, as long as they have to be considered just 'commodity' producers, they are not engaged in a sustained profit-making process. By contrast, the essential feature of petty capitalist production farmers, like all capitalists, is that they usually accumulate capital or else are in danger of being expelled from the market or being pushed back to [petty] … commodity production. (Llambi 1988:354).

Another important point that needs to be made about development in the West of Ireland c.1930s-50s is that production was not only influenced by internal forces of production such as culture and tradition, nor, the external force of the market, but, was also affected by the state who consolidated, enlarged, enclosed/left unenclosed

agricultural holdings in the congested districts (Curtin 1986:72; Sammon1997:38), and introduced factories into rural areas, and set up fisheries in coastal communities (Breathnach 2005:69), and built fish-curing stations, boat houses, piers, and roads (Mac Graith and Ní Ghearraigh 2004:13; Micks 1925:35), and facilitated petty commodity production there (Curtin 1986:72), while at the same time affecting the development of agriculture and providing forms of wage labour.

Furthermore, the state provided money to support rural societies in the West of Ireland that did not involve competition for time between one labour process and another (Berman 2009:4). Welfare forms such as the dole, Small Farmers Assistance ("dole")[133] (Curtin 1986:72), old age pensions[134] (Arensberg and Kimball 1968:119–20; Hannan and Commins 1992:98; Kennedy 1991:494; Ó Gráda 2002:124-61), widows and

[133] An employment order was made in '1935 prohibiting farmers with a rateable valuation over £4 from claiming UA (Unemployment Assistance] from mid April to the end of September and similarly disqualifying single men without dependents in rural areas from mid July to the end of September. This was the period during which such men could be expected to have or find farm work … in January 1936 [a decision was made] to extend the period … [from] March to September … These [rules] … continued in effect unchanged up to 1938' (Cousins 2003:68-9). Some of the social policies were highly gendered especially unemployment assistance and the widow's pension: 'At first sight there seems to be a contradiction between the two because, on the one hand, women were largely excluded from unemployment assistance, while, on the other, women were treated quite generously in widow's pensions. However, the logic of the approach … meant that both approaches were perfectly consistent. Fianna Fáil policy saw women as part of a broader family unit and as economically dependent on men. Accordingly women should not, in general, be entitled to unemployment assistance as (a) they didn't need support which should be provided by the male head of household and (b) it would only encourage them into the labour force. Widows, on the other hand, no longer had a male head of household to depend on (and this through no fault of their own). Accordingly they were entitled to public support' (Cousins 2003:85-6)

[134] 'The United Kingdom's Old Age Pension Act of 1908 … entitled men and women aged seventy years or more, resident in the UK for the previous two decades, and whose annual means did not exceed £31 10s., to a weekly pension. The act disqualified habitual drunkards, convicts, malingeres, and pauper lunatics: persons previously in receipt of Poor Law relief were also disqualified at first (though only until January 1911). Claimants whose income did not exceed £21 were entitled to the full five shillings a week … Although five shillings may have seemed 'meagre' or even 'tiny' in the Home Counties, it was a considerable sum in Ireland. In rural Ireland in the 1900s an unskilled labourer in good health might earn no more than double that per week. In Britain he would expect 15s. to 20s. For elderly women the gains were even greater. In Irish towns and cities the weekly wages of unskilled female labour ranged from 7s. to 12s., while domestic outwork in the congested districts in the west brought only 4s. to 7s. … Just before independence in 1921-2 the pension still represented a boon to the aged poor in Ireland, though its relative worth had declined a little' (Ó Gráda 2002:126-30). However, the 'old age pension was means-tested' (Ó Gráda 2002:134). Also, when it was first introduced people commonly misrepresented their age so as to meet the age criteria. However even in '1936, when false declarations of age no longer offered a route to a pension, three out of every four of those aged seventy and above qualified; five-sixths of them were at the top of the sliding scale' (Ó Gráda 2002:142)

orphans pensions[135] (Cousins 2003:58), and children's allowance[136] (Gray 2010:23; Ó Gráda 2002:124-61) were available.

In other words, agriculture was not the only system of production in operation in the West of Ireland c. 1930s-50s, nor, was it the only way through which money entered social systems there. Instead agriculture was but one among other forms of production being carried out, and so, if a farm model is to be applied to understanding production in the West of Ireland at that time it should take account of this fact.

(8.5) *Commonage Not Only a Supplement to the "Rest of the Farm" But Integral to the Farm*

Another problem with the farm model as put forward by Arensberg and Kimball (1968) is that it encouraged an understanding of agricultural land in rural Ireland to have only existed as private land: They stressed that, keeping the name on the house/land[137] (p. 133) was of key importance. This encourages a view of agricultural land as private property. Although Arensberg and Kimball (1968) make reference to the mountain land that occupied space within the communities they investigated, they never suggest that this space existed as communal property, instead, they say that much of the mountainous land is useless as if of no worth to anyone (p. 4).

Others have followed their example and talked about farms in the West of Ireland from a private property perspective that awards no mention of commonage as a common feature of agricultural systems in this area (see Gibbon 1973). This is surprising because of the extent to which commonage actually existed in the West of Ireland c.1930s-50s: In 2009 there was 'approximately half a million ha of land registered as commonage in Ireland'[138] (O' Rourke and Kramm 2009:55): Figures for 2007, indicate that at that time,

[135] The widow's and orphan's pension schemes were introduced by Fianna Fáil in 1935 and came into operation in 1936 (Cousins 2003:58)

[136] The children's allowance was introduced in 1944 (Gray 2012:23)

[137] 'High levels of immobility in ownership and user rights to agricultural land have been characteristic of Ireland since the late nineteenth century. Connell (1968:116) argued that the land legislation of that time, in converting farmers from tenants to proprietors, made them more ambitious in their yearning to establish the family name on particular pieces of land' (Hannan and Commins 1992:97)

[138] 'The total land area of the Republic is 17.024m. acres, and that of Northern Ireland is 3.352 m.' (Attwood 1967:9)

commonage 'in Ireland [covered] … 426,124 ha and [involved] … about 11,837 farmers' (Hynes et al. 2007:64) which suggests these figures were probably much higher c.1930s-50s[139] and so commonage must be taken seriously as a factor that affected production in rural Ireland at that time.

When dealing with the West of Ireland in particular it is essential that a focus on the role of commonage within production be considered because commonage was particularly widespread in this region of Ireland (Gillmor 1977:59-60; O' Rourke and Kramm 2009:55). In relation to the West of Ireland commonage should most certainly be considered as a feature of the landscape that might have affected production in coastal areas, because commonage is very often found in this type of location (Hynes et al. 2007:64; McKenna et al. 2007:158), but also, where mountains are present (Hynes et al. 2007:64; O'Rourke and Kramm 2009:55), and, in areas where moorlands and coastal dunes are to be found (McKenna et al. 2007:158), and, generally in areas where land is of a marginal quality (Gillmor 1977:60; McKenna et al. 2007:158; van Rensburg et al. 2009:348): Marginal land is very common along the Western Irish seaboard (Almquist 1979:702; Inglis 1835:203), but, is especially problematic in Mayo, especially in the Barony of Erris[140] (Beaufort 1792:73) which is the barony to which the community being investigated within this research belonged.

However, even where scholars have considered the issue of commonage as a component of agricultural systems in the West of Ireland the problem is that they tend to portray commonage as merely a supplement to privately held agricultural land which can be used to provide resources within agriculture. Commonage was particularly important in contexts where the area of land that was privately owned by households was small and also of a marginal quality so that households could not hope to meet their household

[139] It is to be expected that commonage would have been even more prevalent in Ireland c.1930s-50s than it was in the twenty first century because by the twenty first century much of the land that had formerly been held as commonage had been subdivided and fenced off as individually held property (McKenna et al. 2007:159)

[140] Mayo 'contains 790,600 acres, or 1,235 square miles. Mayo is divided into nine baronies – Trawly, Gallen, Costello, Clanmorris, Kilmain, Morisk, Carragh, Burrishoole, and Erris … the large barony of Erris … [is] overspread with an immense mass of uninhabited mountains, and trackless bogs, without roads and very difficult to access, to the few farmers and fishermen who dwell upon the coast' (Beaufort 1792:74)

needs by relying on that privately held land alone (Gillmor 1977:60; van Rensburg et al. 2009:348).

This line of thinking about commonage as a resource fits with international discussion about the role of commonage within production systems where commonage is a feature of production. However, at the level of international discussion, commonage (which is the Irish synonym) is more commonly referred to as commons. The main debate that has centred on the commons has been to do with the management of the commons to safeguard resources produced there. Hardin's (1968) *Tragedy of the Commons* encouraged the idea that 'individuals who jointly use a commons are hopelessly trapped in an immutable tragedy [in an] … inevitable trap of overuse … [so that] the *only* solution Hardin envisioned was externally imposed government or private ownership' (Hess and Ostrom 2003:116).

> The "tragedy" is Hardin's metaphor for the inevitable degradation of common pasture by graziers pursuing individual self-interest without regard for the common good. The axiom behind this paper has been used to promote the superiority of private ownership or state control over traditional communal forms of ownership. Hardin has been widely criticized for his loose use of the term "commons". Other workers … refute the suggestion that common property natural resources, such as grazing, will necessarily be degraded, pointing out that there are many examples of long term sustainable use. (McKenna et al. 2007:158).

Ostrom (1990) has been particularly noteworthy in this regard, highlighting that:

> [s]ome communities develop rules around how much of a certain product households can 'harvest from commons and under what conditions. The rules used in these [communities are] … tailored to the specific environment, to the particular economic roles that various … products [play] … in the local economy, and to the need to minimize the costs of monitoring labor inputs, resource-unit outputs, and compliance with the rules. (p. 67).
>
> Devising property regimes that effectively allow sustainable use of a common-pool resource requires one set of rules that limits access to the resource system and another set of rules that limits the amount, timing, and technology used to withdraw diverse resource units from the resource system. It is frequently the case that the resource system is jointly owned, while the resource units withdrawn from the system are individually owned by appropriators. (Hess and Ostrom 2003:121).

In short, communal arrangements can exist in relation to common property resources that while supporting individual production can promote the ideals of communality and responsibility (Ashenafi and Leader-Williams 2005:540). In other words, collective action does not have to be problematic (Ostrom 1990:67; Poteete and Ostrom 2004:216)

which is proven by the fact that there are common property resources which have lasted over millennia (McKenna et al. 2007:158). As understood by Hess and Ostrom (2003) organising 'to create rules that specify rights and duties of participants creates a public good for those involved[141]' (p. 117).

However, while this focus on safeguarding the resources of the commonage is very important in contributing to sustainable development the problem with this resource centred view of commonage is that it encourages a view of commonage as a supplement to agriculture rather than an integral part of agriculture and overall production systems within communities where commonage exists.

Another problem with the way that commonage has been analysed internationally is that while interest has centred on defining the difference between commonage and other property regimes and understanding how each property regime affects how property is managed, not enough focus has been given to the way that areas held under these different property regimes might interact with each other where a number of different property types exist within the one community.

Four property-right regimes exist - 'open-access, state property, communal property and private property' (McKenna et al. 2007:158). Three of these property-right regimes are applicable to understanding production in the West of Ireland c. 1930s-50s, and they are, open-access, communal property, and private property. Examples of open-access resources are the atmosphere and sea (Hess and Ostrom 2003:122). The idea is that everyone has a right to them so that no can one deny another their use (Hess and Ostrom 2003:121). Examples of common-pool resources are grazing areas, rivers, forests, and so on (Hess and Ostrom 2003:121). Where common property exists those who have a

[141] Often the case where the problem of resource exploitation comes into play is in relation to open-access resources rather than common property resources (Hess and Ostrom 2003:121; Ashenafi and Leader-Williams 2005:450). 'The free-for-all scenario is applicable only to open access resources (res nullius) … open access resources are indeed prone to mismanagement because they are "non-property", so by definition there can be no property rights attached to them. In contrast, a true common property resource (res communes) is not open access. Its use is restricted to specified individuals, and there are agreed regulations to prevent unsustainable high-intensity exploitation' (McKenna et al. 2007:158)

share in this property also have the right to exclude others from using it as a resource (Hess and Ostrom 2003:121; O' Rourke and Kramm 2009:55). An example of a private property resource is land that is individually held and which only the owner of that land has the right to use.

In the West of Ireland c.1930s-50s fishing occurred on the open-access area of the sea; agriculture was carried out on private property; agriculture and other forms of production were carried out on communal land. These different areas supported different forms of production, but also, these separate spaces were connected to each other within the overall production systems carried out by individual communities, so that what happened in one system of production could affect another.

Looking to the relationship between the sea and the commonage where both were features of production in Irish societies what is important to note is that although the sea can be considered as an open-access property it could only be utilised within production where it could be physically accessed. As such, in areas where the commonage ran down to the sea the fact that commonage was so located can be understood to have facilitated use of this open-access resource within local production. The physical space of the sea and the physical space of the commonage were connected to each other under rundale property regimes where commonage rights sometimes came in the form of shore rights so that shore resources could be accessed[142] (Bell and Watson 1986:33).

The open-access property of the sea and the private property of land were connected to each other within a physical relationship whereby seaweed from the sea was commonly used as fertiliser within agricultural production on private land[143] (Shaw 1901:150; McKenna et al. 2007:160). Also, a physical connection has been made between shore commonage and that area of privately held land that was devoted to crop production

[142] 'Farms near coasts often had rights to the weed growing on particular strips of beach … In some cases rights to seaweed were sufficiently formalised to be stated in writing' (Bell and Watson 1986:33)

[143] Research has found that use of seaweed as fertiliser is not unique to Ireland, but rather, this same practice is carried out in Kenya, South Africa, the Philippines, Vietnam, New Zealand, China, Alaska, Iceland, Canada, the U.S., Chile, Brazil, France, the U.K., Italy, and Portugal (Zemke-White and Ohno 1999:370–3); As a manure seaweed is an important crop nutrient because it contains iodine and potash salt (Breathnach 2005:80; Dillon 1930:274–5). Potash salt is 'a natural form of fertilizer for nurturing crops on poor soil' (Breathnach 2005:80)

because seaweed was also collected from the shore, but also, other resources such as sea sand[144] (Butler 2001a:198, 2001b:203; Inglis 1835:203; Roche 2001a:208; McKenna et al. 2007:162; Freeman 1947:46), shellfish, and seashells were collected from there (Bell and Watson 1986:35; Freeman 1943a:7, 1943b:95; Gahan 2001d:56; Lysaght 2000:201; Ruttledge-Fair 2001a:92), 'which collectively, provided nitrates, phosphates, potassium and lime for the soil' (Lysaght 2000:205).

A physical link has also been made between commonage that was used for grazing and the private space where crops were produced because the manure of livestock grazed on the commonage was also used as fertiliser within this crop production ground (Slater and Flaherty 2009:23), but also furze and heather[145] were sometimes collected from this grazing space for the purpose of providing fertiliser to crop land (Butler 2001b:198).

Micks (1925) draws particular attention to the fact that coastal agricultural communities within Ireland had the advantage of having coastal resources such as seaweed available to them that would not be available inland (p. 9). This type of statement encourages the view that coastal communities in contrast to their inland counterparts were in a more favourable production position because they could draw on supplementary commonage resources that they had available to them. However, what must be remembered here is that coastal communities along the Western Irish seaboard were often dealing with much harsher physical conditions of production - including land of a much more marginal character - than would have existed in inland areas, and, this meant that access to these commonage resources were not "supplements" to agricultural production but "essentials" to agriculture because without them agricultural production had no hope at all. Thus, commonage should be understood as integral to those farms where it existed rather than merely a supplement to them.

[144] Shelly sand, and burnt shells were used as lime in coastal areas. Shells were often burned in lime kilns for this purpose, but, sometimes lime was made without using a kiln at all but instead using some crude construction such as a bank of soil on the side of a steeply elevated piece of ground (Bell and Watson 1986:34)

[145] This furze and heather was an inferior manure to seaweed and sea sand, but, was sometimes used where alternative sources of higher quality manure were low (Butler 2001b:198)

Not enough attention is given to the fact that, the "resources" sourced were "necessities" of production. While Arensberg and Kimball (1968) make no reference to commonage or resources such as seaweed, and so on, being sourced from commonage within the context of agricultural production they do at least – through their equation of "small" farms with marginal environments – highlight that the marginal physical conditions of land in the West of Ireland shaped production dynamics at farm level. However, agricultural production in the West of Ireland was not only beset with problems associated with marginal land characteristics, but also, other physical environmental factors that made production difficult. Beyond issues of land quality, other specific conditions under which agricultural production was being carried out there made the commonage an essential component of production without which agricultural production could not have survived. For instance, seaweed was not only important because land was poor, but because it helped counteract damage caused to crops by weather issues tied to coastal location of production: Seaweed was particularly important to crop production in coastal communities along the Western Irish seaboard because crops produced there were being exposed to strong winds and in danger of being washed by sea spray (Neenan 1963:B–1), which because sea water contains sodium chloride/salt burns the leaves of crops and sets them back, just as wind can set crops back by breaking crop stalks – especially in the early stages when stalks are only developing and so are weak (Gillmor 1970:13). Access to manure from commonage – whether in the form of livestock manure or seaweed – was vital in these contexts where crops required extra manure additions than would have been normal under different production conditions.

Freeman (1943a) notes that, the availability of seaweed for fertiliser was particularly important where other forms of manure supply were low (p. 3), but, the availability of seaweed where other forms of manure were low was even more important when production was occurring in marginal conditions. While pockets of privately held arable land did exist alongside commonage in the West of Ireland what is of significance to note is that these pockets of arable land were often themselves only created through reclamation of land. Bog land and such like were worked until they became productive[146] (Almquist 1979:708): Sand was particularly useful in bringing

[146] An important aspect of pre-famine population growth was the reclamation of mountain waste for tillage purposes. The percentage of land in a county classified as "waste" is a direct indication of the

unproductive soil into productivity (Laheen 2010:80). In other words, some of the land that can be considered productive was not land that was naturally productive, but instead, it was land that required a lot of effort to become productive and a lot of effort to keep it productive.

Of course there were some areas within coastal communities that were naturally productive and so did not require the same level of fertilising as these other reclaimed areas did, but these productive areas were few and far between. There were also areas of land in the West of Ireland that were not only productive, but, very productive, but, this type of land was particularly scarce. Machair[147] areas are what are being discussed here. Machair can be described as areas of 'level, stable, coastal dune grassland over calcareous soils' (Bassett and Curtis 1985:1). 'Machair is found in areas having a moist, cool, oceanic but windy climate' (Bassett and Curtis 1985:1). Machair can generally be described as a coastal sand with light, sandy, non-acidic soils. These soil characteristics affect the use to which machair is put, with machair suitable for tillage and crop cultivation and grazing by livestock in contrast to much of the land surrounding it – which is often acid bog land or heath – which generally tends to be used only for grazing (Bassett and Curtis 1985:2) because acidic soils impede the ability of plants to take up nutrients (Clavin 2008:7). Where machair commonage existed it provided a supplementary grazing area for livestock as well as contributing other resources to

amount of land that was open for labor-intensive "colonization" for cultivation purposes' (Almquist 1979:708); 'Connaught contained expanses of bogland available for reclamation' (Almquist 1979:702); 'Major Bingham, who came to reside in Erris about the year 1796, was the first who commenced extensive improvements in Erris … there was a tract of moor land and bog: this he surrounded and intersected with roads, located a great number of cotters on it, giving each a piece to reclaim, rent free for a few years (usually five); and when the piece was reclaimed, the cotters were removed to the next unimproved part, and so on until the whole had gone through the first initiatory process of cultivation' (Knight 1836:68-9); '[f]or the cultivation of the bogland … extraordinary facilities are afforded; and owing to these, the country appears to be in a very improving condition. I allude to the … sea-sand … which by universal consent [is understood] … to be the most efficacious of manures, for the improvement of every description of land, as well as for the reclamation of bog land. Common sea-sand is a very common manure, in many parts of [Ireland]' (Inglis 1835:203); 'the peat bogs of Ireland are by no means lost to agriculture; on the contrary, in time we shall see what rich fruits some of these, and the two million hectares of the "indifferent land" … can produce given correct management' (Engels 1971:275)

[147] Machair has been recorded in Scotland and in only twenty six sites in western and north-western Ireland (Basset and Curtis 1985:5). Notably, two areas within the community that is being investigated within this research have machair status and they are Garter Hill/Cnoc a' Ghairtéil and the Curraunboy/Corrán Buí area of sand dunes (Mac Graith and Ní Ghearraigh 2004:9)

agricultural production, such as sand for fertiliser[148] and dune grass[149] for thatching, and such like (McKenna et al. 2007:160). Historically, the shareholders in commonage not only had grazing rights, rights to cutting peat from moorland, and, rights to collect seaweed from the shore, but they also had rights to harvest dune grass (McKenna 2007:159).

While commonage provided resources for agriculture what should also be understood is that commonage also provided resources for petty commodity production. The rights to cut turf, and, the right to collect seaweed (McKenna et al. 2007:159) were not only important because turf was needed for the home, or, because seaweed was needed for fertiliser, but, in the context of societies who relied on sale of turf and sale of seaweed on the market (Freeman 1943a:12; McKenna et al. 2007:160; Morrissey 2001:vii) commonage can be understood to have facilitated petty commodity production, and similarly, where the "open-access" area of the sea was available to communities this open-access resource also facilitated petty commodity production. Additionally, commonage and the sea not only provided resources to production but also they provided spaces within which certain practices could be performed, and crucially, not only did they provide a space for certain practices to be performed, but, because these practices were occurring in areas that the community as a whole could access, the performance of these practices on these spaces encouraged communality within production.

The "commons" literature stresses that commons resources can be depleted where practices performed on the commons become individualised. In contrast, where communities act together to regulate the amount of resources an individual shareholder can draw down from the commons (e.g. the number of livestock they might graze) and operate a system of checking and monitoring by co-owners against overuse by any

[148] Pits were often created in the machair sand dunes as a result of sand being removed from them for agricultural purposes (McKenna et al. 2007:162)

[149] Dune grass/marram grass (Ammophila arenaria) was commonly used for thatching in Ireland (McKenna et al. 2007:160). Similarly in other parts of the world, such as Ethiopia, where commons exist people have accessed resources such as grass for thatching, but also for making ropes and various other implements that like ropes could be used within agricultural production in these areas (Ashenafi and Leader-Williams 2005:544)

particular individual (McKenna et al. 2007:159) that resources associated with the commonage will not be exhausted, because it is in situations where …

> the resource harvesters are diverse, do not communicate, and fail to develop rules and norms for managing the resource [that commonage resources can be depleted. Conversely] … under conditions that enable harvesters and local leaders to self-organize effective rules to manage a resource [the resource tends to endure]. (Ostrom 2009:419).

Following this logic there is much to suggest that where commonage users are not diverse, do communicate, and do develop rules and norms for managing commonage, and do check and monitor that these rules and norms are being followed, and importantly, do continue to use these resources in a communal way at the level of practice, that commonage resources are not only safeguarded, but so too, is a communal way of life. In continuing to manage and use the commonage in a communal way they reinforce the communal nature of this space in each decision they make about it and in each practice they perform in relation to it.

> The real man, a social being, is recognised not in himself in isolation but in the context of his relationship to the structured whole, which is "a sum of productive forces, a historically created relation of individuals to nature and to one another … which, indeed, is modified by the new generation on the one hand, but also on the other prescribes for it its conditions of life and gives it a definite movement, a special character.' (Marx, cited in Alavi 1973:24).

In short, behaviour within production is affected by the institutional context within which it occurs. Where communal structures are in place to allow common usage of a resource, to regulate usage of that resource, and to encourage use of communal resources then individuals within such societies are encouraged not to exploit resources, but, to use them sustainably.

(8.6) *Conclusion*

Where communal environments existed in small farm areas in the West of Ireland they affected agricultural sustainability there in a number of ways: Where commonage existed it provided essential resources to privately held agricultural land. Either it facilitated livestock production so that crop land could benefit from livestock manure, or else, it provided other sources of natural fertiliser such as sea sand, sea shells, or seaweed; where commonage existed and also where it existed alongside the open access area of a sea then commonage provided opportunities for petty commodity production

and in so doing helped to ensure that production on agricultural land did not have to respond so readily to market forces. This feature of commonage is particularly important in contexts where agriculture cannot expect to compete on the market (because of issues such as poor soil, a limited amount of arable land, or because of harsh physical environmental conditions in general); also, where communal rules and regulations existed in relation to the use of local resources then those resources were less likely to be exploited as a result. Therefore, production in relation to them tended to be more sustainable.

However, even where communal structures exist to promote sustainability within a local production context, the reality is that communal systems of production interact with other wider systems such as market systems and state systems so that communal structures themselves can change over time so that what is considered normal behaviour changes over time, but the point to note is not whether communal structures change to incorporate new features, but, whether communality itself as a feature of life continues to exist and to dominate how people interact with each other and the world around them within production, because where production practices are guided by communality then production tends to follow a sustainable model.

Even where a communal society may be commercialised so that money circulates within it its communal character can block commoditisation processes taking hold there, because of the fact that relations of production between community members are based on communal principles (such as reciprocity) as opposed to involving wage labour – even if those same communal societies engage with wage labour in other ways, such as working for state bodies, working in factories, and working abroad for certain parts of the year.

Non-commoditised relations of production between community members protected some communities in the West of Ireland from capitalist forces that could otherwise have undermined their ability to support themselves, while at the same allowing those communities to engage with the market and buy goods from it by offering the community a way to produce together under petty commodity production, so that, while

money did not change hands between community members within productive activities money did accrue to community members as a result of those activities because of the fact that the commodities produced by them were sold on the market: The commonage was crucial to agriculture – which aimed primarily at use value production, because on the one hand, the commonage was essential to agricultural production on privately held agricultural land, but also, the commonage was necessary to petty commodity production – which aimed at exchange value production – because the continuation of agriculture along use value production lines was facilitated by the fact that petty commodity production could generate much needed cash in the area.

Esssentially, the commonage (and open-access area of the sea) played an important role in helping the community to meet its changing needs under increasing commercialisation without relations of production becoming commoditised, and without agricultural sustainability being threatened by the market. However, this argument is theoretically based and thus it is important at this stage to apply the ideas brought up here to a real life situation as only then can the true veracity of the argument be established.

As such, chapter nine and ten both address from an empirical angle the issues raised within this literature informed chapter. Using empirical evidence - gathered through case study research of a community in the North-West of Ireland c. 1930s-50s - chapter nine explores the relationship of agriculture and other forms of production to the market, and, to each other in a rundale community, in terms of the impact on agriculture. Chapter ten focusses more specifically on the relationship of commonage space to privately held agricultural space, and, on commonage space as it affected opportunities for petty commodity production across the townlands investigated within this research.

The questions asked in chapter nine are: How did the community of Dún Chaocháin c. 1930s-50s engage with the market at the level of agricultural and non-agricultural production? How was agriculture affected by other opportunities for production within

the area? Beyond production were there any other ways of earning money? And, how important was money to the community?

Chapter Nine

Agriculture & Other Forces Underpinning Production in North West Mayo

(9.1) *Introduction*

Survival in Dún Chaocháin c.1930s-50s relied on a mixture of agriculture and other forms of production to meet household needs and expenses: Agriculture, petty commodity production, and, wage labour were combined together across the year so that societal reproduction was based on a complex multifaceted production system rather than an agricultural system only, or even, on a predominantly agricultural system. Instead, while agriculture contributed much to the creation of use value products without which the community of Dún Chaocháin c.1930s-50s could not have survived, it contributed very little to the creation of exchange value goods (although it produced some) which were vital to providing money to the system and without which the system would have collapsed. Likewise, wage labour and state welfare payments provided money which was essential to system maintenance. Money was also earned through non-agricultural forms of production.The importance of these other non-agricultural forms of production was such that these forms of production cannot be considered merely as supplements to agricultural production. Rather, they should be understood as essential to agriculture and the overall system of production which occurred locally because without them agriculture as it was being carried out would have collapsed. In other words, agriculture should be understood as but one part within an overall system of production.

The following chapter offers an empirical exploration of the role of agriculture, petty commodity production, wage labour, and state payments in affecting the overall production system that was operating in Dún Chaocháin c. 1930s-50s. I do not question the prevalence of agricultural production in the area, but, I do question the extent to which agricultural production alone could meet household needs I demonstrate that agriculture alone could not provide enough use value products to supply households

with all of their material needs, neither, could agriculture create enough exchange value goods to meet expenses where they occurred. In other words, agriculture needed outside opportunities for production.

(9.2) *Agriculture and the Production of Use Value Products*

If analysis were only situated at the level of official records such as the Census 1901 and 1911[150] there would be much to suggest that agriculture was the dominant form of production being pursued in the area of Dún Chaocháin c. 1930s-50s that is being investigated within this study, because within these official records farming is overwhelmingly portrayed as the dominant occupation pursued by heads of households in the area at that time: As shown in *Table 1*, in the Census 1901, sixteen out of seventeen households in Kilgalligan, thirty six out of thirty seven households in Stonefield/Carrownaglogh, fifteen out of seventeen households in Carrowteige, seven out of seven households in Portacloy, thirty out of thirty two households in Curraunboy, and, fifty out of fifty six households in Rossport indicated farming as head of household occupation.

[150] The Census 1901 and Census 1911 are the most recent Irish censuses that are accessible to the public

Table 1:

1901 Census Data on Occupations

Townland	Number of Households in Townland	Number of Households Which List Farmer as Head of Household Occupation	Number of Households Which List Other Occupations as Head of Household Occupation	Notes on Other Occupations Listed
Kilgalligan	17	16	1 x Fishery Instructor	
Carrownaglogh	39	36	1 x Wool Spinner 1 x Mendicant 1 x Fishery Instructor	The households which list Wool Spinner and Mendicant as head of household occupation were headed by women
Carrowteige	17	15	1 x Retired Cook 1 x Pensioner National Teacher	The household which lists retired Cook as head of household Occupation was headed by a woman
Portacloy	7	7		
Curraunboy	32	30	1 x No Occupation Listed 1 x Wool Spinner	The households which list No Occupation and Wool Spinner as head of household occupation were headed by women
Rossport	55	50	1 x No Occupation Listed 1 x Army Pensioner 1 x Captain and Infantry/Farmer 1 x Farmer and Agricultural Labourer 1 x Farmer Bailitt 1 x Shopkeeper and Farmer	The household which lists no occupation is headed by a woman

Source: www.census.nationalarchives.ie

A similar picture emerges in *Table 2*, relating to the Census 1911 where fourteen out of sixteen households in Kilgalligan, thirty out of thirty seven households in Stonefield/Carrownaglogh, seventeen out of twenty one households in Carrowteige, six out of nine households in Portacloy, twenty four out of thirty five households in Curraunboy, and thirty nine out of fifty six households in Rossport indicated farming as head of household occupation.

Table 2:
1911 Census Data on Occupations

Townland	Number of Households in Townland	Number of Households Which List Farmer as Head of Household Occupation	Number of Households Which List Other Occupations as Head of Household Occupation	Notes on Other Occupations Listed
Kilgalligan	16	14	2 x No Occupation Given	The households which list no occupation are headed by women in each case
Carrownaglogh	37	30	6 x No Occupation Given 1 x Shoemaker	The households which list no occupation are headed by women in each case
Carrowteige	21	17	3 x No Occupation Given 1 x Grocer	The households which list no occupation are headed by women in each case
Portacloy	9	6	3 x No Occupation Listed	The households which list no occupation are headed by women in each case
Curraunboy	35	24	9 x No Occupation Listed 1 x Farmer and Carpenter 1 x Carpenter	The households which list no occupation are headed by women in each case
Rossport	55 (although the census records reach household number 56 there were only 55 houses as no household number 27 is listed)	39	12 x No Occupation Listed 1 x Farmer Grocer, Draper and Sub Postmaster 1 x Farmer Masson 1 x Shoemaker 1 x Ferry Man	Ten of the No Occupation Listed Households were headed by women, one was headed by a man, and it is unclear if the last one was headed by a man or a woman as only initials of the person's first name are provided

Source: www.census.nationalarchives.ie

However, just because agriculture is listed in each of the aforementioned censuses as the dominant occupation of heads of households in the area this should not be understood to mean that agriculture was the only form of production pursued. Instead, the reality was that agriculture and other forms of production were being pursued alongside each other in a way that contributed to the overall reproduction of the society in question.

However, first to establish how agriculture itself was carried out: Agriculture was carried out on a mixed crop and livestock system basis of production where a mixture of different crops and different livestock were produced together.

> There was a mixture of animals and crops (Sarah)
>
> Sheep and cows and horses … and pigs (Seamus)
>
> Geese and chickens and ducks … dogs and cats (Jean)
>
> There would be an ass in nearly every house (Sarah)
>
> Potatoes, cabbage, turnips, oats and rye were grown (Seamus)
>
> [Also] lettuce and carrots and onions … and barley (John)

Together these different animals and crops provided food to the family.

> Everyone would have their own vegetables from their gardens to eat and they would have the grain from the meadows to make bread with … rye bread[151] or maybe a barley cake might be made (Francis)
>
> Food produced on the farm was mostly for using for the family. You would be happy at dinner time to have a dinner of spuds for the winter (Peadar)
>
> They'd eat spuds three times a day (Seamus)

As well as the vegetables and grains supplied to them in this way, dairy products such as fresh milk, sour milk, and butter were available from their own farms.

> You were able to have nice fresh milk straight from the cow and you drank that and you would use the milk to make butter (Francis)
>
> Every house was making butter that time (Seamus)
>
> In summer time … when their cows would have lots of milk they would make their own butter … The skim milk … they used to keep for bread and they used to drink it … when they would come in after their days work when they were thirsty and maybe there wouldn't be any water because the water had to be carried from the well. If there was no water in they'd go to the churn and they'd mix the butter milk that was in the churn and ... that was what they had for their thirst (Sarah)

Livestock not only provided dairy produce to households, but also, their meat provided another source of food to the family.

[151] 'A special leaflet (N. 22) issued free by the Department of Agriculture advocates the cultivation of rye, as a grain crop and emphasises that rye bread is a palatable and nutritious food' (Irish Press, September 25, 1942:2). 'The composition of rye, is somewhat similar to that of wheat and the whole grain can be ground into flour for home baking' (Connaught Telegraph, January 9, 1943:5). In Ireland, rye bread was generally thought of as '"poor man's loaf"' (Irish Press, January 24, 1934:6)

> You'd kill the pig and salt her in a barrel … you'd put it in a barrel then and when you'd think it was cured you'd take out the side of meat that you'd need and you'd hang it up. They'd hang a piece, say half a side. And, you'd see a man coming in that time and you'd see him cutting a slice off and putting it down (Seamus)
>
> They would chop a piece off whenever they needed it, when they wanted a fry they chopped a piece off the pig hanging from the ceiling (Francis)

However, just as agricultural production utilised livestock to provide food to the family it also aimed at providing food to livestock.

> The potatoes would be for the house as well, but they would have that many potatoes they would feed them to the calves and pigs. When the dinner was being cooked there would be a big pot of potatoes and whatever was left over would be fed to the pigs, or calves or whatever was there (Francis)
>
> Rye and the barley and the oats … they'd have that for the animals [too]… for the fodder (Anthony)

Some agricultural products were considered particularly important to maintaining livestock health, or, helping to remedy illness where it was likely to occur, or, had already occurred.

> One time if a cow was getting weak or going down [they might be given] … the sheaves of oats [which] are very good … for the animals (Peadar)
>
> If they were in bad condition you could give them the oats or the rye. They used to boil rye and give it to them. They used to say to boil rye was good for them and they would give it to them ... or spuds ... they used to boil a lot of spuds and give it to cows and to calves … Barley was good for the hens. With the pin feather their feathers would go off them ... just with the nature ... moulting ... and it would come on them every year and they would stop laying until it would grow again. They would be in a bad shape to look at them when that would come on them. That would be happening to different ones at different times of the year but it would come on every one of them. The cold wouldn't help them either but barley was good for the hens for laying. They used to give oats to the pigs when they wanted to fatten them up if they were going to kill a pig themselves. It would harden the meat and make a better job of them (James)

(9.3) *The Creation of Use Value Products within Non-agricultural Forms of Production*

However, while agriculture was able to provide the above mentioned food items it did not provide all of the household's diet with fish playing a particularly important part in this regard.

> Fish was the main dish (Anthony)
>
> You'd have a barrel of fish that time and it salted (Margaret)
>
> People ate mackerel the most … mackerel and herring … they'd get glasson and then pollock but mackerel was the most for the fish (James)

> The auld fellow used to do the fishing … he would have the odd salmon home with him … but nearly every day you had mackerel for dinner … if they had a big catch … each one of the crew … there would be three or four or five on the curragh and each one brought a salmon every second or third day or maybe every second week or whatever the case may be depending on how many was in the house to eat it and that salmon was lovely … There was two big wooden barrels and they'd stay fishing until the two barrels were full. They were outside at the gables of the house full of salt, well not full of salt, pickled they called it, cured (Francis)
>
> You'd have fish all year round because they would salt the fish (Jean)
>
> There was barrels of salted fish … and you had smoked fish (Seamus)
>
> They'd have the mackerel on a piece of iron stuck on the wall and they'd tie maybe six or seven mackerel on a bit of string and hang them up on that and smoke would be going up on the mackerel all the time (Seamus)

As well as bringing home fish the same fishermen often brought home other food won from their efforts at sea.

> In the summer time the fishermen used to catch seabirds. They would get caught in the nets. I remember my father and myself too … but I remember when my father was fishing on the curragh … he used to bring home the sea birds that got caught in the nets … puffins, gillimots, razor beaks … my mother used to pluck them and sometimes she used to roast them and she used to boil them (Seán)
>
> Wild seafowl was … [an] article of food much in use in former days. The use of many if not all of these products of the sea … still [survived in Dún Chaocháin c.1930s-50s] … though in restricted form (Iml. 1244:444)

Additionally, food was sourced from the shore.

> Cockles and mussels … were gotten … buckets of them … we'd go down and pick them … bring them home and put them in the pot and boil them … put a grain of flour and a drop of milk in them when they were cooked and you would eat potatoes with them (Sarah)
>
> We used to collect … the sand eels (Jean)
>
> Another source of food that was great was periwinkles and limpets … and clams … … [Then] we had seaweed … the ones we would eat would be the dillisk and tripeddy and slobchcán[152] and carrageen (Eileen)
>
> You'd pick the carrageen moss and boil it, strain it and you added sugar to it and it would set like jelly … pick the slobchcán and eat a feed of that and put pepper on it … sure I ate it … and the barnacles … they used to boil them and you'd love the juice … then they used to fry them … put a bit of pepper on them or something (Seamus)

Some people used to dry the seaweed and keep it as a medicinal food to be used over the winter.

> We used to eat the dillisk and carrageen … collect and dry it for the winter time. It was supposed to be great for coughs and colds and everything (Jean)

[152] Historically, slobchcán was used in the area as food (Iml. 1340:3)

The health benefits of eating seaweed were well known at this time.

> People would eat carrageen … carrageen was good for you (James)
>
> Carrageen … grew on the rocks and people used to pull that and the way they used to use it was they put it out on the rocks in the hot weather and they'd dry it out and they'd store it away and anyone who would have any chest trouble or that they'd boil it and strain it and they'd put milk in the juice that would come out of the carrageen and when that would set it would be just like jelly and the people that had bad chests they would be cured with the carrageen (Sarah)

The idea that the consumption of carrageen brought better health was not just a local myth, but, was a scientific fact that was acknowledged in national newspapers at that time.

> Peasants who live close to nature look to nature to remedy their ills. In the West of Ireland they found, centuries ago, that Carrageen was natural health food. To-day scientific research confirms that experience. Carrageen has been proved to contain valuable health-giving properties such as iodine, protein and mineral salts. It builds bone and blood and vitalises the glands (Gaeltacht Industries, Irish Independent, March 4, 1932,:1).
>
> Put simply, it builds bone, freshens the blood, and stimulates the glands (Gaeltacht Industries, Irish Independent, February 26, 1932:1)

Seaweed was not only used for human consumption, but, was also eaten by livestock.

> Cattle too would eat the sea weed (Francis)

And, just as seaweed provided health benefits to the human population so too can it be understood to have provided health benefits to those livestock who fed upon it, which explains why kelp (a form of seaweed) meal was so widely used in relation to livestock production within the United States of America.

> Kelp meal is used extensively for cattle in U.S.A. (Irish Independent, July 7, 1933:9)

Additionally, as well as food being sourced from the sea and the shore just discussed, food was also sourced from the cliffs.

> They used to go and climb the cliffs … go down the cliffs to get seagull eggs.[153] I did that too (Anthony)

Sometimes they used to go up the cliffs as well.

[153] 'Wild Birds in Co. Mayo – Action has been taken to protect wild birds in Mayo, where, it is officially stated, they have been "subject to great persecution" as a result of the increasing number of egg collectors' (The Ballina Herald, October 12, 1941:1)

> [The eggs] would be plentiful if you came on the right place but it was a bit dodgy going out them places. You'd have to go out on the sea [in the curraghs] and then you'd have to climb up and if a wave came you might fall (Anthony)

Then there were some who hunted hares in the area.

> They had the odd greyhound … they had dogs and guns. They'd eat hare as they would get one … hare stew (Seamus)

The collecting of berries to make jam or eat fresh was also practiced.

> We ate blackberries loads (Jean)
>
> Blackberries were picked around the end of August or beginning of September … some would make jam with them (Seán)

In sum, when food provision is considered it is clear that agriculture alone was not meeting the subsistence needs of this society.

Likewise, while agriculture could provide resources such as wool for clothing, the dye used to colour woollen items was sourced from outside of agricultural production in the form of moss growing on rocks in the area: Some woollen items were simply left white in line with the white sheep wool used, other items might contain a mixture of black wool from black sheep and white wool from white sheep, but, woollen items were also dyed.

> They'd shear the sheep and the fleeces would be stored and they'd be taken out and the wool would be carded and the women would spin the wool … knit the socks and knit the jumpers (Jean)

Plate 15:
Shearing Sheep in Stonefield

Source: Comhar Dún Chaocháin Teo, 2011

> They used to knit a lot of jumpers and things like that. They did that in my house ... and the socks. The older women in the house would be able to knit the socks. I had a first cousin ... dead now ... but she used to be able to knit the pair of socks on a winter's night ... the two of them ... the two socks. People used to get the wool and wash it and clean it up and make thread out of it. They'd have a spinning wheel themselves and they'd make the thread. Then … if they were going making blankets out of it they would bring it to another one. They used to make thread and bring him the thread and he'd make the blankets out of it ... or flannen ... they used to get jackets out of it ... waistcoats they used to call them. They would be all white but with two patches each side on it and that part of it was black and the rest of it ... the back and the shoulders and the arms was white. It was the black sheep's wool. There was a woman back there and her people was tailors from the town and she used to make them. She had a sewing machine. That was the first sewing machine that came around here. Her brothers in the town used to make suits and things that time. I think it was three shillings that they used to charge to make one. You'd bring the flannen and she'd make them then (James)
>
> The sheep would be most useful for clothes … for jumpers …The white wool was for the jumpers and then if you didn't want it white you would … dye it (Sarah)
>
> They'd dye the wool … with what they would scrape off the stones (Martin)

Similarly, feathers provided within the course of agricultural production which were used in the creation of household items such as stuffing for pillows or mattresses, were not only provided by poultry kept on the farm, but also, from wild birds.

> The feathers would be kept for pillows … the chicken feathers, ducks, or geese (Sarah)
>
> The feathers were [also] kept for … the ticks … that was the mattress we used to have and the goose wings were used for dusters and they were the best dusters (Eileen)
>
> The feathers of the seabirds would sometimes be put into the tics and that … maybe along with whatever feathers could be had from the farm birds (Francis)

Likewise, much of the livestock bedding that was used was sourced from outside of agriculture from bog land in the area.

> Sometimes they used to go to the bogs to the mountain and they'd cut up sods … the top of the bog … bring them in in a horse and cart or maybe an ass or whatever and maybe some would carry them in a creel … if they were in an awkward place and they would break them up and put them into a stable (Seán)

Also, fertiliser requirements could not be met through agricultural production alone: While livestock manure was an important source of fertiliser it was often only available in limited quantities so that other sources of fertiliser were also used.

> If you hadn't enough manure you'd go for the seaweed (Francis)
>
> They fertilised the land with the manure … the cows, the sheep and everything like that and … they used seaweed (Margaret)

But, as well as seaweed which is commonly understood to have provided a source of fertiliser to coastal communities in the West of Ireland, other forms of fertiliser were also used.

> People used ash from the fire on the land (Seán)

> The ashes … from the house fire and from burning the heather would both be used. Just before the crops would come up they would scatter it on the land … before the stalks or whatever and after the seaweed … the seaweed would melt on the land and you would come with the ash then (Seamus)

Likewise they burned rough peat for ash.

> They'd gather up all of the rough peat ... the sods of peat and they would put them together and they would give them fire … and they would put that down … on the land for fertiliser (Francis)

Then as well as sourcing fertiliser outside of agriculture they also found ways to make whatever livestock manure was available go further by mixing that manure with materials gathered from non-agricultural spaces.

> The turf mould [was put] under the cows [to collect] … the manure (Margaret)

> They'd mix … scraws[154] from the bogs and break them up and mix it in where the manure was to make it go further … spread it more (Jean)

Additionally, sea shells were commonly collected and burned to provide much needed lime[155] to the soil which otherwise would be too acidic to support crop production.

> They used put lime on the ground … they used to burn the shells and it would come out as lime (Sarah)

> They used to have their own lime from the shells … burning the shells. They used to be getting a lot from the sea (Anthony)

Given that agricultural production alone could not meet the "food" requirements of the family, their livestock, and their land, and could not provide in total the essential sundry items of bedding materials required within the household it is safe to say that agriculture alone cannot be understood to have met the subsistence needs of households in Dún

[154] Scraws are 'strips of top sod' (Mac Cárthaigh and O' Reilly 2001:163)

[155] 'Lime is not a manure, but it works wonders in the soil by killing the germs of disease, correcting sourness, promoting the decay of vegetable matter, and in rendering more available as plant food some of the stored up reserves, especially potash compounds. Lime also binds the particles of soil together, thus improving the texture and tending to make the soil drier and warmer' (The Ballina Herald, December 12, 1931:1)

Chaocháin c.1930s-50s. But also, the combined contributions of agriculture and these other forms of providing use value products for household needs could not on their own meet all of the food requirements of this community, nor, could certain necessary sundry items be sourced in this way.

(9.4) *Money for Goods, Services, and Other Expenses*

This was a society that relied in part on shop bought goods to support their household needs.

> You wouldn't buy much in the shop only tea and sugar and a bit of salt … and you'd get tobacco[156] ... that was … important (Seamus)
>
> There would be jam and marmalade … in the shops (Peadar)
>
> If you were short during the year you could buy butter (Francis)
>
> You'd get a bag of flour … a hundred bag of flour (John)
>
> And, the Indian meal … you wouldn't buy that all year but when you had nothing else. If you were running short of spuds … that would be the summer time … before the crop would be up again … they would make that (Seamus)
>
> Hungry July … they would be waiting for the potatoes. At that time you would have whatever you could … [and you would buy] yellow meal (Eileen)

Also, while many households had fish of their own some who did not fish would buy fish from the shop.

> In the shop … they sold the ling there (Peadar)
>
> They used to have herring in the shop … salted … we'd be coming home from school and you'd buy a half a dozen herring (Sarah)

Also, this was a society who did not have electricity and so candles were bought, but also, oil and such like was sometimes bought for lamps.

> Oil had to be bought … oil for the lamps, and, candles [were bought as well] (Eileen)
>
> You'd buy oil from the shop for the lamps (Francis)

[156] Many people in the area – especially men – smoked tobacco in pipes. Aside from the cultural value of pipe smoking in the area, tobacco is addictive and so it was important to have a regular supply of tobacco to avoid withdrawal symptoms

Although people often made their own "light" from ignited grease or homemade candles they also bought candles and fuel for lamps from the shops. Especially from the mid nineteen forties onwards when lamps became more a feature of life in the area.

> They used to have this big frying pan and it left on a stand and the grease and it lit and that would light ... there was a blaze on that ... and that would last an awful long time like candle grease. That was the light they had … But then another man thought of another kind of invention then you know ... get an old iron bar and cut it and pour the grease into it and pull a string up through it, do you see? And make a bit of a candle out of it you know? And light it. You'd push the grease out of the bar when it would be set and you'd make a candle out of it and you'd light the string then ... you had your big candle then ... I used to see them then down in our house with the pan ... that was before they thought of making the candles ... they used to cut a piece of the grease and put it on the iron stand … And that was the light. Then the paraffin oil lamp came and then the Tilly lamps. There was a kind of a mantle on it ... there wasn't many of them around here at all ... Tilly lamps ... you'd put the paraffin into it and pump it ... you'd put methylated spirits on the mantle ... the methylated spirits would heat you see and you wouldn't touch it … they were using the grease until 1946. The oil lamps and the tilly lamps came in then and then in 1957 the electric light came (Seamus)

These goods that were bought from the shop were often bought on credit[157], or "put on the slates" as the saying goes.

> Groceries … [and] items for the house … they used to get … on credit (John)

One of the ways of repaying this credit and of acquiring shop bought goods was to exchange eggs[158] or butter with the shop – which could take the form of the local shop or travelling shop.[159]

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[157] 'Custom prescribes the behaviour of each individual in a credit relationship. The establishment and continuation of this relationship is dependent upon the existence of a debt for unpaid goods, or, more rarely, for money loaned. An unpaid debt gives the shopkeeper a monopoly of his debtor's purchases. (The shopkeeper may also charge interest on an overdue account). The debtor acknowledges the obligation by payment of a portion of the account at stated intervals. He seldom clears the account, however, for when he does it is tantamount to a complete severance of the ties between customer and shopkeeper, a thing that both parties attempt to prevent because the customer also receives practical benefits under this plan. Thus, through the combination of family and credit patterns in the shopkeeping system, a permanent and stable relationship between the [shopkeeper and customers] … is maintained' (Arensberg and Kimball 1968:395)

[158] 'The true value of eggs in the household budget … cannot be estimated adequately because of the high level of barter' (Breathnach 2005:49)

[159] 'No fewer than five different motor lorries, laden with all varieties of foodstuffs ply a weekly trade in the various villages of the barony, and the keenest rivalry exists among these travelling shops, with the object of attracting the greatest number of customers. Certain days are set apart for visiting each village or district and it is no uncommon sight … to see hundreds of country housewives with their basket of eggs, gathered at a central crossroad in each shopping area awaiting the arrival of these shops on wheels' (The Ballina Herald, January 17, 1931:2); 'There can be no doubt that shopkeepers in towns like Ballina have a grievance, but the difficulty is to know exactly what is meant by a "travelling shop". From many outside towns we observe lorries and other vehicles carrying and depositing goods here, while there is the other type of "shop" which takes its stand on market and fair days offering goods for sale

> They could sell the butter or make their own butter ... the travelling shop might be around and he'd take it off them – goods in return for goods – there would be hardly any money changing hands and the same thing with eggs. Women that time might have three or four dozen eggs and they'd go to the travelling shop and they got their groceries in a swap for the eggs and the travelling shop had the eggs for the town to sell the next day to anyone who wanted eggs (Francis)

> They used to save the eggs and sell them. That's how they would get their groceries ... they couldn't afford to eat the eggs. They had special baskets for the eggs and the day they would be selling the eggs they had bread soda and if the eggs weren't clean they would clean them with bread soda ... put them in the basket and go to the shop. They'd get tea and sugar and a bit of butter if they had enough of eggs. There was a shop in every village nearly that time. Maybe you'd get a small bit of change but it wouldn't be it ... you'd be happy enough if you could get your small bit of groceries (Sarah)

However, the exchange of eggs and butter for shop goods only went so far in meeting the shop credit debts of local households, and so, it was necessary to find a way to earn money as well so that repayments could be made.

> A lot of it was on the slates. You'd have to pay whenever you had a bit of work, or, earned a few bob … if they sold a cow or calf or a couple of sheep … it was paid (Sarah)

However, very little money was available from agricultural production as only surplus livestock were sold on the market, and sometimes efforts to sell livestock on the market met with failure.

> It might be ... an odd time you mightn't sell at [the market/fair at] all (Peadar)

This failure to sell livestock on the market could be for different reasons.

> The odd time now and again people would bring animals to the fair and then would have to bring them back again. You see what would happen would be that they would have too much value on their animals and they would have them over priced wanting to get the top price and what happened at the end of the day was that the buyers once they got their quota they were gone and then they would have to bring them home (Francis)

But also, sometimes the failure to sell livestock on the market might have nothing to do with the personal sale skills of the seller involved, but rather, could be because of such things as a small turnout at the fair which would mean that not enough buyers were on

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easily obtainable in any of the shops in town, and competing against people who have to meet heavy rents, taxes and other charges' (The Ballina Herald, December 12, 1931:2). Efforts were made by some 'to check the evil effects of illegitimate trading by "travelling shops" whose activities tended to injure business in the towns' (The Ballina Herald, March 28, 1931:2)

hand to purchase livestock present there, or, the demand might simply just not be there for the particular type of livestock that a seller wished to sell on a particular day.

> Owing to the very inclement weather prevailing the … monthly fair … was one of the smallest witnessed for a considerable time past. There was practically no demand for the limited number of stores exhibited while the demand for young calves was keen (The Ballina Herald, January 23, 1932:2)

Conversely, at other times, demand for livestock might be high and so livestock would sell and receive good prices in the process.

> There was very little stock offered for sale at the monthly fair in Ballina on Friday, but anything sold fetched good prices (The Ballina Herald, January 3, 1931:2)

However, the point to note is that the sale of livestock on the market was not always guaranteed even where it was hoped for, which meant that money was not always available to pay shop credit in this way.

Additionally, what is important to understand about the community in Dún Chaocháin c.1930s-50s is that shop credit was not the only reason that money was needed. Money was needed to purchase footwear and winter clothing that were not available from the local shop and travelling shop. Instead, items such as these would have to be bought in bigger towns where credit arrangements were not in place between community members and the owners of those shops.

> You'd need money to buy shoes and boots … you had to buy the shoes (James)
>
> It was important to have winter clothes for the children. That was very important. You know to have shoes (Eileen)

Also, money was not only needed for goods, but also for services, and to cover various non-material expenses, such as the payment of rates associated with land holding, or to cover the cost of insurance policies, or, to simply cover the cost of a ticket to a local dance. For instance, money was needed where people wanted to send wool to a mill so that it could be made into thread for them there.

> There was an old mill in Foxford[160] … and you could send wool into them and they would make thread with it for you. A lot of people used to do that. You could send it in the post with the

[160] The Foxford wool mill in Co. Mayo, established and ran by the Sisters of Charity, was very successful (Freeman 1943b:88; Micks 1925:67)

postman. He used to have big parcels with him. A lot of them used to do that. Maybe thirty or forty pounds of wool and send it off to be made into thread and save all the spinning and carding. You could pack it up and send it away in a parcel and they'd send it back maybe after a week or two and it would be nice spools of thread and you could start your knitting then. I think they used to do blankets and that then. It was going on in my time ... the forties during the war and maybe in the fifties (James)

[Money was also needed] to keep the roof over their heads as they say. They had … to pay rates[161] (Eileen)

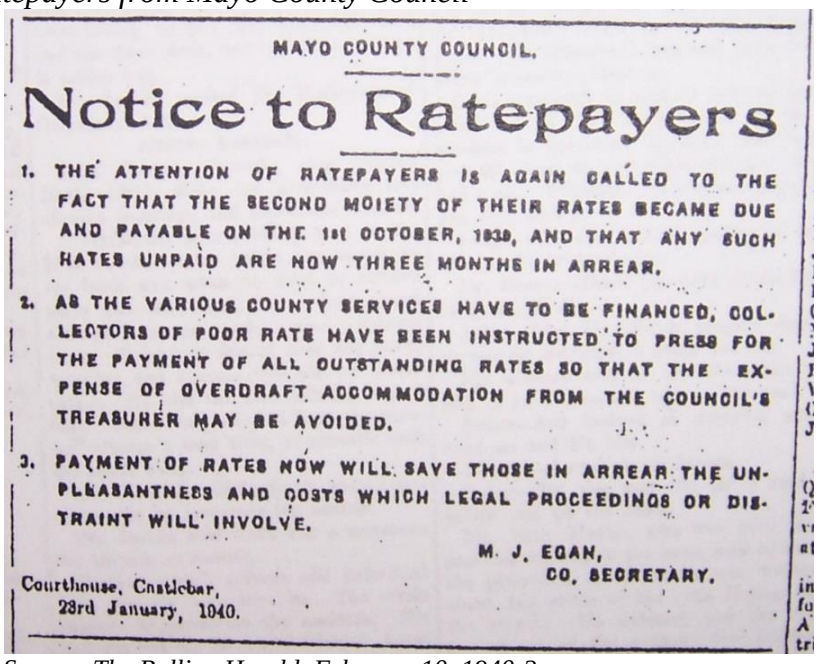
People had to pay rates. It wouldn't be a lot but it would be a lot to the people that had to pay it. A rate collector would come around and he'd collect a few bob … in the year … There was … rates that time … It was a lot of money at the time because money was scarce and they would have to have that few pounds ... well it mightn't even be a few pounds and they would have to have that (Francis)

You'd want the cash … you'd have to pay the rates (Seamus)

Failure to pay rates was not an option.

Mayo County Council Notice to Ratepayers – Ratepayers who have not yet paid their rates for the year ending 31st March, 1946, are hereby warned that the rates are considerably overdue and that the Rate Collectors have been instructed to take all necessary steps to have the rates collected immediately … All persons in default should at once pay any rates due by them to the Collector for their district. Unless they do so, they may be involved in legal proceedings and extra expense (The Ballina Herald, March 9, 1946:2)

Newspaper Exert 6:
Notice to Ratepayers from Mayo County Council



MAYO COUNTY COUNCIL.

Notice to Ratepayers

1. THE ATTENTION OF RATEPAYERS IS AGAIN CALLED TO THE FACT THAT THE SECOND MOIETY OF THEIR RATES BECAME DUE AND PAYABLE ON THE 1st OCTOBER, 1939, AND THAT ANY SUCH RATES UNPAID ARE NOW THREE MONTHS IN ARREAR.

2. AS THE VARIOUS COUNTY SERVICES HAVE TO BE FINANCED, COLLECTORS OF POOR RATE HAVE BEEN INSTRUCTED TO PRESS FOR THE PAYMENT OF ALL OUTSTANDING RATES SO THAT THE EXPENSE OF OVERDRAFT ACCOMMODATION FROM THE COUNCIL'S TREASURER MAY BE AVOIDED.

3. PAYMENT OF RATES NOW WILL SAVE THOSE IN ARREAR THE UNPLEASANTNESS AND COSTS WHICH LEGAL PROCEEDINGS OR DISTRAINT WILL INVOLVE.

M. J. EGAN,
CO. SECRETARY.

Courthouse, Castlebar,
23rd January, 1940.

Source: The Ballina Herald, February 10, 1940:2

Some also needed money to pay expenses such as the doctor: Although these people did not often avail of doctors' services they did sometimes have to meet this expense.[162]

[161] The rates were measured depending on the valuation of the holding (Eileen)

They would always need to have money for the doctor (Eileen)

You had to have money … for a doctor just in case (John)

You'd be very bad if you got the doctor. You'd be almost dying if you went to the doctor and I suppose it was many a one that died … because they couldn't afford to go to the doctor (Sarah)

Also, money was needed to contribute towards the priests' collection[163] at mass.

They would always need to have money … to pay the … priest [for] the collection [for the priest] (Eileen)

A lot of them would want money to … [give to] the priest in the collection (Eileen)

Money was also necessary to meet insurance policy payments.

There was an insurance policy you could take out ... 2 shillings a week or something ... maybe a shilling a week ... to cover the cost of burying you (John)

Maybe it would be a pound a year but I don't really know. It was only the old people that had it. I remember my old granny [had a policy] ... and the insurance man used to come down to the house once a year collecting the few bob ... it would only be small. I don't know was there ever anything got out of it (Francis)

Some forms of socialising also required money.

I remember ... they used to have a dance hall here on this side [of the water] and people would come across to that. They used to come across on a Sunday night. They would whistle for the ferry service all dolled up (Fintan)

You needed money to pay the ferry charge.

And to go to a dance you'd need money for the ticket (Francis)

Admission to dances was restricted to ticket holders only with "no privileges, no exceptions" being made (see *Newspaper Exert 7*).

[162] Earlier, in the period 1851-1921 the country's poor law unions were provided with dispensary stations, which entitled the holder of a 'ticket' (which were dispensed to locals by local officials) to free medical services with 'black tickets' requiring the patient to attend a dispensary and 'red tickets' entitling them to free medical treatment at home (Geary 2011:190-203). However, the respondents above do not seem to have had access to such a service. This is puzzling but perhaps free medical care was no longer as readily available c.1930s-50s

[163] During every mass an offering of money was expected from those in attendance. The money collected was to go towards supporting the priest

Newspaper Exert 7:
Advertisement for a Local Dance Showing Cost of Admission

Geesala Banqueting Hall.

AN ALL-NIGHT DANCE

(3rd ANNIVERSARY BALL)
WILL BE HELD IN THIS POPULAR HALL

On 1st November, 1931

Judging by the ever-increasing numbers of its Clientele, coming as they do, as one Dublin paper has it, "40 miles from a Railway Station," and many from fully twice "40" more beyond, the Geesala Banqueting Hall is now acknowledged as a Centre of Gaiety, Youthful Buoyancy, and Legitimate Enjoyment second to none in the Province of Connaught.

No effort is being spared to make the Entertainment of 1st November outshine and far out-rival all its predecessors. 'TWILL BE THE NIGHT OF NIGHTS OF A LIFETIME! EVERYBODY IS COMING! And even though the Shannon Scheme has not yet shed its brilliancy over Geesala lots of light and gas galore is promised. YOU, TOO, COME AND MAKE ONE OF THE GAYEST THRONG EVER WITNESSED AT GEESALA.

CATERING—AS ON PREVIOUS OCCASIONS.

MUSIC—LOUI CHAPMAN AND HIS 6-PIECE ORCHESTRA, BALLINA.

ADMISSION—5/- each (No privileges, no exceptions.)
DOORS OPEN 7.30 O'CLOCK.

NOTE—At future Dances in this Hall no one will be admitted to Refreshment Bar or Supper Room unless in possession of a Dance Ticket. Explanations, Excuses not entertained from any one.

Source: The Ballina Herald, October 24, 1931:2

In sum, it should be clear by now that the community in Dún Chaocháin c. 1930s-50s needed money to support itself because while most food could be sourced locally from agriculture, fishing, collecting berries, catching wild creatures and so on, and some basic sundries such as wool, bedding material, and fertiliser could be sourced without resource to the market, there were certain food items and household sundries which only the market could provide.

Additionally, this was a community that faced financial expenses tied to the provision of services in the area as well the cost of rates and insurance policies held. Given that sale of livestock on the market often failed to meet even the expenses associated with shop credit, it is obvious that agriculture alone could not meet all of the financial burdens that the people of Dún Chaocháin c.1930s-50s faced in their daily lives. As such, the sale of surplus livestock on the market was combined with other forms of production aimed at the creation of exchange value products so that the multifarious costs of everyday life could be met.

(9.5) *The Production of Exchange Value Goods*

Furthermore, in terms of agricultural production, some people not only engaged in livestock production for sale, but also, they sold wool where possible.

> Agents used to come around buying the wool and if it was near the sea ... Stonefield or Kilgalligan or Curraunboy it would be kind of dodgy because of sand in the wool from sheep lying in the sand and they bought the wool by weight and when the fleece would be shorn it would be full of sand because of the sheep lying on the sand and they didn't want that wool because it would weigh heavy but when it was cleaned out it would only be light so they were paying for the sand and there was some farmers and they would put sand into the pack so that it would weigh heavier for the agent. Some of the buyers that would come from inland mightn't know anything about this problem with sand and they could get codded. But when the agents got wise to it they mightn't want to buy it at all when it was from a sandy area. They would shake the wool and if sand started coming out of the wool ... they would shake the wool ... the fleece would be tied up in a bundle and they would shake it and if sand started to come out of it then there would be a smaller price for it because they would be covering themselves so that they wouldn't be losing money but if you got someone coming in who didn't know the score then he could be codded big time[164] (Francis)

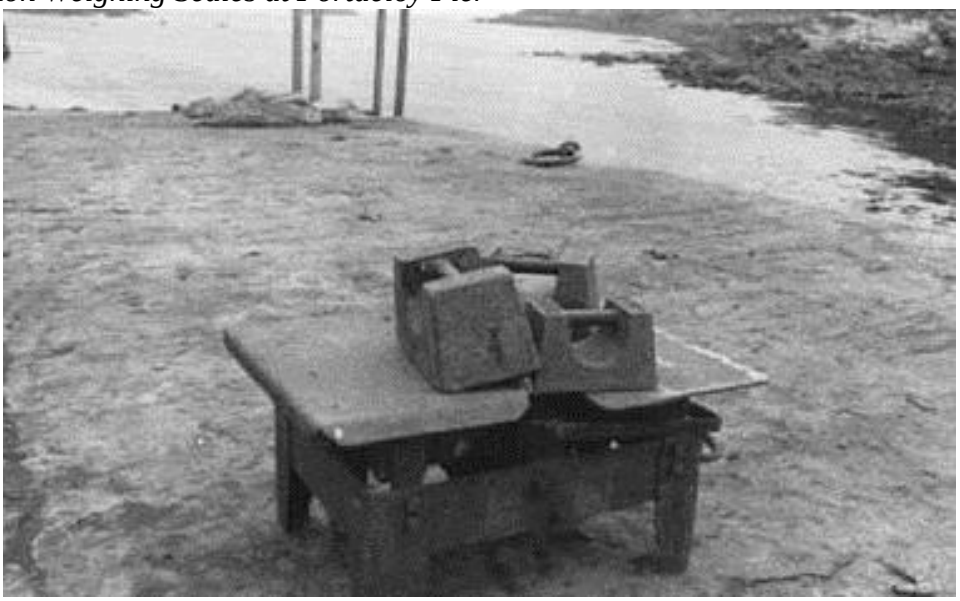
Additionally, outside of agriculture money was earned in the area through various forms of petty commodity production. For instance, surplus fish was sold on the market.

> We had the fish [for ourselves] … and they'd sell them too (Margaret)
>
> They'd make sure they kept enough for themselves and that would be salted in barrels then for the winter time then someone would come around … a buyer … a fish buyer … then when the salmon fishing started … they used to bring the fish to Ballina and send it on the train to Dublin to the fish markets but that was only salmon from June to July and maybe into August (Jean)
>
> The merchants would sell the salmon up in Dublin. They said they couldn't get enough of them. They had their deep freezes up in Dublin and out foreign and they'd send them out foreign too ... the salmon (Seán)
>
> A buyer would come for the salmon every morning while that season was on … down from Dublin there … Hanlon's from the Hay Market in Dublin would be down with a buyer there … you would get the cheque then at the end of the season off Hanlons. It was all weighed and it was paid by weight and they would get the cheque at the end (Seamus)
>
> There used to be salmon caught around here in the port … they'd sell them at the pier (Peadar)

Salmon were weighed at the pier using weighing scales to determine the prices that would be received for the salmon being sold.

[164] This is an example of morality as it operated at the formal level of this society in relation to outsiders

Plate 16:
A Salmon Weighing Scales at Portacloy Pier



Source: Comhar Dún Chaocháin Teo, 2011

Even that surplus fish of a species for which there was no demand in Dublin, was sold locally and sometimes outside of the area, but to regional town markets rather than to the capital city.

> People used to come with a horse and cart and buy them and go off and sell them about houses selling them again … the buyers. They used to go up to Bangor and even further … into Belmullet … some of them (James)

> There was always somebody going around selling herrings ... local people ... maybe from the ports where the fishing would be going on and they would be there with the little ass and cart and they would walk around the villages. Everyone knew when this came into the village and they would go to meet it (Francis)

> And you'd sell fish to the shop. Everyone [who] would be fishing … would sell some to the shop (Seamus)

However, while fishing was being carried out for the market what is important to note is that fishing was only ever carried out on a small scale because as already mentioned only surplus fish were sold, but additionally, fishing was a seasonal activity which meant that fishing – especially for a particular type of fish - could only be pursued for a limited amount of time in any one year. But also, only a very low level of technology was involved, and fishing relied mainly on family labour.

> You might only fish for six weeks of the year (Francis)

> In March or April you'd get glasson, in May the mackerel ... but they wouldn't be as good until July would come on them ... June-July for the salmon and the mackerel until October and then the herring. You'd get herring in September too (James)

They could be lobster fishing and salmon fishing up until September (Seamus)

The curraghs could get the herring, the mackerel, the lobster and pollock and fish like that (Seamus)

In springtime they used to start lobster fishing in April depending on the weather for a couple of months. That was for sale. They would sell that. There was merchants and they would bring it to Belmullet in a curragh (Seán)

They usen't have the big boats they only had the curraghs (Jean)

They'd head off in the curraghs together and would be gone for hours at a time fishing together (Francis)

Plate 17:
Fishing as a Group

Source: Comhar Dún Chaocháin Teo, 2011

The men in the house would do the fishing for the house and to sell the fish (Francis)

You'd come in with your curragh ... and the fish would be cleaned out of the nets and put on the banks down there ... the clean banks ... and you'd pull the nets over it then in case the birds would come on the fish waiting for the lorry to come and you'd come up for a drop of tea and go down again when the lorry would come … We'd come in with the curragh full … the curragh would be just swimming. We were running a risk really ... no life jackets or anything (Seamus)

Turf production[165] for sale on the market was another form of petty commodity production carried out in the area.[166]

[165] Turf production was a multi-stage process where first the sods of peat had to be dug from the peat earth. Then these sods had to be laid on the ground to dry until they reached a certain level of dryness. When the sods reached the required level of dryness they were then collected into little piles that were constructed in such a way that the wind could blow through them and thus contribute to drying the turf to a stage where it was useful as fuel. When the turf was dried to this stage it could then be collected from the bog and brought home. Most people in the area used donkeys to transport the turf home in creels hanging at each side of the donkey's back to balance the load. Sometimes people would also carry some turf in creels themselves. Where turf was sold on the market it was common for it to be brought to the roadside in either of the aforementioned ways. From there it was loaded into lorries that brought it away

An odd lorry would come and buy the turf. If you had your own done and you had more then you could sell it. Ten pounds for a lorry load that time. If the weather was good you could have that much gotten in a week and it was good weather that time. Everyone would be out cutting it themselves that time. I used to be down early in the morning and with the lorries coming you would be putting them off the road afraid that the lambs would get killed. Beyond where that house over there is I used to be gone down in the morning and a flask of tea with me and it would be maybe about six when I would come back and that was day after day ... it was a great summer (Peadar)

People used to cut their own turf on the mountain. They would bring it home. In early March you would go out with your turf spade and cut it and go then in April or early May and spread it out ... then collecting it up then. Some used to cut it and sell lorry loads up to Ballina. There was a fellow over there in Bel Derrig and he used to buy a lot of it ... and another fellow too … I think ... used to buy it too (James)

There was a man in Porturlin who had the lorry that time and he would load up and bring it out to Ballina and it would be sold in Ballina. There would be kind of depots there in Ballina for turf and the locals there that didn't have turf or a means of getting turf ... they bought the turf (Seamus)

There was a few lorries that would bring the turf from you. That was a great way of making a living … selling the turf. I sold turf for £6 a lorry … Well the late fifties or the sixties the lorries came. The railway lorries used to be coming from Ballina ... the CIE lorries would come for the turf. The turf was getting valuable that time and they used to bring it up to power stations that time up the midland ... up to Kildare and that from here. The lorries used to drive straight through to the midlands. People used to sell turf ... Ballina was a great place for turf ... and Castlebar ... you could take it to there and maybe someone would want a half load of turf or a full load ... order a load if they were fairly well off people ... and you'd tip it over there and throw it into the sheds for them or else they would throw it in themselves. That was in the late fifties and the sixties (Seamus)

It could be the father or the mother or anyone of the family anyone that was able was kind of you know at it when it was to be done. It was stacked into little piles – little reeks were made of it. Something like a cock of hay, a small reek of hay (Francis)

You cut the turf with the spade … dug down into the bog and cut the turf from there (Francis)

[166] 'In the congested western counties, turf was of vital importance in the economy of the inhabitants and as part of the land settlement programme there, the Land Commission operated turbary schemes in all areas to meet the household requirements as far as practicable. In most areas, where turf cutting had been practiced for generations, the remaining uncut bogs would be needed to meet future domestic needs. It should be mentioned that the agreement signed on allotment of turbary contained a clause stipulating that the allottee was entitled to cut turf for domestic use only but not for sale' (Sammon 1997:39)

Plate 18:
Hand Cut Turf

Source: Own Photograph

Potheen making for sale was another form of petty commodity production pursued in Dún Chaocháin c.1930s-50s Not everyone in the area made potheen, but those that did often sold it to other community members.

> Everyone knew who was doing the potheen (Francis)
>
> They could make a bit of money selling the potheen in the community (Anthony)

The local market for potheen was encouraged by the general absence of public houses in the area from which to purchase alcohol legally.

> There was no pubs here (James)
>
> There was no pubs or nothing … nothing like that was near (Francis)

Seaweed collecting for sale on the market was also carried out on a small scale by some families in the area. A commercial market existed for seaweed because of its usefulness for industrial purposes.[167]

> They would sell the seaweed and it was manufactured into soap … I think there was iodine in it (Francis)

> They'd be making iodine and soap and everything ... everything you would get in the chemist now ... it all came from the sea. Iodine ... and all that stuff came out of the seaweed ... all the good stuff from the seaweed. They'd bring it to a factory someplace. They might send it out abroad or whatever … turn it into soap or whatever they were going to do (Anthony)

The seaweed was burned and sold as kelp to the factories which required it.

> They would burn the sea rods and they would be throwing water on the kelp trying to make it heavy … when it would be burned … they had their own kinds of tricks[168] … the burning stopped about fifty three or fifty four (Seamus)

Lorries would come to the area to take this kelp away to the factories.

> They'd take it away in bags. The lorries used to go down … to Rhinroe for it (Seamus)

The technology involved in the collection and preparation of seaweed for sale was rudimentary.

> Some of them would use hooks and more of them would pull it with their hands off the rocks[169] and then sometimes they would have a creel – like a big basket made of rods. Like you know them baskets you get for turf and there was two hooks on it and you got your shoulder in here and another arm in here and you carried it on your back and it would be full of seaweed and you emptied that into a cart, or if where you were working was near you, you just emptied the lot there and you made a stack pile of it there at the headlands (Francis)

The low level of technology involved in this seaweed collection and preparation for sale impeded the ability of this form of production to develop into a capitalist system

[167] 'He was in the habit of gathering sea-rods during the past seven years, which he used to put on a wall to dry along the sea shore … These rods were afterwards manufactured into kelp for which he received £61 14s 6d last year' (The Ballina Herald, February 14, 1931:3)

[168] Here again is another example of morality as it operated at the formal level of this society

[169] A sustainable way of harvesting seaweed from the rocks in this way was to leave some of stem attached to the rock when cutting the seaweed from them: 'Gatherers [needed to] … leave a minimum of 9 inches of the stem attached to the rock when cutting shore weed so as to conserve supplies for the future. If this [was] … well done weed [would] … regrow fully in about half the time' (Connacht Tribune, October 13, 1956:23)

because it was impossible to generate surplus yields and profit to invest. But also because this form of production could only be carried out at certain times of the year this acted against it becoming capitalist. Local competition also blocked the development of this enterprise as multiple households were competing with each other to avail of the opportunity to sell a good that was already in short supply (the seaweed that was sold was only available at certain times of the year).

Although people sometimes went to the sea to cut seaweed directly from the rocks where it grew it was more common for them to go after a storm to a shore where the seaweed would have been brought in on the tide.

> You could go out to the rocks to get the seaweed and you could cut it there, but, more would get it on the shore (Francis)

> It would be along in a storm it would come that time ... a storm to rough up the seaweed off the rocks and it would come ashore then ... you know? And there would be queues down there at night ... I did it myself ... when the high tide would come in and you'd be out to here in the water like ... up to your chest. There was no gloves that time and you forking it then ... forking it up do you see? ... on the verge of the shore and you'd mark it then when the tide would start going out ... you'd mark it ... put stones on it to mark it. Every man would have his own heap. It was valuable that time you know? …The sea rods would come ashore and you'd be down there gathering up the sea rods and they'd build a kind of a wall of stones and they'd put the sea rods across on it until they would dry and they'd burn them then ... burn them down on the shore … The sea rods might come ashore and they used to be down here in the night with ropes gathering that. Many a time I came down here with my father, the Lord Have Mercy on Him, and he'd be saying there is someone there on the shore before us and it would be pitch dark and I'd say, how do you know? He'd say because I can smell the tobacco (Seamus)

In sum, what has been demonstrated is that petty commodity production was an important feature of life in Dún Chaocháin c.1930s-50s and so must be considered alongside agricultural production as contributing to the reproduction of the society there. But also, I have shown that as well as petty commodity production existing alongside agriculture this was a society that engaged with wage labour to support itself.

(9.6) *Wage Labour and State Financial Support*

In terms of local wage employment options occasional work was available to men around road maintenance

> They used to work on the roads … and sure that was money (Margaret)

> There was work on the roads but not that much (Anthony)

Much of the work on the roads was offered through Mayo County Council[170]

> Some of them would be working on the council roads. There would be the odd project … not very much but it would be there (Jack)
>
> They might only be working with a horse and cart and the local quarries. They'd be getting all the materials from the local quarry (Fintan)
>
> They would have to make the roads. There would be the lorries on the road even where there was the gravel but they made them with the tar then and you had to work then with the spreader. You'd have a small barrel maybe the length of the table and the height of the back of the chair and they would cut the barrel and get the tar ... the pitch ... they were what you could call tin-aluminium nearly and you would get it with a pick around and the tar would be in there like a batter and when you would cut the ... you'd have the boiler then and the fire would be in the boiler and you'd lift the tar and put it in until the tar would be dissolved and you could put it out with a can then. You'd be spraying in the winter and doing a section a day and there would be three men spreading the lorry loads as they would be coming on them. The job I had myself would be cutting the barrels and putting it up. Four weeks was about the gang that time (Peadar)
>
> Maybe from November or December they would get a couple of months working on the road doing the road works (Fintan)
>
> That was [the only wage earning opportunity that was in it for men] otherwise they would have to go away (Margaret)

[170] Note: Cornboy and Carratigue (as opposed to Curraunboy and Carrowteige) are as each of these townlands were spelled in the following newspaper exert (and some others that are referenced) and are not a spelling mistake made within this thesis
Mayo county council put up the money that allowed road work to be done: 'Relief Work in Erris – The Erris members of the Co. Council have taken steps to secure a share of the Government Grant towards much needed works in the barony' (The Ballina Herald, January 3, 1931:3). In addition to providing the money for road work to be carried out, Mayo county council employed surveyors and such like to decide on which type of road work had to be done at particular times: 'Damage Caused in Erris – By Recent Cloud Burst – Action Taken by Co. Surveyor – The terrible havoc caused in the barony of Erris by the recent cloud burst was fully explained by Mr. Flanagan, County Surveyor, when he submitted the following report at a meeting of the C. Council: … The first bridge swept away, known locally as Granny Bridge, consisted of a single span reinforced concrete bridge 12 feet wide. This bridge has been completely wiped out … At this point it is completely impossible to put anything in the nature of a temporary bridge, but I arranged on the ground to form a by-pass through the bog with the paving across the river at a cost of about £3. Owing to the fact that the areas of Porturlin, Carratigue, and Cornboy were completely cut off I considered it my duty to start work on this by-pass, and accordingly put "men" to work immediately … The fourth bridge destroyed was known as Knockadaff Bridge, between Cornboy and Carratigue … In addition to the destroyed bridges the road surfaces have been very badly gutted on some roads – in some cases to a depth of about 18 inches – and the material washed away into the adjoining lands … I accordingly arranged as follows: - Manus Gerathy, Stonefield, Carratigue, contractor of road No. 63 – to restore the road surface and clean out side drains and gullets … John F. Bournes, Stonefield, Carratigue ,to repair road No. 62 from Carratigue School to Kilgalligan' (The Ballina Herald, August 1, 1931:2). Contracts for road works were won through tender: 'Comhairle Conndae Mhuigheo [Mayo County Council] – Notice to Road Contractors and Intending Road Contractors Inviting Tenders for Roads – Persons willing to enter into contracts for work on roads in Mayo County are hereby invited to submit tenders for the works' (The Ballina Herald, March 5, 1949:2). When a contractor secured a tender it was at this stage that people in the local area where the road work was being carried out went to the contractor to be employed by them as a part of a road "gang"

In contrast to the limited amount of wage earning possibilities provided to men in the area, there were steadier wage earning opportunities open to women. Many women were employed through the local knitting factory.[171]

> The women could do crocheting and there was knitting in a factory back there. They were making cardigans and jumpers and whatever they were making and then there was hand work ... crocheting and that. I was often up until morning crocheting and putting together a pair of gloves or whatever it would be to have it for the next day and you'd get your few shillings ... five shillings maybe and five shillings was a lot that time and the way it was then you were happy with it. The knitting and crocheting was left at the homes but then the machine work ... they were making cardigans, jumpers, everything on the machines later on, but, not at first ... They had machines ... in my time (Margaret)
>
> Married women would be working at home and the young girls in the factory (Sarah)
>
> Some would have the machine at home ... the machine from the factory. It would depend. In Carrowteige if … someone was in charge they might get to take the machine home and then all the stuff they were making was coming back to the factory and they would be getting paid for it. The married ones were working from home a lot. They were making socks, crocheting, knitting pullovers and whatever and then when they would be knitting socks and that they had the spinning wheel for making the thread. They would card their wool and clean it and make wool thread. That was for themselves. So some were knitting for the factory and for the family (Anthony)
>
> If they had a garment or whatever they had to finish they could be up until 3 o' clock in the morning and along with that they had no electricity … The factory would have a day and a time. If they got an urgent order they would say we have to have so much finished so if you can … well then they'd leave it to them to get it in on time (Sarah)
>
> The lace school was buying the thread and you'd make them and bring them over there and there was someone there who would examine them … and you'd get your money then ... It was piece work ... price work ... you'd have to go at it. That's why they used to be up until morning at it ... they had to (Seamus)
>
> Money was needed … a lot of people wouldn't have the money … [and] knitting or crocheting [provided a way to earn money]. My mother used to do that [crocheting] all her life … The younger ones would be knitting then … They'd be doing that all year round. They used to do the shawls and they used to do the pom-poms here (Fintan)

Then as well as the aforementioned forms of wage labour that were locally available within the area this was a community that also relied on seasonal migration for the purpose of earning a wage.[172]

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[171] In connection with the Gaeltacht Industries at Carratigue, Co. Mayo … during the European War crochet buttons were made at Carratigue … Considerable employment was afforded but on the termination of the war the demand for crochet buttons ceased, and the class reverted to the making of crochet jumpers, hair-nets, and caps … In 1932 the centre was re-organised by the Department as a machine-knitting centre … the number employed at present was nineteen … Lace-making was not carried out … the development of the centre as a machine-knitting centre was being fostered and continuous work was being given to the workers (Irish Independent, June 10, 1937:6); 'The government recognised that the people in the Gaeltacht could not live on the unaided income from the land alone, hence they were doing all in their power to encourage small local industries to help the people. A knitting school had been substituted for the lace and crochet school which had closed' (The Ballina Herald, December 26, 1931:3)

[172] 'A couple of thousand Gaelic-speaking boys and girls … go annually to the Scotch potato fields. Their season is from June to November. They are recruited by local gangers. They are paid for the days they

> There was fourteen of us in the family and maybe one would stay behind and that shows you how much emigration there was [to] … England and Scotland. Scotland was a great place for it. A lot of the married people here would go away tattie hokering for a couple of months. It would be quiet on the farm that time (Fintan)
>
> The [seasonal migrants] …were gone to England or Scotland picking potatoes or whatever. The ones in Scotland or England might do harvesting too. They'd go for the harvest and sometimes maybe springtime for the planting. They would send money home and it was very important. It was them that kept the whole place going at home by sending money home to their families (Jean)
>
> They would go about June ... some of them would go ... when they were going to the tattie hokering in Scotland it would be about June to November and I remember people who are my age who would go when they were only thirteen or fourteen and do the fields and people a lot younger than me going and working at the tattie hokering in Scotland which was not very nice or easy. I remember it. It was important for the family because they were earning a bit of money. It was very important for some of them and in [some cases] … there were whole families who would go ... father, mother, and children ... who would go for that period of time … Then you had what they used to call the beet and they went in June ... well around that time of the year as well ... for hoeing beet. At the end of the year they would be pulling the beet. They'd come then around Christmas time ... they would come home (Jack)
>
> It was piece work … the more you did the more you got, but, the farmer would be looking to see if you did it right (Seamus)
>
> Many a pound the queen sent to Ireland[173] (Peadar)

However, although wage labour – both within Dún Chaocháin and outside of it – was a feature of life that contributed to the reproduction of the Dún Chaocháin community over time, this does not mean that the society of Dún Chaocháin c.1930s-50s should be understood as commoditised because while wages were available through occasional work on roads, and through employment in the knitting factory/lace school, and through

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work, and often have a broken week. A season's saving averages around £8 per person' (Irish Press, September 18, 1937:8). Sometimes the conditions within which they had to work were very difficult as the following account reveals: 'When we arrived … it was very late at night, and we were herded together like animals on an old loft. For bedding we had straw and old bags over it. You can imagine what those beds were like after a week. We had to get up at 4.30 every morning and go out at once to hoke [pull potatoes]. We were under a gaffer who did not set a good example. His language would shock a sergeant in the French Foreign Legion. We have no record of the number of hours we worked. We were supposed to work 8 hours but it was more like 12 hours. We were being diddled continually in our wages, and our pay was at the rate of 7 ½ d. per hour. On one farm where we worked, thirteen of us were living in a barn. To get to the bothy [toilet] we had to pass through pig styes and cattle byres. These quarters were lighted by electricity, but we had to use candles. The stench of the place was terrible … On another farm where we worked for a period there was one girl amongst 14 men. Ordinarily the sleeping quarters of the women were separated from the men, but often we had to pass through their quarters to get to our own. The gaffer over us never managed a word to us about Mass. He never told us where we could find a Catholic Church or a priest' (Connaught Telegraph, September 24, 1938:3)

[173] Seasonal migration was common in many areas of Mayo c.1930s-50s: 'Over twenty labourers from the Erris district left for England on Monday last for the harvesting operations' (The Ballina Herald, May 25, 1940:4); 'The migratory harvestors have returned from England and Scotland without, as the result of the bad season and crops, any savings so that the outlook in Erris at the present moment is one of gloom and despair' (The Ballina Herald, November 14, 1931:2)

work on farms in Great Britain, wage labour was not a feature of production relationships which involved interaction between community members only. As has already been demonstrated agricultural production and petty commodity production involved mostly family labour, so that, although this system could be understood as heavily commercialised because it involved much interaction with the market through petty commodity production, labour relationships between community members remained non-commoditised, and therefore, non-capitalist.

Additionally, what should be understood about Dún Chaocháin is that the Irish state was another force which affected development there. The Irish state occupied an ambiguous position in terms of its role in shaping development in Dún Chaocháin c.1930s-50s because on the one hand the state provided wage earning opportunities in the area, such as employment maintaining roads provided through Mayo County Council. Likewise, the knitting factory/lace school which provided women in the area with the opportunity to earn a wage was established by the Irish state. Also, the state supported petty commodity production in the area through road maintenance. This facilitated petty commodity production in allowing lorries and such like to access the area to bring petty commodities from there to the market. Also, the state built the piers that fostered petty commodity production in the form of selling fish or seaweed on the market.[174]

> The Congested Districts Board built the piers (Seamus)

While the state's purpose in building piers and such like may have been to encourage commercial fishing this is not the type of fishing that was pursued by anyone in the area until 1956 at the earliest because it was only then that the state provided people in the area with the opportunity to purchase boats for the purpose of fishing as opposed to the curraghs everyone relied on before then.

> In 1956 the twenty six foot boats came … and then people went for bigger boats ... up to forty foot boats. They had the power too. The government gave us grants for the twenty six foot boats and then people made a few pounds and started buying their own boats. You'd pay so much down of a deposit and the government might subsidise you for maybe 25% or 30% and you'd be paying the rest in kind of instalments (Seamus)[175]

[174] As has already been identified fish was sold at the Portacloy pier. Likewise, kelp was sold at Rhinroe pier

[175] 'Of the initial, or "base-line," reports on maritime fishing districts, there were … 6 for Mayo … Earnings, in addition to the value of fish eaten by local families, varied between £2 and £10 a year per

But, even when bigger boats were introduced into the area many of the people living there continued to use curraghs, so that small scale fishing continued.

> Everyone wouldn't have went for the big boats when they came. Only a few went for them and everyone else kept the using the curraghs. Very few would have ended up with a boat (Francis)

Thus, the piers continued to contribute more to petty commodity production than commercial fishing even after the 1950s.

Plate 19:
Boats and Curraghs at Rhinroe Pier

Source: Comhar Dún Chaocháin Teo, 2011

The Irish state also supported petty commodity production by providing welfare payments so that production did not need to respond to the market as readily as it might otherwise have had to. Welfare in the form of the children's allowance, old age pensions, unemployment assistance, and especially the farmer's dole were available.

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family in … Knockadaff' (Micks 1925:54); 'Residents of maritime districts did not have money to invest in modern fishing gear; this dissuaded them from becoming full-time fishermen' (Breathnach 2005:85)

> In Erris … ninety per cent of the people [were] … drawing unemployment assistance (The Ballina Herald April 9, 1949:2)

> They used to get social welfare. We used to call it the dole ... unemployment benefit … I know when I was quite young my brother was getting one and six pence or two and six pence. It was around when he was getting it for four shillings. I don't know when it was introduced but the farmer's dole was a different thing ... and you were means tested and they would count your hens and see if you had a dog and if you had a donkey around the house and when they would know the inspector was coming they would put the hens into a shed and they would be dead afraid the cock would start crowing and the same if you had a cow or anything. They were tough with the means test (Jack)[176]

> There was such a thing as a pension officer that time and he would come out and check if you had a cow or two cows and you might lose the dole and he would check how many hens you had or geese or that sort of thing … or sheep (Francis)

> The farmer's dole is going since 1932 … If you had a big size farm you would get no dole (John)

Any owner of a holding rated at a value above £4 was considered ineligible to receive the farmers' dole.

> NO DOLE FOR FARMERS OVER £4 VALUATION (Irish Independent February 18, 1937:12)

This eligibility criteria meant that some households within the community being investigated here were unable to claim this form of state assistance even though it was a struggle to survive without it.

> There were three men in [Kilgalligan] … who wouldn't get any dole. Their land was valuated and it was only a couple of shillings … but we were getting no dole here … by Jesus it was hard to live (Seamus)

But also, dole recipients were not entitled to this form of assistance throughout the whole year but instead could only avail of it at certain times.

> NO DOLE FOR MANY WEEKS … the following official statement was issued yesterday … "An Order has been made by the Minister for Industry and commerce … declaring the period from March 4 to October 27, 1936, to be an employment period for landholders whose valuation exceeds £4 … Another Order is to be made … declaring the period from June 3 to October 27, 1936, to be an employment period for single men and widowers without dependents … EFFECT OF ORDERS … that during the prescribed periods no person of the classes coming within their scope will be entitled to receive assistance (Irish Independent February 22, 1936:4)

Also certain members of the community were disqualified from receiving the farmers dole because of their gender.

> Women didn't get anything. They were very badly treated (Eileen)

[176] Here again is an example of morality as it operated at the formal level within Dún Chaocháin c.1930s-50s

But then, on the other hand, women were entitled to receive the widow's pension if their husband died but a widower was not entitled to receive a similar payment if their wife died.

> The widow would get the widows pension if her husband died but a widower would get nothing. That was very tough. The widows got it but if there was a man left a widower he didn't get it and I remember that up until the fifties anyway. It would have made a difference to get it ... ten shillings (Eileen)

Then there was the old age pension which was available to both men and women once they satisfied the relevant means test criteria.[177]

> The older people could get the old age pension (Francis)

The old age pension contributed much needed financial support to the community.

> I remember one woman and when the old age pension went up to ten shillings she [thought she] was a millionaire. She [thought she] was never going to be poor again. It was huge that time (John)

> I remember our grandmother and when she got the pension she thought she was rich and she was a good woman who had all her own fowl and everything (Eileen)

While the state facilitated agriculture to continue to primarily create use value products, and facilitated petty commodity production to create money, what the state also did was not only facilitate agriculture to continue to create use value products, and facilitate petty commodity production, but rather, where households relied on the farmer's dole to support themselves the state contributed to the non-development of agriculture and petty commodity production by forcing the community to engage with wage labour for a certain amount of the year which meant that during this time labour was not free to be devoted to either agricultural development or the development of petty commodity enterprises.

> Four weeks was about the gang [on the road] that time. A stamp was valuable that time for one that would have children ... the dole we used to call it ... it was £2.10 a head for the dole and you could get that for six months if you had enough stamps. If you got enough stamps up by the time you would have finished the work ... before the work would be cut off ... if you had enough of

[177] 'I beg to report that the Ballina Old Age Pensions Sub-Committee has investigated and given decisions on 233 claims under the Old Age Pensions Acts, 1908 to 1927, and Blind Persons Acts, 1920, for the year ending 30th December, 1929 … 99 claimants were allowed 10/- a week; 55 were allowed 9s a week; 17 were allowed 8s; 15 were allowed 7s; 16 were allowed 6s; 9 were allowed 5s; 7 were allowed 4s; 2 were allowed 3s; 2 were allowed 2s; 3 were allowed 1s; 23 were disallowed on age; 2 were disallowed on residence. There were 146 appeals received from the Pensions Officers' (The Ballina Herald, January 4, 1930:4)

> the stamps you could turn back on them or ... it was twenty six stamps when it started but then thirty stamps after that (Peadar)

In other words, on the one hand the state promoted agricultural development and the development of petty commodity production in the area, but on the other hand the state pushed engagement with wage labour so that time was taken from agriculture and petty commodity production. Thus, limiting their ability to develop.

(9.7) *Conclusion*

Taken together, the state, the market, and local systems of production interacted across the year to determine the ability of the Dún Chaocháin society c.1930s-50s to survive from day-to-day, and, to reproduce itself over time. Agriculture was but one among other systems of production that was carried out locally, but also, the form that the agricultural system took was affected by its interaction with other local systems of production because only where other systems of production were pursued alongside agriculture did it leave agriculture free to primarily focus on the production of use value products: Had opportunities for petty commodity production not existed within the area then agriculture would have been forced to become heavily exchange value focussed to pay for costs of living. But also, the presence of commonage and the open access area of the sea were fundamental to the continuation of agriculture in the area because the specific types of petty commodity production that were pursued in the area were only possible because of the existence of these property forms.

Also, agriculture and petty commodity production were affected by the different types of commonage in the area and different resources that were located across these commonage spaces: The commonage supported agriculture in numerous ways far beyond just providing a supplementary grazing ground and/or supplying sources of fertiliser – such as seaweed – in coastal locations. Instead, commonage also supported agriculture by supporting petty commodity production, and by supporting different types of petty commodity production.

The commonage affected agriculture directly by providing resources to it, and indirectly by facilitating petty commodity production, but also the communal character of the society acted to support both agriculture and petty commodity production because even

at the level of petty commodity production people within the area were working collectively without expecting a wage for their services. This fact fostered the development of petty commodity production in the area. In other words, both the presence of commonage and traditions of working communally protected agriculture from having to respond to the market as readily as it would otherwise have had to, had these communal features not existed locally.

But also, communal structures made it possible on one hand for the community to earn money – with communal structures facilitating commercialisation – and, on the other hand acted to impede commoditisation within the area because they encouraged relations of production to remain non-commoditised and to operate outside of market influence. Essentially, local communal norms and values affected how locals engaged with the market because communality was integral to their engagement with each other, whether in the sphere of agriculture or petty commodity production.

But also beyond issues of communal norms and values, this was a society within which communal/commonage space deeply impacted the degree to which agricultural production and petty commodity production could be carried out successfully within the area. However, I have not yet addressed these issues As such, the following chapter examines each of the aforementioned by asking the following questions: What was the relationship of commonage space to privately held agricultural land? What was the relationship of commonage space to petty commodity production? How did the presence of commonage space encourage communality?

Chapter Ten

Commonage as an Integral Part of Production in North-West Mayo

(10.1) *Introduction*

Commonage was not merely a supplement to agriculture in the West of Ireland c.1930s-50s. While commonage did provide supplementary resources to agriculture in that region it is wrong to see commonage as merely a supplement to agriculture there, because without commonage agriculture within some locations there could not have continued at all which means that in those settings commonage was integral to agriculture rather than an appendage to it. The following chapter provides empirical evidence demonstrating the extent to which commonage "contributed" to agriculture in Dún Chaocháin c.1930s-50s.

The following chapter emphasises the importance of the commonage – of the land and shore type - and the open-access area of the sea, in supporting communities in the West of Ireland c.1930s-50s. In this chapter I highlight the degree to which each of these spaces separately, and, in terms of their interconnections with each other contributed to sustaining the community of Dún Chaocháin c.1930s-50s. I demonstrate the importance of the commonage and open-access area of the sea in shaping production at a material level. But also, I show that because the sea and commonage provided spaces within which resources were accessed communally, and, within which practices were performed communally, that they fostered continued communality as a way of life in Dún Chaocháin c. 1930s-50s.

(10.2) *Commonage and the Production of Productive Agricultural Space*

While farms in Dún Chaocháin were often very large when measured by acreage they were very small if measured by the actual amount of land that was productive. The

Griffith Valuation[178] (which calculates the value of rateable property, including land and houses in the area) testifies that although some of the townlands were particularly vast their rateable value was exceptionally low. In one case the townland acreage was calculated at 2755 acres 23 perches but the rateable valuation only came in at £101 12s, while another comprised of 2294 acres 30 perches and was only valued at £131 1s (Griffith 1856).

The low valuation of land in Dún Chaocháin reflects the fact that much of the land in the area existed as marginal agricultural land.

> We had a share in land that was hundreds of acres but a lot of it was mountain and so poor (Francis)

Much of the land in the area was either mountain or reclaimed bog.

> Most of it was reclaimed bog … the sandy land back there … and there is a bit of brown earth back here too. There is some good brown soil down below that house and another patch of it in Curraunboy but where it came from I don't know. It was completely different soil. They would say you could take wheat off that field two years in a row and wheat is a devil on the soil. So it was just that section you would have and then below the piece in Curraunboy … but most of the land was reclaimed bog. You could grow crops on that (Jack)

This type of situation contributed to Mayo tying with Donegal in the 1930s in 'having the lowest mean valuation holdings in all Ireland' (Gildea, Irish Press, October 26, 1937:6).

Plate 20:
Expanses of Marginal Land

Source: Own Photograph

[178] 'The primary valuation of Ireland or Griffith's Valuation - carried out between 1848 and 1864 to determine liability to pay the Poor rate (for the support of the poor and destitute within each Poor Law Union) - provides detailed information on where people lived in mid-nineteenth century Ireland and the property they possessed' (http://www.nli.ie/en/griffiths-valuation.aspx)

Vast tracts of bog land (as shown in *Plate 20* which was taken of a section of land in Dún Chaocháin) exist within Dún Chaocháin even into the present day.

Bog land is known to be acidic and therefore unsuitable to crop production. However, the acidity of bog land can be reduced where lime is added to it, so that this land can be improved and made more suitable for crop production.

> Some of the soil would be that acidy type and you wouldn't grow too much on that but if you put the lime out then you could (Francis)
>
> Where the soil is acid the effect of liming is sometimes really astonishing. We have known soils where lettuce, beet, and onions, etc. could not be grown made to produce excellent crops merely as a result of the influence of liming (The Ballina Herald, January 17, 1931:1)

Different types of lime were available in the West of Ireland c. 1930s-50s.

> Forms of lime [available were] … 1. Burnt lime or quick lime …2. Sludge or beet factory lime … 3. Sea sand … 4. Marl … 5. Ground limestone (The Ballina Herald, February 26, 1949:2)

Of these forms of lime, sea sand and burnt lime were commonly used in Dún Chaocháin.

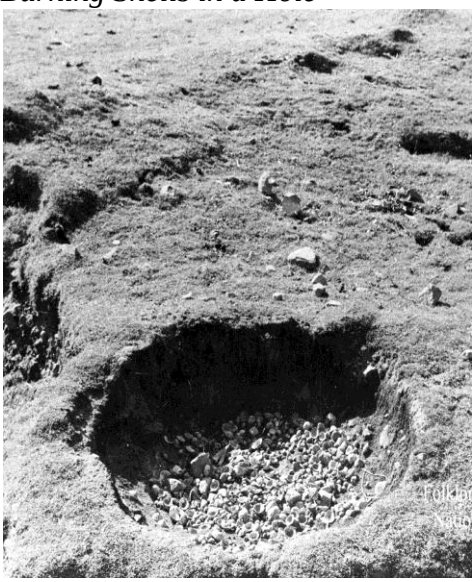
> The sea sand … that would have the lime in it and that could be put on the land for lime (Francis)
>
> They used to have their own lime from the shells … burning the shells (Anthony)
>
> They used to burn the shells … and it would come out as lime (Sarah)

They either burned the sea shells in a lime kiln (see *Plate 21*), or, in a hole they dug in the ground for that purpose (see *Plate 22*). Most often however, the hole in the ground was the preferred method of lime production from sea shells in the area.

Plate 21:
A Lime Kiln

Source: Own Photograph

Plate 22:
Burning Shells in a Hole



Source: Folklore Photograph Collection, National Folklore Collection, UCD, 2013

> They'd burn the seashells … they'd put them in a hole and burn them and keep burning them until they went into ashes and they'd take that ashes then … that was lime you see (Seamus)
>
> There was a hole down there on the bottom of our land and there was a hole beyond in the bog too where my father … could burn the shells (Margaret)

Lime was not only useful for reducing the acidity of soil, but also, the addition of lime to agricultural land had indirect effects. Specifically, it prepared the soil to utilise any nutrients that were added to it at a later stage and generally improved soil texture so that soil became more productive as a result of lime additions to it.

> The indirect value of lime is often more important than its direct value, as it tends to unlock in the ground potash, phosphoric acid, and nitrogen that were previously unavailable. Lime also improves the mechanical or physical character of many lands, making heavy lands looser in texture, and tending to bind soils that are too light and loose (The Ballina Herald January 11, 1930:1)

In this scenario where lime was needed to create productive land[179] having access to the commonage space of the shore from which to source sea sand and sea shells - for the lime they could provide – was not only important to agriculture, but, was essential to it.

[179] 'In Ireland the landlord's income is pure rent. He receives it merely for permitting his tenants to use his land. In most cases, it is only through their exertions that the land has been made productive of rent. They first enclosed their patches of cultivated ground from the hillside or the waste, cleared the surface bog, cut the absolutely indispensable drains, and erected the absolutely indispensable places of shelter. They created their holdings without his aid, and do not require his aid to maintain them' (Senior 1868:150)

Additionally, just as lime was needed to bring land into a productive state it was also required to keep crop producing land productive over time.

> In mountainy land mostly they would want lime. You see it would be bare. It would be grey and you would know it would be poor and then the lime then would bring it back and it would go green (Sarah)
>
> Lime would mostly be put out where the crops would be (Francis)
>
> Lime from burning the shells … would be put out on the land … he would shake it on the potatoes (Margaret)

In contrast, some areas in the district did not require additions of lime in this way because limestone was the bedrock underlying soil in those areas.

> There was limestone … there was lime in certain areas of the land (Francis)
>
> There is lime in the land around here … in some spots (Fintan)

However, even if lime was not needed everywhere, or at least not needed to the same degree everywhere, there is no denying that having access to sources of lime was important where land tended to be acidic as much of it was in Dún Chaocháin. In essence, access to sources of lime from the commonage shore was essential to overall crop production in Dún Chaocháin and not just useful to it.

Drains were another way that unproductive bog land, or wet land in general, was brought into a productive state, and maintained that way. The creation of drains in the ground allowed excess water – which impeded crop production –to flow away making the ground more productive in the process.

> The bog land could be very wet … well a lot of the land would be wet if you didn't put drains in it to let the water run away (Francis)
>
> When they hadn't anything else to do they were out draining the land in the winter time and they'd have their ground dry and then if they had any stones they'd put the stones in the drains so that the water would run under and they used to dry the land that way ... the drain would take away the water. You'd dig out narrow bits like a channel called a drain. If there was a wet place they'd dig out a channel and they'd put stones in that channel so that the water would run in the channel between the stones and it would run into a river if there was a river ... it would be the best place for it to run ... but, even if there wasn't … to dry the land there would be somewhere it would run into to dry it ... maybe if there wasn't it would lodge somewhere but it would dry so much (Sarah)
>
> If there was wet spots you'd have to do reclamation ... they'd give you a grant for the drains but you'd have to stone the bottom of the drains ... put gullies all along ... it was a hard job ... but we … dried up some of it but it was hard work (Seamus)

The stones for these drains were sometimes sourced from quarries that existed on the commonage.

> You might get the stones for the drains in some of the quarries. There were different quarries where you would get different types of stones that you could use for different things but smaller stones for drains could be gotten in some of them (Francis)

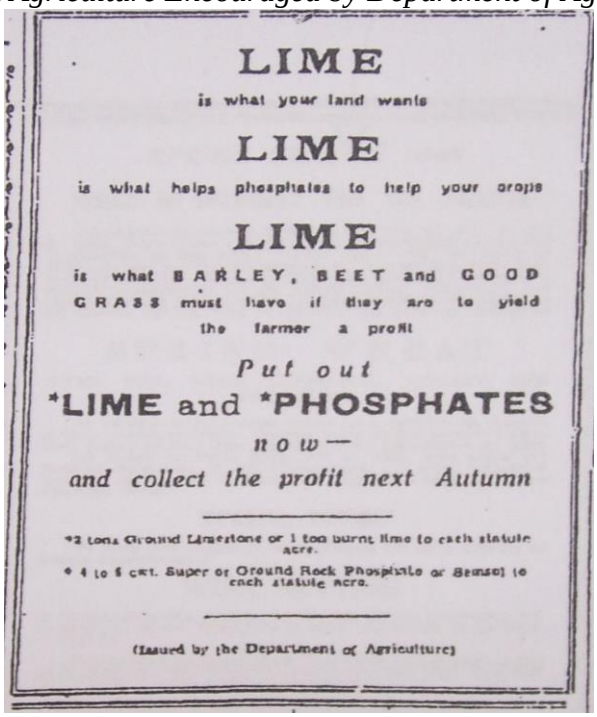
In other words, once again the commonage provided materials essential to the creation of crop production space. Thus, the commonage was not only a supplement to this privately held crop producing agricultural land, because that fact is that, crops could not even have been produced on some of this privately held land in the first place had the commonage not provided the necessary material means for this to occur.

(10.3) *Commonage and Agricultural Productivity Over Time*

The commonage contributed resources needed to bring soil into a physical state which could support crop production. But more than that, the commonage also provided fertiliser sources without which the use of lime on the land would have been counterproductive to the creation of conditions necessary to supporting crop production over time.

> It must be borne in mind that the continued use of lime alone, without other fertilisers, has a tendency to exhaust ground particularly when the ground is naturally poor because it hastens the advisability of the plant foods in the land, converting them into forms that are highly soluble, and so are either taken up by plants or else washed out of reach of roots of plants. It follows, therefore, that the old adage, the use of lime without manure makes both the farm and farmer poor, is not without real foundation (The Ballina Herald, January 11, 1930:1)

Newspaper Exert 8:
Use of Lime within Agriculture Encouraged by Department of Agriculture



LIME

is what your land wants

LIME

is what helps phosphates to help your crops

LIME

is what BARLEY, BEET and GOOD GRASS must have if they are to yield the farmer a profit

Put out

*LIME and *PHOSPHATES

now —

and collect the profit next Autumn

*2 tons Ground Limestone or 1 ton burnt lime to each statute acre.

* 4 to 5 cwt. Super or Ground Rock Phosphate or Basic to each statute acre.

(Issued by the Department of Agriculture)

Source: The Ballina Herald, February 19, 1949:2

In sum, lime not only helped release soil nutrients trapped in soil, but, lime itself needed to be applied in conjunction with other nutrient sources.

> You wouldn't just put lime on the land because too much lime could be a bad thing. No, you would put lime on the land and you would put manure and seaweed and ash from fires and soiled animal bedding and sea shells and sea sand and all of those things on the land because together you then had the best fertiliser (Francis)

> Where it … hadn't been manured it would not give any crops. I suppose the manures and that used to make the ground ... the land ... richer. Then if it wasn't fed ... like anything else ... it wouldn't produce the potatoes or the oats wanted (Sarah)

> The patches that were manured were good and more fertile than the ones that weren't. What was fertilised was green and what wasn't was brown (Jean)

Fertilisers were either sourced directly or indirectly from commonage areas and the sea: Seaweed was directly available from the seaweed growing on the rocks at sea, or else, from the seaweed that grew along the shore, or was washed onto the shore. Similarly, sea sand could directly be gathered from the shore or commonage dune areas along the coast. Indirectly, the commonage contributed to the creation of fertiliser through the fact that the manure produced by livestock - which was used as fertiliser – was largely the result of livestock having been grazed on the commonage. Also, furze and heather that grew on the commonage offered indirect sources of fertiliser when they were burned

and their ash used for this purpose. Likewise, turf that had been produced on the commonage contributed a source of fertiliser where the ash of house fires – which were fuelled by turf – was used to provide nutrients to land. Additionally, the shore commonage not only provided direct sources of fertiliser such as the seaweed and sea sand, but also, it provided sea shells which when burned produced ash/lime which contained nutrients. The fact that crop production in Dún Chaocháin c.1930s-50s required fertiliser which was largely sourced from the commonage and which agriculture could not do without points to the fact that commonage was not only a supplement to agriculture in this area, but, was integral to it.

Of course, while much of the land in the area was bog land or reclaimed bog land, there were sections of land which while being surrounded by this acidic and wet bog land were like virtual productive oasis' in its midst. Two areas in the section of Dún Chaocháin investigated here are recognised as having machair status. These areas are Garter Hill and the sand dune area of Curraunboy. While Garter Hill did not form part of the commonage of any of the townlands involved in this study, but instead while nestled amongst them was owned privately, the interesting point to note is that two machair areas are located in Dún Chaocháin. This is significant because machair areas are rare and tend to only exist in coastal areas where strong winds are a particular feature of life.

The combination of coastal location and persistently strong winds in Dún Chaocháin made having access to the commonage particularly important to maintaining crop productivity on arable land, because, especially when crops are young and only developing they are at risk of damage from strong winds. Where wind damage occurred in this way it was common for applications of fertiliser to be added at this time so as to try to bring crops back to some degree of health.

> You might add some manure or seaweed or something … whatever you had to try to get them going again if the wind broke the stalks, but they would never really be right, but you might get some more growth than you would otherwise (Francis)

But, as well as breaking crop stalks, wind and the force of wind involved in the setting in question, posed other threats to crop production. Specifically, wind often caused problems to crop production because of salt from the sea that it carried in the air.

> Salty air would burn the crops. You'd have to put manure on them then again. You'd have to get them going again … It would burn their leaves. Stalks would be the worst for getting burned (James)

Not only could salt in the air set crops back, but also, it could ruin a crop altogether.

> When the wind was very strong you could get everything burning around here. 120 or 130mph and the wind could burn everything that was in the ground. The potato that was growing … the stalk in the ground … and they'd be as black as that … as if they came down the chimney … completely burned. They could come back up again but whatever would be in the wind … it could burn the grass and everything … grass five or six inches long could burn (Anthony)

The closer the area devoted to crop production was to the sea the greater the risk of wind destroying crops in this way.

> Salty air would burn crops … It would depend on how close to the sea you were ... how close to the sea the crops were (James)

> Down at Rhinroe there ... I had no land at Rhinroe but these behind ... they had. They'd have lovely stalks with the potatoes ... well with any crops the onions, carrots or anything ... and if the storm came and the salt water would come in it it would burn them black. It would burn them up here as well but not as much as down there. Their crops was finished for the year for them then. They were burned to the ground and it was a big loss too you know? They would be ruined. They would come through a bit but they would be badly damaged. There would be no return on them. They wouldn't grow right after that (Seamus)

Another difficulty with trying to produce in a coastal area where strong persistent wind was a feature of production, and where much of the land was of marginal agricultural character was that crop production was often carried out on sandy land which while offering better general soil conditions was simultaneously more at risk from wind affects.

> You'd get good crops from the sandy soil (Seamus)

> Sandy soil was great for the crops … they'd grow well there (Francis)

However, where crops were set in sandy soil wind could blow sand off the crops leaving seeds and such like exposed to the elements. In this situation having access to fertiliser was of utmost importance because not only would soil have to be added to the

top of the crop bed at this stage – to replace the soil covering that had blown away - but also, fertiliser would be added to encourage crop growth and reduce damage caused to crop production by the exposure of the seeds to the elements.

> The wind could blow sand off the crops … the rye or the potatoes … whatever was set in the sand … that happened. The month of May and early June especially (Seán)

> If the wind took the top off the crop bed you had to put soil on again to cover up the seeds that was there and then you would have to give the crops some feed … fertiliser would be needed to get them going (Francis)

What all of this demonstrates is the absolute necessity of having spaces from which to source fertiliser outside of the privately held area of land. The commonage was vital because the fertiliser used to get the crop "going" again came from the commonage.

Additionally, while highlighting the usefulness of sandy soil for crop production and sand for fertiliser for crop development what is important to note about sand as it affected production in Dún Chaocháin was that where too much sand accumulated on land it was counterproductive to crop production. Given the threat of wind to blow sand onto the land and impede crop production in the area, the Irish government planted marram grass along the shore edges to stop excessive amounts of sand being blown onto land located adjacent to the beach.

> The government put that marram grass on the beach (Seamus)

> They put marram grass all along the shore to stop the sand blowing onto the land (Francis)

Plate 23:
Marram Grass Along the Shore

Source: Own Photographs

In other words, the location of land in relation to the sea could affect production upon that land.

(10.4) *Commonage and Various Forms of Production*

The commonage (and sea) not only underpinned agricultural production, but also, petty commodity production in Dún Chaocháin c.1930s-50s relied on community members having access to the commonage and the open-access space of the sea. Petty commodity production in the form of fishing would clearly have been impossible without the sea existing as an open-access resource from which fish could be sourced. However, right of access to the sea was only useful where physical access to the sea existed: Sometimes even where sea-lined commonage existed this did not necessarily equate to providing physical access routes to the sea because some areas were verged by cliffs which made it impossible (or at least very treacherous) to try to access the sea from there.

Plate 24:
Commonage Verged by Cliffs

Source: Comhar Dún Chaocháin Teo, 2011

However, although not all areas of the sea-lined commonage provided a physical means for accessing the sea there were areas where commonage ran down to the shore (and even to piers). This made it possible to enter the sea to go fishing from there.

Plate 25:
Road Through Commonage to Rhinroe Shore and Pier

Source: Own Photograph

This low lying portion of Kilgalligan as shown above is a perfect example of an area of commonage that facilitated the use of the open-access resource of the sea. This section of commonage not only ran down to the shore as shown, but also, this commonage ran down to Rhinroe pier which was one of the piers associated with fishing in the area.

However, the commonage not only provided access to the open-access area of the sea to facilitate the practice of fishing but also offered other resources to fishing. For instance, where lobster fishing was involved the lobster pots were sometimes made from heather and such like found growing on the bogs.

> The red oak ... that would be growing on the bog ... myrtle is the English and it's like a tiny little tree and they used to use it along with heather to make the lobster pots (Eileen)

> If they were lobster fishing they … used to have the ordinary pot maybe made out of heather … There used to be single pots thrown here and there and dotted around and each pot could hold a dozen. They were plentiful that time. I remember my father saying one time that there was ten or eleven in a pot and maybe three or four outside hanging on to it (Seán)

Similarly, the commonage supported the practice of fishing for household consumption because it provided the necessary water flow to wash fish after they had been gutted, so that, they could then be salted/smoked and stored.

Plate 26:
Gutting Fish in a Stream in Stonefield

Source: Comhar Dún Chaocháin Teo, 2001

> They would be cleaning it and salting it and washing it. They'd bring it to the river. They'd wash it in the river before they would take it home … You'd have fish all year round because they would salt the fish (Jean)
>
> When the fish would be brought up and there was a river beside the house and … they would split the fish … the guts … and then it would wash down to the sea … you would wash them like that before you would put them in the barrels … clean them out … gut them … There was two big wooden barrels and they'd stay fishing until the two barrels were full. They were outside at the gables of the house full of salt, well not full of salt, pickled they called it, cured (Francis)

Likewise, the pardogue[180]/basket (see *Plate 27*) were made with sally rods[181] which were often grown on the commonage.[182]This type of basket was commonly attached to a donkey and used to carry fish from the shore.

[180] A pardogue was a basket that had a bottom that could be opened. Some pardogues were made of rods and some were made of wood as well (Francis). The '"pardogue" had a removable bottom which could be opened and closed. These "pardogues" were used for donkeys and horses, one on either side of the animal, slung from a wooden fixture on the animals' back with a straw mat under each basket to prevent chafing of the beast's back' (Iml. 1340:275)

[181] Sally rods are produced from willow. They are sections of new growth (a year's growth) that are cut for use when they are still pliant

Plate 27:
Donkey with a Load of Fish at Portacloy Shore

Source: Folklore Photograph Collection,
National Folklore Collection, UCD, 2013

Similarly, this type of basket was often used to carry turf from the bog or seaweed from the shore.

> For peat … there was no tractors that time … there was no road but you would go across … you would fill it into boxes on the donkey and carry it in the pardogue. Fill them and bring them [to wherever] … and likewise you would bring the seaweed from the shore the same way (Seamus)

In short, the commonage directly facilitated petty commodity production by making it easy to access the sea and so fish there. It made it possible to collect seaweed from the shore, and it provided peat which could be transformed into turf. But also, the commonage indirectly facilitated petty commodity production in Dún Chaocháin c.1930s-50s through the indirect provision of materials which could be used within the course of petty commodity production.

Potheen making offers a particularly interesting example of how the material aspects of the commonage facilitated a petty commodity enterprise. Also, what is particularly

[182] Sally rod gardens could be on private land, but, you would get sally rods on the commonage as well where it was wet (Francis)

interesting is that the making of potheen also relied on the production of crops on private land – rye and barley.

> Rye and barley was the boys for the potheen (Peadar)
>
> Rye would be steeping and the potheen made (Seamus)

However, while the rye and barley used within the potheen making process were grown on private land the actual practice of making potheen occurred on the commonage so that the producers could avoid prosecution (because the practice was illegal and prosecution could follow where links to potheen making were discovered on private property), but also, the commonage facilitated potheen making in other ways.

> There would maybe be a stream … bog water. Bog water was the one they used mostly for making the potheen because it was kind of a soft water. Spring water seemingly wasn't good because it was too hard. Bog water in them times … even the old men shaving used to use bog water because it was soft … so access to the water and turf. Where somebody had turf close by that turf was used for lighting the fire for the potheen because it would go on all night … brewing the potheen … maybe three or four or five gallons of potheen brewing during the night … then they could sell it or drink it or whatever (Francis)
>
> You would be prosecuted if it was found on your land … and so they would usually make it in old quarries and maybe back in the burrow (Francis)

But also, because potheen distilling was illegal it was common for distillers to choose to make potheen in locations that were not readily accessible. Specifically, they sometimes made potheen in cliff caves that were difficult to access either by sea or from the land above them.

> They used to make the potheen … in a kind of a hole in the cliff (Seamus)

This helped to ensure that the distillers could evade the law should they happen upon them.

> Despite the increasing vigilance of the Belmullet Guards, assisted by Guards from country stations, to suppress the pernicious practice of illicit distillation in Erris the information obtained from official sources would seem to indicate the practice of potheen making has considerably increased (The Ballina Herald, January 17, 1931:2)
>
> A large force of Civic Guards … after a perilous trip in a boat to a cave at Claddagh Geal, Rossport, discovered a still in working order, 20 barrels of wash, which had been buried, about 10 gallons of potheen, 1 cwt. of sugar and other materials. The approach to the cave is difficult owing to dangerous currents. As the Garda closed in on the cliffs of Porturlin, they observed a curragh leaving the cave very quickly. By that means the potheen makers effected their escape (Irish independent, July 14, 1933:4)

> It is now stated that in the absence of a motor boat being attached to Rossport Garda Station for patrolling the North Mayo coast, illicit distillation will continue (Irish Independent, August 24, 1933)[183]

In other words the physical attributes of the commonage facilitated potheen distilling as a petty commodity enterprise that was carried out in Dún Chaocháin c. 1930s-50s.

Likewise, just as the area's spatial and material characteristics facilitated potheen distilling, so too, was the ability to engage in seaweed collection for sale to alginate companies also affected by the physical characteristics of the commonage associated with specific townlands. In relation to townland ability to engage in this form of petty commodity production notable differences existed among the six connecting coastal townlands investigated here,

> One time they used to take the sea weed and put it on the shore to dry and the lorries would come and they'd get so much for it and they'd take it away. They used to make ... I don't know ... was it iodine or something? They used to sell lorry loads of it. Not so much in our village but from the next village ... Kilgalligan. They used to be down there with creels ... they were made out of rods ... they used to be back there and they'd be carrying that up on the shore and bringing it up to the land and then the lorries used to come and whatever way they used to use it ... they used to sell it and make a lot of money out of it and that was taken way (Sarah)

The reason for the people of Kilgalligan selling seaweed and the people of Curraunboy not tending to do so as much, was that, the shore commonage that the Kilgalligan people had rights to, was the shore upon which the desired variety of seaweed for

[183] 'Despite the most courageous activity of the Garda, potheen-making still flourishes on the North Mayo coast. A capture, which illustrates the difficulties which officers have to contend with, has just been made at Portacloy. Descending, at grave risk, a 500 feet cliff towering over the Atlantic breakers, Actg. Sergt. Hubbard and Gardaí Murray, McDermott and Deery, of Rossport, discovered in a compact distillery a still in full working order, six barrels of wash, buckets, pots, several cakes of bread and an egg cup for sampling the malt, two gallons of which had just been drained from the apparatus. As they descended the dizzy cliff three men escaped in a currach, carrying with them all the material they could. While on a similar adventure in the same place a few months ago, Garda Deery had a miraculous escape from death when he slipped down some 20ft. and landed on the ledge of a projecting rock within a few feet of the breakers … This is the third occasion within three months that the distillers have made their escape in currachs at the approach of the gardaí' (Connaught Telegraph, September 9, 1933:2). Note: the use of 'currach' instead of 'curragh' here is not a spelling error within this thesis. Rather, 'currach' is the spelling of the word as presented in the aforereferenced newspaper. However, 'curragh' is the more widely used spelling

commercial purposes washed up in the area after storms. In other words, there was no direct relationship between seaweed availability and rights to shore commonage.

> Seaweed … you might get it in different spots … different amounts in different spots as well (Peadar)

Seaweed can wash up on some shores because of the tide and not on others even in the same locality. This meant that some of the townlands involved in this study had opportunities to sell seaweed that did not exist in other townlands.

Likewise, seaweed for use as manure within agriculture was not as readily available on some shore commonage as others.

> There was certain spots for certain things. The seaweed wasn't [everywhere] … as much (Seán)

> Seaweed … was in Curraunboy but it wasn't in Rossport … on the other side … because there was no seaweed growing on the shore at all but it was growing on our shore (John)

Plate 28:
Uneven Distribution of Seaweed Across Townland Shores

Source: Own Photograph

Additionally, even where relatively equal amounts of seaweed might be found on different shores it was not always the case that this seaweed was of equal benefit within agriculture. Rather, certain townlands were in more favourable positions than others in being able to access the type of seaweed that was best for supporting crop production.

> I brought back seaweed in the pardogues. This was for the spuds … the farnoch … then there was another one that was sort of brownish and like dilisk … that was at the sea behind. Some that had carts or donkeys they would go behind and they might put it out on the field in the early spring. The other one was better for the crops. You might get it in different spots (Peadar)

Further complicating the matter, was the fact that even where seaweed of the preferred type might have been available on the commonage shore of one's own townland it was sometimes not utilised as readily as it might have been. This was because of the drudgery of labour involved in accessing it and transporting it to where it was needed.

> Some people might not use seaweed at all because it was such a hard job to get it from the shore to where you would be wanting it. They might have to … they might only have the cart and the donkey … the cart and the donkey to bring the seaweed and sure they might have to be trying to get the cart over the sandy banks and the clumps of sand and that would be hard (Francis)

Yet, even though some people did not use seaweed within agriculture as much as they might have, the overall picture that emerges when seaweed or any of the other resources of the commonage are considered is that the commonage provided so much to support agriculture, and so much to support petty commodity production, that, the commonage cannot be understood as merely occupying a supplementary role in the overall production system that supported the community of Dún Chaocháin c.1930s-50s. Instead the commonage should be understood as having offered a space/spaces and resources without which agriculture could not stand, and without which the society as a whole could not continue.

(10.5) *Commonage and Communality*

However, the commonage and open-access area of the sea not only provided resources – albeit essential resources which the society relied on for its reproduction. Rather, these spaces also fostered communality within production. Although exploitation of commonage resources is noted to have occurred in other areas of North-West Mayo c. 1930s-50s as the following demonstrates this same exploitation of commonage resources did not occur in the section of Dún Chaocháin investigated within this research.

> Edward Kearns … Bangor Erris, Ballina obtained a decree … against his neighbour Edward Murphy at Ballina Circuit Court … for the overbanding in overuse of the commonage … over which both parties had equal grazing rights to (Ballina Herald, June 18, 1949:2)

In contrast to the above, the commonage in Dún Chaocháin was managed in a sustainable way because everyone in the area was exercising their right to use the

commonage which meant that the situation did not arise where only some individuals were using it so that its use was not as readily monitored by the community as a whole.

> Everyone who had shares in the commonage made use of them. You needed to use the commonage because you only had a small bit of land for yourself. You had a share depending on how much land you owned yourself and that's how it was used (Francis)

In so much as the community as a whole used the commonage this acted against its overuse. But also, people in the area possessed very few livestock to actually graze upon it.

> There would be sheep and cows. There wouldn't be as many as there would be now. The most anyone would have … there wouldn't be many … the most would be twenty sheep. I remember maybe three or four cows and that would be the height of it (Peadar)

But as well as understanding that everyone used the commonage and that resources provided by the commonage were not being over-exploited within Dún Chaocháin c. 1930s-50s, what is also important to understand is that the commonage and sea were not only important for providing resources to the community as whole, nor is it enough to only think about how access to resources that existed there was controlled by the collective, but rather, the commonage and sea provided a space within which people performed tasks with each other and in so doing the existence of the commonage and sea promoted communality at another level – at the level of practice.

Communality was promoted when people followed a common crop production plan and when they followed a common timetable for the movement of livestock between the arable land and the commonage, and again when people gathered on the commonage to check on livestock grazed there. Likewise communality was encouraged when people came together to build the common enclosure for horses kept on the commonage.

But also, outside of agriculture, communality was fostered at the level of petty commodity production in the form of turf production for sale on the market. This was so because people intent on producing turf for the market gathered in certain areas of the bog, so that, although each household hoped to benefit from the sale of the turf they produced, they were carrying out this individualised activity in the company of others who were also gathered in the same area for the same purpose.

> Out there at that house all along that road there would be a lot of turf and it would be for sale and some used to cut a lot of turf and sell it off. They used to have a lorry and they would sell it off at Ballina … The person in the truck would pay them and then he would sell it off at his own profit. He'd make his own cut off it then. They would be getting a living with it ... well it helped out with whatever else they had (Francis)

Also, not only did people carry out turf production for the market in the same area so that a group of families were often present at the same time but also where individual families had their turf brought to the roadside ready for the lorry to come and take it, they would then be helped by other families to load the turf lorry when it came

> A gang would get around a lorry and have it loaded in no time. The lorries weren't as big as the lorries today ... maybe eight tonne or ten tonne if you had that and that would be about the height of it (Francis)

The family who had produced the turf would get money for selling it whilenone of the people who had helped to load the lorry received money for their efforts. Instead, help was given in the spirit that it would be returned at a different point in time.

> Money never changed hands between the people that helped load the lorries and the ones that owned the turf that was sold because everyone helped each other. Like, if they helped with loading the lorry they might be helped at making the hay or something a different time (Francis)

Although tasks had an individualised character, this does not necessarily mean that their performance did not enjoy a communal character because although tasks were performed for the benefit of individual households they were carried out within a collective context where others were doing the same type of labour in the same spaces.

Another example of this individualised, yet collective labour environment is found in the collection of seaweed for sale on the market: Different households would converge on the shore – often in the dead of night when it was darkest – to perform the same task of trying to collect as much seaweed as possible to sell. While the competition between these individual families to gather this seaweed is evident in the fact that they would race to the shore after a storm to collect seaweed even before daylight, and, by the fact that individuals often waded out into the sea in search of seaweed that had not yet been

washed ashore before others could get to it,[184] the fact still remains that a group gathered in the same space at the same time with the same purpose, so that, on the one hand while seaweed collecting for sale was very individualised it also had a communal element to it.

> It would be pitch dark and … they'd come down for ... the sea weed [when it] would be coming in with the tide. You'd have to come down because there would be others down. There would be a crowd gathering the sea weed here on the shore here. They would come down here in the night when the tide would be in and they would be out to there in the tide ... in the salt water ... forking it in and lumping it and they would put two or three stones on it then and everyone would know their own. Two or three ... if there were strong young fellows in the house ... that would come down (Seamus)

Likewise, although potheen production was often carried out for the purpose of the distillers involved each realising individual financial reward from the practice, it was carried out as a group.

> They'd be making potheen on the commonage and they might keep some of it for themselves and they might sell some of it and whoever made it would get a share of the potheen that was made and they could sell it if they wanted to (Francis)

Fishing provides another example of an activity that was individualised yet collective: Fisherman engaged in fishing so that they could earn money for themselves from the fish that they caught. Yet, while individualised in this respect, fishing was communal in other respects. For one thing, fishing was never carried out as a solo activity. Instead, four and sometimes five men depending on the size of the curragh involved would fish together as a team with the share of the catch and money made from the catch being divided at a later stage.

> You would get a share of the catch depending maybe if you owned the boat you might get a bigger share (Francis)

Groups of men would spend hours on the sea together in the confined space of these curraghs.

[184] However, seaweed gathering was not always carried out so individualistically. Instead, to some extent c.1930s-50s, sometimes ' people [had] … seaweed in common which they cut and [divided] … among themselves' (Iml. 1244:448)

> The fishermen would be going to sea … at night time [that's when] they did the fishing and not in the day (Sarah)

Additionally, not only would a group of fishermen go to sea in the same curragh, but groups of fishermen in different curraghs would go fishing and return from fishing at the same time.

> All the fishermen would be heading out around the same time and then they'd be back in before the merchants would come[185] (Francis)

Plate 29 provides visual testimony to the fact that while numerous curraghs might have went to sea, each with their individual crew, they tended to go to and return from the sea as a collective.

Plate 29:
Returning from Sea as a Group

Source: Folklore Photograph Collection,
National Folklore Collection, UCD, 2013

[185] 'In the harvest evenings what a joyful sight it was to watch the rudely made curraghs of skin or hide go out from the beach at the foot of the harvest field on their passage to the herring fishing grounds of Broad Haven Bay. The women and children stooked the oats cut during the day, while the man of the house after his toilsome day in the fields, was now proceeding to engage in his nocturnal toil in the harvest of the deep. Many a prayer was breathed for daddy's safe return. In the morning the youngsters were early astir, and on their way to the shore to watch the arrival of the boats and curraghs with their silvery cargoes of fresh herrings straight from the wave' (Iml. 1243:99-100)

The fact that fishing was organised in this way does not reflect a natural tendency toward communality and collective labour, but rather, the organisation of labour in this way came down to the fact that it was dangerous to go fishing alone. Also, because curraghs were being used it was essential that a number of men fish together because it took several men to carry these curraghs both to and from the sea before and after fishing as these vessels were not anchored at sea. Rather, they were kept on the shore/or nearby area of land or such like, and were heavy to transport.

Plate 30:
Five-Man Salmon Fishing Curraghs at Portacloy

Source: National Folklore Collection, Folklore Photographic Collection, IVRLA, UCD Digital Library, http://digital.ucd.ie/view/ivrla 10779. Accessed 23rd May 2013

> We were strong that time and we would put the curragh up on our shoulders and carry it up and the water theming out of it and we would park it … four men would be in the curragh (Seamus)

Similarly, where people gathered as a collective group on the shore in the middle of the night to collect seaweed that had been washed ashore after a storm it was not because they wanted to meet there as a group. Rather, it was because the sea rods required by alginate factories tended to wash up on a particular shore, at a particular time, so that, if people wanted to make money from selling this seaweed they had no choice but to arrive in that space, at that time, if they were to be able to gather these sea rods before others would have the sea rods claimed for themselves.

(10.6) *Conclusion*

However, despite the fact that the community of Dún Chaocháin c.1930s-50s may not always have made conscious decisions to act communally, and although necessity often created this situation rather than simple choice, the fact remains that they did act communally by performing the same practices in the same spaces at the same times. Having access to commonage space and the space of the sea fostered communality where each space provided spaces within it within which communal activity occurred, and within which the resources needed to allow communal activities to be performed were located.

But also, not only did the commonage and open access area of the sea foster communality within the area and supply supplements to agriculture there, but rather these spaces were integral to agriculture because they not only provided resources, but, provided essential resources without which agriculture could not have been pursued.

However, as regards commonage, commonage differed between and within townlands, so that, even though all of the townlands involved in this study each had access to mountain commonage, shore commonage, and bog commonage they were not afforded equal opportunities to access agricultural resources from there, nor, to engage with petty commodity production as a result: Some of the townlands had more mountain commonage than others, or more shore commonage than others, or more bog commonage than others, but beyond the issue of size, commonage characteristics varied across local space with some areas within commonage being more useful for supporting agricultural activity and/or others being more supportive of petty commodity production/specific types of petty commodity production.

Natural processes occurred across commonage space within the area to affect the degree to which particular points within that commonage could offer resources to agriculture and petty commodity production. But also, just as natural processes occurring within commonage space affected how commonage could contribute to agriculture, so too, did natural processes occurring within private agricultural space affect the level to which access to commonage mattered. It is well established that commonage in coastal areas

often plays the role of a fertiliser provider, but what is less recognised is that fertiliser can be even more important to agriculture within certain locations than others because of the specific way that natural processes interact with each other in different localities. As I demonstrated in the preceding chapter, extra fertiliser requirements were needed where weather interacted with crop development to damage developing crops through stalk breakage from wind and/or salt damage through the interaction of wind with coastal location. In other words, it was not only a case of having to access the commonage to source fertiliser for crop production space, but rather, it was also about accessing the commonage to source fertiliser in response to natural phenomena such as weather as and when it occurred within the area to affect crop development.

While soil fertility maintenance was key to successful agricultural production it seems that soil fertility requirements for supporting crop development were not static across production time. Rather, crop fertiliser requirements fluctuated over the course of crop producing land, and not only in relation to crop development stage, but also, in response to natural processes such as weather. What this indicates is that soil fertility maintenance is more complex than simply adding a certain level of fertiliser to crop space. Instead soil appears to act as a process which interacts with other local processes to affect agricultural production. This understanding of soil as a complex process and as a complex process which is affected by locality raises the questions: How does soil act as a process? What internal soil issues affect soil fertility? What external forces impact soil productivity? To what degree is soil fertility affected by social processes? To what extent is soil fertility affected by natural processes? Where does the local factor into the equation in affecting soil fertility?

I address these questions in Section 6: *Ecological Systems.* - First through scholarly informed discussion and then at the level of the empirical.

Section 6

Ecological Systems

Chapter Eleven

Socio-Ecological Interaction within Agriculture

(11.1) *Introduction*

'Social processes (the property relationships), economic processes (the production relationships), and the ecological (natural processes) – form a unity within a mode of production' (Slater and Flaherty 2009:11): I have already examined social and economic processes as they affected production in North-West Mayo c. 1930s-50s. In this chapter I discuss social and natural forces as they interact together to affect agricultural development. Specifically, I draw attention to the fact that, the metabolic rift literature within the environmental sociology literature has encouraged an input-output understanding of how soil fertility is maintained within agriculture. This input-output model of soil nutrient exchange and regulation hides the fact that soil is a process and not a thing, and, that as a process soil is affected by natural and social forces that act together to affect soil productivity across more levels than just soil chemistry.

Soil productivity is not only affected by soil chemistry, but also, soil texture – which allows for the classification of soil into soil types – soil structure, soil depth, the presence of soil organisms within soil, weather, and topography. These natural forces influence soil productivity in numerous ways. However, this is not to say that they determine production because society does not just accept nature's forces and allow them to determine productivity. Instead, society actively engages with them and tries to harness their use value giving potential. As Slater (2014a) highlights, soil as "earth matter" (uncultivated land in its natural material form) is manipulated into increased productivity across two levels - the content level and the form level. At the content level, soil productivity is increased through the addition of chemical inputs to soil. At the form level, soil productivity is increased through the mechanical manipulation of soil into a productive form that enables the content of soil to better support crop productivity (p. 6-8).

> '[S]ocietal form is imposed on the natural materials/substances through the particular mechanisms of the labour process: "The simple elements of the labour process are (1) purposeful

> activity, that is work alone, (2) the object on which that work is performed, and (3) the instruments of that work." (Marx, 1976, 286, cited in Slater 2014a:7).

> [Earth matter] becomes earth capital when the natural material of earth matter is processed through a labour process. It thus becomes either a finished product ready for immediate consumption or a raw material for another labour process … Marx identifies contrasting forms in which earth capital is incorporated into the soil by societal techniques of cultivation: 'Capital may be fixed in the earth, incorporated into it, both in a more transient way, as is the case with improvements of chemical kind, application of fertilizer, etc., and more permanently, as with drainage ditches, the provision of irrigation, levelling of land, farm buildings, etc. I have elsewhere used the expression 'la terre capital' to denote capital incorporated into the earth in this way … I made the distinction between *terre-maitiere* and *terre-capital*. (Marx, 1981, 756, cited in Slater 2014a:8).

However, while soil productivity can be increased through labour this does not mean that social forces can dominate natural ones within agricultural production. On the contrary, while nature's forces may be appropriated by labour they are never dominated by labour. Instead, nature's forces and those of society are involved in a constant interplay with each other across different distinct junctures within the agricultural labour process where they metabolise with each other, shape each other, but never control each other (Barry 1999:189): Soil chemistry, soil texture/type, soil depth, and soil organisms, come together within agricultural production to affect the productivity of land, but, labour can alter the chemical composition of soil, its structure, its depth, and the level of soil organisms that might be found there. However, soil as …

> [n]atural matter is not a 'dead' thing-like object but a pulsating entity where 'motion is the mode of existence of matter' (Engels, 1987, CW, 25, 55). And this 'vital life' movement does not just occur within particular objects of matter but also between all of those entities, both organic and inorganic, that are within Nature: When we consider and reflect on Nature … at first we see the picture of an endless entanglement of relations and reactions in which nothing remains what, where and as it was, but everything moves, changes, and comes into being and passes away … for everything is *fluid*. (Engels, 1987, CW, 25, 21, cited in Slater 2014a:3).

In other words, changes to soil not only occur as a result of labour, but also, forces of nature also act to affect soil in an ongoing way: For instance, soil productivity can be affected by changes in soil chemistry, soil structure, soil depth, or soil organisms present in soil, but also, a change in any of the aforementioned can cause a change in another of them. Additionally, soil productivity is not only affected by internal soil component features, but also, natural phenomena outside of soil itself also affect how productive soil is where soil comes into contact with those things. Specifically, weather and topography can affect soil productivity.

Slater (2014b) – drawing on Ilyenkov (2008) – highlights that every individual entity involved in shaping soil fertility can be understood as a moment within a process because of that entities ability to shape soil fertility (p. 1). Based on this logic, the following chapter explores soil chemistry, soil structure, soil depth, soil organisms, weather, topography, and labour as moments acting to affect soil fertility. I examine the way that soil acts as a process. I highlight the relationship between internal soil components as they interact together to affect that process, but also, exploreexternal forces as they interact with internal soil components to affect soil. And, I assess the extent to which natural processes and/or social processes shape how soil operates. I identify that 'the local' matters when it comes to soil productivity maintenance. Together, all of this moves focus beyond a soil chemistry only/inputs only focus which is the usual focus of the metabolic rift literature, and instead while considering the role of inputs in achieving soil productivity, also addresses issues of soil mechanics within an overall understanding of soil as a process.

(11.2) *Soil Content: Beyond a Dominant Focus on Nitrogen Only*

Various scholars have extended the original metabolic rift concept, as developed by Foster, beyond a strict focus on agriculture and in so doing have widened the focus on nature-society interaction beyond the level of soil nutrients: The metabolic rift concept has been extended to investigate nitrogen cycles, fishing systems, climate change, energy use, and urban agriculture (see Clark and York 2005; Clausen and Clark 2005; Mancus 2007; Mayumi 1991; McClintock 2010). Yet, the concept of nature-society metabolism as it has been used to understand nature-society interaction within agriculture has repeatedly centered on the same issues of nutrient flows and pollution: It has mostly considered the chemical composition of soil as it affects soil productivity. And, within this focus on soil chemistry has over-emphasised nitrogen replacement strategies within crop production as the answer to soil nutrient maintenance over time, when the reality is that, nitrogen is not the only nutrient that affects soil productivity (Kilroe 1902a:31; Mayumi 1991:48).

Nitrogen replacement as the answer to sustainable agriculture is repeatedly stressed within the metabolic rift literature (Mayumi 1991:48): Nitrogen is the focus of concern where scholars have discussed how in traditional agricultural contexts farmers relied

heavily on specialized microorganisms to make atmospheric nitrogen available to crops[186] (Mancus 2007:269-70; Merfield 2008:83); nitrogen is at the centre of discussions on the historical practice of using guano[187] (bird droppings) and pulverised bones[188] as fertiliser (Clark and York 2005:404; Foster 2002:171; Mancus 2007:278; Walsh 2008:370); nitrogen is discussed as the most significant artificial fertiliser within agriculture (Clark and York 2005:404; Mancus 2007:278) with scholars lauding the Haber-Bosch process[189] as the answer to sustained soil fertility within

[186] Historically, farmers relied heavily on specialized microorganisms to make atmospheric nitrogen available to crops by converting N_2 to N_r through biological fixation which breaks atmospheric nitrogen into soluble compounds so that crops can then utilize this nutrient (Mancus 2007:269–70; Merfield 2008:83). The metabolic rift literature discusses how, until the twentieth century farmers relied on biological fixation, manure applications – including the use of human waste – and crop residues to supply crops with nitrogen (Mancus 2007:269–70; Merfield 2008:83) as well as the growing of crops such as legumes and alfalfa within rotations because of their ability to convert nitrogen into the form useable by crops (Barry and Swan 2008:23): 'The process of turning N_2 into forms that plants can use is very difficult to achieve due to the strength of the bonds joining the two nitrogen atoms together, i.e., they are exceptionally difficult to break apart. This can only be accomplished [naturally] by a small number of primitive bacterial by the process known as "biological nitrogen fixation" and a few abiotic processes, mainly lightning where the immense pressures and temperatures of the lightning bolt provide the energy and extreme conditions required to break di-nitrogen's chemical bonds' (Merfield 2008:83-4). 'In terms of the practical manipulation of N fixation the only option was to grow crops, such as legumes, which have a symbiotic relationship with the Rhizobia bacteria, which live in nodules on the plants. The plants themselves cannot fix N_2 to N_r but they provide a home and food for the Rhizobia which in turn fix N and give it up to the plant. There are also free-living bacteria in the soil that are continuously fixing atmospheric N_2 into N_r, as well as a range of other microbes that are doing the exact reverse and turning N_r compounds into N_2 , which is returned back to the atmosphere' (Merfield 2008:83-4). 'Nitrogen is the "odd" nutrient for many reasons. The first is that the main planet-wide reservoir is the atmosphere. For all the other nutrients (including C and O), over 99.9% is tied up in the rocks of the planet. For N 80% is present in the atmosphere, 20% in the rocks of the earth and just 0.004% in the soil, oceans 0.001% and living things 0.002%. As a proportion of the atmosphere N is 78% (O 21% and CO_2 0.035%) … Further compounding the oddness of N is that despite it being present in the atmosphere in far greater quantities than CO_2 and O, plants have not evolved a means to directly absorb N via their leaves' (Merfield 2008:83)

[187] 'Guano [was so effective as a fertiliser that] … it created "guano imperialism" … The "United States undertook – first unofficially and then as part of a deliberate state policy – the imperial annexation of any islands thought to be rich in this natural fertilizer. Under the authority of what became the Guano Island Act, passed by congress in 1856, U.S. capitalists seized ninety-four islands, rocks, and keys around the globe between 1856 and 1903, sixty-six of which were officially recognized by the Department of State as U.S. appurtenances. Nine of these guano islands remain U.S. possessions today"' (Foster and Magdoff (1998) cited in Merfield 2008:94)

[188] '"The value of bone imports to Britain increased from [pounds] 14,400 in 1823 to [pounds] 254,600 in 1837 … So desperate were European farmers in this period that they raided the Napoleonic battlefields (Waterloo, Austerlitz) for bones to spread over their fields"' (Merfield 2008:94). 'Bones needed to be chopped, crushed, powdered or subjected to some other treatment prior to application, in order to hasten the release of their constituents during the growing season … The magic ingredient in bones was the element phosphorous, in the form of calcium phosphate' (Walsh 2008:370–1)

[189] The development of the Haber-Bosch process - which synthesizes ammonia (NH_3) through the use of a catalyst under high temperature and pressure conditions – has made it possible to obtain nitrogen through industrial as opposed to biological fixation … because although nitrogen – in the form of molecular nitrogen (N_2) is readily available in the atmosphere nitrogen can only be used by crops when in a reactive form (Mancus 2007:269; Merfield 2008:83–4). 'These reactive forms of

capitalist agricultural contexts (Clark and York 2005:404; Mancus 2007:278); and, nitrogen is at the center of discussions about the ecological consequences of using inorganic nitrogen fertiliser (INF) within crop production[190] (Addiscott 1996:1; Ferguson, Pearson, and Reynolds 1996:28; Foster and Magdoff 2000:54; Rennings and Wiggering 1997:33).

However, while nitrogen is an extremely important nutrient utilised by crops, it is not the only nutrient lost to soil within processes of crop production[191] (Mayumi 1991:48). Soils not only suffer …

> through the dissipation of nitrogenous compounds, for every barrel of wheat, barley, oats, and other cereals taken to the market, every load of hay and straw sold, to be exported or utilised in and near towns, every animal driven off the land, every gallon of milk used elsewhere than on the farms, robs the soil of a proportion of lime, phosphate, potash, magnesia, and other mineral substances, so essential to the maintenance of soil fertility. (Kilroe 1902:31).

The Haber-Bosch process offered an industrial solution to nitrogen availability and a way for nitrogen to be supplied to crops to replace nitrogen lost in the process of crop production. Similiarly, where guano was used as fertiliser it also supplied nitrogen to crops. However, guano did more than just supply nitrogen: Guano supplied 'a full

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nitrogen are symbolised by "N_r" … This … Haber-Bosch process … requires temperatures of 550°C and pressures of 250 atmospheres/bar, an indication of how hard it is to break N_2 apart' (Merfield 2008:84)

[190] Attention has been drawn to the fact that farmers are now becoming INF dependent and although the Haber-Bosch process offers farmers a relatively cheap and easy way to obtain nitrogen using INF within agriculture is not without negative ecological consequences (Addiscott 1996:1; Ferguson, Pearson, and Reynolds 1996:28; Foster and Magdoff 2000:54; Rennings and Wiggering 1997:33)

'Plants growing in water respond to extra nitrogen like crop plants, but their extra growth is not welcome. Increased nitrate concentrations in rivers … may encourage reeds to grow to excess, narrowing waterways and possibly overloading and damaging banks. Underwater plants also proliferate … Large water plants, though a nuisance, are not the main environmental problem. Algae are very small single-celled plants that grow on a variety of surfaces, including that of water. They are not noticeable on water until they grow to excess and form the "blooms" – possibly better described as scum' (Addiscott 1996:4) where water turns green and inhibits light from penetrating underneath the water surface, which in turn, kills fish and plants under the water, which in turn, creates dead vegetation which serves as food for micro-organisms that soon deplete the water of oxygen making it difficult for organic residue at the bottom of waterways to decompose, so that, instead they accumulate there (Addiscott 1996:4–5; Altieri 2000:82–3)

[191] 'Of the 94 naturally occurring chemical elements … nature has been rather conservative as plants use only 16 essential elements (hydrogen, oxygen, carbon, nitrogen, phosphorous, potassium, calcium, magnesium, sulphur, boron, chlorine, iron, manganese, zinc, copper and molybdenum) and five "beneficial/optional elements" (nickel, silicon, sodium, cobalt, and selenium)' (Merfield 2008:76)

complement of plant nutrients [which is what made it] … an excellent fertiliser[192]' (Merfield 2008:94–5).

Where the metabolic rift literature emphasises the importance of nitrogen over other nutrients lost in the process of crop production, it encourages an over simplified understanding of the forces shaping soil nutrient maintenance within crop production by encouraging an input-output framework focus which concentrates too much on the replacement of nitrogen. Because, while smaller amounts of the other nutrients are lost within crop production in comparison to nitrogen, a point is reached where the cumulative amount of the other minerals lost over the course of production becomes great enough to affect production, which means that, these nutrients must be replaced alongside nitrogen if production is to be sustained (Kilroe 1902a:34; Mayumi 1991:47–8).

Of course, different crops have different nutrient requirements so that they differ in terms of which nutrients they take from soil (Osmond and Kang 2008:1-5; Kilroe 1902:34), which is why the practice of crop rotation is pursued within polyculture systems[193] for the purpose of maintaining soil nutrients over time (Altieri and Toledo 2005:273), but, despite the fact that all crops need nitrogen more than whatever other nutrients must be supplied by farmers,[194] these other nutrients also contribute to production, and so, must be considered as affecting agricultural sustainability (Kilroe

[192] Inland production in Ireland at the end of the nineteenth century had started to rely on guano and artificial fertiliser (Breathnach 2005:81). In some areas along the western Irish seaboard, '(guano) appears to have been used only to a limited extent, at least in the 1920s, as it was considered an expensive commodity, which had to be brought [long distances]. On the other hand, natural fertilizers from the farmyard and sea, were readily available even if their provision and application took a lot of time, energy and labour' (Lysaght 2000:206-7)

[193] 'The terms polyculture, mixed cropping, double cropping, crop associations, intercropping and others have been used interchangeably to describe the planting of more than one crop in the same area in one year' (Altieri et al. 1978:34)

[194] 'The common conception of plant nutrients is of NPK (nitrogen, phosphorous and potassium), then MG (magnesium) and the other micronutrients. However, all these nutrients combined only makeup approximately 4% of plant matter, with the rest being composed of carbon (C) 45%, oxygen (O) 45% and hydrogen (H) 6% (the proportions vary depending on the type of plant material (e.g., wood vs. leaves) … The key reason C, O and H are not included in standard lists of plant nutrients is because plants absorb them directly from the atmosphere and/or they are obtained from water (H_2O), absorbed from the soil. No action is normally required on the part of the farmer to replace such elements, as they are freely available and a lack of water results in crop death due to dehydration rather than a deficiency of H fertiliser' (Merfield 2008:76)

1902:31; Mayumi 1991:47-8). However, not only does the metabolic rift literature need to broaden its nutrient focus, but also, it needs to look beyond soil chemistry.

Moore (2003a) has moved discussion on the role of nature in affecting agricultural systems and development tied to them beyond a focus on soil chemistry/soil content, by explaining that, different natural characteristics of different crops have contributed to shaping societal development in particular ways: Rice, for instance, requires a lot of water to grow. This fact enabled states where rice was produced to control production/development, by the fact that, the state controlled the irrigation systems upon which rice production depended. Conversely, wheat requires little human intervention where soil conditions are good, and so, individualised labour was facilitated within wheat producing systems. In short, wheat contributed to the growth of individualised production under capitalism, while rice contributed to the development of communism in line with state control of production (p. 440-2).

The metabolic rift literature focuses nearly exlusively on soil chemistry. Marx has identified that soil content changes can result in increased soil productivity. For instance, the addition of lime to non-productive acidic soil is known to increase the productivity of that soil (Gallagher and Walsh 1941/42:248). Likewise, fertiliser additions can make soil more productive (Foster 2002:158; 2009:189). However, soil content adjustments only bring about transient changes to soil productivity, so that, repeated applications of fertilisers and such like are necessary across time if crop production is to be sustained (Marx, 1981:756; Slater 2014a:1). More permanent improvements in soil productivity are achieved where soil mechanics are altered (Marx 1981:756; Slater 2014a:1), and so, the metabolic rift literature needs to move beyond its narrow focus on soil chemistry (the content level of soil) to include a wider focus on soil physicality (the physical form of soil).

(11.3) *Soil: Beyond a Dominant Focus on Soil Chemistry Only*

Schneider and McMichael (2010) have moved discussion beyond the soil chemistry level to consider how soil physicality can affect the metabolism of nature and society within agriculture. Specifically, they have stressed that as well as soil chemistry that

soil, as affected by soil texture (which gives rise to the classification of soil type), soil structure, and the level of soil organisms[195] in soil, together affect soil productivity, and that, all of these natural soil contents can be reconfigured by labour within a social form, so that, these physical aspects of the soil become more productive to crop growth (p. 468; 476). However, this is not to say that labour can determine how nature's forces operate:

> *[s]oil texture* describes the relative proportions of sand, silt, and clay present in a soil, which is related to the geological processes (such as the action of glaciers)[196] that deposited minerals in particular places. The mineral composition of soils is relatively stable and does not change with agricultural activities unless intensive erosion occurs … In other words: once a "sandy loam" always a "sandy loam". (Schneider and McMichael 2010:468).

Rather, while labour cannot create natural processes and forces it can work with and on the forces of nature that exist together within a setting to combine them in such a way so that they offer increased productivity to soil. For instance, different soil types are present in different locations.

Soil types have been classified in line with soil texture characteristics. Different soil types exist in different areas because of the different combinations of rocks, climate, living organisms, and age of land surfaces where they are found (Kilroe 1902:31). Soil types can differ between one country and another, but also within a single field (Gillmor 1970:16). However, methods of classification have been developed so that different geographic regions can be understood to contain certain types of soils and combinations of soils (Gallagher and Walsh 1941:205–248; Gardiner and Radford 1980:14; Kilroe 1902a:31). Some soil types are understood to support agriculture more readily than others (Conry and Ryan 1963b:A–31; Lee 1974:155; Neenan 1963:B–1), and, among those soils there are some soils that are understood as more suited to different types of agriculture than others (Conway and Nolan 1963:B–56; Engels 1971:269–70; 282). In other words, soil is not homogenous, and so, soil across different spaces cannot be

[195] Soil organisms move material around in the soil, and therefore, are considered to affect the form level of soil (Schneider and McMichael 2010:468)

[196] 'From an agricultural point of view, Ireland's soil is almost entirely formed from the drift of the Ice Age … The variety in the rocks, whose decomposition contributed and is still contributing to this soil, provides it with corresponding variety of the mineral elements required for vegetable life' (Marx and Engels, 1971:269)

understood to react to inputs in the same way. Yet, the metabolic rift literature often encourages the idea that it does.

At the level of soil form, not only soil texture/type, but also, soil structure impacts soil productivity.

> Soil structure refers to the aggregation of primary soil particles into compound particles, which are separated from adjoining aggregates by surfaces of weakness. An individual natural soil aggregate is called a ped. The productivity of a soil and its response to management depend on its structure to a large extent. Soil structure influences pore space, aeration, drainage conditions, root development and ease of working. (Gardiner and Radford 1980:19–20).

For soil to be productive the pore spaces in the soil must be large enough 'to allow sufficient air and water movement and root growth, and to ensure that the storage of water is adequate for plant needs, and is not held too strongly or in pores too remote for it to get to plant roots' (Greenland 1977:119–120). Where soil structure is good nutrient absorption is higher and vice versa where soil structure is poor (Fahy 1975:124). However, soil structural characteristics can be changed under labour (Schneider and McMichael 2010:468), so that, the natural form becomes a social form (Slater 2014a:1), because soil structure is not a given. For instance, soil structure can be improved through drainage (Gillmor 1977:20; Marx, vol. 3, p. 756).

Also, soil productivity can be affected by the level and type of soil organisms present in soil.[197]For instance, earthworms are important to soil because they move matter through soil (Schneider and McMichael 2010:468), aerate soil, and play key 'roles in breaking up and decomposing organic matter' (Nicholls and Altieri 2005:26). In other words, they increase organic matter and in this way help to support soil fertility and nutrient cycling (Clavin 2008:8; Nicholls and Altieri 2005:26; Thrupp 2000:277) because where organic matter is low in soils then soils cannot sustain production (Greenland 1977:120).

[197] 'Living organisms in the soil include plants, animals, insects, fungi, bacteria, and other biological forms. These play an important role in soil development such as determining the kind and amount of organic matter that is incorporated in the soil under natural conditions' (Gardiner and Radford 1980:11). 'Organisms such as earthworms and insects and also micro-organisms such as fungi and bacteria perform many important functions in the soil that strongly affect soil character and behaviour' (Gardiner and Radford 1980:12)

As well as the issue of soil chemistry (which is widely recognised within the environmental sociology literature as affecting soil productivity), and soil texture, soil structure, and the level of soil organisms in soil (as Schneider and McMichael 2010, draw attention to), there is also an issue of soil depth to consider. Soil depth not only affects the use-range of soils[198] (Gardiner and Ryan 1969:104; Gillmor 1970:20, 1977:20) so that different production systems tend to be associated with different soil depth levels – for instance, where soil depth is very low there is a tendency for grazing cattle or sheep (Gardiner and Radford 1980:133) – but also, soil depth affects responsiveness to fertiliser with deeper soils being more responsive (Kilroe 1902a:32). This is important to remember because not all farms, nor farm spaces therein, are dealing with the same physical conditions of production in terms of soil depth across agricultural space, just as they are not dealing with the same soil textures, soil structures, or level of soil organisms in soil.

However, despite the fact that nature provides different aspects to soil in different places, so that, some soil is "naturally" productive for agriculture whereas other soil is not, this does not mean that society only pursues agriculture in areas endowed with naturally productive soil. Instead, society confronts the forces of nature where they work against soil productivity, and through labour manipulates the elements of nature into social forms that aid production (Slater 2014a:1). The fact that nature's forces can be manipulated into social forms to benefit human need/want does not mean that nature's forces can be mastered by society, it only indicates that, they can be harnessed and appropriated where labour is employed to give them a social form which makes them more productive for agriculture (Slater 2014a:3).

Depending on the social forms under which soil, and its component entities of soil chemicals, soil texture, soil structure, the amount of soil organisms in soil, and, soil depth are subsumed, agricultural production can be more or less productive[199] (Marx

[198] 'On soils where the possible use-range is wide, the selection of the particular land-use system to follow can be geared largely to economic circumstances … For the soils of limited use-range, on the other hand, the use cannot be easily adapted to economic circumstances since their inherent character restricts their use possibilities' (Gardiner and Ryan 1969:108). 'The major factors limiting the use-range of land are soil characteristics such as shallow depth, deficient internal drainage, heavy texture, poorly developed and weak structure and moisture deficit in very light soils, and also relief restrictions such as high elevation, steep slope and inadequate slope drainage' (Gillmor 1977:20)

[199] '[F]ertility is not so natural a quality as might be thought; it is closely bound up with the social relations of the time. A piece of land may be very fertile for corn growing, and yet the market price may induce the cultivator to turn it into an artificial pastureland and thus render it infertile' (Marx and

and Engels 1975, CW, 6, 204). For instance, soil productivity can be increased where inputs such as lime or fertiliser are added to soil (Gallagher and Walsh 1941/42:248). Also, it can be increased through drainage (Gillmor 1977:20). Soil can also be deepened and in being deepened become more enriched and responsive to manure in the process, and therefore, more supportive of agriculture (Kilroe 1902:32). Also, if beneficial soil organisms such as earthworms are added to soil its productivity increases (Altieri and Koohafkan 2008:271; O' Brien et al. 2008:99; 101). Conversely, where beneficial soil fauna populations are decreased then soil health suffers[200] (Altieri and Koohafkan 2008:271; O' Brien et al. 2008:99; 101).

However, although social forms create soil conditions more favourable to production, nature is not controlled at the point when a social form is developed. Rather, nature's forces continue to exert influence within the agricultural production process and the social form, so that, labour must continuously be employed if yield levels are to continue to increase, or even be maintained[201] (Marx, 1975, CW 6, 205; Slater 2014a:7). Two aspects of nature are particularly important in this regard, and they are, the soils geological sub-base and weather. On the one hand, soil productivity is maintained or impeded from below by the geological sub-base which continues to add specific minerals to soil even when changes have occurred at the soil level. Then on the other hand, soil productivity can be threatened or enhanced from above through the influence of the weather, which means that a constant battle between the forces below the soil, those operating within the soil, and those above the soil, occurs at all times across agricultural production.

Engels, 1975, CW, 6, 204). But also, consider the issue of tillage without manure – 'tillage without manure is not farming. It is mining – e.g. taking the fertility out of the soil without putting anything back' (Dillon, cited in Evans 2011:10)

[200]Soil productivity can decrease from a higher level which was created through labour. It can decrease because of the form of cultivation it is subsumed within (Marx and Engels, 1975, CW, 6, 204). For instance, under capitalism, '[m]achinery … effectively increase crop production, but do so with a growing array of ecological … problems' (Altieri 1992a:24). For instance earthworm 'populations can be virtually eliminated within a single season by drastic forms of soil cultivation [involving heavy machinery]' (O' Brien et al. 2008:100). 'Earthworms are one of the most important groups of beneficial soil invertebrates in cropping systems in north-western Europe, contributing to soil fertility and productivity' (O' Brien et al. 2008:99)

[201] 'Improvements to the land need reproduction and upkeep; they last only for a time' (Marx, 1975, CW 6, 205)

Underlying geological conditions do not simply disappear because incorporation to soil has occurred, or is occurring. As understood by Gardiner and Radford (1980), incorporation can control nature's forces to a certain point, but once incorporation stops, then nature's forces take hold again (p. 79). This is because natural matter exists in a constant state of movement which necessitates ongoing responses from labour to nature's processes (Engels, 1987, CW, 25, 21). Processes occurring, below, within, and over the soil!

Weather is a force of nature that affects soil from above so that while not a constituent part of soil it affects the ability of soil to produce, and as such, weather warrants attention from scholars interested in understanding the ecological relationship between nature and society. Yet, weather does not feature within much neo-Marxist discussion of ecology.

The fact that weather can affect the ability of society to reproduce itself materially means that weather is a moment within the overall process of soil fertility maintenance which should be considered. However, where weather is involved what must be remembered is that weather effects on soil will differ across agricultural space because weather can impact soil productivity in different ways depending on the characteristics of soil it interacts with[202] (Marx and Engels 1971:185). Also, further complicating the issue is the fact that weather interacts with topography to affect soil. But first, to explore how weather itself can impact crop production.

(11.4) *Weather and Topography*

Looking at rain in terms of its effect on soil nutrients, Addiscott (1996) identifies that:

> [s]oils differ greatly in the extent and manner in which they transmit water … *Sandy Soils.* The particles in sandy soils are relatively large, with correspondingly large spaces between them. Because these soils are also fairly homogenous, water moves freely through much of the soil matrix. Any nitrate that is in the soil, whether from fertiliser or from microbial activity, is likely to be carried through the soil slowly but surely with little impediment … *Aggregated Soils.* Water takes the easiest path through the soil and so tends to flow round rather than through aggregates … Fertilizer nitrate applied to a moist soil surface will tend to diffuse into the bulk of the soil where it will be relatively safe, but if an appreciable amount of rain falls before this happens, the nitrate will be carried by the rain into the mobile water in the soil, where it will pass

[202] '[S]oil in Ireland counteracts [the] … dampness of the climate. It is generally stony, and for this reason lets the water through more easily' (Marx and Engels, 1971, 185)

> between the aggregates … heavy rain will carry some of it right through the soil. *Heavy Clay Soils.* Heavy clay soils show an extreme form of the behavior of water and nitrate in aggregated soils. (p. 18).

In other words, rain can wash nutrients out of agricultural spaces[203] which suggests that weather plays a role in shaping agricultural soil nutrient levels (Kilroe 1902a:31) because surplus water can transport leachable soil nitrogen out of soil (Vagstad, Eggestad, and Høyås 1997:266).

The degree to which this leaching occurs because of precipitation is greater when certain farm practices have been carried out. For instance, 'after soil tillage' (Vagstad et al. 1997:270), and after harvesting:

> [D]uring harvesting all parts of the plant are removed, with the exception of a small area of rootstock which is the only organic fragment to remain after the harvest. This is insufficient binding material and the characteristic crumb-structure of the soil tends to disintegrate. In wet conditions the soil becomes a slurry and in the summer it is baked to a hard pan. (Fahy 1975:124-5).

While weather as a force of nature is not something that society can create or control, the benefits of weather to production can be harnessed, and the risks of weather to production can be reduced where agriculture is carried out under certain conditions. For instance, social forms can be created to produce micro-climates which help crops to grow (Slater 2014b:8).

Much of the environmental sociology literature and development literature has considered climate as it can impact agricultural production, but, not weather. While climate and weather are sometimes considered to be the same thing they are not. Climate involves weather, because the concept of climate 'includes concepts of mean values of weather variables determined over long periods of time (usually 30 years or more) as well as the probabilities of the occurrence of specific events (e.g. storms, specific winds, cyclones)' (Holden and Brereton 2004:175), but, while climate considers the general pattern of weather as it occurs over long periods, weather can change from day-to-day, and the creation of social forms that can deal with a variety of

[203] 'Situated as Ireland is, upon the outskirts of the European Continent, and exposed to the moisture-laden breezes reaching it from the Atlantic, the island in some respects suffers from, if in other respects profits by, the undiminished effects of their humidity. Frequent late springs and damp harvests, with heavy rainfall, particularly in the hilly regions, causing waste of fertilising ingredients in the soils, are amongst the evil effects attendant upon the position of the island' (Kilroe 1902:28)

atmospheric conditions as and when they occur is what is crucial to the everyday survival of many agricultural communities.

Scholars have considered climate from the perspective of how changes in world climate might impact the location of crops across international space, and they have thought about how the experience of agricultural production in different places across the world might change as climate zones shift across global zones (Beilin, Hill, and Sysak 2011:203; Busch 2011:169; Donnelly, Jones, and Sweeney 2004:4). Others have considered how climate change anticipation has affected technological advances in agriculture with the development of such things as climate ready genes that can produce high yielding crops resistant to drought, salt temperatures, and so on being to the forefront of research (Abergel 2011:268–9). Climate has also been considered from the perspective of soil fertility and the way that changing air temperature will affect the speed at which natural decomposition of organic matter occurs, and, the rate at which soil processes affect fertility (Altieri and Koohafkan 2008:23). Scholars have even drawn attention to the fact that farmers are altering their management systems in response to climatic factors (Beilin et al. 2011:207).

However, weather has received far less attention. While it is important to consider climate as a factor affecting soil productivity, it is also important to consider weather as a phenomena in its own right because while farmers must respond to climate and adjust overall farm management systems accordingly, they must also adjust to weather as and when it occurs because although weather adjustments may be smaller they can have significant impact on the crop that is being produced at a particular point in time (Altieri and Koohafkan 2008:23-4). Weather is particularly important to consider in relation to agriculture within Ireland where 'weather conditions … vary from day to day and year to year' (Gillmor 1977:13)

Also, returning to the point that weather, soil, and topography interact together to affect crop productivity what is interesting to note is that despite this fact topography is not discussed in the metabolic rift literature. Yet, it is commonly understood elsewhere that topography affects soil productivity.

In the first instance, topography affects the use-range of land (Gardiner and Radford 1980:13; Gillmor 1970:20). But also …

> [s]ince topography governs the position of a soil on the landscape it is [also] important in many [other] respects, especially in its effect on water runoff and drainage. The amount of water that moves through a soil is less on steep than on gentle slopes, and low-lying and flat areas generally receive more water. This accounts to some extent for the preponderance of poorly drained soils in low-lying areas. Soils of poor drainage, however, may be found on good slopes where the lower soil horizons or parent material are of poor permeability, leading to retardation of water movement. Elevation, with its attendant climatic and vegetational changes, has a strong influence in conditioning the soil development pattern. Other features such as erosion and those related to aspect are also associated with topography. (Gardiner and Radford 1980:13).

In other words, topography not only affects the use to which soil is put, but it actually shapes how soil is formed (Gardiner and Radford 1980:13; Gillmor 1970:20). In terms of the use range of land, crops are mostly produced on flat land (Gillmor 1970:65), while areas of high elevation and steep slopes are strongly linked to sheep production (Gillmor 1970:591), or, the grazing of other livestock such as cattle (Bassett and Curtis 1985:2). While it is possible to alter the topography of an area in noticeable ways, such as when a hill is cleared for production, it is usually only small hills that are ever flattened in this way if they are flattened at all. Where mountains and/or large tracts of low-lying land exist they are permanent features of the local topography. However, while large topographical features are not readily/easily changed within agriculture, smaller topographical adjustments can be made within agricultural space so that it becomes more amenable to crop production.

Social forms can be created so that not only do the elements of soil work better together, but also, so that crop production is less exposed to risk from weather and topography. Cultivation systems employing a mix of alternating raised crop bed areas and drainage areas across crop producing space have been utilized within marginal production environments around the world to increase crop productivity in the face of adverse weather and topography.[204] In Ireland, raised crop beds (known as ridges) have been alternated with drainage areas (known as furrows) to limit the threat of weather on soil, and to create micro-topographical features within the crop bed that are conducive to

[204] The practice of alternating areas of low and high ground across crop production space is practiced in marginal agricultural environments around the world (Altieri and Koohafkan 2008:33)

increased crop productivity there (Bell and Watson 2008:205; Gillmor 1977:76; Lysaght 2000:205).

Where ridge and furrow cultivation has been used in Ireland[205] it is understood to have reduced adverse weather effects that otherwise would have been posed to crops. Under heavy rain conditions the furrows enabled water to flow away from the crop bed. This was particularly important where wet heavy soils formed the crop bed base because wet heavy soils suffer from issues of poor drainage and weak structure (Gillmor 1977:76; Bell and Watson 1986:47; Bell and Watson 2008:205). But also, in facilitating drainage, crops were less likely to rot as a result of waterlogging (Lysaght 2000:205). Additionally, where wind posed a threat to crop production the ridge and furrow system of cultivation reduced the threat of wind. This feature of the ridge and furrow system is particularly important when crops are young and only developing so that they are very susceptible to damage from heavy wind through stalk breakage at this stage, but also, in coastal locations crops in general are at risk of being washed by sea spray which can burn them (and so damage them) because of the sodium/salt that wind in coastal locations carries (Neenan 1963:B–1; Gillmor 1970:13). The ridge and furrow system of cultivation protected some of the crops within the crop beds from being washed by sea-spray and being broken by wind. Specifically, the plants growing on the slope of the ridge on the side of the crop bed facing away from the prevailing wind were somewhat protected by the ridges being higher in the center than on the slopes so that the ridge acted as a windbreaker for crops planted on the slope [206] (Bell 1984:81).

Another weather risk reduction benefit of the ridge and furrow system was that in building ridges soil crop bed depth was increased. This was particularly important in counteracting risks posed by cold weather because deeper crop beds are warmer crop beds (Altieri and Koohafkan 2008:20) and so more productive (Bell 1984:84). But, not only were warmer crop beds provided by this system, but the opportunity to add soil

[205] Ridge and furrow cultivation systems in Ireland were known by various names, one of which was the lazy-bed system of cultivation (Bell and Watson 2008:59-60)

[206] Ridges which were asymmetrical in cross-section have also been recorded, in Erris, County Mayo. Here one side of the ridge was built up, sometimes as much as 50cms higher than the other. It was claimed that this facilitated drainage, and also that the slope which faced away from the prevailing wind protected young plants (Bell 1984:81)

from the furrows to increase crop bed depth as needed was also facilitated (Altieri and Koohafkan 2008:20).

Additionally, in creating the ridge, not only was crop productivity increased in the aforementioned ways, but, it was also increased by changes to the internal form level of soil because in digging the ground to make the ridge (Bell and Watson 2008:59–60) nutrients that existed in the subsoil were released for use to the soil (Bell and Watson 1986:57). Also, nutrients that already existed within the top layer of the soil and the crop of grass that grew there, were brought into the heart of the crop bed, by the fact that, in the process of creating a ridge unbroken soil along either side of the proposed ridge was cut into, and, turned over and inwards onto the ground where the ridge was created (Bell 1984:84). Where the sod was turned over onto the area of unbroken ground, grass was trapped within the fold, thus, making double the nutrients available to the new crop bed (Bell 1984:86).

Of course, nature's forces can never be controlled by society, but only appropriated in social forms that are more conducive to agriculture under certain material conditions: In the first instance, society does not create matter,[207] but also, throughout agricultural production nature continues to exert an influence on labour, so that labour is only truly productive in increasing soil fertility where it responds to nature's motive forces[208] (Marx 1981:782; Slater 2014a:16). Essentially, nature is a motive force within agricultural production in the first and final instance because even when a social form is created to fill a particular use value function this form is not fixed. It is not fixed, because within the social form, natural processes continue to operate and affect the use value of the social form created. In essence, there is a constant movement within nature and between the diverse processes of nature, so that natural matter is not a thing, but rather, it is alive. But, not only is nature alive so that the natural matter that is soil is alive, but also, within the natural matter that is soil nature and its various processes are

[207] 'Man has not created matter itself' (Marx and Engels, 1975, CW, 4, 65)

[208] 'In the first instance to a natural force, the motive force of water-power which is provided by nature itself and is not a product of labour … is a natural agent of production, and no labour goes into creating it. But this is not all' (Marx, 1981, 782)

in a constant state of motion so that every individual entity should be understood as a moment in an overall process[209] (Ilyenkov 2008:118; Slater 2014a:16).

Within this overall process nature's forces and those of society interact with and shape each other. The points at which social and natural processes (the metabolising processes) interact with each other within crop production can be understood as the metabolising points. The metabolising points are many and diverse, but also, once they exist they become newly established moments within the interacting process themselves. These metabolising moments can shape production and development because they give a new trajectory to the respective mediating processes that produce them (Slater 2014a:10).

Even the social form that is created is but a moment in the overall process of nature and society metabolising with each other, because adjustments often have to be made to social forms over the course of production in response to nature's forces if soil productivity is to be maintained. For instance, even when farmers have created a crop bed/social form what happens is that nature's forces, especially weather, continue to operate around that crop bed, so that, if farmers do not employ specific practices at specific times then the use value of the social form of the crop bed they created is lessened because of natural factors originating from outside of that crop bed:

> Many farmers … apply mulches of ground-covering plants or straw to reduce radiation and heat levels on newly planted surfaces, inhibit moisture losses, and absorb the kinetic energy of falling rain and hail. When night frost is expected, some farmers burn straw or other waste materials to generate heat and produce smog, which traps outgoing radiation. (Altieri and Koohafkan 2008:23–4).

Additionally what is important to understand about the metabolising moments that occur between nature and society to affect soil productivity is that, at different stages within crop production the same entity can have different effects, and therefore, a different use value/function within the labour process. Taking the example of weather,

[209] 'That means that any individual object, thing, phenomenon, or fact is given a certain concrete form of its existence by the concrete process in the movement of which it happens to be involved; any individual object owes any concrete form of its existence to the concrete historically established system of things within which it emerged and of which it forms a part, rather than to itself, its own self-contained individual nature' (Ilyenkov 2008:118)

crops are affected differently by weather depending on the stage of development they have reached, such as when young stalks are more easily broken by wind, as mentioned earlier (Bell and Watson 2008:112). But also, the same type of weather can affect different crops in different ways (Holden and Brereton 2004:175-6), so that the role of weather in affecting agriculture is not given, but rather, weather can have different effects and drive the relationship in a different direction depending on the other moments which weather interacts with.

Furthermore, where weather interaction with soil is considered what is important to understand is that there are certain points within production when crops need fertiliser more than others. This idea is largely absent from the metabolic rift literature which understands that the simple addition of "X" amount of fertiliser to crop space within any crop production period is all that is needed to ensure crop productivity. Addiscott (1996) calls attention to the fact that maintaining soil nutrient levels not only involves adding nutrients to soil, but, doing so at a time when crops can utilize the nutrients supplied, but also, at a time when weather will not interfere with the process of nutrient uptake: Even if a crop is supplied with exactly the amount of nutrients it needs, at exactly the time when it can utilize those nutrients, the crop may yet lose the benefits of that nutrient application if substantial amounts of rain falls subsequent to fertiliser application and before the crop has managed to absorb the nutrients supplied. In this scenario, one is dealing with untimely nitrate which is of little use maintaining soil fertility or supporting crop production[210] (p. 5-6).

Addiscott (1995) identifies that there is a three week critical period after fertiliser application which determines how much nitrogen will be absorbed by the crops and soil to which it has been applied, and that, if heavy rainfall occurs within that period nearly all of the nitrogen supplied by the fertiliser will be lost (p. 70). In sum, weather occupies an ambiguous role within production. For instance, rain is necessary to crop growth. Yet, too much rain, or rain at the wrong time can be disadvantageous. But also,

[210] 'At the root of the nitrate problem lies a very simple relationship: availability = vulnerability. Any nitrogen in soil that is available to crops is likely to be present as nitrate itself, or as ammonium, which microbes in the soil soon convert to nitrate. Nitrate is completely soluble in water in the presence of all cations likely to be in the soil solution and it is not absorbed. It is thus vulnerable to being washed out of the soil by percolating rainfall or irrigation. The surest way of avoiding such nitrate losses is to ensure that as little nitrate as possible is in the soil at any time' (Addiscott 1996:5)

different types of weather can have more or less use value than others. For instance, rain and sunshine are necessary to photosynthesis, while snow has little to offer to crop production. Also, on top of the fact that fertiliser can be lost to crops under wet conditions, is the fact that, it can end up running into surrounding waterways and contributing to pollution there as a result of rain (Vagstad et al. 1997:266).

Weather is awarded some attention by Arensberg and Kimball (1968). However, weather as discussed by them, is only considered in terms of cultural responses to weather, as opposed to, weather as a process that acted to affect other natural processes, as well as, social processes: The cultural calendar is presented as falling neatly into line with the agricultural calendar (Arensberg and Kimball 1968:41; 42–4; 48–51); similarly, cooring within hay production was discussed in terms of weather risk reduction (Arensberg and Kimball 1968:8). Yet, weather itself as it could affect agricultural labour in various material ways was not considered. Instead, the focus was on the organisation of labour within production (Arensberg and Kimball 1968:36–7; 48), rather than, actual labour processes involved in agricultural production and how nature and society interacted with each other within them.

Throughout their study, Arensberg and Kimball (1968) touch on, but never explore, the idea that nature was a causal force affecting agricultural production: They identify that land was of mixed type – involving field, mountain, garden, bog, and meadow – with different soil characteristics in different sections of land so that different activities were performed in different areas (Arensberg and Kimball 1968:32), but, evidence indicates that in counties such as Donegal, Galway, and Mayo that land in general was almost invariably of a poor quality, often mere reclaimed bog moor (Micks 1925:136-7) which meant that agriculture had to be organised in a very specific way in these areas.

(11.5) *Conclusion*

The process of maintaining soil fertility is an extremely complex one which cannot be explained in terms of a simple input-output model. As I have demonstrated a multitude of processes come together to shape how nature and society metabolise with each other within agricultural production in local environments, which means that, not only should

the metabolic rift literature extend more fully its focus beyond soil chemistry, to include other internal soil characteristics – such as soil texture, soil structure, and soil depth – as factors/processes affecting the metabolic relationship between nature and society within agriculture, but also, it should incorporate a focus on weather, and local topography as other factors/processes that affect soil productivity because together all of the aforementioned factors/processes contribute to shaping agriculture at a local level: They are all moments within the overall process that affects soil fertility and ecological sustainabilty.

As moments, they each act to shape soil productivity with nature's motive forces interacting with each other differently as a consequence of locality and labour. Depending on the locality in question a different mix of soil type, soil structure, soil depth, soil organisms, weather, and topography might be present so that the process involved in maintaining soil productivity can differ because of the way that processes associated with each of the aforementioned moments interact with each other.

But also, soil fertility can be affected by the way that different agricultural labour processes are combined with each other within a farm. In other words, layers upon layers of processes interact with each other within agriculture to affect soil fertility and productivity, so that, understanding agricultural sustainability involves incorporating a process level focus, and understanding agricultural sustainability as it occurs within a specific area involves incorporating a focus on local processes – both natural and social – as they interact to affect crop productivity within a setting.

A focus on local labour processes involved in soil fertility maintenance is key to understanding how natural and social processes interact with each other within a particular context What is found when the labour process becomes the focus of analysis is that while nature's forces operate independently of social forces, and while nature's forces follow their own rules and tendencies, that, society can work with nature's forces and manipulate them into social forms which allow nature's forces and processes to work together in particular ways that are of benefit to production. Of course (as previously stated), this is not to say that once nature's forces and processes are

combined together under particular social forms that nature is dominated by society at that point, because it is not, but rather, it is to acknowledge that increased productivity can be achieved where society works with nature's processes as opposed to against them.

To test the truth of the above argument, and, to offer empirical support to this theoretically informed assertion, and to examine if there is something more to be considered which the literature does not discuss, the following chapter applies insight gathered here to examining how working 'with' nature allowed a community dealing with a marginal production environment to produce successfully. Specifically, the following chapter asks: How did local forces come together within a particular setting to affect soil productivity there? How did natural forces internal to soil and natural forces external to soil interact in specific combinations across local space to affect agricultural productivity in certain points? How did labour appropriate the existing local forces of nature in such a way as to foster crop productivity despite the marginal environment within which crop production was occurring? Was adaptability within the labour process essential to agricultural success?

Chapter Twelve

Local Issues Affecting Soil Productivity in North-West Mayo

(12.1) *Introduction*

Agriculture in Dún Chaocháin c. 1930s-50s involved people working closely with nature - being attuned to, and responding to, its rhythms, requirements, and capabilities to affect production in the numerous ways that it did within the local marginal physical environment that existed in the area. Working "with nature" to maintain soil fertility involved responding to issues of soil chemistry, soil type, soil structure, soil depth, soil organisms, weather, and topography, as they affected crop productivity. No simple input-output relationship between the forces of nature and those of society existed in relation to soil fertility maintenance and crop productivity. Instead, at different metabolising points within production the forces of nature and those of society came together to alter the trajectory of what was involved in safeguarding crop productivity at particular times and in particular local spaces. Sometimes 'inputs' were called for and at other times adjustments to the mechanical level of soil were more appropriate. However, while the addition of 'inputs' and the manipulation of soil physicality had the same effect in improving the chances of producing crops, nature's forces were never controlled by labour merely harnessed. Instead, labour was involved in a constant struggle to maintain productivity which meant that inputs had to repeatedly be added to soil, and soil mechanics had to be adjusted over time, in response to natural processes.

In this chapter I highlight the key forces of nature that existed within the setting to affect agriculture there. I demonstrate that different forces of nature came together in particular ways at particular points in space and time to affect the trajectory of the socio-ecological relationship. I discuss how specific combinations of nature's forces at particular points in space and time affected crop production. I stress the role of labour in manipulating the forces of nature as they existed locally to achieve crop productivity despite the challenges posed to agriculture by the natural physical environment. I show

labour process adaptability to be key in achieving crop productivity over time. I discuss each of these issues in turn, starting first with a focus on soil chemistry and what was involved in maintaining soil productivity at that level.

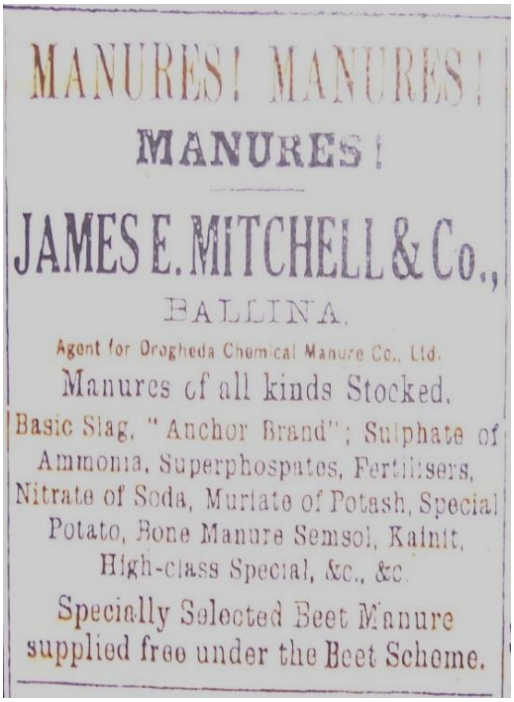
(12.2) *Incorporating Nitrogen and Other Nutrients*

Fertilisers were an essential feature of agricultural production.

> You had to fertilise the land. If you didn't fertilise the land nothing would grow (Francis)
>
> Where it … hadn't been manured it would not give any crops. I suppose the manures and that used to make ... the land ... richer. Then if it wasn't fed ... like anything else ... it wouldn't produce the potatoes or the oats that were wanted (Sarah)

The importance of fertiliser to agriculture cannot be overstated because without fertiliser the earth could not support crop production. However, when it came to what type of fertiliser was being used what I found is that although artificial fertilisers were available on the market (as *Newspaper Exerts 9 & 10* confirm) it was more common for fertiliser to be sourced locally.

Newspaper Exert 9:
Manure for Sale
On the Market in Ballina



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MANURES!

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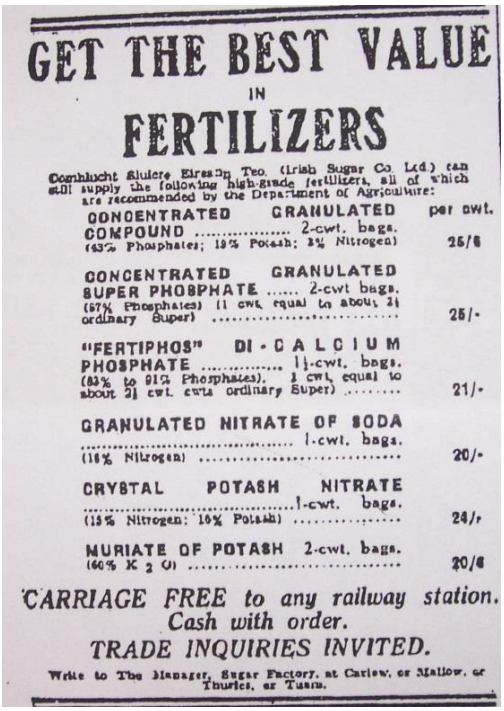
Specially Selected Beet Manure supplied free under the Beet Scheme.

Source: The Ballina Herald, April 30, 1938:2

Newspaper Exert 10:
Chemical Fertilisers for Sale on the Market



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CONCENTRATED GRANULATED SUPER PHOSPHATE ..... 2-cwt bags. (57% Phosphates) (1 cwt. equal to about 2½ ordinary Super)	25/-
"FERTIPHOS" DI-CALCIUM PHOSPHATE ..... 1½-cwt. bags. (83% to 91% Phosphates). 1 cwt. equal to about 2½ cwts ordinary Super)	21/-
GRANULATED NITRATE OF SODA ..... 1-cwt. bags. (16% Nitrogen)	20/-
CRYSTAL POTASH NITRATE .....1-cwt. bags. (13% Nitrogen; 46% Potash)	24/-
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Source: The Ballina Herald May 28, 1949:2

Some 'artificial' fertiliser was purchased, but, very little was used in the overall scheme of things.

> The fertilisers were [mostly] organic. Stable manure ... cow manure and sea weed from the shore. I remember before this guano[211] thing ... this fertiliser that came out ... and we saw it growing up when we were going to school and they were using it ... just a little bit but it was mostly … manure that was put out (Seán)

> The guano would be put on the potatoes along with the seaweed if you wouldn't have stable manure. But you would only buy one bag ... You'd only buy it maybe if you had ran short of stable manure or were short of other manure (Seamus)

> It was in the forties that [guano] came out. But, people wouldn't buy much of it (James)

This was not necessarily because guano offered less nutrients because …

> there probably wasn't much difference between the guano and the manures (Fintan)

Rather, one of the problems with the using guano was that …

> it used to be in 200 bags[212] so it would be hard to afford a bag to be putting on spuds and maybe two bags to be putting on grass ... They couldn't afford it ... They hadn't the money (Sarah)

However, a lack of money did not stand against them using fertiliser, because they could source it from livestock manure and other forms of fertiliser available locally and without financial cost.

> They'd use the cow manure and if they were short of the cow manure they'd go to the shore to get seaweed (Sarah)

They also went to the shore to get sea shells that they could burn to ash to use as fertiliser, and, they went to sand dune areas along the shore to collect sea sand for the same purpose.

> Sea shells were collected from the shore and burned for ash for fertiliser, and sea sand was used as fertiliser. You could either get it from the shore or in our townland where there was a lot of sand dunes you might get it from there (Francis)

Likewise, furze, heather, scraw, and turf were burned to create ash[213] which was used as fertiliser.

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[211] Reporting on the forms of manure used in a particular congested district, Gahan (2001d) states that, the manures used were: '1, farmyard manure; 2, seaweed and shells; 3, guano' (p. 56). Guano while not actually an artificial fertiliser is referred to as such by the informants because of the fact that it was a purchased form of fertiliser

[212] Manures such as guano were 'commonly called bag manures' (Iml. 1243:86)

[213] Ashes were commonly used as manure with different ash sources providing different chemicals (Walsh 2008:250)

> People would collect heather and scraw from the top of the bogs, or there was places where you would get furze, and they would burn them for ash for fertiliser and then as well as that they would use the ash from the turf fire they'd have burning in the houses (Francis)

Essentially, agricultural production in the area was heavily reliant upon organic fertiliser sourced locally from livestock manure and various forms of fertiliser supplied by the commonage areas of the shore, mountains, and bog land. The fact that commonage was available from which to source these fertilisers which were so essential to crop production indicates that the commonage was not just a provider of raw materials – in the form of fertiliser – but was also an instrument of labour because the fertiliser it provided could be used to affect soil fertility within the privately held crop land.

The fact that the commonage could provide different types of fertiliser was important because crop production requires that a variety of nutrients be added to crop land if crop production is to be successful or sustainable.

> The best fertiliser was when you mixed everything together, the cow manure, the ashes, the sand, and all of them things because then you got fertiliser that had everything in it and that was the best fertiliser for the land (Francis)

As well as the nutrients that would have been contained in livestock manure the commonage provided extra nutrient sources. The fact that the commonage contained extra nutrient sources was not only important when livestock manure levels were low, but also, it was important even when livestock manure levels were high, because livestock manure would not always have contained the same combination and level of nutrients as would have been extracted from crop space in the course of production: In the first place, not all of the crops produced on crop space were fed to livestock. Instead, much of the crop harvest went toward meeting the dietary needs of families (and some went into the production of potheen). But also, at the level of natural forces as they affected the flow of nutrients between crop space and livestock manure what is important to understand is that , the balance of nutrients taken in and given out by livestock could be affected by natural processes associated with livestock systems themselves. Taking the example of how the reproductive system of cow's works, what emerges is that when cows are in calf, and, when they are feeding calves, they draw heavily on soil calcium levels, but with most of this calcium used up in the course of producing milk for the calf rather than being excreted in manure.

> The most abundant element in the animal body is supplied by lime, that is calcium. An average crop of cereals takes 10 lbs. per statute acre from the soil. An average milch cow during one lactation and in the time of birth of the succeeding calf (a period from ten to twelve months) removes 15 lbs. of lime from the soil. (The Ballina Herald, February 26, 1949:2).

Of course, lime contains other nutrients than calcium: It also contains carbon and oxygen.[214] But, as regards calcium, the aforementioned demonstrates that the same nutrients/level of nutrients that are ingested by livestock are not always available to crops from their manure. Where livestock manure was low it was common for fertiliser to be sourced from the commonage. But perhaps, given that livestock manure may not have contained all of the nutrients/or enough of the nutrients that had been removed from crop space in the first place, it might have been important to offer crops a mix of livestock manure with other forms of manure regardless of how much livestock manure was available.

A connection is often made between the existence of commonage and the practice of allowing livestock to graze there as if the only way that livestock can benefit nutritionally from commonage space is through the food that they eat there. However, livestock not only need food but also water to live, and the water that livestock drank was usually provided to them on the commonage where they grazed over the summer, or else, where they were housed in the winter it was often sourced from wells on the commonage.

> The cattle would have to have enough to drink or they'd be unwell. Just like any animal, they would have to have water or they would die, and where they'd get water was either they'd get it themselves from the rivers or they'd have it brought to them from the well when they were off the mountains (Francis)

At the very least the water they drank supplied the livestock with hydrogen and oxygen (the elements that make up water[215]), but also, water could contain other nutrients because the ground that it flowed through would have contained other minerals, and because of the vegetation that grew along the banks of rivers.

> They had all the minerals out of the ground ... limestone ... and everything in it. The lime was in certain areas of the land, but, there was such an area of land to cover [because of livestock being grazed on commonage] that there was a mixture of everything when they went out. The mineral was probably in the water that they were drinking. That was coming from the mountain ... clear

[214] Lime ($CaCO_3$) contains calcium, carbon, and oxygen
[215] Water (H_2O) contains hydrogen and oxygen

> ... pure spring water coming from the mountainside. It wasn't old slop or waste. It was clean water. You could drink it yourself and we often did and … the land had all sorts of minerals in it and they had the sheep and the cattle [on the land] and [then the sheep and cattle] were fertilising the land. When they were out they were always picking along the river. They would be picking at the green grass because along the river there was always more minerals along the river because everything was washed down from the highlands down into the low ground and along the river you would always see green. And then the water in the river was getting minerals from the plants growing on its banks (Francis)

In short, the food that livestock ate was not the only thing contributing to the nutritional composition of their manure. Instead, water available to them from the commonage also contributed to the nutrients they consumed.

Also, on top of providing nutrients to livestock – which in turn provided nutrients to their manure – the commonage also provided other sources of nutrients to crop space. Where shells were used as fertiliser, they would have provided calcium, carbon, and oxygen to soil, because the shells provided a source of lime.[216]

> You'd get lime from the seashells (Fintan)

Where seaweed was used it was known to provide iodine.

> Seaweed has iodine in it (Francis)
>
> The seaweed was known for iodine (Jack)

Seaweed was also known to provide potash,[217] which means that it provided potassium among other minerals.

> There was potash in … seaweed … and that was great for the soil (Seamus)
>
> Potash … was great for potatoes ... well it was great for any kind of vegetables you would grow (Seamus)

Seaweed also provided salt minerals.[218]

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[216] 'Shells … were almost pure lime (carbonate of lime) but their minor constituents (sodium, phosphate, chlorine, dead remains in the shells) were often regarded as beneficial' (Walsh 2008:51)

[217] 'The term potash refers to a variety of naturally occurring and mined potassium salts as well as manufactured salts that contain the element potassium in a water-soluble form. The main naturally occurring soluble K-mineral is sylvite, potassium chloride (KCL), which in the fertilizer industry and farming communities is also known as "muriate of potash" (MOP). Other naturally occurring soluble K minerals include langbeinite, a potassium magnesium sulphate – K_2SO_4, carnallite, a hydrated potassium magnesium chloride (KCL - $MGCL_2$ - $6H_2O$), and kainite (potassium chloride magnesium sulphate – $4KCL – 4MgSO_4 – 11H_2O$)' (van Straaten 2008:245). 'Potash [was] … a powerful manure' (Walsh 2008:226)

> When you used the seaweed you'd see the salt there ... after the winter you would see the salt still there in the clay when you were digging it for the potatoes (Seamus)

Essentially, this was a community that combined different nutrient sources to provide as many nutrients to soil as possible, and, the commonage in providing raw materials and acting as an instrument of labour affected soil fertility levels within private production space.

> They had the best ever compost you could have. They had the dung heap from the stable and … the ashes and ... turf mould and any hay or anything that was left over would go in there too and sure what could be better? (Eileen)

However, soil fertility maintenance was not as simple as simply adding fertiliser to soil, and so therefore affecting soil content. Rather, other factors came into play. Specifically, soil form affected the degree to which fertiliser was needed, when it was needed, and the usefulness of fertiliser applications to crop production.

(12.3) *Soil Type, Soil Structure, Soil Organisms, and Soil Depth*

The level to which fertiliser was used on a particular piece of land was largely shaped by the type of soil present there because different types of soil existed in the area with different capacities to support crop production, so that while fertiliser was provided to some types of land it was not provided to others because it would have been wasted on them.

> People had land of mixed quality. Some of it was better than the other (Sarah)
>
> There was a mixture of soil. Some of it would be peaty and some would be sandy and kind of gravelly … different soil (Francis)
>
> Lots of the land was peat (Sarah)
>
> Some of it was heavy soil (John)
>
> Some of the soil might be lighter (Francis)
>
> Sandy soil was good for potatoes and vegetables (Jean)

But …

> sandy gravelly soil was great for the potatoes and crops (Francis)

Yet …

---

[218] 'Seaweed contains sodium as well as other ocean minerals, but not in the refined concentration we know as table salt' (Katz 2003:43)

> even though the sandy gravelly ground was good you'd be fertilising that land because that was where you could get the crops to grow and well you'd fertilise any of the soil where crops would grow but not where they wouldn't. Sure what would be the point? (Francis)

This is not to say that attempts were not made to grow crops on soil that was generally seen as unproductive, because sometimes attempts were made to use this soil. But, ultimately the crops it produced were poorer/more watery because the soil itself was more watery than other soil in the area.

> In the bog … down there years ago they sowed them old banks with potatoes and they were a disaster of a thing. They were alright for feeding cattle. They would grow big … you had a big bulk but you didn't have the quality. They were watery. If you squeezed them the water could go into your eye (Francis)

However, despite crop production occurring on different types of soil, with some soil being more suited to crop production than others, a common denominator within all crop production systems as they occurred within the area was that fertiliser was regularly added to land where crops were produced.

> You would always fertilise where the crops were. The potatoes for sure would always be fertilised (Francis)

Also, in addition to adding fertiliser to arable land there were other ways that soil nutrient level maintenance was achieved. Pursued, was a deliberate strategy of planting several types of crops in the same space over time, so that, land was not quickly exhausted by the continuous cropping of an area with a specific crop - which would have repeatedly drawn the same mix of nutrients from the soil there, so that, even if other nutrients remained certain nutrients would have been absent, or at least, in very short supply.

> If you grew a crop in one place this year you would grow it in a different place next year. You wouldn't grow them in the same spot. If you set spuds on it this year you would set oats on it next year ... that was better (James)
>
> To give a chance to the ground they would sow ... say oats in this field this year and next year they might sow potatoes in that field and vice versa. They would always be chopping and changing (Francis)
>
> Rotating the crops you could call it. They'd run out if they didn't do that. The goodness would be just gone out of the land ... so that's what they used to do (Fintan)
>
> They'd have potatoes-oats, potatoes-rye, or potatoes-barley but not potatoes-potatoes from year to year. They claimed if they set the potatoes on the same ground they wouldn't get a good crop (Sarah)

> They wouldn't plant potatoes where they were the year before. Maybe they would put oats there and change from the potatoes so save the soil (Jean)

> When you would have them in the same ground too long it wouldn't work out too good … You'd have to move things around (Peadar)

In addition to alternating the crops that were grown on arable land what also happened was that arable land was "rested"/left fallow periodically so as to allow it to rejuvenate. During this rest period livestock were often allowed onto these fields.

> You'd set potatoes this year and you'd set oats in that field next year and then again and you'd do that for three or four years and then you'd let it go green again and let the animals in on it. The longer the crops were set on it the poorer it would get ... the proof would be going out of it all of the time even with putting the fertiliser on it it would be getting poorer. You'd leave it green for two or three years and four maybe and then you could work it again (Seamus)

In other words, not only were inputs in the form of fertiliser added to crop producing soil to make it more productive, but also, how crop production was organised also affected the ability of soil to produce.

Additionally, what is important to understand is not only did people have to take into consideration that the same ground could not repeatedly produce the same crop without becoming exhausted, but also, they understood that, certain crops had certain natural characteristics that made them more or less suitable to production in the area.

> No wheat was being grown in the area because the soil couldn't handle wheat (Francis)

On the other hand, other crops could better tolerate the soil conditions there.

> They had the oats, barley, rye, and potatoes growing because they were alright to grow in the soil (Francis)

The fact that wheat production was next to impossible meant that production was not geared toward the creation of exchange value, because within Ireland wheat was produced for the market.

> If you had wheat growing you might make money but wheat wouldn't grow here because wheat is just too hard on the soil (Francis)

However, while the specific characteristics of wheat interacted with the specific soil and environmental conditions in the area to act against wheat being grown there/exchange

value goods being produced there, this is not to say that the soil in the area did not allow use value products to be produced from the soil, because this is exactly the role that oats, barley, rye, and potatoes had within the area.

However, despite the fact that it was possible to grow oats, barley, rye, and potatoes in the area in general, there were certain sites within which they grew better than others because soil conditions were variable across local land.

> They usually set the rye on the sandy land … well they used to set the oats and barley on the sandy land too sometimes but they would set the rye on the sandy land for sure (Seán)

> Rye is hardy and can grow in places other crops might not grow … like it mattered what the ground was like … the condition and that … and you could grow rye on the poor light soil[219] (Francis)

The fact that rye could be grown on the poor light soil meant that higher crop productivity was achieved within the overall area because where this type of extremely sandy soil conditions might usually act against crop production this was not the case where rye was produced. But also, in contrast to some of the other crop production spaces which required dressings of lime to keep them productive, lime applications were not needed on the sandy soil where the rye was grown.

> You'd have to put lime on the ground where there was peat in it because if you didn't it would be poor and you'd grow nothing but not on the sandy land because it had lime in it (Francis)

In other words, depending on the soil in question different inputs were needed to maintain soil fertility levels across crop producing sites.

Additionally, soil type as it interacted with crop characteristics specific to certain crops was not the only factor affecting the relationship between nature and society within production. Soil structure also affected this relationship. For instance, taking the case of the rye that was grown in the sandy soil what is interesting to note is that the soil structure of the sand there affected when rye was planted.

[219] 'It may be stated at once that in Ireland rye grown on good soils is not as valuable a grain crop as oats, barley, or wheat. Under unfavourable conditions, however, no cultivated crop on the farm is more hardy than rye – indeed, on poor, light soils it is probably the safest and most productive of the grains' (Irish Independent, July 25, 1942:2)

> They wouldn't set the rye too early because they usually set the rye on sandy land ... They set the barley on the sandy land too sometimes but they would set the rye on the sandy land for sure. So, after the 15th of May ... usually they would get a storm or strong winds around the 15th of May ... what they used to call Gharraigh na Bealtaine ... Gharraigh is strong winds ... but after that they thought it was safer out because if they got the strong winds or the gales it would blow the sand off it … and the seeds would be uncovered. So, because they planted the rye in the sand they had to be careful when they would plant it. Sometimes the wind would come around ... sooner or later ... but the strong winds would usually come around the 15th of May (Seán)

However, while planting the rye at a certain time of the year reduced the risk of wind blowing the sand off of the seeds, it did not eliminate the risk altogether, and sometimes wind would negatively affect crops planted in the sand beds. When strong wind occurred after the crops had been set, then fertiliser had to be applied to crop beds at this time.

> The wind might not blow all of the sand off the seeds … sometimes all of the seed could be destroyed, but sometimes only some of the sand would be blown away and if you could save whatever could be saved you would try to by giving it help … by giving manure to it (Francis)

What this indicates is that crop productivity was not only about applying fertiliser, but was also about applying fertiliser as needed. And, the extent to which fertiliser was needed was affected by the interaction of the characteristics of the crop involved, the soil type involved, the structure of the soil within which the crops were growing, and the weather as it affected crop beds.

Additionally, there was another important element that acted to affect crop productivity and that was soil depth. In the first instance, crops were not grown where soil depth was very low. Instead, on the mountains where soil depth was low it was common to find livestock grazing.

> The cows would be out on the mountains (Peadar)
>
> No one grew crops on the mountains. You'd need deeper soil for crops. Sheep and cows would be on the mountain eating the grass (Francis)
>
> The arable land was mostly the low land (Jean)

However, while low land may have predominantly been for crop production and the highland may have predominantly been used for livestock grazing, neither topographical area was strictly confined to being used in this way. Instead, looking first to the issue of livestock grazing what happened was that sometimes livestock would

graze on the lower land (as *Plate 31* of sheep grazing in the area indicates, and, which the following interview exerts support).

Plate 31:
Sheep Grazing on Low Land

Source: Own Photograph

> The sheep would come down off the mountains sometimes and sometimes you would have to send them back up (Seamus)
>
> The sheep would graze on the mountains, and they would graze on the bog land wherever they could find something to eat and they would be nibbling on grass down near the shore. You could see them anywhere because they were roaming all over the place (Francis)

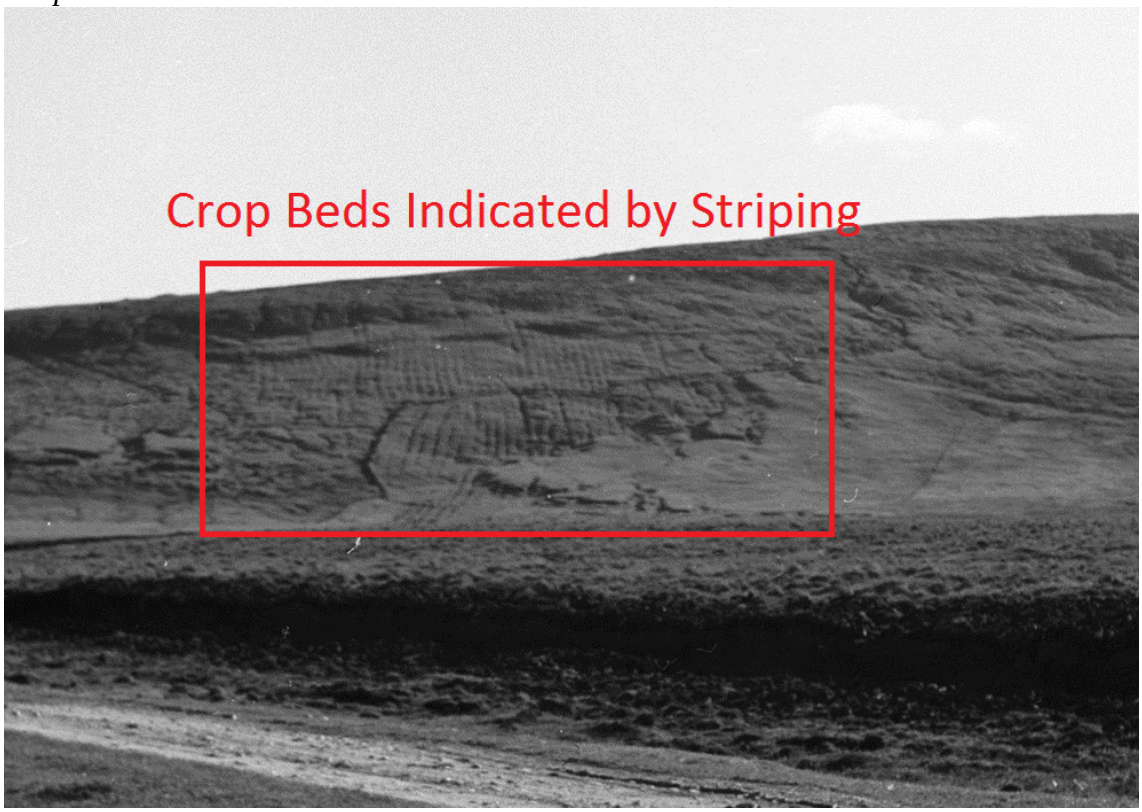
Likewise, the cattle were not only to be found grazing on the high mountain commonage, but also, they too could be found on the lower ground, especially along the shore where they would sometimes graze on seaweed among other things.

> The cattle could be down at the shore grazing on seaweed (Francis)
>
> They would go themselves to eat the seaweed (Fintan)

Also, just as livestock not only grazed the high mountain commonage, neither were crops only grown on flat low lying land. Instead, crops could be found growing on a hillside, which means that topography alone did not dictate the fertility of land across the area, nor, the use to which land in the area was put. *Plates 32, 33, & 34* present

visual testimony to the fact that crop production was sometimes carried out on hills in the area.[220]

Plate 32:[221]
Crop Cultivation Beds Visible on Hillside



Source: Folklore Photograph Collection, National Folklore Collection, UCD, 2013

[220] It seems that Garter Hill may not have been supporting crop production c.1930s-50s because information from the National Folklore Collector's Notebooks indicates that they were not: 'On some old pasture lands, notably on the side of Garter Hill there are to be seen the remains of ridges … [and] furrows even after the lapse of perhaps two centuries' (Iml. 1243:73). However, what is important to understand about how Garter Hill was used within community agricultural production c. 1930s-50s is that this particular hill was not owned by members of the community at that time and so was not available to them to use within production. Instead it was owned by someone outside of the area who was not at that time using it for crop production. But, the crucial thing to note about *Plate*s 33 & 34 which show Garter Hill is that even though this hill was largely composed of sand, and even though the crop bed system was oriented at an angle so that water could more easily run down hill and away from it, and even though furrows are there to facilitate this water run-off that water gathered in this area nonetheless which suggests that extremely wet soil conditions could be expected (in most cases) at the base of hills in the area

[221] The crop beds shown on this hill look like they have been newly produced

Plate 33:
Crop Production Historically Included Production on a Hillside

Source: Own Photograph

The hillside shown in *Plate 33* offers a particularly good example of why sometimes crops were grown on the sides of hills in the area. The hill presented in *Plate 33* is Garter Hill which is a machair – which means it contained deep sandy soil throughout. The fact that it contained deep sandy soil meant that it was particulary suitable for crop production. However, what is also interesting to note is that although located on a hill waterlogging was still an issue within this crop bed system: The presence of rushes in the furrows indicates that this soil was very wet despite the fact that it is on a hill which suggests that the soil at the foot of hills was probably extremely wet.

Plate 34:
Wet Land on a Hillside

Source: Own Photograph

Soil at the base of hills in the area was generally wet and therefore not naturally productive which meant that much labour had to be employed to bring it into productivity through changes to its form.

> A lot of wet land was at the bottom of hills (Sarah)
>
> The land that was wet was only good for rushes (Francis)
>
> Where it was damp … it would not give any crops … people in them times they were out in winter time … out draining the land in the winter time and they'd have their ground dry … the drain would take away the water. You'd dig out narrow bits like a channel called a drain. If there was a wet place they'd dig out a channel and they'd put stones in that channel so that the water would run in the channel between the stones and it would run into a river if there was a river ... it would be the best place for it to run ... but, even if there wasn't a river, to dry the land there there would be somewhere it would run into to dry it ... maybe if there wasn't it would lodge somewhere but it would dry so much (Sarah)
>
> It used to be wet enough now in the winter and you'd be at the spade. There were no machines then and it was all hands with the spade, God Help Us. It would dry it a good bit if you made a bit of an opening where it was wet. It would all depend ... you might get a dry spot of land and then you might meet wet spots. The place where it was dry well it was sound and it wouldn't need drains. In wet land it would be handy to have the drain in it (Peadar)
>
> They'd have to dig drains with the spades in the winter time for water problems. If there was water lodging anywhere they'd get it out by the spades (Jean)

However, it was not as simple a case as low land at the base of hills being unproductive. Rather, depending on soil type/structure at the base of the hills then conditions for crop production in these areas were more or less favourable.

> Where the mountains ran down to the sandy areas water wasn't a problem but if they ran down onto the heavier soil then you'd have to have drains there if you wanted to use the land (Francis)
>
> If they had any stones they'd put the stones in the drains so that the water would run under and they used to dry the land that way … there would be stones in the fields (Sarah)

The land itself was stoney (as indicated in *Plate 35* of land in the area), but also stones for drains could be gotten from quarries on the commonage.

Plate 35:
A Stoney Landscape

Source: Folklore Photograph Collection,
National Folklore Collection, 2013

> There was stones in the land and then as well there used to be a quarry there on the commonage and a lot of stones used to be taken out of that for different things (Francis)

In other words, soil characteristics as they interacted with topography affected the ability of soil to be productive, but, even soil which under natural conditions would be unproductive because of waterlogging issues could be made more productive through the addition of drains/through changes to its form, and in providing stones for the creation of drains the commonage not only provided a raw material that went into making a drain, but also, it acted as an instrument of labour in helping to maintain soil productivity.

(12.4) *Ridges and Furrows*

Drains were not the only things that were incorporated into soil to make it more productive. The creation of ridges and furrows within the ground was another way that a social form was imposed on the soil so that it could produce more crops. Two types of ridge and furrow cultivation systems were used. The first was the lazy-bed system which involved alternating ridges and furrows of smaller widths with each other, and the second was the "lands" system of cultivation which involved creating wider ridges than those of the lazy-bed and then having furrows on each side of them.

> You had the "lands" and the lazy-beds. Both of them would have high pieces of ground you'd call the ridge, and then, they'd have shucks[222] between them, but the ridge of the "lands" would be wider than the ridge in the lazy-bed (Francis)

"Lands" were common on the sandy soil where the rye (and sometimes other crops) tended to be grown.

> The potatoes would be set in the sandy land as well … but the most common thing was the rye (Seán)

> Because of strong winds and … because they planted … in the sand … they used to make ... what they would call "lands" ... big wide ridges ... they used to be eight to ten feet wide and they used to have little drains … big wide ridges for the rye and sometimes for the barley (Seán)

The logic behind the "lands" having a wide ridge area was that the wider the ridge the more structurally sound it was possible to make the soil bed in the face of weather threats. The wider the ridge the more plants that could be grown across its span, and, the more plants that were growing the more roots that were in the soil, and, the more roots that were in the soil the more structurally sound the sandy soil would be, because the roots would basically knit the otherwise easily blown away sandy soil together.

> On the sandy land they put more slits[223] and made the ridges bigger for protection more than anything else because it was sand they were dealing with and so more plants meant the sand was held together better (Seán)

But also, one of the reasons why the "lands" were wider than the ridges involved in the lazy-beds was that often the lazy-beds were created on wetter heavier soil and so were more prone to water logging which meant that more furrows (shucks) were needed

[222] Shuck is the word used locally to describe a furrow

[223] Slits are where crops are planted. The more slits in a crop bed the more plants

between the crop bed areas, whereas on the sandy soil furrows were not so readily needed to counteract issues of waterlogging. Instead, the furrows that existed between the "lands" were there because in order to make the "lands" the sandy soil on either side of them had to be piled onto the ridge area. The ridges that existed in the "lands" were sloped on either side and higher in the centre. The fact that the ridge area of the "lands" was constructed in this way, was not so much important in counteracting rain – because the "lands" were on sandy soil – as it was in counteracting risks posed by wind.

> The crop bed was raised with the sides sloped and plants growing on the outside of the rest would protect the ones growing in the middle from being broken or sprayed by the wind (Francis)

Wind not only threatened to blow sand off the crop bed and expose seeds in the early stages of crop production, but, wind threatened to break crops stalks and to burn crops with sea spray.

> The wind would be coming across the Atlantic and nothing to slow it down and it could come here and do a lot of harm to the crops either burning them or breaking them. It was so strong (Francis)

> If it blows in from the west … it could cut the eyes out of you (Fintan)

> Salt in the wind could do an awful lot of damage to the crops that were growing. It would turn them black. The leaves would be black from being burned by the salt, but if it hadn't done too much damage you could try to get the crops going again by giving them more manure (Francis)

But, where the crops were planted in ridges at least some of the crops were somewhat sheltered from the effects of the wind.

> In the ridge … the outer plant would more or less be protecting the ones in the middle [where] … the wind was a threat (Seán)

However, even where planting crops in ridges reduced exposure to wind and sea-spray what is important to understand is that depending on where the ridges were located within the area they were more or less susceptible to this type of damage. In other words, crops planted nearest to the shore were most at risk.

> Down at Rhinroe there [which is situated along the shore] ... they'd have lovely stalks with the potatoes ... well with any crops, the onions, carrots or anything ... and if the storm came and the salt water would come in it would burn them black. It would burn them up here on the hill as well but not as much as down there. Their crops was finished for the year for them then. They were burned to the ground and it was a big loss too you know? They would be ruined. They would come through a bit but they would be badly damaged. There would be no return on them. They wouldn't grow right after that (Seamus)

On the other hand, while rain was not so much of a threat to the crops produced in the "lands" on the sandy soil it was a threat to crop production where crops were being produced on heavier wetter soils. Where heavier wetter soils existed then the lazy-bed system of cultivation with its smaller ridges but greater number of furrows was used.

> Where you had the ridges you didn't have as much problem with rain because some of the soil was heavy and wouldn't be the best to drain. That's why they used to have to make drains in the land as well, because the soil was heavy. But, where you had the crops you had to make sure water would be able to run away from them because you wouldn't want them to end up waterlogged after rain (Francis)

> The ridges were good in wetter ground because the shuck would be deep and the water would be gone in the shucks (James)

However, although the primary reason for the lazy-beds was to safeguard against rain this is not to say that they too did not provide shelter from wind to crops growing within them. On the contrary, just as growing crops in "lands" provided shelter to some plants from wind, so too did plants grown on the lazy-beds receive a degree of shelter from wind.

> The ridges were good for helping to protect the young potato plants because the ridge was higher in the middle and so it sort of sheltered some of the plants. Like the ridge was a sort of windbreaker (Francis)

The lazy-beds also reduced risks associated with frost by allowing for adjustments to crop bed depth.

> You might take soil from the furrow if it was going to be frosty to have a deeper crop bed (Francis)

> When you were making the ridges you wouldn't go too deep with the shuck at the start, but then, you would come again later and you'd run along the shuck and put clay in later and the ridge would be higher and the shuck would be deeper (Peadar)

But also, the ridge and furrow system of cultivation made crop beds warmer because it ensured that they were drier, and drier crop beds are warmer crop beds.

> 'Well drained [crop] … beds are much warmer' (The Ballina Herald, May 9, 1931:1)

In addition to promoting crop productivity and ecological sustainability by reducing weather risks to crop production the ridge and furrow system of cultivation used also affected the socio-ecological relationship in other ways. An important point to note is that the construction of the ridge and furrow cultivation systems used did not involve

the use of heavy machinery in their making, and therefore, heavy machinery was not a threat to soil structure.

> They dug the land with the spade ... hard work. The man with the spade and they'd have a scoring line of the ridge to keep it even (Sarah)

While machinery was available on the market (as *Newspaper Exerts 11 & 12* from a regional newspaper indicate) it was not used in the area.

Newspaper Exert 11:
Agricultural Implements and Machinery for Sale from Thomas Archer Ltd., Ballina


Farm Implements
AND
Agricultural Machinery,
SPARE PARTS AND FITTINGS
Thomas Archer (Ballina) Ltd.,
TEL 21.
STOCKISTS FOR
Wexford Engineering Company
APPLICATION FORMS FOR GOVERNMENT LOAN ON REQUEST.
ENQUIRIES INVITED.

Source: The Ballina Herald June 1, 1940:3

Newspaper Exert 12:
Agricultural Implements and Machinery for Sale from Isaac Beckett Ltd., Ballina


1943-44—TILLAGE SEASON—1943-44
AGRICULTURAL IMPLEMENTS
AND MACHINERY
(MANUFACTURED BY PHILIP PIERCE & CO., WEXFORD)
Ploughs, Spring and Zig Zag Harrows
Ridging and Potato Raising Bodies,
Fittings and Spare Parts for all makes of Pierce Ploughs
AVAILABLE NOW FROM STOCK.
Our quota of NEW PIERCE PLOUGHS is now coming to hand. In order to avoid disappointment place
YOUR ORDER EARLY.
Further particulars from—
ISAAC BECKETT, Ltd.,
MOY SAW MILLS AND ARRAN ST.,
BALLINA

Source: The Ballina Herald March 4, 1944:2

Instead, all of the work was carried out manually.

> You'd make the ridge and it wasn't tractors or anything you were using to make it. It was spades (Sarah)

The fact that the ridges and furrows were made using hand tools (spades to be precise) mattered to soil productivity maintenance because beneficial soil organisms such as worms were not wiped out, or severely reduced, in the course of creating the crop beds. Instead, earthworm populations were so healthy that they could be seen crawling through the soil as it was opened up.

> You'd see the worms wriggling in the ground when you were digging it and then what you would see would be the seagulls coming in over the land hoping to get them because they would all be wriggling there (Francis)

But also, as well as helping to protect crops from adverse weather, and as well as improving soil condition by reducing the amount of water held in the soil, and as well as improving soil structure in other ways such as planting numerous plants across the same area of the crop bed, and as well as helping to safeguard the continued existence of

beneficial soil organisms in the soil, another important ecological advantage of the ridge and furrow system, specifically the lazy-bed ridge and furrow system was that it offered extra nutrients to crops within the actual creation of the ridges: The actual way that ridges were produced contributed to increased soil nutrient levels because nutrients from grass on the top of the sod – that was turned over to create the ridge – were also provided to the soil within the process of creating ridges.

> You cut two little sods about 2 foot or three foot wide and then folded them over and that formed the ridge … They were like the two little sods that were turned over – they formed a track ... You had a ridge here and another one here and another one on the far side again, staggered along like that ... there would be nothing growing between the ridges. That soil would be used to put onto the ridge either side of it (Francis)

Where the "two little sods" were turned over onto the ridge area this meant that the ridge area received extra nutrients because it had the nutrients that originally existed in the area of land upon which the ridge was formed, and also, it had nutrients supplied to it from the ground that had previously been on either side of the ridge area but now formed part of the ridge.

The fact that the ridge and furrow system of production created more productive crop space was especially important in light of the fact that so little of the land in the area was actually suitable for any type of arable activity.

> Some might only have an acre or more to work with (Sarah)

People in the area not only considered the ridge and furrow system to improve soil's productive capacity, but also, they considered it a more efficient use of the limited productive land that was available to them. When compared to the drill system used elsewhere – which was familiar to many in the area because they often seasonally migrated to work on farms where drill cultivation was the norm - the ridge and furrow system used within this area, was considered a more efficient use of productive soil space under local conditions.

> They seen the drills in England but they didn't use them at home (Francis)
>
> There was no drills at home (Margaret)
>
> It was less waste … with the ridges. It was a better idea ... The ridges down on the sand would be four slits and ... if you had a drill and it sewn along the length you would only have one potato seed in the drill where you had four across in the ridge so there would be less waste as ... the shuck would only be the same width as if between two drills but you would have more shucks bits where there were drills. You could get better return out of the land with ridges (Seán)

In sum, local opinion was that the ridge and furrow system of crop cultivation was superior to that of drill cultivation within the context of the limited amount of arable land available to producers within the locality.

(12.5) *Fertilising*

However, while the ridge and furrow system of production was understood to be a more efficient use of space, for it to be a productive system in itself it required fertiliser additions to be made to the ridge area (the area where crops were planted) over time.

> You'd always fertilise the ridges because that's where the crops were growing. The potatoes for sure were given fertiliser because potatoes were important (Francis)

However, despite the fact that crops were grown in the ridges, these were not the only sections of land that received fertiliser applications. Instead, fertiliser was also applied to meadow land where grass was grown because grass from the meadow was needed to make hay to feed to cattle.

> Fertiliser … would be put on the land. They would put it on the crops and where grass would be [growing for hay] (James)
>
> Some people used to put seaweed on [meadow] grass but it was mostly for potatoes (Sarah)
>
> Where they would put seaweed on grass is on grass where the meadow would be (Jack)
>
> They didn't fertilise the commonage. Well, the animals were out on that and they were dirtying on that but people weren't going out trying to fertilise it (Francis)

However, while seaweed was applied to both the ridges and the meadowland what is important to note is that different types of seaweed were applied to each. This point is significant because it indicates that even where seaweed is available within an area it may be more or less useful to crop producing spaces therein depending on the type of seaweed that is available and the type of crop that it is being used to support.

> The red seaweed ... the long leafy one they would want that for the ridges (Seán)
>
> The red sea weed ... that was the stuff for the potatoes and you needed it (Seamus)
>
> They mostly wanted the shorter one for the hay … for the grass (Seán)

Because red seaweed was favoured within potato production people often yearned for a storm just so that they could collect that type of seaweed from the shore.

> Everybody would be longing for a storm to come to get the seaweed … the red seaweed … to knock the red seaweed off the rocks and bring it to the shore (Seamus)

But as well as understanding that different types of seaweed/fertiliser were more or less useful to crop production, what is important to understand is that contrary to the idea put forward by the metabolic rift theory that fertiliser as a general thing only needs to be added to soil to ensure its productivity what emerges here is that, different types of natural fertiliser had different levels of usefulness depending on the type of crop system they were being used to support. But also, the overuse of some forms of fertiliser on land can actually exhaust it:

> Red seaweed … it would be fresh and they would put that out on the meadow and they wouldn't put it out three years after the other because it would take so much out of the land … the power of that seaweed … it would take so much out of the land if you put it out a third year you would have no meadow at all. It was good but it could make the land poor. It would take the power out of the soil … the fresh seaweed. The moss sea weed ... the old sea weed ... they used to use as well but the red sea weed that would be very fresh and that would bother the land then because it was so fresh ... all the goodness was in it and nothing was wasted in it. After the third year you would have to put out the stable manure ... you'd have to change because it would take the goodness out of the ground (Seamus)

In other words, there was more to maintaining soil fertility than just adding fertiliser to soil. Instead, processes occurred at soil level which restricted the level to which fertiliser could be added to it before it became detrimental to soil productivity.

Another issue to consider in relation to the use of fertiliser is that fertiliser has to be applied at specific stages within crop production for it to be most useful because only at certain times are crops able to fully utilise the nutrients that are being supplied to soil from fertiliser.

> When they would set the potatoes they would use seaweed. Sometimes they would put it on the ground itself and let it rot for a length of time and then dig it into the soil with a spade (Sarah)

> Where they put on the ash they put it on before the seaweed. They wouldn't put them on at the same time. If it was spuds or something like that they might use the ash and then the seaweed but not at the same time … but you could use both (Seán)

> Then you'd be putting a bit of fertiliser between the stalks when they came up (Francis)

However, as well as applying fertiliser at particular stages of crop growth what also happened was that fertiliser was applied in response to damage inflicted on crops by wind or salt. For instance, when wind would break crop stalks it was common for

people to apply fertiliser again at that stage to try to bring the crop back into an increased state of productivity.

> You'd give fertiliser to the crops when the wind had gotten at them and damaged them (Francis)
>
> [Historically] where the crop showed any sign of … backwardness, a second dressing of light manure such as ashes, sheep's dung or soot was applied between the stalks (Iml. 1243:88)

However, where wind was an issue affecting crop production it not only affected the metabolic relationship by damaging crops so that fertiliser that otherwise would not have been applied to them needed to be applied, but also, it affected the metabolic relationship by encouraging the use of locally sourced natural fertiliser over shop purchased fertiliser. This was the case where fertiliser was required but wind was still ongoing, because the shop bought/'artificial fertiliser'[224] was too powdery to use in windy conditions.

> The guano was like powder and you'd have to shake it from a bucket (Peadar)
>
> Because that guano was like salt … you'd shake it … and sure … if it was a windy day you couldn't use it (Seamus)
>
> You needed a very calm day to use the guano because it would blow away (Francis)

Also, as well as wind acting against the use of shop bought fertiliser within the area, rain also acted against its use because rain could easily wash it away where rain occurred after the application of such fertiliser but before the crops had used the nutrients supplied by it.

> You wouldn't want heavy rain when you were using the guano (James)
>
> If you put guano out and it rained it would be washed away. But if you used seaweed or cow manure or something at least it was still there on the land (Francis)

However, although it was easier to use the locally sourced natural forms of fertiliser in windy conditions because they were solid rather than powdery (even where the ash from sea shells was used as fertiliser this did not act against its use in windy conditions because it was often mixed with other forms of manure and blended into one mass rather than continuing to be powdery), and although locally sourced fertilisers were

[224] Note: guano is not actually artificial (as it is bird droppings) but is referred to as such here because of the fact that the informants discuss it as artificial. They view it as artificial not because it actually is, but rather, because they had to purchase it from outside of the area and it came in bag form as opposed to their sourcing it themselves from their own local natural environment

denser and so less prone to being washed away this did not mean that weather did not affect the nutrient composition of them, nor, when they had to be used. Instead, if seaweed is taken as the example what can be seen is that nutrients could be lost from seaweed if it was not used quickly because weather would encourage it to rot.

> When you'd get seaweed after a storm you would put it out immediately or it would rot (James)

The urgency of putting the seaweed onto the land was not about trying to stop seaweed from rotting, but rather, it was to ensure that it did not begin to rot before it had been added to the crop bed.

> When they would put seaweed on the ground they would leave it there to rot for a length of time and then dig it into the soil with the spade (Seán)

The urgency was to ensure that nutrients were not lost from seaweed before that seaweed could be used as fertiliser.

> If you left the seaweed out in the rain before putting it on the fields it wouldn't be as good because some of the good would already be gone out of it (Francis)

What this example of seaweed needing to be placed on soil before it rotted indicates is that natural forces continued to operate to affect the fertility of the seaweed even after it had been appropriated for use as fertiliser within agriculture, with the effect that, labour had to be employed quickly to ensure that the benefits of seaweed as a fertiliser was not lost to crop space. But also, what is clear from the way that weather provided seaweed – when it washed seaweed onto the shore during storms so that it could be used as fertiliser – is that weather as a natural agent of production could at one time or another differently shape the trajectory of what was happening within the socio-ecological relationship at specific metabolising points involving weather, fertiliser, and labour.

(12.6) *Conclusion*

In sum, soil fertility maintenance involved the coming together of many processes so that input-output understandings of the factors affecting soil fertility come up wanting. Soil chemistry, soil type, soil structure, soil depth, weather, and topography all interacted with each other at the level of natural processes to affect the trajectory of soil productivity and to affect how labour was employed to support crop production.

Coming together in different ways at different points within the production process nature's processes encouraged the performance of certain labour processes at that time.

However, this is not to say that nature's forces determined how nature and society interacted within agriculture at the level of soil fertility and crop production, but rather, it is to acknowledge that nature's force did occupy a causal role in affecting the socio-ecological relationship at particular metabolising points within the overall process of crop production. However, just as nature's processes sometimes occupied the position of causal variable within the socio-ecological relationship between nature and society, so too, did social processes also act to affect how natural processes would interact with each other at the level of soil: For instance, digging the ground with a spade allowed for the freeing of nutrients trapped in the sub-soil without causing significant harm to soil organism populations. Conversely, had heavy machinery been used, and especially had it been used under wet soil conditions when soil structure is most fragile then soil structure and also soil organism populations would have been adversely affected and so soil nutrients would not have been as freely available to growing plants. Thus, crop production would have been stunted.

But beyond understanding that nature's forces could act to shape human behaviour and beyond understanding that human activity could shape outcomes in nature, what is important to understand is how the labour process - as the point at which nature's forces and those of society interacted with each other – worked with nature's forces to manipulate them and bring them together in a way that either created productive conditions where there had been none, or increased productivity where it existed, and helped to maintain productivity over time in the face of ongoing physical challenges. The success of the labour process involved in supporting crop production required detailed understanding of how the forces of nature worked together at different points in time, and, across different sections of local space, to affect crop productivity within the area. But also, because nature's forces exist in a perpetual state of motion with each other it was important that the agricultural labour process involved in safeguarding the socio-ecological relationship be adaptive to meeting the changing conditions of production created through nature's forces: It was important that the labour process be

capable of responding to and shaping nature's motive forces at their metabolising points in a way that benefited production.

Crucial to the ability of the labour process to adapt to nature's changing dynamics as they presented locally to affect the agricultural sustainability was the particular social form under which crop production was pursued. This was a society within which soil was made more productive through incorporation at both the mechanical and content level of soil. But also, this was a society within which adjustments to the mechanical or content level of soil could be made as needed across crop production. For instance, crop bed depth could be increased through the addition of extra soil to ridges when frost was expected, or, drains could be made to counteract waterlogging. Similarly, extra fertiliser could be added to soil as required.

Commonage was crucial to the ability of the labour process to harness nature's forces in an adaptive way that allowed for successful crop production, because much of the nutrients supplied to crops within fertiliser was sourced from the commonage. Also, materials such as stones for drains were often gathered there

However, following the idea that nature's forces act as motive forces within the socio-ecological relationship involved in agriculture, and given that different forces of nature would have come together within the commonage, the question is raised as to what the exact relationship of commonage to crop production was within the area, and, whether the commonage can simply be understood as a resource/input provider to the agricultural labour process involved in maintaining soil productivity there, or, if processes may have been occurring at the level of commonage itself that ultimately affected nature-society interaction at the level of soil productivity within crop producing space where the commonage provided resources to the socio-ecological relationship involved in sustaining agriculture?

Similarly, the question is raised as to whether livestock who are normally understood as resource providers – in so much as they provide manure for fertiliser – for crop

production are not themselves affected by processes that occur at their corporeal level which affect their ability to act as resource providers to the metabolic relationship.

The following chapter explores these ideas at the level of theory.

Chapter Thirteen

Livestock & Socio-ecological Interactions within Agriculture

(13.1) *Introduction*

Where mixed crop and livestock systems are pursued together, and, where crops are fed to livestock and livestock manure is used as fertiliser for crops within those systems, then livestock and crops exist within a symbiotic relationship so that both can benefit from the existence of each other, but also conversely, risks posed to one also potentially threaten the other. Environmental sociology has recognised that while capitalist crop production systems rely heavily on artificial fertilisers/inorganic nitrogenous fertilisers (INF) to support production – namely monoculture production[225] (Jordan 2002:155; Mancus 2007:271; Wittman 2009:808–9; Wolf and Buttel 1996:1272–3) - that non-market orientated agricultural systems are often more reliant on organic forms of manure, especially livestock manure (Altieri and Toledo 2005:273).

[225] 'Monoculture production involves the production of a specific animal or crop to the exclusion of others (Thrupp 2000:273). While agriculture 'implies the simplification of nature's biodiversity' (Altieri 2007:189), by cultivating a small number of plants and animals, monocultures 'are extreme examples of environmental simplification and specialized management' (Altieri et al. 1978:33). 'The end result is an artificial and simplified eco-system that requires constant human intervention' (Altieri 2007:189). While monoculture production is favoured within capitalist agricultural contexts because it is highly productive and efficient it negatively affects the nature-society metabolic relationship within agriculture (Altieri et al. 1978:33). As understood by Altieri (2000) monoculture affects the ecological relationships at farm level: it reduces complementary relationships between crops, soil, and animals; it interferes with nutrient recycling on farms as animals are often produced in places distant to crops (p. 78–9); It reduces biodiversity at farm level (Nicholls and Altieri 2004:49; Rosset 2000:203); It is heavily dependent on synthetic fertilisers and pesticides (Altieri, Letourneau, and Davis 1983:45; Altieri 2005:362; Thrupp 2000:273); it contributes 'to the degradation of plant/soil ecological complex that makes biological fixation possible' (Mancus 2007:271); it makes agricultural systems more vulnerable to weather risks (Altieri and Koohafkan 2008:20-1); it increases the risks of pest infestations (Altieri and Pengue 2006:15; Thrupp 2000:273) and makes it necessary to 'apply pesticides to compensate for the lack of self-regulating mechanisms in monocultures' (Altieri et al. 1983:45). Overall, while monoculture production might have temporary economic advantages for farmers they undermine the ecological relationship between nature and society (Nicholls and Altieri 2004:49)

Of course, the corner foundation of the metabolic rift concept is that nutrients in the form of food and fiber are exported out of agricultural space in the course of capitalist production, and that, crop and livestock production are occurring in separate spaces with the result that nutrients ingested by livestock are not making their way back to the land in the form of their manure (Foster 2009:174). However, while the metabolic rift literature does consider nutrient recycling and the need to add inputs to soil to replace outputs lost in the course of production what it tends to ignore is that the input-output relationship involves processes. In agricultural societies where livestock manure is used as fertiliser the processes that affect soil fertility are not only those which occur within the actual space where crops are being produced, and are not only those that occur at the level of plant development, but rather, processes occurring across livestock grazing space, and processes tied to the functioning of livestock themselves also affect soil fertility where livestock manure is used as an input within crop production. As such, in agricultural contexts where livestock are used as fertiliser providers it is important to examine processes involved in affecting livestock's ability to perform this role.

Also, another problem with the metabolic rift literature is that although it promotes the use of organic fertiliser within the process of crop production, it does not understand that organic fertilisers because they are alive are processes themselves, and that, as such, they are open to influences affecting their nutrient providing abilities. Focussing on livestock manure, I explore how the forces of nature and those of society interact across multiple levels to affect both the quantity and nutrient quality of livestock manure that is produced by livestock, and therefore, available to crop production.

Additionally, moving beyond the narrow focus of the metabolic rift literature which only considers how livestock manure can contribute to crop productivity, what I highlight is that livestock are not only capable of providing fertiliser/inputs to agriculture, but also, they shape other ecological moments within agricultural systems as well. I consider the issue of how livestock as weed control agents/eaters of weeds can affect the metabolic relationship in different ways.

I adopt a process focussed approach to understanding the metabolic relationship within agriculture. I examine how commonage and private crop producing space can be linked to each other at a process level within mixed crop and livestock systems where crop production involves the use of livestock manure as fertiliser. I explore processes occurring on the commonage, processes occurring at livestock corporeal level, and processes occurring within crop production for their individual significance in affecting the metabolic relationship, but also, so as to understand how processes occurring in either sphere can overlap with those occurring in another to affect soil productivity within crop producing space. Also, I probe the role of the labour process in manipulating nature's forces as they combine in any of the aforementioned process levels.

But, first to the issue of livestock manure's fertilising potential as it is affected by the forces of nature and by labour.

(13.2) *The Moments Involved in Safeguarding Livestock Manure for Fertiliser*

In failing to treat livestock manure as a process, the metabolic rift literature encourages the idea that if a set amount of livestock manure is added to crop space that production there will be sustainable (Foster 2009:174). However, because livestock manure is a process this form of fertiliser is affected by 'type of animal, feed composition, quality and quantity of bedding material, length of storage and storage conditions' (Barry and Swan 2008:23). While the internal processes of the livestock's digestive and excretory systems both contribute to their ability to convert nitrogen from crops into manure which can then be used within agriculture as fertiliser (Addiscott 1996:23-4), there are many things that can happen between the time that fodder is eaten, manure is produced, and manure is applied to crop space, which can impact the amount of nutrients available to crops from livestock manure.

Quite obviously, the nutritional value of the food that livestock eat – whether in the form of fodder or provided through grazing – will affect the nutritional quality of the manure they produce. Weather is one of the issues affecting how nutrient rich their food is. For instance, rain can wash fertiliser from land (Leeuwis 1989:82), so that less

nutrients are available to crops, and thus, less crops are produced (Fageria, Baligar, and Jones 2011:82). Rain has also been found to wash nutrients from fodder (Vincent 2005:109). But also, even after manure has been produced its nutrient levels are unstable and open to reductions for numerous reasons (Barry and Swan 2008:23), one of which is weather. Rain in particular is a threat to organic manures: Taking the example of seaweed, rain can wash nutrients from it[226] (Breathnach 2005:82-3), but also, rain can wash livestock manure from land (Desonie 2008:5).

But also, weather can directly affect livestock health and in so doing can indirectly affect the quality of the manure they produce. In other words, different processes are at play in affecting agricultural sustainability in systems where livestock manure is used as fertiliser. Where weather affects the process of producing livestock manure it ultimately affects soil fertility where that manure is required as fertiliser for crops, and so, weather as a force of nature that impacts on livestock health is important to consider within research interested in understanding the metabolic relationship where livestock are involved to affect it. A key consideration in maintaining livestock health is that they are able to deal with conditions presented to them within their physical environments.

Sheep and cattle production is often carried out in marginal physical environments[227] (Gillmor 1977:116; Leeuwis 1989:48), such as, in mountainous coastal areas where weather conditions can be harsh and where grass is the main crop grown (Leeuwis 1989:48). When it comes to mountainous coastal areas, sheep in particular are considered to have a comparative advantage over other species of livestock (Gillmor 1970:591):

[226] Rain can wash valuable salts out of seaweed (Breathnach 2005:82-3). So, where seaweed is used as fertiliser (Bell and Watson 2008:77; Breathnach 2005:82-3), rain must be understood as a factor affecting seaweed quality. Furthermore, because seaweed manure effects only last for one season the whole process of collecting and using seaweed within agriculture must be repeated from year to year (Bell and Watson 1986:34)

[227] Of course, culture can influence which animals are kept in an area (Yarwood, Evans, and Higginbottom 1997:29; Yarwood and Evans 1998:138), just as 'the personal preference of farmers are an important factor in the choice of breeds' (Gillmor 1970:116). Cultural and animal geography has emphasised how traditions of keeping animals in a place in the past can influence their continued existence there (Yarwood and Evans 1998:146), and, contribute to animals being understood as in-place or out-of-place in certain locations, and, at certain times (Jones 2000:103, 2000:268). However, despite appreciating that culture shapes nature-society interaction there are irrefutable links between the physical environment that exists in an area and the livestock that are kept there (Gillmor 1970:1)

> Sheep are well adapted to grazing steep topography. Their small size, sure-footedness and climbing instinct enable them to graze forage found on steep rocky slopes … In addition, sheep prefer to rest overnight in higher areas, presumably an instinct passed down from their ancestors to reduce predation. (Olson and Lacey 1994:106).

However despite sheep in general having an advantage over other livestock in being able to deal with steep topography where they can find food, what is commonly found is that where marginal physical conditions exist it is hardier breeds of sheep, as opposed to the species of sheep in general that are found in these types of locations (Rolleston 1901:267). Likewise, where cattle are found in these types of environments it is usually the hardier breeds of cattle that are found there (Gillmor 1977:116; Telo da Gama 2006:129). This is because among their species they are more capable of thriving under harsh conditions. The fact that hardier species, and hardier breeds within those species categories, are the ones that are usually found in harsh agricultural environments indicates that local physical environmental conditions can impact animal health.

In marginal agricultural conditions shelter can be a particular concern to livestock health. In some areas in the West of Ireland for instance, opportunities for shelter from hedging and trees is quite limited because of a general absence of trees and hedging in those areas. Instead of having numerous trees and hedges available for shelter what can be available are furze bushes (Ó Catháin and O' Flanagan 1975:7) and such like. While furze where it exists is considered a superior form of shelter to trees and other types of hedging because 'in rainy weather [it provides] a shelter to livestock, which neither thorn nor any other hedge affords; for there are no drippings from a furze hedging' (Inglis 1835, vol. 1, p. 50-1), the problem is that while furze grows well in marginal conditions (The Farmers Magazine 1871:17; The Farmers Magazine 1867:299) its growth there is controlled where sheep graze the areas where it grows, so that, even if furze are present, the height of the furze may be too low to offer adequate shelter to cattle; 'cattle, when left to themselves, never consume [furze] … but as a condiment. Sheep crop the young shoots off the bush, and thus frequently keep it down almost close to the ground, never allowing it to rise above a foot or so in the middle' (British Farmer's Magazine 1863:357).

Conditions in the West of Ireland were particularly harsh in the winter with the effect that housing had to be provided to livestock at that time: While sheep did not need to be housed, cattle often were (Gillmor 1969:145; Leeuwis 1989:92). Where cattle were not housed over winter it was the exception to the case and it occurred in line with the specific way that soil, weather, and topography interacted to create zones where this was possible (Bassett and Curtis 1985:15; Laheen 2010:77; O' Rourke 2005:70). In Ireland, some of the areas where cattle were left out over winter were 'west of Askeaton in Co. Limerick, near Edenderry and along the Meath-Westmeath border between Oldcastle and Castlepollard' (Gillmor 1969:145), in Ballymenone (Glassie 1982:428), on the Aran Islands off the western Irish seaboard (Laheen 2010:77), on machair (Basset and Curtis 1985:15), and in the Burren[228] of County Clare (Bell and Watson 2008:242; O' Rourke 2005:70; Gillmor 1969:145). Cattle (and in the past sheep) were put on the 'rough grazing of the High Burren towards the end of October and left there until the following spring … [so that in] affect the cattle were out-wintered at a low cost, needing neither housing nor extra feeding' (O' Rourke 2005:70).

In contrast, where nature's forces did not combine to create conditions that allowed for cattle to be left out over winter, then housing became an issue. Historically in Ireland cattle were housed alongside humans within the one abode (Gahan 2001b:28; Gaskell 2001b:170). These houses were constructed of stone walls and thatched roofs (Gahan 2001b:28; Gaskell 2001a:84; Mac Graith and Ní Ghearraigh 2004:134). Later, separate living quarters were created for people and their livestock: Cattle byres were added to the side of houses (Arensberg 1937:44; Glassie 1982:599); sometimes if new houses were built then the former stone and thatched houses were given over to livestock for their sole habitation (Mac Graith and Ní Ghearraigh 2004:134). But regardless of whether livestock continued to live under the same roof as their human owners – whether under the same roof of an undivided building, or, under the same roof of a

[228] 'The limestone of the Burren hills is said to act like a giant storage heater, building up heat in summer and dissipating it in winter months when the surrounding air is cooler. As a result, a relatively warm, dry lie is ensured for outwintering livestock, with the thin sparse soils scarcely masking the limestone's warmth, while proving very resistant to water-logging, muddying and erosion' (Young, *Tour in Ireland*, vol. 2, part I, p. II, cited in Bell and Watson 2008:243). 'Land used principally or solely for the winter grazing of cattle is termed "winterage". Its most vital characteristic is that it should remain dry during the winter months … Winterage may be found in scattered patches on individual farms but there are several localities where considerable areas are devoted to this use. Most notable is the Burren' (Gillmor 1969:145) due to its rich soil, long growing season, well drained pavement type land, heat retaining capacity of the rock found there, and, the mildness of its' climate (O' Rourke 2005:70)

divided one – or in a separate building, the point to note is that, in either case the buildings that livestock were housed in were constructed using natural materials – stone for the walls and straw for the thatch.

In the west of Ireland there was a tradition of using local materials for local constructions (Mac Graith and Ní Ghearraigh 2004:134). The oldest houses dating back into history were simply made with sods of earth. Later, stone walled and thatched roof houses developed as the vernacular architectural type that became most common in the region (Hastings 2009:57). Where walls were built in areas along the western Irish sea board the stones used in their making tended to be sourced locally (Laheen 2010:103; Mac Graith and Ní Ghearraigh 2004:134) – often from surrounding fields and areas. Where thatch was made, it too involved sourcing natural materials from the local environment (Mac Graith and Ní Ghearraigh 2004:134) – the straw to make the thatch and the ropes and stones to tie it down[229] (Mac Graith and Ní Ghearraigh 2004:134).

Materials used to make the thatch were often sourced from commonage areas, such as sand dune areas (Mac Graith and Ní Ghearraigh 2004:134; McKenna et al. 2007:160). Thus, commonage – where it existed – can be understood as an important provider of housing materials. However, the commonage was not only important in making available the original materials required for construction of housing. Rather, the commonage also performed an ongoing role in helping to maintain the quality of shelter constructed by continuing to provide natural materials to replace any of the organic materials that became worn out over time. For instance, rushes were often used to make thatch, but rushes are organic and so rot over time in the face of weather conditions, so that, where thatching is concerned the commonage was also important in providing ongoing access to rushes required to make new thatch as needed. This ongoing access to thatching materials was important because the quality of shelter provided in buildings with thatched roofs can be reduced if thatch wears out. In short, the commonage

[229] 'Houses on the western seaboard were thatched' (Mac Graith and Ní Ghearraigh 2004:134). 'This thatch was got and cut on the mountain' (Hastings 2009:56). 'Due to the onslaught of strong winds this thatch was secured with … sally rods and a network of twisted straw ropes or … Marram grass, collected locally on the extensive sand dunes … was also combined with thatch' (Mac Graith and Ní Ghearraigh 2004:134)

provided rushes and such like to build livestock shelters, and, it provided replacement materials when the original material used was no longer fit for purpose as a result of both its own natural tendencies toward change and also as a result of weather effects.

One of the things determining how often thatch had to be replaced was the type of straw used to create the thatch (Glassie 1982:416). In other words, the fact that straw was organic, combined with the specific characteristics of the type of straw (type of crop from which the straw came) that was used to make thatch affected the amount of labour that had to be employed in reproducing thatch over time for the benefit of sheltering livestock.

Where labour was employed to bring together - in the course of constructing housing for livestock - the different material elements which nature provided, labour outlay helped to safeguard soil productivity by helping to safeguard livestock health, and therefore, the quantity of, and quality of, the manure that livestock could produce for use as fertiliser. But also, the commonage in providing the resources needed to construct livestock shelter indirectly contributed to maintaining the metabolic relationship within crop production because it supported livestock in their role as fertiliser providers, because livestock by themselves are not efficient distributors of nutrients to crop production (Addiscott 1996:16). Instead, they need to be housed so that their manure can be collected and deposited where and when it is needed (Delve and Ramisch 2006:328). But also, as well providing materials to the construction of livestock shelters so that livestock manure could be collected and used in the most ecologically efficient way within agriculture, the commonage also helped to meet the changing habitat needs of livestock across production, and so, was connected to livestock health: It either directly offered habitats that allowed livestock to be out wintered (as in the case of the Burren and such like), or, it offered the natural materials needed to create habitats through labour (as in the case of livestock housing) which was important because at different times across production even the same organism can have different habitat needs (Benton, Vickery, and Wilson 2003:186). The fact that commonage offered a way to respond to those changing habitat needs meant that it offered a way to help safeguard livestock health, and in doing so it offered a means through which to safeguard valuable nutrients held in manure.

In various parts of the world livestock are housed so that their manure can be collected for use within agriculture (Delve and Ramisch 2006:328). This is so not only because it is easier to use livestock manure as fertiliser if it is possible to collect it from one space, but also, livestock housing is necessary to the efficient replacement of nutrients to soil because even when cattle are present on crop space – as often occurs in mixed crop and livestock production systems in the postharvest period – they do not supply nutrients evenly to ground there. Rather, cattle show a preference for urinating or leaving dung in a particular part of a field repeatedly (Addiscott 1996:16) which means that that part of the field receives more nutrients than the rest. The result for the role of livestock within the metabolic relationship being, that, they have not operated efficiently as nutrient recyclers: Either sections of the field do not receive enough nutrients from them, or, sections of the field receive more nutrients than they can accommodate and so excess nutrients end up being lost to soil in the process of soil leaching (Addiscott 1996:16).

The metabolic rift literature identifies that "traditional" agricultural systems operate on the basis of being closed systems within which 'matter and energy within a particular area are circulated so that actually no waste is produced' (Mayumi 1991:54) because nutrients extracted from soil in the form of food, fodder, and fiber that are produced on farms are later returned to the soil (Wittman 2009:806). However, the crucial deciding factor in whether a traditional agricultural system reliant on livestock manure as fertiliser is sustainable or not is labour, because while matter, energy, and nutrient levels may be stable within these systems the degree to which the nutrients that exist there are useful to crop productivity is largely shaped by labour. For instance, imagine the case where excess nitrogen might be leached from soil and might run into surrounding waterways to promote plant growth there – in the form of weeds – then nutrient levels are still relatively stable within the overall space of the farm where these rivers are a feature of the farm, but, nutrients present in weeds growing in rivers are not nutrients available to crop space.

Only where livestock are housed are they efficient providers of nutrients to soil because housing of livestock allows farmers to collect livestock manure and deposit that manure to crop space where and when it is needed (Addiscott 1996:9; 10; 16; 17). Thus, housing is a moment/activity within the overall process that is the metabolic

relationship between nature and society within agriculture that shapes the trajectory of how nature and society interact at the metabolic level to ensure sustainability of production. In housing livestock for the purpose of collecting their manure, farmers not only have access to a fertiliser source that they otherwise would not, but, they also avoid excessive nutrients being added to certain sections of crop soil (Addiscott 1996:16), and, they avoid nutrients being lost to crop space in general as happens when livestock are left to freely deposit their manure on fields (Barry and Swan 2008:23).

However, even within the moment/activity that is housing, there is another moment which contributes to the metabolic relationship. Specifically, livestock bedding acts as a moment to affect how much of the nutrients provided by livestock manure – dung and urine – are actually captured when livestock are housed. Absorbent bedding is especially essential to the collection of nutrients provided by livestock urine.[230] The importance of capturing the nutrients contained in livestock urine cannot be overstated where livestock manure is used as fertiliser, because, returns of 'nitrogen in [cattle] dung are smaller, only about half those of urine' (Addiscott 1996:16), but also, the addition of organic animal excrement to inorganic bedding creates a nutrient rich and alive source of fertiliser which promotes crop growth (Estabrook 1998:19) because there is a positive correlation between the level of organic matter in soil and soil fertility (Clavin 2008:8; Greenland 1977:120; Nicholls and Altieri 2005:26; Thrupp 2000:277).

In marginal production environments in Ireland (such as, mountainous coastal areas), farmers have historically sourced livestock bedding from the sea area and the mountains that exist around them. Farmers in the aforementioned types of areas have been known to use peat, scraw (Corduff 1974:14) and furze/bracken/ferns (Robertson and Jefferson 2002:126) as bedding which allowed them to collect livestock manure – in the form of dung and urine - from the housing of livestock. They could then distribute this nutrient enriched used bedding – as fertiliser - where needed (Corduff 1974:13). Within the

[230] 'Owing to the smallness of the farms, and the consequently limited stock, the supply of farmyard manure is necessarily small; but even as it is, with a little care in keeping the manure heaps and saving the waste about the house, the supply could be almost doubled. The water from the manure heap is in most cases allowed to drain away, a great deal of good manure-making material thus wasted' (Gahan 2001d:56)

metabolic rift literature the importance of returning livestock manure to crops is stressed. However, the fact that livestock manure breaks down into both urine and dung, with urine being even more important than dung is not. Nor, are discussions provided which highlight that chemical reactions occur within soiled bedding so that the usefulness of that bedding to crop production is affected, nor is there any general recognition of the importance of livestock housing and bedding as moments which affect the metabolic relationship.

However, it is not only a case of livestock needing to be provided with housing so that they are protected from harsh weather conditions, nor is it simply a matter of being able to collect their manure because they are housed, nor is it only about supplying them with absorbent bedding so that nutrients provided from their excrement is not lost, but also, the ability of livestock manure to provide a rich source of nutrients to soil is also affected by how housing can affect livestock health. While housing is important to livestock health where adequate shelter cannot be sourced outdoors there is also the risk that livestock can become unwell when housed.

In other words, while housing is a moment that affects the metabolic relationship for the good, by allowing livestock manure to be collected, and also offers protection from the elements so that livestock health can be safeguarded, there are ways in which the housing of livestock can act against their health if labour is not employed to counteract this happening, because under certain conditions livestock health can actually be at risk from housing (Fraser, Mench, and Millman 2001:93). For instance, if livestock bedding is not regularly changed then livestock health can suffer (Damerow 2011:287; Fraser et al. 2001:93). Likewise, if livestock housing is not cleaned at particular times (Soffe 2003:572), or, if sick cattle are not isolated from well ones (Soffe 2003:570) then overall livestock health can decline. In other words, it is not enough to house livestock, but also, labour has to be employed across the course of their being housed to ensure that they stay well while housed, so that, they can contribute as much nutrients as possible to crop production.

Clean bedding has to be provided on a regular basis, because for instance, livestock bedding can encourage the development of disease if not regularly changed because of its wetness and because it allows bacteria to gather (Damerow 2011:287). Given that livestock bedding can either support or act against livestock health, which means that it can either act to increase, or act to decrease the level of nutrients available to crops through livestock manure, labour is the point at which the use value of livestock bedding to the metabolic relationship is mediated.

The idea that livestock can become ill as a result of housing is discussed in relation to rural Ireland where it is recorded that, 'in the past when all cattle wintered in the byre, they failed, lost their hair, and brought little money in the spring mart' (Glassie 1982:428). Bell and Watson (2008) – referencing Young, *Tour in Ireland*, vol. 2, part I, p. 11 – state that, the 'weakness of cattle after being kept indoors during winter has been recorded in several countries. In Ireland, milk cattle kept indoors during winter had to be carried out to the fields in spring. In the Mourne Mountains in County Down, these cattle were sometimes known as "lifters"' (p. 243). Many farmers in the west of Ireland believe that where it is possible to leave cattle out over the winter it is better for their health (Leeuwis 1989:89).

Also, returning to the point that livestock were sometimes out wintered, which suggests that their manure was not collected for use as fertiliser this was not necessarily the case. Rather, while they may not have "needed" housing, and were not as a rule housed to protect them from the elements, they were still likely to have been housed on certain occasions for the purpose of manure collection, because where livestock manure was used as fertiliser within agriculture, it was gathered through livestock housing (Gahan 2001a:7). As such, issues of obtaining materials for housing, of obtaining quality absorbent bedding, of changing bedding regularly, and of keeping sheds clean and sick animals isolated would also have applied to them, just on a lesser scale.

But something else to consider is whether livestock housed for longer durations, or those housed for shorter periods of time, contribute more to the metabolic relationship, because while allowing livestock to remain outdoors for longer means gathering less

manure from them, perhaps it also means obtaining higher quality manure when it is gathered, so that, even if they provide less manure to production they may not provide less nutrients than their longer housed counterparts.

(13.3) *Livestock and Other Ways They Affected the Metabolic Relationship within Crop Production*

Also, when thinking about the different issues that can affect livestock's role in shaping the metabolic relationship what is important to understand is that livestock not only have the capacity to act as means of production in providing manure, but also, they can perform other services that contribute to increased crop productivity on farms. Notably, they can help control weed[231] populations that compete with crops for nutrients (Micks 2001:42; Olson and Lacey 1994:105). Also some species of livestock – namely sheep – can make farm space safer for other livestock by helping to control noxious weeds that can threaten the health of other livestock there (Olson and Lacey 1994:104-5; Popay and Field 1996:218).

The metabolic rift literature has considered how capitalist agriculture has responded to issues of weeds. Specifically, focus has centred on chemical control of weed populations (Wittman 2009:808; Wolf and Buttel 1996:1270). Scholars have addressed the issue that agribusiness is wresting control of production from farmers by creating herbicide resistant crops, so that, farmers who are under pressure to produce more in shorter periods of time turn to agribusiness for herbicide resistant seed. Not once, but repeatedly over the course of production because often farmers either have to sign contracts to say that they will only use the herbicide resistant seed to produce one crop, or else, it is wired into the seeds genetic makeup that it will only ever produce one harvest (Abergel 2011:270; Liodakis 2003:53; Middendorf et al. 2000:112–3;

[231] Of course, a weed is really only another type of plant, so that, a 'weed is not a real physical thing. It is a plant wrapped in socially constructed meanings ... It is not a plant, grass, or any *thing* that grows. Rather, it is a social object constructed by overlapping institutional definitions, norms, motives, and actions that structure what we see, feel, and judge [to be weeds]' (Weigert 1997:121). Basically, weeds are plants-out-of-place. In the space of the farm, weeds are those plants which do not contribute to productivity, and in fact 'restrict or otherwise interfere with land management objectives' (Olson and Lacey 1994:105). Also, within the category of weed some weeds are considered more problematic to production than others. For instance, dock, thistle and ragwort, have been identified as particularly problematic weeds within Irish agricultural spaces because their seeds scatter widely making it difficult to control populations (Teagasc 2011a:2)

Oguamanam 2007:262). Scholars have also looked beyond the relationship of farmers to the market in controlling weeds and have considered how at an ecological level the use of herbicides on crops is not sustainable (Foster and Magdoff 2000:55).

> Pesticides are not new. The use of inorganic substances, such as copper, for controlling insects and diseases is mentioned in the Bible, but the first synthetic pesticides, the organochlorines, were not developed until the 1940s. Since then, hundreds of new pesticides have been produced to control a wide range of weeds, pests, and diseases. (Eke, Barnden and Tester 1996:43).

These new pesticides which began to proliferate since World War II[232] offer a more targeted way to control weeds than the more primitive methods that predated them, such as using sulphuric acid and copper sulphate which commonly burned crops that grew around the targeted weed (Lowen 1991:53–4). The development of herbicide resistant crops has been a further development that has encouraged the use of herbicides within agriculture (Paoletti and Pimentel 1996:667). Also, farmers are encouraged by agribusiness to view weeds as the ultimate threat to productivity, and accordingly, to repeatedly invest in herbicides (Goldburg 1992:647). So commonly are herbicides used within capitalist agricultural contexts, and so reliant on them have capitalist farmers become (Altieri 2000:82) that farmers operating under this system are on a virtual herbicide treadmill[233] where more and more and stronger and stronger herbicides have to be added to crops to achieve the same result of controlling weeds, as weeds themselves become herbicide resistant the more they are exposed to a certain herbicide (Altieri 2000:16; Holt and Lebaron 1990:141): Weeds are exposed to herbicide where it is directly applied to them, but also, herbicide resistance can be passed on through pollen transfer for instance[234] (Holt and Lebaron 1990:1990; Peterson 1999:632).

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[232] 'Reliance on synthetic chemical inputs … [has] vastly increased following the Second World War' (Foster 2002:155)

[233] 'The reliance on pesticides to deal with crop pests has created the need to continually develop new pesticides. As a pesticide is used again and again, a certain percentage of the target pest is able to survive because of a natural resistance to the chemical. It doesn't take too long before a large portion of the target weeds, insects, or other pests become resistant to the pesticide. This keeps the farmer on a "pesticide treadmill" as the older pesticides lose their effectiveness and new ones need to be used' (Altieri 2000:82)

[234] 'Every continent now has herbicide resistant weeds (Heap, 2010). Faced with a potential ecological disaster, the agri-biotech industry responded by producing GM varieties tolerant to more than one herbicide so herbicides can be rotated to avoid the development of resistance by using soil acting residual herbicides to kill off the seedlings of resistant biotypes. In both approaches bio-value is added in order to deal with the problems of chemical dependency and an increased toxic burden on the environment. Climate ready plants far from eliminating the need for chemical herbicides and pesticides will incorporate herbicide tolerance and continue to accelerate the process of multiple resistances in crops via transgenic contamination, thus legitimizing the search for more efficient bio-commodities.

What all of this has led to within capitalist agricultural contexts is that newer and stronger chemicals are being created all of the time to deal with weeds, and so, more and more chemicals end up entering the soil. But, chemicals can harm soil. Following Fahy's (1975) understanding that INF applications to soil while helpful to production in the short term are harmful to production in the long term, because the addition of inorganic materials into organic soil disturbs not only the chemical balance of healthy soil but also the structure of the soil so that it is negatively affected what is important to understand is that:

> Soil is a complex mixture of organic binding materials, inorganic particles and living creatures. When in good condition soils have recognizable *crumb*-structure although this breaks down under intensive usage – such as the repeated application of inorganic [chemicals] … - with consequent loss of fertility. Between 1940 and 1946, as a result of intensive tillage, soil fertility in parts of Ireland declined, the fall being measureable in terms of the production of starch in pounds per acre. Intensive crop growing with the aid of [chemicals] … results in an incomplete range of chemical elements being added to soil. (Fahy 1975:125).

This, combined with the fact that most of the plant, with only the exception of the rootstock, is removed from the soil during the harvest means that the structure of the soil is made all the poorer, because on the one hand there is not enough physical binding material to hold the soil together, but also, neither is there enough of the necessary chemicals in the soil to allow it to hold itself together in a productive way, and so, the soil loses its healthy crumb like structure and becomes sloppy in wet conditions and rock hard in hot conditions (Fahy 1975:125).

> [A]ll progress in capitalist agriculture is a progress in the art, not only of robbing the worker, but of robbing the soil; all progress in increasing the fertility of the soil for a given time is a progress towards ruining the long-lasting sources of fertility … Capitalist production, therefore, only develops the techniques and the degree of combination of the social process of production by simultaneously undermining the original sources of all wealth – the soil and the worker. (Marx, 1976: 638).

Genetic contamination, once thought to be the Achilles' heel of the biotechnology industry, seen through a bio-capitalist lens, provides the impetus to invest in scientific strategies that alter the reproductive capacity of plants as a strategy to manage transgene escapes while, at the same time, preventing the economic losses due to Intellectual Property Rights infringement. The production of GM plants that cannot germinate after one season via suicide seeds (so-called terminator technologies) (Abergel, 2008) create the incentive for increased corporate control over seed production. Moreover, terminator technologies embody bio-politics through genetic modification. The biotechnology industry enforces and secures intellectual property rights whilst eliminating potential transgene escapes; at the same time, it is disciplining and controlling the use of bio-commodities only for those willing and able to pay for it. It is likely that CR crops will reinforce this pattern' (Abergel 2011:270). What must be remembered is that the use of pesticides against pests is not simple because while the pesticide might act on the targeted pest in the desired way it might also eliminate other species or result in the pest becoming resistant or might result in other species becoming pests that were not pests before because they had been controlled by the predators and parasites now killed by the pesticide (Hill, Wilson, and Watson 2004:54–5)

Then, in addition to harming soil in the aforementioned ways the use of herbicides within crop production can negatively impact the socio-ecological relationship within agriculture by damaging crops (if they are not herbicide resistant) and increasing plant pathogens and insect pests (Paoletti and Pimentel 1996:6667).

However, while it is important to understand how capitalist agriculture has encouraged the use of herbicides to control weeds and has done so with negative effects for the metabolic relationship between nature and society the problem with the metabolic rift literature is that, while pointing up the flaws of herbicide use it does not offer an alternative solution to how weeds can be controlled in an ecological way within agriculture. Even where livestock control of weeds is put forward (Rosset 2000:207) there is no guidance on how to use livestock for this purpose. The other problem is that in focussing on capitalist agriculture's various attempts to control weeds the idea that is encouraged is that the total eradication of weeds from agricultural space is necessary to crop productivity when this is not so.

In fact, where weeds are present in controlled levels they can offer many ecological advantages to crop production systems: When not present in too high a volume, weeds can actually facilitate crop productivity by enhancing biological insect pest control, by providing soil cover, and by reducing erosion (Altieri 200b:17; Thrupp 2000:276). But also, as plants, weeds can facilitate crop production by modifying 'the environment in a way that benefits a … crop … or by releasing nutrients that can be taken up by the second crop' (Altieri and Toledo 2005:373). In other words, while it is important to control weed levels within crop space if high crop yields are to be achieved it can also be beneficial to crops to have a certain level of weeds among them.

The key is not to eradicate weeds but to control them, and in controlling them, the key is to use ecologically friendly techniques to achieve this, because while herbicides save labour and time (Wyse 1994:406) their use is not without ecological consequences. One of the more ecologically friendly ways of controlling weeds is to rotate crops (Altieri 2000:78; 87; Peterson 1999:634) so that weed populations and their associated pest populations cannot prosper (Altieri 1983:403, 1993:262). Another is to employ certain

cultivation practices (Peterson 1999:634) such as ploughing[235] (Greenland 1977:119), especially before frost is expected so that frost can kill weeds as they emerge from the ground (Kelley and Woods 1991:30). As understood by Gillmor (1977), for 'some plants … the incidence of frost is a critical temperature factor. Occurrence of … frost … [can damage plants] (p. 13). Also, hoeing of land while crops are growing is useful (Walsh 1976:67). But crucially, where livestock and crops are produced together livestock can be used to control weed levels (Leeuwis 1989:48).

In some systems of production sheep and cattle are commonly used within agricultural space to control weed levels there (Olson and Lacey 1994:109; Turner, Bond, and Davies 2004:55). They are especially effective in controlling weeds where cattle are first let onto crop land before sheep are let on afterwards. This is because sheep can graze tighter to the ground than cattle which means that any of the weeds/weed stalks that are low to ground that were not eaten by cattle can be eaten by the sheep (Abaye, Allen, and Fontenot 1994:1013; Leeuwis 1989:76; Turner, Bond, and Davies 2004:55). But also, one (cattle or sheep) might eat weeds that the other would not (Popay and Field 1996:219): For instance, sheep will consume forage near dung whereas cattle often reject such forage (Abaye, Allen, and Fontenot 1994:1013). In short, where labour is employed to ensure that cattle or sheep are allowed onto crop ground, and where their order of entry there is shaped in a particular way this can help to control the level of weeds that will grow there when this land is being used to produce crops. Of course, while cattle and/or sheep can perform the function of being an instrument of labour that contributes to greater crop productivity by helping to control weed levels, it is only where labour is employed to alternate crop producing space between livestock usage and growing crops, and where it is employed to alternate the combination of which livestock are allowed onto weed growing areas first, that livestock as weed control agents can contribute most to the metabolic relationship within agriculture.

But also, beyond understanding how livestock can be used to increase crop productivity by lowering weed levels, what is also important to understand is that, at the level of

[235] 'It was thought for many years that loosening and opening the soil by ploughing was important to establish appropriate physical conditions. In fact some 40 years ago Russell & Keen (1937) showed that for many soils tillage was important for destroying weeds rather than modifying soil porosity' (Greenland 1977:119)

weed control some species of livestock – namely sheep – can help safeguard the health of other livestock – namely cattle – within farm space and in helping to safeguard the health of the other livestock they help to ensure that these livestock are available to produce manure for fertilising purposes.

If the case of sheep and cattle is considered, what has been found is that certain types of weeds are more noxious to cattle than sheep, and that because of this fact sheep have been used to control these weeds within systems where sheep and cattle are produced together. Taking the case of Ireland where dock, thistle and ragwort,[236] have been identified as particularly problematic weeds within Irish agricultural spaces because their seeds scatter widely making it difficult to control populations (Teagasc 2011a:2) what scholars have found is that both cattle and sheep can graze on docks. Often cattle are grazed first, with sheep being grazed after to ensure a tighter cut (Turner, Bond, and Davies 2004:55). Similarly, as regards thistles, both sheep and cattle can graze on thistles for weed control (Popay and Field 1996:226–7). Ragwort on the other hand, presents a somewhat different scenario because ragwort is poisonous to cattle (Cameron 1935:277).

However, where cattle and sheep production are carried out in conjunction with one another, ragwort infestations can be controlled quite easily as sheep because of their specific physiological constitution (which allows them to break down fibrous and toxic material) are tolerant to ragwort (Olson and Lacey 1994:104–5). Generally, where livestock are used to control weeds, the livestock are sectioned off into the weed

[236] '*Noxious properties.* Ragwort is injurious to farming interests in two ways. Firstly, it has taken possession of large areas of land, suitable for grazing, and, secondarily, it is poisonous to stock' (Cameron 1935:277). 'In England several deaths have occurred among cattle as a result of eating large quantities of ragwort in dried hay. Generally speaking, however, stock, with the exception of sheep, do not eat the plant unless compelled to do so; for example, when pasture has dried up and ragwort still remains green and juicy' (Cameron 1935:277). 'Noxious weeds are not native to areas where they become a problem. Most were introduced unintentionally as contaminants in seed grain and as packing material-ballast in early shipping from Europe. They are often difficult to control because they compete for moisture and nutrients and because their natural enemies, pathogens and herbivores, from their native countries were not introduced along with the plant. Environmental and economic considerations often limit the feasibility of mechanical, biological, herbicidal and cultural treatments; thus, the potential of using livestock to control weeds is intuitively appealing' (Olson and Lacey 1994:105). 'Ragwort, Thistle, Dock … are scheduled as noxious weeds under the Noxious Weeds Act 1936' (Teagasc, Fact Sheet: Noxious Weeds 2011:1)

infested area until weed growth there is brought under control (Popay and Field 1996:219). Where ragwort is concerned, cattle can be removed from ragwort infested areas and instead sheep alone can be contained there until ragwort has been removed from the area. Also, within the sheep population itself older sheep because they are more tolerant to its noxious qualities (and because they are not worth as much on the market), are often the ones that are grazed on ragwort because although sheep can tolerate ragwort, repeated exposure to it can adversely affect the health of the sheep, and eventually cause death (Popay and Field 1996:218).

Dock patches often develop on reseeded grassland, or where land has been compacted (Turner et al. 2004:54) such as in situations where heavy treading by stock has occurred (Willoughby 1996:3); thistles thrive on bare patches of land which can develop as a result of overgrazing (Popay and Field 1996:226); ragwort is often found in grassland situations (Teagasc 2011b:1) where pastoral land is of poor quality (Cameron 1935:272). Given that much of the land along the west of Ireland seaboard was of marginal quality this means that ragwort would most likely have been a concern there, which means that sheep would have been useful for controlling ragwort on farms there, thus, helping to safeguard the health of cattle, and thus, helping to ensure that livestock manure (and livestock manure in sufficient quantities) was available to crop production.

But also, there is something else to consider about the relationship between weed growth and livestock systems as they can occur together to affect the metabolic relationship, and that is that, in grazing on weeds livestock are provided with an additional source of food (beyond fodder and grass) so that weeds provide some of the nutrients that go toward the creation of livestock manure. In recognition of this fact some societies view weeds that grow among crop beds as a second harvest. Research has found that in some agricultural contexts 'weeds' are harvested for use by humans when the primary crop yield is low (Altieri 1993:265):

> In many regions, farmers voluntarily leave weeds in the fields by relaxing weed control. The Tarahumara Indians in the Mexican Sierras depend on edible weed seedlings (quelites) from April through July, a critical period before maize, beans, chiles and cucurbits mature in planted fields from August through October, thus practising a double crop system of maize and weeds that allows for two harvests. Quelites also serve as the only alternative food supply when crops are destroyed by hail or drought. (Altieri and Koohafkan 2008:22).

In addition, research has found that weeds can be harvested for the purpose of feeding livestock:

> Animals are fed residues and weeds with little negative impact on crop productivity. This serves to turn otherwise unusable biomass into animal protein. Animals recycle the nutrient content of plants, transforming them into manure. (Altieri 1999:203).

This idea that farmers might use weeds that have grown within crop systems as a second crop, or as a source of animal fodder has relevance where ridge and furrow systems were used in Ireland because weeds commonly grew alongside crops within this method of cultivation (Gahan 2001d:56). Arensberg and Kimball (1968), for instance, make the comment that weeds were pulled from among the crops that grew within the ridge and furrow crop cultivation systems that they observed (p. 42). Reports on the congested districts view the existence of weeds within cultivation systems as problematic. Where weeds outnumbered crops they would have adversely affected the metabolic relationship: Gahan (2001d) reports the 'strength of the weed crop [exceeded]… that of the potato crop' (p. 56), in one the districts that he observed. Where weeds are present to this extent they offer too much competition to crops for available nutrients, and therefore, adversely affect production.

Micks (2001) noted that in some districts weeds and crops competed together and that no effort was made to control weed levels (p. 42). Of course, one of the reasons that weeds may have had the opportunity to grow in crop beds in the congested districts is that often across the course of the summer many of the male population of these districts were in Great Britain working as seasonal labourers there, so that, they were not available for weeding at home (Freeman 1943a:3). But the fact that weeds were commonly present among the ridges does not necessarily mean that they were operating against sustainable production there because as has been demonstrated it is not so much about weeds being present or not, but about the level to which they are present, because just as too many weeds are bad for crop production the elimination of weeds from crop producing space is also counterproductive.

Also, returning to Arensberg and Kimball's (1968) recognition that weeds could be found among the ridge and furrow cultivation systems in the areas observed by them,

what is interesting to note is that although Arensberg and Kimball (1968) were reporting on an agricultural community within which a mixed crop and livestock system was pursued, and within which livestock manure was used as fertiliser (p. 42), at no time do they discuss that livestock could play a role in controlling weeds, nor do they identify that weeds could be used as a second harvest. Of course, neither do they discuss how livestock health, housing, and bedding issues could have affected crop production in a material way. Also, while Arensberg and Kimball (1968) do recognise that at the time of their study during the 1930s that the practice of out wintering livestock still existed in some parts of Ireland (p:7; 40; 44) they never follow up on what implications this may have had for soil productivity.

The West Cork Resource Survey draws attention to the fact that development in West Cork has been affected by, the combination of weather, topography,[237] and soil type that exists there and has emphasised that labour was crucial in affecting the way that each of these moments interacted to affect agriculture (Conry and Ryan 1963a:A–5–A–9, 1963b:A–15–A–43; Conry 1963:A–4; Diamond 1963:A–10–A–14; Lee 1963:A–44–A–53; Ryan 1963:A–1–A–3). Yet, Arensberg and Kimball (1968) are quiet on this point.

Another issue that is not brought up by Arensberg and Kimball (1968) but which mattered to the health of livestock, and by extension the health of crops where livestock manure was given to them is that it is important in coastal locations that livestock not permanently be allowed to graze on the highland, nor that they be permanently allowed to graze on land along the shore. Instead, livestock were healthier if they combined their grazing across both types of spaces during the time they were grazing on the commonage. This for one thing was so that cobalt – which is an important element for livestock health - could be maintained at an appropriate level: If livestock were continuously grazed on the mountain they could suffer cobalt deficiency because of the low level of cobalt in the ground there (Conry and Ryan 1963:A-35). Conversely, if livestock were continuously grazed on the land along the shore where there was a high content of windblown sand they might ingest too much cobalt. As such, livestock

[237] Mountainous topography in rural Ireland is particularly problematic in coastal locations where compounding the difficulties associated with steep slopes is the problem of exposure to wind (Neenan 1963:B-1; B-15), because the velocity of wind that occurs in coastal regions is affected by local topography (Diamond 1963:A-11)

grazing had to alternate between grazing on the high land of the mountains and low lands along the shore (Gillmor 1969:144).

(13.4) *Conclusion*

Processes occurring at the corporeal level of livestock affect their ability to support the metabolic relationship within crop production because livestock health affects livestock manure, and, where livestock manure is used as fertiliser then crop productivity is affected. However, while natural laws associated with livestock health and development operate along their own lines so that many of the processes involved in affecting livestock health stand outside of human influence, there are also many ways in which labour can be employed to maintain and promote livestock health so that livestock are more capable of providing quality manure for use as fertiliser.

In terms of shelter, the task of the agriculturalist is to assess if opportunities for shelter are adequately supplied by nature to meet the needs of the livestock they keep, or, if shelter must be constructed for them. In other words, the labour process involved in protecting livestock health so that livestock can contribute to the metabolic relationship is a complex decision making process which must take numerous aspects and processes of nature into consideration.

In mixed crop and livestock agricultural systems where livestock manure is used as fertiliser, then, where livestock health as protected through housing is concerned it is not only a matter of protecting livestock per se, but also, of protecting their capacity to act as fertiliser providers to the metabolic relationship. This not only involves drawing together natural materials in the construction of shelter, but also, replacing natural materials as they are worn out by natural phenomena - such as the weather acting upon them – and natural processes – such as how they as natural entities can respond to that weather.

But additionally, where livestock are housed it is essential to their health that they be provided with suitable bedding, and that bedding be changed regularly, because

livestock as natural beings produce urine and dung which interacts with bedding. As bedding is soiled in this way natural processes occur within the bedding to encourage the development of bacteria there. As such, bedding not only needs to be supplied, but also regularly changed if livestock health across the duration of housing is to be maintained. But, bedding sourced from commonage is produced by natural processes there, so that, livestock health as affected through bedding (where bedding from commonage is used) is affected by natural processes occurring on the commonage that contributes to the creation of that bedding. In other words, multiple processes associated with the commonage, as well as processes occurring within the commonage, affect the ability of livestock to produce quality manure.

Also, where livestock are grazed on commonage their health can be differentially affected by the soil they come into contact with there within the activity of grazing, because commonage space is not a uniform thing, but rather, there are different areas within it where different natural processes occur to affect livestock health in different ways. Thus, it becomes important to the metabolic relationship that labour be employed to ensure that livestock are afforded the opportunity to graze across different areas of commonage land as opposed to their being kept in one location.

Additionally, livestock can contribute to the metabolic relationship where a certain mix of livestock are produced within the same agricultural system, so that, one can be used to safeguard the health of another by removing/ingesting weeds from grazing space which would be more toxic to that other species of livestock than to themselves.

Also, in terms of that which livestock ingest and how what they eat affects the metabolic relationship, fodder nutrient levels can be affected by natural processes such as rain washing nutrients from soil so that less crops are produced for use as fodder, and/or so that crops produced are less nutritionally potent. But also, even when crops have been harvested rain can wash valuable nutrients from them so that they are of less benefit to the metabolic relationship where they are involved in the production of livestock manure which is used to fertilise crop producing soil.

However, while this chapter calls into attention the role of processes in affecting the ability of livestock to contribute to crop productivity, this argument as it yet exists operates at the level of theory and still needs to be assessed against a real life situation to test its validity within the context of actual agricultural experiences. As such, the following chapter applies the ideas brought up here to a real life situation where livestock were used to supply fertiliser and to control weeds within an agricultural community. The questions asked are: How did local natural forces combine to affect the ability of livestock to contribute nutrients to the metabolic relationship? How did livestock processes affect the metabolic relationship? What was the relationship between commonage processes, livestock processes, and labour processes in helping to safeguard soil fertility within crop producing space (private space)?

Chapter Fourteen

Livestock: Their Role in the Metabolic Relationship & the Issues that Could Affect How Well They Contributed to Crop Productivity in North-West Mayo

(14.1) *Introduction*

Livestock in Dún Chaocháin c. 1930s-50s were more than just raw materials for meat, dairy produce, wool, and such like. They were important contributors of nutrients to crop producing space because their manure was used as fertiliser. However, although they contributed manure which could be used for this purpose it was only when labour was employed in relation to the production, collection, and distribution of that manure that maximum returns to crop productivity were achieved. In order to safeguard livestock health (and therefore, the level of nutrients contained in livestock manure) labour had to be employed at different levels within the process of manure production and the recycling of nutrients stored within it to crop space: Labour was required to help protect fodder quantity and quality; labour was used to create shelter for livestock when adequate shelter was not naturally available to meet their needs; labour was essential to sourcing high quality absorbent bedding materials and then putting that bedding into livestock housing; and, labour was required to change livestock bedding regularly.

The housing of livestock served two purposes (1) it provided shelter to livestock to protect their health (2) it allowed manure to be gathered and used in the most efficient way within the mixed crop and livestock production system that existed in the area because livestock do not by themselves distribute their manure where and when it is needed by crops. Also, the use of absorbent bedding allowed for maximum nutrient capturing from livestock excrement to occur because it ensured that valuable nutrients stored in livestock urine were not lost. Additionally, the more often that soiled livestock bedding was changed the greater the volume of fertilised material available and so the more land that fertiliser could be applied to.

However, although housing of livestock was essential to collecting their manure the need for livestock housing for shelter purposes differed across the townlands studied here. Additionally, the commonage was crucial to providing materials to support livestock housing. Plus, the commonage provided numerous other types of things which were essential to the protection of the metabolic relationship as affected by livestock.

Also, livestock in their role as weed control agents affected the metabolic relationship both directly and indirectly: Directly, they reduced the level of weeds within crop space so that crops did not have to compete so much with weeds for precious soil nutrients there; indirectly, one type of livestock – namely sheep – was used to help protect the health of another – namely cattle – by controlling noxious weed populations which while injurious to sheep if they repeatedly ate them were fatal to cattle if they ate them. Where sheep helped to control the growth of noxious weeds in this way they helped protect the main livestock producing fertiliser source – which was cattle – and so therefore they contributed to the metabolic relationship within agriculture.

Labour was required to ensure that sheep and cattle efficiently performed the service of weed control agents as labour was employed to manage where livestock grazed and when. But also, labour was employed to move livestock between grazing grounds so that livestock obtained a greater diversity of nutrients in this way, which was better for their health, and better for the metabolic relationship between nature and society within crop production, because in the first instance, the fertilising quality of the manure that livestock produced was affected by the level and type of nutrients they consumed.[238] But, nutrients were not only provided through grazing, but also, through fodder which was given to livestock. And, given that fodder was important to livestock health, people made concerted efforts to defend fodder quantity and nutritional quality in numerous ways.

[238] 'Where the [farmer] … feeds his cows he is beginning his work of manufacturing. He is supplying his machines with raw material' (The Ballina Herald, January 18, 1930:1)

(14.2) *Safeguarding Fodder Nutrients Against Weather*

Weather was a threat to fodder at the quantity and quality level because it threatened to reduce fodder levels available and it threatened to reduce the nutrient status of fodder itself. As such, labour was employed in the postharvest stage to both safeguard the amount and the quality of fodder that was available to livestock within the mixed crop and livestock system that was followed within the area. Looking first to the issue of fodder as it was provided in the form of tubers - potatoes and turnips - what is interesting to note is how they were fed to livestock and how efforts were made to protect stored potatoes and turnips from weather effects.

> Everybody had plenty of potatoes and they'd need them to feed cattle (Anthony)

However, cattle were not the only ones in receipt of potatoes as fodder.

> The potatoes would be [mainly] for the house … but they would have that many potatoes they would feed them to the calves and pigs. When the dinner was being cooked there would be a big pot of potatoes and whatever was left over would be fed to the pigs, or calves or whatever was there … The calves didn't suck from the cow. The milk was for the house and there was big families that time and they needed any milk that was in it and the calf got his little sup of milk as well ... whatever was left over he got that but he wouldn't be sucking from the cow. There would have been very little of that. It wasn't the done thing. They would have to milk the cow. They didn't believe in the calf sucking. The cow had to be milked and the milk given to the calf and the same thing if they were giving milk to the pigs they would have to boil the potatoes ... [even though] that was a load of nonsense. They used to boil the potatoes for the pigs and for the cows as well. It was madness ... having to have feed boiled ... warmed feeding (Francis)

Sometimes potatoes were given to livestock with the specific intention of providing them with extra strength at particular times when they might have needed it, such as when …

> they would cut up raw potatoes for a cow after she'd calf ... [They'd cut up] raw potatoes or boiled potatoes … to give her enough to be able to feed the calf (Sarah)

Also, as already indicated, turnips were also fed to livestock. As one informant put it …

> turnips … were for the cows (James)

Given that potatoes and turnips were used to feed livestock it was important to the metabolic relationship that where livestock were being used to provide manure as fertiliser that the quantity and nutritional quality of these vegetables be secured. One of

the ways of protecting both of these types of vegetables against weather was to create pits[239]: Potato and turnip pits were common.

> They used to have long pits ... big long pits of potatoes in the field and in the garden ... around the houses and everything ... and they'd have pits of turnips too (Jean)
>
> You could store the potatoes in pits and turnips if you had good turnips (James)
>
> They used to put the potatoes [and turnips] in a pit and they'd get the … straw then and put it on them and then put about a foot of clay on top of them (Seamus)

However, it was not just any type of straw that was used. Rather, certain types of straw were better than others for protecting tubers stored in pits, and so only certain types of straw were used for this purpose.

> Next to rushes, which are splendid covering for pitted potatoes, wheat straw is to be preferred. Barley straw may also be used, but oaten straw should be avoided; not only can it be put to better use as feeding, but it decays in the dampness of the pit (The Ballina Herald, September 21, 1940:3)

Rushes were particularly good for helping to reduce the likelihood that tubers stored in pits would decay, but also, rushes helped to counteract the possibility that the tubers would begin to sprout:

> We would put rushes on them or if you had straw ... you'd put that on top of the potatoes before you'd put the clay on and then they wouldn't grow as much. The rushes or the straw didn't encourage them to grow otherwise they would start getting the roots on them (Peadar)

Sprouting of the tubers could be caused by flooding.

> It was generally reported that the tubers were of very good quality and were keeping well in pits, although sprouting was observed in some cases where fields were flooded (The Ballina Herald, January 25, 1930:2)

However, where rushes were used in the original construction of the pits then the effect of flooding may not have been as drastic on the stored tubers as it may otherwise have been. But also, just as the original pit was constructed with a view to how its construction (and the materials used in its construction) would reduce the risk of weather acting to damage the stored tubers, so too, did adjustments have to be made to the pit across time in response to specific weather threats as they occurred.

[239] 'Although the term "pit" is … used in connection with the storage of the potatoes in the field, there is now no scooping out of the soil. Instead a gentle slope is chosen, as near as possible to a cart track and on dry ground, and a strip about four feet wide is marked out. On this potatoes are piled 3 feet in height' (The Ballina Herald, September 21, 1940:3). Then straw and clay are laid on top of the pile (The Ballina Herald, September 21, 1940:3)

> If there was heavy frost or snow you'd see people putting more clay on the pits in case ... [so as to] insulate them more. If they knew there was snow or frost coming (Seamus)
>
> Because if the frost got into them it would burn them and they would be no good (Hannah)

Because …

> '[p]otatoes in storage are liable to damage from frost [so that where] … there is risk from frost, extra covering should be put on, to be removed when the frost comes' (The Ballina Herald, September 21, 1940:3)

Likewise, snow was responded to in a particular way.

> In the snow … the people would cover the pits with sods and leave holes around the sods then to let the air in (Anthony)
>
> You needed to let air in to stop the potatoes from sprouting (Francis)

Ventilation was also important if it was warm because heating of the pits also encouraged sprouting (The Ballina Herald, September 21, 1940:3). So, because over heating could cause the tubers to sprout only a certain amount of clay was used in the original construction of the pits, with extra clay being added if it became frosty. But also, if extra clay were added to a pit when the weather was frosty it then had to be removed again when the weather heated up once more, or else, over heating of the tubers within the pit would occur and the tubers potential to provide fodder would be lowered. In short, labour needed to be employed to gather specific materials for the construction of the pits, and labour had to be utilised to construct the pits in a certain way. Furthermore, expenditure of labour across the time that tubers were stored was necessary to the protection of the tubers in response to weather as it occurred, because not to respond to weather effects was to lose a valuable source of fodder/material which contributed to the production of livestock manure.

But also, sometimes extra labour expenditure was required just to access the stored tubers. For instance, if heavy frost or snow occurred it was sometimes necessary to apply brute force to the pit just to break it open so that the fodder contained within it could be utilised.

> I remember my father, the Lord Have Mercy on Him, going down the field there to the pits of potatoes and I was with him and everyone had a pick with them trying to get to the potatoes under the snow (Seamus)

However, potatoes and turnips were not the only form of fodder provided to livestock. Hay, oats, barley and so on were commonly fed to livestock. In fact, hay was the

principal fodder crop, and as such the amount of hay available, and, the level of nutrients within that hay was very important to livestock health, and ultimately soil fertility.

> Hay was very important. You needed it for the cattle so as soon as it was ready you had it in off the fields and into the haggard (Francis)

But, when it came to protecting valuable nutrients it was not enough to just get the hay off the field and into the farmyard. Rather, even in the postharvest stage hay and such like remained vulnerable to weather effects that could either see the level of fodder available decrease and/or could see the nutrient value of it reduce. Heavy rain, for instance, could damage hay cocks/reeks of hay.

> Hay in cocks were damaged in many places by flooding (The Ballina Herald, September 27, 1930:1)

A key risk associated with heavy rain was that nutrients would be washed from hay that had been gathered because …

> [w]hen grass is once dry its food value is much reduced if it is once again drenched, because the rain washes out soluble food nutrients (The Ballina Herald, July 11, 1931:1)

Strong wind was also a threat to hay and oats that had already been brought into the farmyard/haggard.

> If the storms came … the big reeks of hay they would be thinking they would be knocked down and that would be bad … [when strong wind would] knock reeks of hay and stacks of oats (James)
>
> With strong winds … there could be reeks knocked and damage done (Francis)

Not only did wind threaten to knock stacks of hay and such like down, but it also threatened to actually blow these resources away.

> The strong winds … could take the cock of hay and take it up in the air and it might be twenty miles away it would land and that would be bad. That would be disastrous if you lost the hay … and it might be twenty miles away (Francis)
>
> I remember one time years ago ... and my father, The Lord Have Mercy on Him, was drawing [hay] ... and a bad wind from the north west [came when he was] ... drawing the hand cocks, and, two fields over this gust of wind came ... One moment it was calm and then this wind came and it lifted the hand cock clear off the ground maybe ten or twelve feet in the air before it kind of scattered and I was watching it for miles and miles over ... going over. Sometimes you might go down in the morning and you'd see [sheaves of oats out on the road because] ... the hay might be in but the oats or rye might be out until October and you'd find the sheaves of oats out on the

> road or maybe blown down farther down to the cemetery. September was always given more or less to strong winds from the North West and people would be worrying about that. The hay would be in before the oats which would be out in their stooks. They would bring them in by October ... that would be the latest. If they were blown down it would take a good bit out of them ... they wouldn't be the same and they might not be all there either ... there would be a lot missing too (Seán)

On occasion the sun also posed a problem to stored hay. As the following newspaper exert from the region testifies to, the sun could cause hay stacks to ignite.

> On Friday evening … [the] Ballina Fire Brigade was summoned … to the haggard of Mr. John Conway, where a stack of about 5 tons of first crop hay was on fire (The Ballina Herald, February 26, 1949:2)

Of course people did not just passively accept these weather threats to fodder, but instead they employed labour to reduce weather risks. For instance, because overheating of hay could potentially result in that hay going on fire, so that the possibility of using it as fodder was lost, techniques were developed to reduce the likelihood of this happening. So successful were these techniques that no one could recall hay ever having actually gone on fire in the area despite reports demonstrating that this happened within the wider region of North West Mayo.

> The hay could go on fire if it would heat. If it was a breezy day it could happen … and it nearly did sometimes (Seán)

But nearly happening is not the same thing as actually happening.

> I never remember hearing of hay cocks going on fire (Francis)

Turf from the commonage was instrumental in saving local hay cocks from igniting.

> You could put some sods of turf into the reek of hay to keep … a kind of ventilation space in it ... and sometimes if they didn't have stones for a base for the ... reek they would put turf on the ground [so that ventilation was also offered from below] (Seán)

> Hay wouldn't go on fire because when the hay was saved … if air was getting into it all of the time. There was no way that it would go on fire. When they would make big cocks then they might heat a bit but they would never go on fire (Francis)

> If the hay was done fresh ... You would put your hand in to test it [test the temperature of it] and what was great one time was a sod of turf. When the reek would be thatched and if you put in your hand and stuck in a sod of turf ... you might make a little opening and it would cool down then. You would stick in your hand as far as you could stick in your hand and put in the sod of turf and leave … the sod there for maybe a week or two. It used to help. When you would try it again with your hand it would be better [it would be cooler] (Peadar)

Ventilation not only reduced the risk of hay going on fire but also helped to reduce the incidence of hay becoming mouldy from overheating.

> You'd want the air circulating because too much heat and the hay might get mouldy (Francis)

And ….

> [m]ouldy foods, whether hay or forage … should not be given to stock, as they are actually poisonous, and have resulted in many losses (The Ballina Herald, June 28, 1930:4)

Yet, even despite best efforts to prevent it from going mouldy it sometimes did.

> It would get the colour of flour ... it would be white ... if it did heat and when you would be pulling the hay in the winter it would be like ... it would nearly smother you ... white stuff coming through it (Peadar)

And despite the fact that mouldy hay was not very healthy for livestock it was still fed to them as such.

> You could use it but it wouldn't be a good thing (Peadar)
>
> Sometimes that mustiness sweetened the hay and gave it a bit of a flavour. But, it was not … good for them with the must but they would eat it (Francis)

Especially when other forms of fodder were scarce it was fed to them because although not the healthiest form of fodder it was thought that some fodder – whatever the quality – was better than no fodder.

> You'd give them the musty hay because they had to get something to eat (Francis)

But also, just as labour was employed to try to protect against hay overheating, so too were strategies adopted to limit the risk that wind and rain posed to stacked hay and oats. A common strategy was to create a thatch to cover them. However, when it came to making thatch different types of straw were considered more or less useful:

> Oat straw was best, barley straw was shorter and it could break as it would dry out (Francis)

But …

> [r]ye straw [could also be used] … for thatching (Irish Press, January 7, 1943:2)
>
> On moorlands, where reeds and rushes [grew] … these [were] … often cut and [made] … quite a good economical thatch (The Ballina Herald, September 27, 1930:4)
>
> Rushes were used for thatching the haystacks and reeks of hay. I used to see them piled up to use as thatch for a stack of oats or a reek of hay … They used to build the reeks themselves and thatch them with the rushes … They used to cut those rushes and thatch reeks to keep rain out (Jean)

But, as well as keeping the rain out the thatch also helped counteract fodder loss due to wind because the thatch was tied down over the top of the reeks/stacks which meant it was less likely to blow away.

> The thatch would always be tied down for the winter (Francis)

Plate 36:
A Farmyard/Haggard Showing thatched Hay Cocks/Reeks of Hay with Thatch Tied Down

Source: Folklore Photograph Collection,
National Folklore Collection, UCD, 2013

The thatch was tied down using ropes made of straw because …

> they had no proper ropes they would be all súgáins ... the straw ropes ... the hay ropes (Fintan)
>
> People would make the súgáins themselves (Francis)

Plate 37:
Making a Straw Rope

Source: Comhar Dún Chaocháin Teo, 2001

Also, as well as using thatch some people used old fishing nets where they had them to protect against wind.

> They sometimes used the nets to keep straw down (Peadar)
>
> If they had fishing nets they might use them but maybe not everyone would have them either (Francis)

Plate 38:
A Fishing Net Protecting Hay in Rossport

Source: Comhar Dún Choacháin Teo, 2001

Another weather risk reducing strategy that they had was to use sods of turf to limit the possibility of water lodging in sections of the reek/stack.

> Where there would be a hole coming in the reek ... in the side of the reek ... at the top of the reek ... a hole where it might hold the water that would make it rot, then they would go up under the hay with the sods of turf and lift it out and let the hay down on the sods of turf ... bring out the reek ... bring out the hole and fill it with the sods of turf and let that bring out the water ... even it out and the water would run off it (Seán)[240]

In sum, even in the postharvest stage the weather continued to pose many risks to the quantity of fodder and quality of fodder that would be available to livestock. But, human ingenuity combined with labour and the availability of raw materials to create ways to protect tubers in pits, hay in reeks, and oats in stacks, against weather, meant that, weather damage to harvested crops was much reduced, and so therefore, because of the link between fodder, livestock manure, and nutrients from that manure that are available to crops where that manure is used as fertiliser the metabolic relationship benefited.

But additionally, what is crucial to note is the degree to which commonage offered resources to make this possible – the rushes to protect stored tubers against dampness and sprouting, the turf to reduce heating of hay, and, the rushes and reeds that could be used for thatching. Furthermore, what is important to note is that not only did the commonage provide useful materials for these purposes, but also particularly in the case of rushes, it provided the best materials, because rushes were favoured within pit construction, and rushes were considered to provide a superior thatch. As such, the commonage not only provided extra materials to agriculture which were useful, but, it provided superior materials which were essential to offering the best protection of the metabolic relationship.

However, as important to the metabolic relationship as protecting fodder was, it was not the only factor impacting how nature and society interacted at the level of soil fertility maintenance. Rather, other issues such as livestock having appropriate shelter as they

[240] 'Make the roof fairly steep, so as to throw off the water. First allow these ricks [the anglicised version of reeks] to settle down to their own form, then draw off any lumps , fill up dents, and with any surplus off fill up the crown' (The Ballina Herald, September 27, 1930:4)

needed it was also important because appropriate shelter was important to livestock health.

(14.3) *Issues of Shelter*

Although hardier breeds[241] of cattle and sheep were kept in the area they would have needed shelter nonetheless.

> There was mostly horny … mountainy sheep … they were hardy. They would live on anything (Francis)

> Black faced sheep and some other sheep too. The land was poorer and the black faced sheep were hardy ... a hardy breed ... so it was mostly all black faced sheep that they had ... [As for cattle] we never saw Herefords until recent years. It was all black cattle ... hardier I suppose (Jean)

> The Angus cow and the Shorthorn cows … they were tough … a hardy type. That was the only type they had (Seán)

> Mostly there was the Shorthorn and the Aberdeen Angus ... there might have been some Friesians but I never seen many of them ... mostly the Shorthorn and the Aberdeen Angus ... [They were] supposed to be the best cows for milking that time ... well they were the easiest fed and easiest to keep. The Friesian was a delicate type of cow. They would be thin and they wouldn't be able to take the hardship of the winter as well as the Shorthorn or the Aberdeen Angus or any of them (Francis)

There was a notable difference in the level of housing afforded to sheep and cattle in the area . Looking first to the issue of sheep housing.

> Sheep were left out all year (Francis)

> The sheep would be out all of the time (Seán)

Only in exceptional circumstances were sheep housed.

> For sick sheep they had no injections or doses like they have now. So maybe they'd give them a bit extra or bring them in (Jean)

Otherwise …

> the sheep were left out all of the time unless there might be a very very bad winter … even if they were lambing they might be left out[242] (John)

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[241] 'The proper breed for the mountain districts of Mayo would be the Welsh black. This is a fair-sized animal and very hardy, fattening and milking well. It is a dual purpose breed for poor land where fair-sized cattle are favoured' (The Ballina Herald, February 8, 1930:1)

[242] 'Sheep are the hardiest of the farm stock and ewes which are in good condition have no difficulty in giving birth to their lambs in the open, even in cold frosty weather' (Connaught Telegraph, March 2, 1940:3)

Plate 39:
Sheep and Newborn Lamb Outdoors at Kilgalligan

Source: Comhar Dún Chaocháin Teo, 2001

> Well if they were lambing maybe some might put them in for some nights or a couple of weeks … if it was bad weather and they were lambing and that sort of thing then a few people used to put them in (Martin)
>
> In the snow time [especially] they would maybe let them into the sheds or give them a bit of food (Anthony)
>
> Snow would matter to sheep because it would cover the heather on them. It would cover the ground and they wouldn't be able to get at the heather then you would have to try to feed them (James)

Generally, sheep were left outdoors because they were good at fending for themselves. They were even known to be able to go down the sides of cliffs and source food there.

However …

> when sheep would go down the cliffs and eat the grass there sometimes they might not come up … . [and so] Sunday was the main day for men going out with ropes and getting the sheep up out of the cliffs. Three or four would go out when the sheep would be down the cliffs and a rope was put around a man and he was let down the cliff to where the sheep were to drive them back up. That was a kind of a done thing that would be going on between villages near the cliffs (Francis)

In contrast to sheep, cattle were housed much more regularly.

> You wouldn't normally house the sheep but you would house the cattle (Francis)
>
> The sheep would be out all the time but they always housed the cattle (Seán)

However, the degree to which cattle were housed varied between townlands. One townland (Stonefield) kept the cattle in at night all year round.

> We used to have them in at night all year (Martin)

Likewise reports from another townland (Rossport) indicated the same.

> Cattle were always in the sheds at night … even in the summer time (Fintan)

Contrarily, cattle were not housed over the summer in other townlands (Carrowteige, Portacloy, and Kilgalligan).

> We'd have them out at night out on the mountain out during the summer (Eileen)
>
> They used to let them graze on the mountain … That would be mostly spring to summer time and maybe into the fall. They'd be housed then. They would have them in the sheds for the winter. In the winter time they were fed indoors … they'd hand feed the cattle in the winter time in their yard or wherever they had them but in the summer time they would be grazing all over the place (Jean)
>
> You'd put them in in winter time ... the 1st of November or after it. We used to put them in the 1st of November and we wouldn't put them out again until the grass would have grown (Seamus)

However, in another of the townlands (Curraunboy) the normal protocol was to leave most cattle outdoors over the winter.

> They had the cattle out … strong cattle, dry cattle … they'd have them out over the winter. They'd keep the cow that would be in calf in but the dry ones they'd be out (Sarah)
>
> Maybe a cow or two might be in that would be milking but they wouldn't be in either in the day. They'd be put in at night for milking but in the day they would be out (Francis)

The deciding factor in whether sheep or cattle were housed over the winter, and whether cattle in one area or the next were housed was the availability to them of appropriate outdoor shelter to meet their needs.

> They would bring the animals in for longer parts of the year depending on the shelter in the land belonging to their townland (Seamus)

Sheep were considered to be survivors capable of finding their own shelter on the mountain commonage or other commonage and so tended not to be housed.

> Sheep are good survivors. They had ... little streams ... little rivers ... the way it is with commonage ... the mountain we'd call it ... there's always shelter there … little rivers and the like … Sheep in our area would be down along the beaches and that and they'd shelter nearly in every wind in the sand dunes (Fintan)
>
> The sheep would shelter there at the cliffs. They would go down the cliffs and get shelter (James)

> On the mountains then there were rivers and banks on the sides of the rivers and the rivers weren't straight but were winding this way and that way and so the animals could shelter in among them from wind from whatever direction it would blow and they would still be well sheltered (Francis)

However, opportunities for shelter were not as readily available to cattle – as they were to sheep - in most of townlands with the exception of Curraunboy because …

> in Curraunboy … there was a lot of sandy banks … like well sheltered big high sandy banks and the animals could move around when the rain was blowing and they were as happy as Larry[243] and they could move from spot to spot and get better shelter depending on which way the wind was blowing because there was banks at all angles (Francis)

> There was great shelter for the animals in the burrow … You'd nearly sleep in it yourself in winter (Peadar)

> Down the banks … would be a good place for wintering cattle and some of them would feed them out. I used to often hear my father, the Lord Have Mercy on Him, say that down the banks … when the animal would lie in the sand ... the heat out of the animal's body would heat the sand so much that the animal would have to get up three times a night and change. The sand would be burning under her. So the ones who had access to that land could keep animals out more but the mountains now they are different ... the mountain is damp all of the time and it's cold, but, it is easy to heat the sand. I often heard him saying that animals where they would lie in the sand would in about three hours time have to get up out of there and change ... the heat out of the animal's body would heat the sand so much that she could not bear the heat anymore (Seamus)

In contrast, where nature did not provide conditions such as these then the housing of cattle over the winter was important to maintaining their health.

> In a lot of cases there would be a thatched shed. In a lot of cases it would more or less be built into a kind of bank to save building all of the walls and it would be roofed and thatched. Rough and tumble. The animals would walk in and out. Every farmer would have his own shed or bit of a shed (Francis)

But building shelters in against banks was not only about limiting the number of walls that needed to be constructed, it was also about offering maximum protection from wind. Even in the case of houses built for human occupation it was not uncommon to find a house built up against a bank of earth.

[243] 'Good Shelter is half the food … animals like human beings thrive best when comfortable and happy' (The Ballina Herald, November 7, 1931:1)

Plate 40:
An Old Stone and Thatched House in Carrowteige Built Up Against an Earth Bank for Protection from Weather

Source: Folklore Photograph Collection,
National Folklore Collection, UCD, 2013

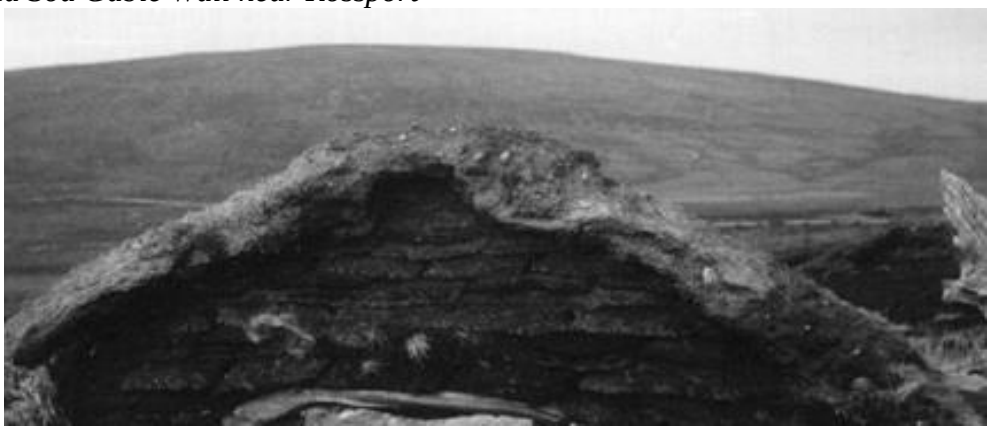
Likewise, where houses were not sited beside earth banks it was not unheard of for sod gables to be built onto the side of them. Notice in *Plate 41* how a sod gable is attached to the side of the house and also how stone and earth was pushed up against the façade. This would have been for added protection from the elements.

Plate 41:
A Stone and Thatched House in Carrowteige with a Sod Wall Gable and Stones and Earth Up Against the Façade for Protection from the Weather

Source: Folklore Photograph Collection,
National Folklore Collection, UCD, 2013

Sod gables were a feature of some housing in the area.

Plate 42:
An Old Sod Gable Wall near Rossport



Source: Folklore Photograph Collection,
National Folklore Collection, UCD, 2013

However, sheds were not always built into banks and such like and some did stand separate as well.

> They would be a permanent [construction] ... [with walls made of] stone ... it wouldn't be concrete blocks but stone and with a thatched roof mostly. That would be where they would keep the animals in for wintertime (Jean)

Plate 43:
A Stone Walled Thatched Byre/Shed

Source: Comhar Dún Chaocháin Teo, 2001

Thatch was laid across sods of turf and was either secured with chicken wire or straw ropes. The sods of turf rested on pieces of wood and bits of bushes which gave the roof structural integrity. Often these sheds were thatched with marram grass that grew on shore commonage. However, the marram grass that grew along the shore had originally been planted there by the Irish State in an effort to protect land along the coast from becoming overly sandy, and so, it was illegal to cut this grass. Yet, because it was useful for thatching it was cut nonetheless.[244]

> The government put that marram grass on the beach a long time ago. It was important. One time people used to cut it for thatch but that was illegal and what they used to do was cut it in the night and tie it in ropes and come back the next night and get it (Seamus)

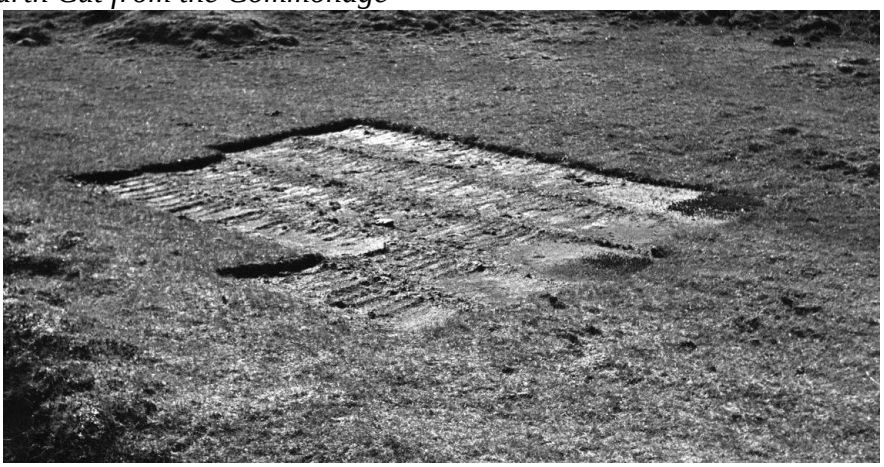
> It was illegal to cut it and so we'd go in the night and I often went back there with the auld lad and cut it and we'd have the ass with us and two baskets we'd fill and then away we'd go with it (Francis)

[244] 'For long years remedial measures have been adopted to stem the inroads of the sand plague by extensive bent [which is another word for marram grass] sowing, but trespassers were cutting the bent at night and carrying it away in their curraghs for thatch' (Iml. 1243:40)

Then as well as the commonage providing thatching material necessary to the construction of livestock shelters/sheds/byres it also provided the sods of earth and pieces of bushes that went under the thatch.

> There would be bits of bushes growing on the commonage and then you could get sods there as well. You went out with your spade and cut out the sod … and you rolled it up in a roll and you brought it to the shed and you had a few lengths of timber across and bushes and you rolled the sod right across and over the whole lot and you could put some thatch on top of it (Francis)

Plate 44:
Sods of Earth Cut from the Commonage



Source: Folklore Photograph Collection,
National Folklore Collection, UCD, 2013

Plate 45:
Sods of Earth Rolled Into Bundles Ready to Use

Source: Folklore Photograph Collection,
National Folklore Collection, UCD, 2013

Stones used for the construction of sheds were also often sourced from the commonage.

> That's where they used to dig the stones for building the houses … there were no concrete blocks and no cement that time … [just] solid rock … [and] you would have to cut it with picks and all that … [because] there was no JCBs that time … [and] three or four men would have to work together and the deeper you would go the better the quarry … I dug down there myself … for an old shed (Seamus)

Furthermore, once sheds had been constructed sods of earth taken from commonage could be used to provide quality absorbent bedding to livestock.

> They cut sods with the spade and dug them out and left them there ... maybe for a couple of weeks or whatever it would be and then they would gather it up and make a reek of it and they brought that home then and that was used for bedding … They would be big sods. They threw them into a shed. Well a shed wouldn't be too big but they threw them in and the cattle would walk them in ... break them up themselves ... the cattle walking in and out and they would lie on top of them then and it was dry bedding and healthy bedding (Francis)

On the other hand, some …

> would break up sods before they were put in (Seán)

These sods of earth were actually peat and so were a highly absorbent material capable of capturing nutrients from both livestock dung and urine.[245]

> They used to go to the bogs to the mountain and they'd cut up the sods ... the top of the bog ... bring them in in a horse or a cart or maybe an ass or whatever and maybe some would carry them in a creel if they were in a kind of an awkward place and they would put them into a stable (Seán)

> They'd go to the mountain then out there and they'd get ... dry turf mould ... kind of dry ... and you'd fill the sheds with it (Seamus)

Once the peat bedding was in place then livestock were allowed onto it to add nutrients to it and to bring it to life.

> They'd put in [livestock] the way it would fertilise it and put proof in it ... The sheep manure[246] and the urine would kind of rot it and it would put proof in and kind of fertilise it (Seán)

[245] Peat … is highly absorbent [whereas from] … houses which are bedded with straw or hay, a brown liquid flows away, carrying with it the very best of the manurial constituents … peat, on the other hand, has excellent retentive powers that no drainage whatsoever appears from houses in which it is used as bedding (Irish Press, December 2, 1933:7). 'Using this method, small amounts of … manure can be used to cover two or three times the normal area' (Connacht Tribune, December 14, 1957:27). '[T]urf litter … takes up to ten times its own weight of moisture and is an excellent means of transferring farmyard manure to the land' (Irish Press, February 18, 1947:1)

[246] Historically, 'sheep were particularly during the winter housed at night and turf mould or dry clay scattered on the floor of the … [shed] every day on which the sheep used to lie at night. This heap of consolidated deposit when applied as a manure dressing to the potato crop in May was a manure of the

> You'd put the sheep[247] into the shed at night the way the sheep would dirt [on the peat] and you'd leave it there for about two weeks and there would be steam rising out of that when you would cart it out. Many a time I was at that ... and you'd put that over the clay where the sea weed was and that was your fertiliser then. That was organic. Every bit of that was organic (Seamus)
>
> Put it under the cows the way they would ferment it (Martin)

Another benefit of mixing livestock manure with peat bedding was that the fertiliser provided by livestock manure could go further and cover a larger area when applied to crop space.

> The manure would go further that way (Seán)

But also, the use of peat was advantageous because peat actually becomes alive with micro-organisms and such like when livestock excrement is added to it and in being alive it offers additional benefits to soil.[248]

But, while the housing of livestock offered the chance to collect their manure, and while using peat offered an opportunity to capture nutrients that could otherwise have been lost, if straw for example were used, there was also the risk that livestock could become unwell when housed. For instance, where …

> the bad practice of allowing manure and soiled bedding to accumulate in cattle sheds [occurs, it is] … conducive to foot, lung and eye troubles. It also adds … greatly to the difficulties in dealing with any infectious disease (Anglo-Celt, January 10, 1948:15)

However, this type of bad practice was not performed in the area being investigated here. Instead, livestock bedding was changed regularly.

> They would clear the shed out maybe a day or two after [putting bedding in] and there would be a heap of dung outside the shed ... a wheel barrow to wheel it out or whatever the case may be and that was in a big pile then in the yard/in the haggard (Francis)

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highest quality and the potatoes grown from it were much drier and better for eating than those produced from any other manure' (Iml. 1243:85)

[247] While sheep were not as a rule housed across the period c. 1930s-50s for the purpose of providing shelter to them they were housed at intervals for the purpose of obtaining their manure

[248] Peat is rich in organic matter, but it contains no life. When, however, peat is used as litter for farm animals the resulting mass, consisting of a mixture of peat together with the urine and dung of the beasts, is rich in bacterial life, which multiplies rapidly in the mixture and helps to render it suitable for plant food in the soil. Straw, furze, ferns, heather … contain, like peat, much organic matter which, however, in the form in which it appears in these materials, is of little use in the soil. Decomposition changes are necessary before the plant is capable of utilising it (Irish Press, December 2, 1933:8)

The fact that livestock bedding required regular changing made the commonage even more important as a provider of this resource, because it offered the chance of obtaining as much bedding as needed without financial cost, and so therefore, increased the likelihood that bedding would be changed more regularly than perhaps would have been the case if it had needed to be purchased.

However even despite the fact that bedding was regularly changed there was still a tendency for livestock who were housed over the winter to be less healthy than their counterparts who were afforded the opportunity to remain outdoors because of the fact that natural forms of shelter were available there.

> The animals that were out all winter were better off than if they were in a shed. They would never get any disease when they were out all of the time[249] … It was way healthier for cattle ... and sheep. There was no danger to it. It was better because back in the burrow it was sandy. It was cleaner and warm because of them sheltering right beside sandy banks and they were never on wet ground. It was all sand. They were lying on sand (Francis)

Also, water supply was not an issue because spring wells fed some of the streams that flowed through there and spring fed wells never freeze over.

> Spring wells abounded along the shore and there was no thirst (Iml. 1243:106)
>
> Spring wells won't freeze … spring water won't freeze. If you are looking for spring water go out when it is freezing and if you see it running you know that it is spring water. There was places on the mountains where there would be springs (James)
>
> Some of the streams back in the burrow started from the springs on the mountain … On the mountains there was a lot of springs. They'd be fifty or sixty feet up from under the ground, and this water was purified, better than any water you could get anywhere in the world … spotless clean, filtered through the sand (Francis)

[249] The following newspaper exerts from a regional newspaper at the time support the idea that livestock housing and livestock health deterioration could be positively correlated with each other: 'It is surprising how vermin appears on livestock after they have been stabled for the winter. Germs lurk in the dark' (The Ballina Herald, April 12, 1930:1). 'Infection is spread by allowing affected cattle to mix with healthy stock, or by allowing healthy animals to have access to sheds … in which affected cattle are kept, and which have not meanwhile been thoroughly cleansed and disinfected' (The Ballina Herald, February 7, 1931:1). 'When an animal shows symptoms of illness, it should be immediately removed from other stock' (Irish Independent, August 18:7). 'It must be remembered that animals kept constantly out of doors very often escape rheumatism and, in fact, are all the healthier for a certain amount of exposure (Irish Independent, July 7, 1938:8)

As well as having a ready water supply available to them, livestock who were out-wintered could also find some sources of food for themselves.

> They would be picking food from the ground. There was grass there and bits there and they'd be nibbling on the bits. It mightn't be a lot but it kept them alive over the winter … The ones that were out had the heather and they were always picking and along the river they would be picking at the green grass because along the river there was always more minerals along the river because everything was washed down from the highlands down into the low ground and along the river you would always see green whereas the other place there would always be heather or whatever and that was healthy for them. Even in the winter they would be picking at it and it would keep them going (Francis)

However, despite the fact that livestock were able to source some of their own food over the winter, they were not able to source enough of it by themselves, and so, to maintain their health, labour had to be employed to bring food to them.

> I did it myself ... a bit of hay and a rope on it and onto my shoulder and out (Francis)
>
> Fifteen winters in a row and I'd be carrying a load of hay from the reek below to the cattle … fifteen winters in a row and there would be a few out and we'd feed them (Peadar)

However, despite fodder having to be carried a distance to livestock that remained outdoors at winter time, the level to which labour had to be employed in bringing food to those livestock was actually reduced by the fact that the distance across which fodder had to be carried was shortened by the actions of the livestock themselves who would come to meet the person who was approaching them and carrying the fodder.

> In winter time if you were feeding them, maybe a bit of hay or oats and they'd know the time. You'd see them coming down from the hill toward the roads and they'd all be assembled down there for the hay or the oats or if you were going up all the cattle would come running (Francis)
>
> They'd have sheep out over the winter and they'd go with a load … they'd bring fodder to them every day … If you went out with a bag or bucket they would knock you over ... they would be around in seconds (Sarah)

But also, even where livestock were left out as a rule over winter there were periods when they were housed, because it was only in housing them that their manure could be collected for use as fertiliser.

> You'd put them into the sheds for a few nights when you'd want manure for fertiliser and they'd dirty on the sods on the ground and then you had good fertiliser (Francis)

Again, as was the case of protecting fodder from weather, the commonage played a central role in affecting the metabolic relationship where livestock health was a factor, because it provided materials needed to build livestock shelters, and, it provided quality bedding, and a large supply of it, so that, at the same time as the bedding was capturing maximum nutrients from livestock excrement it was also helping to keep livestock drier than other forms of bedding would have because of its exceptional absorbent characteristics. But also, when for instance, stone for building sheds was being sourced from quarries through the combined labour of a number of men then the commonage not only provided essential materials to production and to helping to safeguard the metabolic relationship, but also, it encouraged communality within production by providing communal resources to agriculture, and spaces within which these communal resources could be gathered in a communal way.

However, the dynamics of human activity were not the only ones operating to affect agricultural production. Rather, livestock activity had its own role to play in certain regards. Notably, in terms of weed control the grazing activity of livestock could help control weed populations because this was not a society that readily used chemicals within agricultural production.

(14.4) *Livestock Activity and the Metabolic Relationship*

The only time that chemicals were readily used was in relation to trying to protect potatoes from potato blight.

> The potato was the one in most danger all of the time with the blight (Peadar)
>
> If you had potatoes and the blight came then you were finished and the potatoes gone. You can keep spraying but then if the weather comes you can do nothing (Sarah)
>
> Bluestone was put on potatoes ... [It was] put in a barrel and left diluting for about a day and then put into a knapsack and sprayed the same way we would spray the garden with weeds today. Some people if they didn't have a knapsack would use a bucket and a besom (that was like a lump of heather). They used to make them up. One time they used to sweep the floor with that and that was the brush. They might have a small one of those made up and then they would flick it onto the potatoes. They put washing soda with the bluestone (Francis)
>
> Say 8lbs of bluestone and 10lbs of washing soda[250] and you mixed it around and then sprayed your spuds with it ... See there was copper in the bluestone (Seamus)

[250] 'For the first spraying of backward crops some growers favour a half-strength mixture, i.e., 4lbs. bluestone and 5lbs. washing soda to 40 gallons of water, but it is of the utmost importance that the full

The idea of adding washing soda to the bluestone was that it would help to reduce slug populations, but also, it was done for the purpose of helping the bluestone to stick to the potatoes that it had been sprayed on.

> That would kill a lot of the slugs and things that would get into the potatoes. I think that was one of the ideas so that both jobs could be done, but, the blight was the most dangerous one. That was the one that would do the most harm if it set in. In rainy weather ... clammy weather ... foggy sort of weather ... that was a dangerous time for blight and if that kind of weather was on the way then they were out spraying while it was fine (Francis)

> The washing powder was to give it a stickiness for the plants so it wouldn't go off but would stick ... When they couldn't get any washing soda they had the shells ... and they'd gather up all the shells and … they'd burn them and keep burning them then until they went into ashes and they'd take that ashes then and put it along with the bluestone if they couldn't get any washing soda (Seamus)

In contrast to the use of chemicals against blight (which also had the indirect effect of helping to reduce slug populations) chemicals were not used to control weeds.

> They had the bluestone for the potato blight but it wouldn't have any effect on weeds (Fintan)

> There was no such thing as spray [for weeds]. All the spray that was going that time was spraying the stalks of the potatoes with the bluestone (James)

> Weeds would grow and you'd have to pick them. There was nothing to spray on them (Fintan)

> You had to pull them out of the crop (Anthony)

> There would be … plenty of weeds if you wouldn't keep the weeds clean by hand or by hoe (John)

Also cultivation was organised in such a way as to lower the presence of weed populations among crops. For instance, the fact that crop rotation occurred would have affected the level of weeds that grew within crop space.

> The crops were always rotated (Francis)

But also …

> they'd plough new ground … in October and then there would be frosty weather then and that would kill off all the weeds and everything so that's what they used to do. They liked to have it ploughed before the frost would come and it would kill all the weeds and everything (Fintan)

Additionally another weed control mechanism was to allow livestock to control weed populations where they emerged.

> The sheep and cattle would eat weeds wherever they would come across them growing (Francis)

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strength mixture should be used in every case for the first spraying of forward crops and for the second and third spraying of all crops' (The Ballina Herald, June 28, 1930:1)

However there were certain weeds – notably ragwort/buachailláin buí - that were toxic to cattle and so special emphasis was placed on removing those weeds from grazing land.[251]

> The buachailláin buí is deadly and should not be left in any field (Eileen)
>
> The buachailláin buí had to be pulled out because of the animals (Jean)

However, ragwort was not as toxic to some livestock as it was to others and so sheep who were relatively immune to its effects were often used in the control of this particular type of weed.

> The buachailláin, the ragwort they call it … The sheep would eat that and get rid of it (Seamus)
>
> You would have no buachailláins or nothing with the sheep on it. That's why weed was never a problem … because the sheep would have eaten the weed. The sheep would be out all year on the commonage but in the winter time you might bring them in closer to the house if it was for lambing or things like that, but then, once they lambed they were mostly gone out again. They would be brought in to the fields because the crops were taken out of them by then and they would keep weeds out (Francis)

But also, where sheep were allowed onto meadow land at any stage before it was used as meadow, they could contribute to the metabolic relationship by specifically helping to control the growth of ragwort there. It was important that ragwort not be allowed to grow in meadows because if it did it then cattle could end up ingesting it where it ended up being mixed in with hay: While the smell of growing ragwort tended to deter cattle from eating it there was no such smell to deter them from doing so when it was cut and dry and in among the hay.[252]

> If it was in the hay they might eat it (Francis)

[251] 'NOXIOUS WEEDS ACT – This act is in force in every county and occupiers, as well as leasers and other persons responsible for land, are required to keep it clear of the scheduled noxious weeds … Thistles, Ragwort, Dock' (The Ballina Herald, June 29, 1940:2)

[252] 'Ragwort – This weed seems to be very prevalent in meadows and pastures in many parts of the country, and as it is a dangerous one, efforts should be made to eliminate it. The green plant is [generally] left uncropped by grazing stock, owing to its offensive smell, but when cut and dried in hay it is eaten freely, and is then a danger to the animals consuming it' (The Ballina Herald, July 12, 1930:1). 'Cattle … do not normally graze ragwort, but when other food is scarce may be forced to do so. Once they start they can develop a depraved appetite for the plant and will selectively graze. Mineral deficient cattle are likely to select ragwort, which is rich in minerals, even when grass is plentiful' (Davies 2005:2)

Of course, the fact that efforts were made to control weeds does not necessarily mean that no weeds were present within crop producing space because they were. While weeds were generally absent from commonage space because livestock were constantly grazing there across the spring, summer, and autumn, livestock were not present to graze on weeds within crop space during the time when crops were growing there. Thus, it was not unusual to see weeds growing within crop beds and it was not unusual for some effort to go into trying to remove them at this stage.

> Some used to be abroad in the ridges with the potatoes pulling weeds out of them (Margaret)

However, even if weeds did grow there they would have grown in less numbers than if some of the techniques just discussed had not been employed. But also, the actual way that the crop bed was constructed acted to impede a certain amount of weeds growing there: In order to create a ridge it was necessary to fold sods of earth over onto each other (parcelling), and then, when crops were growing extra clay was added around stalks (moulding) at particular times. Together these acts of parcelling and moulding reduced weed levels.

> In the ridge you would be parcelling them and moulding them and you wouldn't get as much weeds ... that was an advantage (James)

But also, even where weeds did grow among crops they were not necessarily considered a waste of nutrients. Instead, weeds were often pulled and fed to pigs, and because pigs were housed and their excrement was collected and thrown among everything else that went into the dung heap from where manure was brought to crops to fertilise them, then the nutrients contained in these weeds made their way back to crop producing soil and so supported crop production.

> You'd put the weeds into bags that time and throw it to the pigs[253] (Seamus)
>
> You'd have the pig in a shed and any dirt from the pig went into the dung heap along with the rest (Francis)

[253] Historically in the area, 'weeds were carried home [from potato fields] in "creels" highly heaped with a reaping hook stuck down on top of the heap to keep it secure and prevent it from falling off. These weeds were fed to the cows which were kept at home' (Iml. 1243:91-2)

Of course, providing fodder to livestock was not the only way that food was available to them. Instead, livestock grazed across both crop producing space/private space and commonage space at different times.

> They would have cows and sheep out on the commonage and then they would let them onto the fields as well when the crops weren't there. Mostly the cows but sometimes some sheep (Francis)

> If they were supposed to lamb … you'd bring them in then onto the green grass down the fields then (Seamus)

When it came to grazing on the commonage what is important to note is that the commonage provided different types of grazing opportunities to livestock because there were different types of commonage – mountain, bog, and shore commonage – and livestock grazing was not confined to one of these areas but it occurred across each of them.

> The cattle would be grazing out on the mountain (Jean)

> Sheep then would be out on the mountain (Seamus)

But also …

> sheep would come down from the mountain (Seamus)

> Sheep would be around the houses (Francis)

> Sheep … would be down along the beaches and that and eating the seaweed there (Fintan)

Additionally …

> sheep would be on the bog sometimes (Francis)

Cattle could also be found grazing on non-mountainous commonage areas.

> Down along the beaches … cattle would eat seaweed (Fintan)

> Cattle could be down among the dunes grazing on bits and pieces there (Francis)

The fact that livestock grazed across various types of commonage was of significance to their health because the different types of commonage contained different types of soil which contained different nutrients/levels of nutrients.

> There was lime in the ground down along the shore but the mountain land would be different and it would be poorer (Francis)

> Some areas where they were grazing were greener than other areas. The greener the area the more fertile it was (Francis)

> There is a lot of proof in the sandy land besides the mountain land. The sandy land is green all the time and the mountain land is brown (Seamus)

So, if livestock only ever grazed on the mountain they may have become deficient in some nutrients. On the other hand, where they sometimes grazed other areas as well as the mountain they would have had a nutritionally superior diet.

But also, just as periodic grazing along the shore in particular would have provided important nutrients such as cobalt and calcium which can be scarce on mountains, it was also important that they not be allowed to graze this area continuously because, for instance, too much cobalt intake would also have been detrimental to their health. The common practice was to send sheep and livestock to the mountain to graze. However, livestock roamed across commonage because there were relatively few obstacles to stop them from roaming. Where their roaming brought them to graze on grass and plants produced from different types of soil containing different mixes of nutrients then the fact that a variety of commonage areas existed positively affected the metabolic relationship within crop production on private land because livestock health was better as a result and so consequently the manure they produced for use as fertiliser was more likely to be more nutritionally potent.

But also, the fact that commonage existed and that livestock often wandered down from the mountain and ended up down around the houses where crops were being produced encouraged communality within the community because …

> When sheep would come down off the mountain we'd bring them back up again in the evening. They would come down again and we'd bring them back up again (Seamus)
>
> They'd come down and we'd bring them back up again … They'd all be working together in the village and they'd bring them back up again (Anthony)

Essentially, the fact that commonage space existed not only helped safeguard the metabolic relationship, but also, communality at the level of behaviour.

(14.5) *Conclusion*

This was a society underpinned by communality. It was a society within which the commonage because it provided spaces accessible to all within production, and because it allowed everyone the chance to access its resources, brought the community together

to act in communal ways helping each other to drive livestock, helping each other to rescue sheep trapped on cliff ledges, helping each other to dig stones to build sheds, and any number of other things.

But also, in addition to the commonage's role in supporting communality, the commonage also supported agriculture by providing an area across which livestock could graze, and, by supplying resources to support livestock production, and thus by extension, the metabolic relationship within crop production. However, as I have demonstrated the commonage did more than simply supply resources to agriculture: Commonage space was not a uniform thing so that access to commonage had the same effect on any livestock kept there. Rather, because of natural processes occurring within the soil, and, between the soil as it interacted with weather and location, different areas of commonage land contained different mixes of nutrients, so that, for livestock health to be maintained livestock grazing had to alternate across different areas of commonage land.

Also, just as processes occurring on the commonage had the potential to affect livestock health at the level of grazing, so too did processes occurring on the commonage affect livestock housing in relation to issues of shelter: Ground conditions, weather conditions, and local topography interacted with each other within commonage space to affect the availability of adequate shelter across the year to livestock there, with the effect that, it was possible to leave cattle out across the winter in one townland but not in the others. The ability to leave cattle out over the winter meant that overall they were healthier as a result. But also, whether or not livestock were housed affected the level to which, and, type of labour that had to be employed within livestock production.

Additionally, what should be understood about labour as it was employed to create livestock shelter, for instance, is that where labour was involved in bringing together the natural materials required to produce livestock shelter (byres) what was happening was not only that labour was bringing together different natural resources sourced from the commonage for this purpose, but, labour was bringing together different natural processes which had given rise to each 'resource' being used. Also, where protection of

fodder nutrient levels at the pre, during, and post crop production stage was concerned, yet again processes occurring on the commonage gave rise to commonage resources which facilitated this endeavour.

As such, the commonage should not only be understood as a resource provider to the metabolic relationship, but also, as a space within which nature's processes interacted with each other to affect the overall process of livestock production. And, where livestock manure was used as fertiliser, then nature's processes as they interacted with each other on the commonage ultimately affected crop productivity on privately held crop producing land. Similarly, nature's processes were at play in affecting the metabolic relationship where livestock were used as weed control agents because different livestock – because of their different physiological constitutions – could contribute differently to this practice, so that, livestock grazing management was necessary to the efficient use of livestock in this way.

Overall, nature's forces were continually at play in affecting how nature and society interacted within the labour process involved in safeguarding the metabolic relationship. However, while occupying the role of motive forces which affected the nature-society relationship involved in crop production, nature's forces did not control production. Rather, these forces were brought together under agricultural labour processes so that their potential to support crop productivity was increased, and correspondingly their ability to negatively affect crop development was reduced. Manipulating nature's forces for this effect involved a deep awareness of natural processes as they interacted with each other to affect livestock production within the locality. But, more than that. For the agricultural labour process to be most successful in safeguarding the metabolic relationship within the area what was required was that people worked with nature as opposed to against it. For this to successfully happen people required extensive knowledge of natural processes as they interacted with each other within the area to affect agriculture, and they required an attitude of working with nature to get the best from nature: The community knew its environment. They knew what worked and what did not work; also, they knew how natural processes interacted with each other locally, and they knew how to bring together the forces of nature so that agriculture could be carried out successfully over time.

However, the deep level of knowledge required to successfully harness nature's forces to produce successfully within the marginal environment that confronted them did not spring from nowhere, nor, did the attitude of working with nature develop over night. Rather, there had to be some way of learning the skills required to produce in the way that they did, and there had to be some way through which this attitude of working with nature developed. Thus the questions that arise at this point are: How did people know so much about how the forces of nature operated to affect production within their area? How did they know what to do in relation to nature's processes, and when to do it? Where did the attitude of working with nature come from? To what degree did this attitude of working with nature allow them to successfully produce over time?

The following section deals with these questions.

Section 7

Knowledge Systems

Chapter Fifteen

Ways of Knowing & Their Impact on Nature-Society Interaction within Agriculture

(15.1) *Introduction*

At the centre of the metabolic rift literature is a concern for agricultural sustainability (see Foster 1999, 2002, 2009; Moore 2000, 2001, 2003a, 2003b, 2011). Key to the concept of sustainability is the idea that production in the present does not undermine the potential of future generations to meet their needs (Rennings and Wiggering 1997:339). However, although the metabolic rift literature has done much to emphasise the need for sustainable agricultural practices, the problem is that it has predominantly focused on macro level issues affecting sustainability, without concentrating on micro level local issues: Capitalism and its role in affecting sustainability has been explored and condemned from the Marxist left (Clark and York 2005:419; Foster 2009:144); also examined has been the idea that the 'world-ecological limit of capital … is capital itself' (Moore 2011: 107) because capitalism not only acts on nature, but, instead natural processes are part and parcel of how capitalism develops (Moore 2011:116); the relationship of technology to sustainability has also been probed (Foster 2009:144; Clark and York 2005:419; Costanza and Bernard 1995:339; Spaargaren and Mol 1992:336); and, the links between sustainability and monoculture production with its attendant reliance on chemicals and machinery have also been analysed (Clark and York 2005:399; Foster 1999:379, 2002:158, 2009:189; Moore 2000:134; Rossett 2000:203; Wittman 2009:808).

However, while exploration of these macro level focussed issues is of crucial importance in contributing to the development of a sustainable model of agricultural production, so too, are micro level dynamics worth considering, because both macro and micro level forces together affect the sustainability of agriculture within local communities.

At various points within preceding chapters I have discussed local issues as they affect agricultural production: I have already examined local property relationships, local labour relations, local opportunities for production, and local material conditions of production as they can impact agricultural production at local level. This chapter builds on earlier ones by specifically looking at local knowledge systems as they can affect agricultural sustainability. The importance of looking at local knowledge systems as they impact agricultural sustainability is now recognised within academia (Barnhardt and Kawagley 2005:9; Berkes 1993:2; Green, Billy, and Tapin 2010; Huntington 2000; Huntington et al. 2011:437), but also, international state policy on sustainability reflects the view that local knowledge systems as they impact agriculture are important to understand (LaRochelle and Berkes 2003:362). Yet, the metabolic rift literature continues to be dominated by macro level focussed research which does not explore in detail the role of local knowledge systems in affecting nature-society interaction within agricultural systems.

This is not to say that the metabolic rift literature has ignored the role of knowledge systems in shaping development. Instead, it is to highlight that where knowledge systems have been explored within the metabolic rift literature that the model of knowledge discussed has tended to be that informed by Western scientific principles (Foster and Magdoff 2000:55; Liodakis 2003:53; Mancus 2007:280; Middendorf et al. 2000:112-3). Some have stressed the importance of examining traditional forms of local knowledge as it impacts the maintainability of local agricultural systems (Rossett 2000:209). But, in the majority, the metabolic rift literature has not examined how local knowledge forms and the social mechanisms which lie behind them impact the metabolic relationship and ecological sustainabilty at local level where the Western scientific framework is not the dominant paradigm guiding practice. Conversely, scholars whose *specific* interest is in understanding knowledge systems as they impact sustainability, have stressed the importance of examining local knowledge systems as they affect agricultural production, because many communities across space have managed to meet their needs over millennia whilst producing in the same setting, because production within those communities has been guided by traditional ways of knowing (Berkes, Colding, and Folke 2000:1252; Green et al. 2010:338).

The chapter begins by examining the differences between the Western scientific model of knowledge – that guides capitalist agriculture and that is at the centre of much of the

metabolic rift literature – and systems of traditional knowledge – that guide production in many non-capitalist agricultural systems around the world – because understanding how these two knowledge systems differ, informs understanding of how nature-society interaction within them differs, but also, it highlights why one (traditional knowledge systems) can respond to local issues of production more readily than the other (the Western scientific system of knowledge): I explore traditional knowledge systems as they affect agricultural practices. I examine their connection to worldviews/philosophies about nature, cultural values that affect nature, and the manner in which nature-society interaction is affected by folklore, weather lore, and local place names circulating within local space. My overall aims are: To understand how a local community might develop such detailed knowledge of their environment and nature's forces as they operate within it that it is possible for them to produce sustainably over time; to understand the tools they used to 'read' nature as it operated around them; and, to understand the role of attitude and adaptability in supporting sustainability, and the structures and institutions that affected either.

However, I first identify the defining features of the Western scientific model of knowledge and those of traditional knowledge systems.

(15.2) *Western Science and Traditional Ecological Knowledge*

Capitalist and traditional agriculture are informed by different forms of knowledge (Altieri 1993:257): Capitalist agriculture is understood to be based on Western scientific principles (Middendorf et al. 2000:118). Traditional agriculture is understood to be based on traditional ecological knowledge[254] (TEK) (Altieri 1993:257; Berkes 1993:1; 3; Huntington et al. 2011: 438), often also referred to by different names, such as,

[254] 'For a long time, "tradition" was a problematic word for researchers in development and anthropology because, as Warren (1995) put it, "traditional" denoted the 19th –century attitudes of simple, savage and static." For this reason, some scholars favour the less value laden term "indigenous knowledge" (Warren 1995). Nevertheless, the term "Traditional Ecological Knowledge" has become established, among others, through the work of the International Conservation Union (IUCN) working group by that name (Johannes 1989, Williams and Baines 1993)' (Berkes, Colding, and Folke 2000:1251). Also 'many scholars prefer to avoid using the term *traditional* [as they] … find the term unacceptable or inappropriate when referring to societies such as Native northern groups whose lifestyles have changed considerably over the years. For this reason, some prefer the term, *indigenous ecological knowledge*, which helps avoid the debate about tradition, and explicitly puts the emphasis on indigenous people' (Berkes 1993:3). However, TEK is the most widely used term to describe the knowledge that guides production within indigenous communities and so it is used here

indigenous knowledge (Berkes 1993:3; Huntington et al. 2011;438), 'local ecological knowledge (LEK) … ecoliteracy, or more generally ecological knowledge' (Pilgrim et al. 2008:1004).

These two knowledge systems – of Western science and TEK - are generally (but not exclusively) understood to exist within a dichotomous relationship with each other as if no overlap occurs between them:

> The anthropologist Claude Levi-Strauss (1962: 269) argued that these two ways of knowing are two parallel modes of acquiring knowledge about the universe; the two sciences were fundamentally distinct in that "the physical world is approached from opposite ends in the two cases: one is supremely concrete, the other supremely abstract." Similarly, the philosopher Paul Feyerabend (1987) distinguished between two different traditions of thought: abstract traditions (to which scientific ecology belongs) and historical traditions, which include systems of knowledge possessed by people outside Western science, knowledge that often becomes encoded in rituals and in cultural practices of everyday life. Other scholars have cautioned against overemphasizing the differences between Western science and traditional knowledge and questioned if the dichotomy is real (Agrawal 1995). (Berkes, Colding, and Folke 2000:1251).

Similarities and differences exist between Western science and TEK (Berkes et al. 2000; Berkes 1993:3; Huntington et al. 2011:437):

> Bronowski considers the practice of science (including magic) as a fundamental characteristic of human societies: "… to me the most interesting thing about man is that he is an animal who practices art and science and, in every known society, practices both together" (Bronowski 1978:9). Thus, one can probably say that both western science and TEK (and art) are the result of the same general intellectual process of creating order out of disorder. (Berkes 1993:3).

As well as Western science and TEK being similar in that they both seek to create order out of disorder, they are also similar in the fact that they are both based on the accumulation of observations (Berkes, Colding, and Folke 2000:1251). However, beyond being similar in the aforementioned ways they are fundamentally different in other respects: Western science is an abstract form of knowledge (as indicated above) concerned with 'principles of general interest and applicability (i.e., theory)' (Berkes 1993:4), because what the Western scientific model strives for is 'universal relevance and global scope' (Hunn 1999:24). On the other hand, TEK is a more concrete form of knowledge because it is about how local conditions affect production. It is a form of knowledge that is gathered over generations of interaction with the local natural environment. As such, it reflects a deep understanding of the factors affecting local production (LaRochelle and Berkes 2003:362). It is not external knowledge (Pilgrim et

al 2008:1007). Nor, is TEK objective in the sense that it separates 'object and subject … place and people' (Green, Billy, and Tapim 2010:343). Additionally, in contrast to modern knowledge TEK is 'dynamic, adaptive,[255] and locally derived, thus coevolving with the ecosystem upon which it is based' (Pilgrim et al. 2008:1004).

Moore (2011) has highlighted how nature and capitalism coevolve so that changes within nature are reflected in changes in the capitalist system as it adjusts to accommodate changes occurring in the natural world (p. 135). Likewise, as regards TEK, changes in natural processes cause TEK to adapt and discard knowledge that is no longer useful to local production, and, to incorporate new knowledge that has become useful because of new conditions of production (Mulder and Coppolillo 2005:86–7).

This adaptive quality of TEK has encouraged a paradigm shift of late (Barnhardt and Kawagley 2005:9) within which even industrialised nations[256] are acknowledging that TEK can be of value to building sustainable models of production for industrialised contexts (LaRochelle and Berkes 2003:362): It is now realised that TEK can be used to complement the Western scientific model of production that exists within capitalist production contexts, by helping to develop 'environmental management strategies [tailored] to specific locations' (Green, Billy, and Tapim 2010:340). Yet, the metabolic rift literature remains centred on examining the role of Western science in affecting how nature and society interact within agricultural production, when some of the answers to how industrialised society might better achieve sustainability can be offered by looking more closely at TEK.

[255] 'The Aboriginal Australians have one of the longest living cultural traditions in the world, with recent archaeological records dating their culture back at least 50,000 years … [However ancestors] of today's Aboriginal people lived in landscapes very different to what the current generation calls their "country"' (Green, Billy, and Tapim 2010:338)

[256] '[T]he importance of traditional ecological knowledge in the conservation of biodiversity has been identified by the United Nations Convention on Biological Diversity, which calls for the recognition and protection of traditional knowledge. As outlined in Article 8 of the Convention, member states agree to:

"… respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practices" (UNEP, 2000)' (LaRochelle and Berkes 2003:362)

However, something to note before discussing more fully the role of TEK in affecting agricultural sustainability is that although the concept of TEK is used here, there is no actual agreed definition of TEK at international level[257] (Pilgrim et al. 2008; Snively and Corsiglia 2001:11): Different people have defined TEK in different ways (Lefale 2010:319). As such, for the sake of clarity within this discussion, and so as to ensure maximum analytic value be achieved from this analysis, it is important to make clear how TEK is defined here, which is 'as the cumulative body of knowledge, practice, and belief, evolving by adapting processes and handed down through generations by cultural transmission, about the relationship of living beings (including humans) with one another and with their environment' (Berkes, Colding, and Folke 2000:1252).

Understood like this, TEK is not 'merely a system of knowledge and practice; it is an integrated system of knowledge, practice and belief' (Berkes 1993:5). It is a form of knowledge that is shaped by, and in turn shapes the context within which it exists. As such, it is simultaneously subjective, determining, and adaptable. As previously stated, it is the adaptable quality of TEK that has allowed indigenous communities to produce sustainably in the same area for generations (Berkes et al. 2000:1252; Snively and Corsiglia 2001:11). However, while there is a durability to TEK there is also a corresponding fragility (Hunn 1999:24), because of the fact that, it is handed down through culture which means that knowledge 'common to one community is specific to its immediate environment and will not be shared widely in other communities. Thus that particular body of knowledge lives and dies with the community that sustains it, and that it in turn sustains' (Hunn 1999:24). In other words it can be lost if efforts are not made to record it (Green, Billy, and Tapim 2010:339). Hence, the importance of

[257] 'Much of the debate on traditional ecological knowledge at the international level is taking place in the context of intellectual property rights (IPR) through the World Intellectual Property Organization (WIPO) under the umbrella of the International Committee on Generic Resources, Traditional Knowledge and Folklores … WIPO acknowledged there is no agreed definition of traditional ecological knowledge. However, they broadly defined it as "it includes traditional medicinal, agricultural and ecological knowledge, as well as traditional music, stories and poems, dance, design, and sculpture." (WIPO 1999). On the other hand, Correa (2001) argued traditional ecological knowledge encompasses very different types of knowledge, which may be distinguished by the elements involved: knowledge potential or actual application, the level of codification, the individual or collective form of possession, and its legal status. She argued the different nature and forms of expression of the information embraced by traditional ecological knowledge could make it difficult to agree on a legally and scientifically acceptable definition' (Lefale 2010:319)

including a focus on TEK within my thesis, and within the body of the metabolic rift literature[258] in general.

(15.3) *TEK: Sustainable Practices and the Social Mechanisms that Lie Behind Them*

However, gathering and analysing TEK is not straightforward because TEK is a complex 'integrated system of knowledge, practice, and belief' (Berkes 1993:5). As such, before it can be gathered and examined in terms of its role in affecting sustainability there must first be some way to unravel some of the aspects of TEK. One way to do this is to apply a framework for exploring TEK using themes. Three broad themes that may be used are: (1) Practices and Strategies for Sustainable Living (2) Philosophy/Worldview and Cultural Values (3) Communication and Exchange of Knowledge (Berkes, Colding, and Folke 2000:1253; LaRochelle and Berkes 2003:364).

Some examples of sustainable practices and strategies that TEK practitioners use are: Protection of certain habitats, protection of certain species, protection of species at vulnerable life stages, monitoring resource use, temporal restrictions of harvests, producing and managing multiple species, practicing resource rotation, using succession management, managing different types of land within an overall system of production, managing water levels within soil, effectively responding to surprises, nurturing sources for ecosystem renewal, adding fertiliser to soil, and modifying the environment so that it is more productive (Berkes, Colding, and Folke 2000:1253; LaRochelle and Berkes 2003:367-9). All of these topics have already been discussed in earlier chapters. As such, discussion can immediately proceed to the second theme through which TEK's role in shaping nature-society interaction within production can be explored – which is the theme of philosophy/worldview and cultural values.

Berkes (1993) has identified that TEK practitioners have a distinct 'cosmology or worldview; a conceptualization of the environment that is different from that of Western science of which ecology is a part' (p. 5). TEK practitioners see themselves as connected to nature. They hold a worldview that they are one among a community of

[258] While TEK is local knowledge it does not necessarily only have to be held by indigenous people (Huntington 2000:1270)

beings who occupy the earth (Berkes, Colding, and Folke 2000:1259). As well as understanding themselves to share the earth with non-human entities in the form of animals, many traditional communities around the world also believe themselves to share the earth with supernatural creatures (Arensberg 1937:199–200; Hastings 2009:115–6; Thompson 1946:243), and also, some believe that aspects of nature such as trees, rivers, and areas of land possess supernatural powers (Gulia 2005:144; Snively and Corsiglia 2001:14).

Barry (1999) highlights that, indigenous people can have 'their own, usually spiritually informed, traditional ways of thinking about and treating their environments [and that the] … forms these traditional ways of thinking and acting [take can range] … from animism, a belief in spirits of the forest or of particular animals, [to] nature worship and sun worship' (p. 35). Where societies spiritually relate to their landscape this encourages 'a kinship between humans and nature, such that natural resources are respected and cherished as providers of life and energy' (LaRochelle and Berkes 2003:366).

Traditional communities do not have to see supernatural beings to believe they are there. Instead, they tend to believe in their existence regardless and to shape their actions in line with that belief (Arensberg 1937:195; Thompson 1946:247). Traditional agricultural communities in Ireland, for instance, have historically believed themselves to occupy the land alongside supernatural beings who could be invisible (Arensberg 1937:195; Cray and Adams 1958:282; Thompson 1946:243). Whilst the supernatural beings believed in were of various kinds, the group of non-earthly beings most commonly believed in within Ireland was the fairies (Arensberg 1937:195; Devereux 2004:7–8; Glassie 1982:547).

Certain features of the landscape held particular fairy associations, such as some types of trees and bushes (MacManus 1959:46), but also, something as simple as a mound of earth could be understood as a fairy haunt (Arensberg 1937:193; Byrne et al. 2001:45; Cray and Adams 1958:282; Devereux 2004:8-9; MacManus 1949:46-6): Trees such as the hazel, blackthorn, bourtree/English elder, sally, alder, ash, holly, birch, oak, scots fir, and rowan/mountain ash (MacManus 1959:45–6), and, mounds of earth –

circular in shape known variously as “fairy forts”, raths, or lisses were believed to have supernatural qualities (Devereux 2004:8). Of course, a logical explanation can be provided for the presence of these odd shaped pieces of earth on the land. Devereux (2004) explains that:

> over two thousand of these ring-forts are to be found scattered across the Irish landscape, and usually take the form of circular areas defined by a bank and ditch, often on a knoll or rise in the ground, and now often fringed by thorn bushes or surmounted by a copse. They originated in the Iron Age as fortified dwelling sites, but many of the visible enclosures today date to between 500 -1200 A.D., and a few were in use up until the seventeenth century. Certain ring-forts have underground stone-built chambers or passages thought by archaeologists to have been for dwelling or storage. (p. 8).

However, the actual origins of these forts is inconsequential in terms of their impact on local action. Of significance is the fact that ‘people were very much in awe of the supernatural world and superstitions influenced human behaviour’ (Mac Graith and Ní Ghearraigh 2004:16). As understood by Arensberg (1937), where fairy faith was present within Irish society it enforced specific behaviour involving rites and practices that had to be performed (p. 195).

The degree to which people believed themselves to inhabit the land alongside a fairy population is evident in the many rituals that people performed on a daily basis to try to ensure peaceful co-habitation and productivity: Illness in cattle was commonly attributed to fairy practice, and so, rites were often performed with a view to warding of the powers of the fairies to affect livestock health (Arensberg 1937:193); likewise, when butter was being churned precautions were taken to ensure that the fairies would not take the goodness out of the butter (Arensberg 1937:192); similarly, special words of warning were given to fairies before water was thrown out of houses at night (Devereux 2004:7-8). These and many other rituals were constantly performed in line with the communities’ resounding understanding that the landscape inhabited by them was also occupied/shared by the fairies, so that, proper human-fairy etiquette was required to successfully navigate local space and everyday life (Devereux 2004:7-8).

However, fear of the fairies was not the only factor that encouraged the performance of certain rituals pertaining to them. Instead, what is also reflected in the rites and rituals that were carried out in relation to the fairies were the same principles of behaviour

which guided the interaction of community members (Arensberg 1937:188): What was considered moral behaviour between people was reflected in the moral behaviour encouraged between people and fairies (Arensberg 1937:188). The following example of the protocols involved in building on a fairy inhabited landscape demonstrates well how the principles of sharing, obligations, and reciprocity were reflected in the overall ritual.

Not only did people believe the landscape to be inhabited by fairies, but also, they understood the fairies to travel across it using preferred routes/fairy paths that were invisible to the human eye.[259] As such, when a person wanted to build a house in a particular location, they could not be sure if it would block one of these paths. Thus, a ritual for discovering the suitability of a site for construction was followed: In order to assess the suitability of a site for construction some people would put a stone at each of the four corners of the intended building and then place a smaller stone on top of each of the larger stones, and, if the smaller stones were still on top of the larger ones by morning this was taken to mean that the site had met with fairy approval. If on the other hand, the smaller stones had been knocked down this was taken as an indicator of fairy objection. Alternatively, some people inserted sticks at each corner of the proposed building and if they were still standing in the morning this was understood to indicate that work could go ahead, and conversely if they were no longer standing then the opposite (Devereux 2004:11).

However, regardless of the specific ritual involved, the important point to note is that permission was sought from the fairies before construction began, and what this reflects was the peoples' belief that the land they occupied was a shared one, and that as such, agreement had to be reached about its use. But also, principles of reciprocity and obligation are reflected in this ritual because people understood themselves as obliged to seek fairy permission for the construction of buildings in certain locations, and also, people believed that if they failed to heed fairy opinion on this matter that they would suffer fairy malevolence as a result for breaking the code of reciprocity and over-stepping the mark of what was acceptable to take from other "community members".

[259] Fairy paths were thought to exist even though they were invisible to the human eye (Ó Catháin and O' Flanagan 1975:118)

Not only were social values and norms projected into practices involving the fairies, but also, in the performance of rituals that embraced already established social principles and norms, the legitimacy of those principles and norms as the proper ones to live by were reinforced in the psyche of those who performed them (Arensberg 1937:189). In other words, fairy faith – which was a product of culture - added another layer of cultural influence which promoted the values of sharing, obligations, and reciprocity which contributed to shaping local behaviour and how locals interacted with nature, because where people have a shared view of the world around them then not only are communal values reflected in practices, but also, communal resource management is encouraged (Berkes 1993:5; Berkes, Colding, and Folke 2000:1259). In sum, worldview gives shape to 'cultural values, ethics, and the basic norms and rules of a society' (Berkes, Colding, and Folke 2003:1256), and these values are reflected in how people interact with their local landscape.

However, understanding the role of worldview and cultural values in affecting agricultural practices is only part of the picture of how TEK works to facilitate sustainable production. Another important aspect of TEK is how the world views and cultural values that societies hold in relation to nature are translated into action and passed to others within their community, because sustainable production over time relies on successive generations holding a view of care towards nature and acting accordingly in their interactions with nature within production (Snively and Corsiglia 2001:12; LaRochelle and Berkes 2003:372). Necessary to the transmission of an ethic of care are mechanisms through which cultural views of respecting and caring for nature can be passed on (LaRochelle and Berkes 2003:372). Forums are important in this regard. Informal forums for communicating and exchanging TEK can be as simple as passing on views about the landscape within conversational encounters:

> For whenever the members of a community speak about their landscape - whenever they name it, or classify it, or evaluate it, or move to tell stories about it - they unthinkingly represent it in ways that are compatible with shared understandings of how, in the fullest sense, they know themselves to occupy it. Which is simply to note that in conversational encounters, trivial and otherwise, individuals exchange accounts and observations of the landscape that consistently presuppose (and therefore depend for both their credibility and appropriateness upon) mutually held ideas of what the landscape actually is, why its constituent places are important, and how it may intrude on the practical affairs of its inhabitants. (Basso 1990:141).

However, as well as general conversational forums having the ability to pass on and shape TEK, other more focussed conversational forums such as those that occur when the older males of agricultural societies gather primarily to discuss agriculture also affect TEK as held by societies (Arensberg and Kimball 1967:183; 196). Additionally, TEK can be passed in forums where members of a society tell stories containing TEK to others in the community (Berkes, Colding, and Folke 2000:1257; Snively and Corsiglia 2001:12). Of course, TEK is also passed on through practical demonstration and shaped by experience (LaRochelle and Berkes 2003:370). However, it is most usually transmitted orally between members of a community (Green, Billy and Tapim 2010:339; Snively and Corsiglia 2001:10).

Within traditional agricultural societies some members of the community have more influence than others to shape TEK[260] (Pilgrim et al. 2008:1004): Older members[261] (Berkes, Colding and Folkes 2000:1253; MacManus 1959:7-8; Snively and Corsiglia 2001:11), especially older male members,[262] who within traditional agricultural societies are considered to hold more TEK than others (Huntington et al. 2011:443; Moon 1999:234): The older males are often considered by the rest of their community to be living repositories of TEK (Mironov 1985:15). This is because they have lived the longest and so have had the most experiences of producing under, and adapting to, local conditions as they affect agriculture (Mironov 1985:15).

[260] 'There are known to be localized differences in the knowledge levels of men and women, of old and young, of groups engaged in ecosystem management and those not, and of those with different amounts of time resident at one place' (Pilgrim et al. 2008:1004)

[261] Wise people/elders play an important role in transmitting TEK in traditional societies (Berkes, Colding, and Folkes 2000:1253). This is because as the elders they have been acquiring TEK throughout their whole lives and so are expected to have more of it than their younger counterparts: "Learning begins when you are a baby, when it progresses from mumbling a few words to being able to read and write, and becoming familiar with the language. In fact, learning continues until the day you die" (LaRochelle and Berkes 2003:370)

[262] Speaking of the Russian agrarian commune, Moon (1999) notes that respect 'for elders was an important part of peasant culture. It was reflected in proverbs such as "The opinion of the older generation is always right" and "Where there is age, there is also law." The comparison of communal assemblies also reflected the authority of male peasants over female' (p. 234); 'The real "leaders" in the commune were the older peasants … The older peasants preserved a clear mind, possessed much experience in life, and enjoyed a reputation as "right thinking" (honest and just); together they constituted a group and sometimes formed an informal "council of elders" … They enjoyed considerable influence in the commune and they embodied its traditions, norms, and values. Every important matter in the commune was discussed first with [them] … and in most cases their opinion was decisive: the village assembly made its decision only with [their consent] … The high prestige of the older peasants is explained by the fact that communal life was based on an oral tradition handed down from father to son. Older men emerged as the most authoritative, for it was they who had the greatest professional and general knowledge; they were living encyclopaedias. The importance of their voice in all matters ensured the enormous influence of tradition in the daily life of the commune' (Mironov 1985:15)

However, to say that the older male members of traditional agricultural societies are the ones with the most influence to affect TEK is not to say that they are solely influential in this regard. On the contrary, TEK is not just a top-down process of knowledge development and transfer, but instead, while being most readily influenced by those with the most authority within the community in general, it is also shaped by, and transmitted by, other community members as well: Parents can transmit and shape the TEK of their children (LaRochelle and Berkes 2003:370; Weatherhead, Gearhead, and Barry 2020:524); children can shape the TEK held by their parents (LaRochelle and Berkes 2003:370); community members in general can also shape the TEK that is held within their societies (LaRochelle and Berkes 2003:372).

If the issue of folklore as a medium through which TEK circulates within communities is considered, what is found is that, although the older male members of traditional communities disseminate folklore most widely to the rest of the community they are not the only ones who shape the local knowledge it contains.

(15.4) *Folklore*

Definitions of folklore are many (Ben-Amos 1971:3), but in general folklore is understood to be orally transmitted (Ben-Amos 1971:8) and to include 'all the traditional forms of expression that circulate without the aid of books [and that are] … created through personal interaction rather than through the printed medium' (Swann Jones 1995:2). Folklore is an integral part of culture and so the form that folklore takes within any society is specific to that society (Swann Jones 1995:28-9): Even if similar versions of the same folklore tale might circulate elsewhere there will be differences within the tale that reflect differences within the societies that tell it (Swann Jones 1995:28-9); folklore is a mechanism for helping to socialise people to act in certain ways within specific community contexts (Carter, Donald, and Squires 1993:xii; xiii; xiv; Swann Jones 1995:xiii) which is why even similar tales will be nuanced to reflect the cultural values and norms of the society within which a specific version of the tale is being told (Swann Jones 1995:29). In other words, folklore is locally specific in the details it contains.

Historians and such like are often loath to consider folklore as a medium through which to understand how societies develop (O' Thuathaigh 2008:315–25) because of the fact that folklore is not chronologically specific[263] (Cruickshank 1981:72; Duffy 2007:210; Snively and Corsiglia 2001:16), and, because of the difficulty in trying to separate fact from fiction within it[264] (Ong 1967:23). However, folklore if approached properly can offer a valuable form of local history from below[265] (O' Thuathaigh 2008:320). If the fantastical elements of folklore are put aside, and instead, the values and norms of societal behaviour that are reflected in stories are scrutinised, then folklore can offer insight into the cultural values held by societies[266] (Harwood 1976:784). However, for folklore to be useful in guiding knowledge about the cultural values held by a society at a particular time, it is important that only the form of folklore circulating in a society at that time be explored for information on the cultural values held by that society because folklore is not static, but rather, it changes over time to reflect the changing cultural values of the people who maintain it (Harwood 1976:786).

But also, even amid the fantastical elements of folklore stories there is often contained detailed technological instructions of how to perform activities most productively. As understood by Harwood (1976), myths can offer important detailed practical instructions on the best materials, technology, and procedure to use within labour to get the most from that labour under specific cultural and material conditions of production (p. 789). Additionally, as wider circumstances change to affect production, so too, can myths change to incorporate new elements which keep them contemporary and technologically up-to-date (Harwood 1976:789). Of course, whilst folklore may offer practical and detailed technological instructions for production it is locally and culturally specific knowledge which they contain which means that while it may be difficult to interpret this knowledge from the outside, that, local communities can easily relate to and understand the information contained in local folklore because they have knowledge of local conditions of production (Cruickshank 1981:72) and because the

[263] Oral-aural cultures can have a different relationship to time than literate ones because of the lack of records (Ong 1967:23)

[264] It can be difficult to separate fact from fiction within folklore because scientific information may be integrated with 'spiritual, mythological, and even fictional elements' (Snively and Corsiglia 2001:15)

[265] This idea is supported by Gray (2005) who draws attention to the fact that folk poetry can offer an historical voice from below (p. 17)

[266] Gray argues the same idea for folk poetry, which is that folk poetry as popular literature articulates 'the cultural values and ideals of ordinary people of its time' (Gray 1993a:7, 2005:18)

cultural values held in the tales that they hear are those of the society within which the tales are being told (Ben-Amos 1971:4-5).

Essentially, while folklore does not offer a general model of learning to all who hear it, but rather, is an integral part of culture so that it cannot be divorced from its locale, time and society/its social context – which may be defined as geographic, ethnic, linguistic, or occupational (Ben-Amos 1971:4-5), it does affect TEK and it is useful to include a focus on folklore where the aim is to shed light on some of the tradition specific rationalities of communities (Burr 2003:7; Rodman 1992:650; Shipway 2011:43–4), and how those rationalities affect nature-society interaction within production, and therefore, agricultural sustainability.

As already indicated, folklore reflects the cultural values, norms, and production conditions that shape everyday life within the societies where folklore circulates (Arensberg 1937:188), and it can offer useful knowledge to local communities to aid local production (Cruickshank 1981:72; Harwood 1976:786). But, for folklore to contribute to sustainability it must be transmitted between generations.

The first thing to understand about folklore as a mechanisms for developing and transmitting TEK is that folklore because it involves the oral-aural transmission of knowledge requires people to gather (Ben-Amos 1971:12; Swann Jones 1995:xi; 32). Within social gatherings, folklore is presented to an audience by a storyteller (Ben-Amos 1971:7; Glassie 1995:402; Swann Jones 1995:xi; 28): The audience often comprises of a mixture of generations from the community (LaRochelle and Berkes 2003:372); the presenter is often from among the elderly male cohort of a society[267] (Harvey 1989:111) and it is they who transmit most of the community's folklore to the community (Arensberg and Kimball 1967:186; Arensberg 1937:139). However, folklore is not simply something that communities hold and pass from one generation to

[267] Although Arensberg and Kimball (1967) stress that women did 'not go out on *cuaird* like the men' (p. 196), in some communities women did meet as groups and within those groups elderly women would pass folklore onto other members of the community (Harvey 1989:115). Harvey (1989) notes that this occurred in Kilcommin, which is the parish to which the townlands being investigated in this research belong

the next in fixed form. Rather, while the form that folklore takes can be relatively stable over time, it does change (Ben-Amos 1971:5; Harwood 1976:789).

Folklore may change as a presenter and an audience interact in the performance and reception of folklore (Swann Jones 1995:xi), so that, the presenter fits the form that folklore takes around the audiences response to it, so that, over time new values and norms are reflected in the tales that are told (Ben-Amos 1971:7-8). In other words, folklore is communally shaped to reflect communal values specific to a culture at a specific time (Arensberg 1937:188). As pointed out by Ong (1967) an important feature of oral communication is that within oral communication people gather together communally to create shared meaning (p. 283).

Even where the written word may enter a social system so that communication is ordered in a more individualistic way with gathering together no longer being a requirement for the dissemination of knowledge (Ong 1967:54), and thus, with communality no longer being a definite feature of the knowledge that circulates within a society (Ong 1967:283) it is not the case that the spoken word as a form of communication disappears from social systems[268] (Bronner 1983:317; Ong 1967:58-60). A society may contain both the written word and spoken word as means of communication, but what classifies a society as an oral society or literate society is the degree to which communication is ordered by either the spoken or written word: If the dominant form of communication guiding interaction is verbal then the society may be classified as an oral society. Conversely, if the written word dominates communication the society is better understood as a literate society. As Glassie (1982) points out:

> [a] people [can be] … literate. They [can] write shopping lists, read newspapers, and transfer songs on written "ballats," but … treat literacy as a marginal convenience and conduct all important exchanges with the body in motion, the other directly engaged. Their world is ordered orally … Matters of history, genealogy, and land tenure, cooperative arrangements, between farmers, rental agreements, sales at marts, the "fireside law" governing land use, routes across private property and access to water, and most profoundly, the rules of the church – all are held in the memory and expressed face on, intimately, in words. (p. 57).

[268] Even the most urbanised settings, such as Brooklyn and Detroit have forms of folklore because folklore essentially describes informal learning through the spoken word (Bronner 1983:317)

In terms of communality, what this means is that a society may access knowledge in an individualistic way through the written word but yet retain communal features at the level of communication and meaning which can then affect action.

But, folklore is not the only way that TEK is shaped, transmitted, and encouraged into action at the level of oral culture. Rather, weather lore which is an important aspect of TEK is also shaped by local conditions, transmitted by local people, and has an effect on local production.

(15.5) *Weather Lore*

In communities where weather is a threat to food supply then weather is a constant source of concern (Lysaght 2000:205). As such, traditional communities around the world have developed ways to predict weather by reference to natural phenomena (Glassie 1982:578) acquiring TEK as they interact with the local environment in the course of pursuing 'daily subsistence strategies for food and economic provision' (Pilgrim et al. 2008:1004).

> From the earliest times, hunters, shepherds, sailors, and tillers of the earth have from sheer necessity been led to study the teachings of the winds, the waves, the clouds, and a hundred other objects from which the signs of coming changes in the state of the air might be foretold. The weather-wise amongst these primitive people would be naturally the most prosperous, and others would soon acquire the coveted foresight by a closer observance of the same objects from which their successful rivals guessed the proper time to provide against a storm, or reckoned on the prospects of coming crops. The result has been the framing of a rough set of rules, and the laying down of many "wise saws", about the weather, and the freaks to which it is liable. Some of these observations have settled down into the form of proverbs; others have taken the shape of rhymes; while many are yet floating about, unclaimed and unregistered, but passed from mouth to mouth, as mere records of facts, varying in verbal form according to local idioms, but owning a common origin and purport. (Odinsson 2010:52).

From Samoan communities to Alaskan natives, indigenous societies around the world have long examined natural phenomena to help them to predict oncoming weather. For instance, extensive observations about cosmology and animal behaviour have been made by societies, so that, they can better understand the patterns that contribute to ordering weather, and so that, they can produce and survive more easily as a result of knowing them (Barnhardt and Kawagley 2005:11; Lefale 2010:323).

Although traditional ways of weather knowing are very different to those relied on by modern meteorology, this does not necessarily mean that they are less valuable to local communities. Whilst meteorology is largely seen in the West as the most accurate form of weather prediction, in some areas of China, for instance, meteorological information and that obtained through weather lore are combined and broadcast to local communities (Ehlert 2012:117).

While it is understood that some weather lore is not very helpful in predicting the weather, most likely because not enough observation of weather went into producing it (Odinsson 2010:52), or else because it was always only meant as 'light hearted rhymes, or imaginative contradictions' (Ehlert 2012;113), it is also important to understand that various forms of weather lore have 'survived the test of careful observation and scientific reasoning to become reliable guides to coming weather' (Ehlert 2012:113).

> "*Red sky at night, sailor's delight. Red sky in the morning, sailor's warning*". Weatherlore concerning the appearance of the sky, the conditions of the atmosphere, the type or movement of the clouds, and the direction of the winds may have a scientific basis and likely can predict weather … In order to understand why "Red sky at night, sailor's delight. Red sky in morning, sailor's warning" can predict the weather, we must understand more about weather and the colors in the sky. Usually, weather moves from west to east, blown by the westerly trade winds. This means storm systems generally move in from the West. The colors we see in the sky are due to the rays of sunlight being split into colors of the spectrum as they pass through the atmosphere and ricochet off the water vapour and particles in the atmosphere. The amounts of water vapour and dust particles in the atmosphere are good indicators of weather conditions. They also determine which colors we will see in the sky. (Odinsson 2010:54).

> "*A cow with its tail to the West makes the weather best. A cow with its tail to the East makes the weather least*". Cows, like people, prefer not to have the wind blowing in their faces, and so typically stand with their backs to the wind. Since westerly winds typically mean arriving or continuing fair weather and easterly winds usually indicate arriving or continuing unsettled weather, a "cowvane" is a good a way as any of knowing what the weather will be up to for the next few hours. (Odinsson 2010:59).

In short, weather lore can help agricultural societies (especially those without access to meteorological data) in their efforts to produce, because having the capability to predict weather means that responses to expected weather can be performed before that weather occurs (Altieri and Koohafkan 2008:23-4).

The fact that weather lore is often presented in rhyme or proverb form can encourage the idea that it is less scientifically reliable, but as has been discussed this is not

necessarily so, and in fact, not only is it not necessarily less scientifically reliable because it is held in rhymes or proverbs, but, it can be more reliable to production as a result because producers can more easily recall TEK pertaining to weather when contained in rhyme or proverb form (Ehlert 2012:113; see Ong (1982) for detailed discussion on the the role of rhyme as a mnemonic tool), and so, they are more likely to use it, and thus, are more likely to benefit from it.

However, as with all forms of TEK it is not only about the shape that knowledge comes in but rather it is also about how knowledge is produced and transmitted within societies over time. As with folklore, it is often the eldest male members of a traditional society that will have the most knowledge about weather (Ehlert 2012:119). And, it is they who have the most influence in affecting the weather lore that circulates within their societies (Ehlert 2012:120). But, they are not the only ones that teach lessons about weather within the community. Instead, parents for instance, also teach their children about weather. Weather teaching within Inuit societies provides a good example of how:

> 'Traditionally, Inuit honed their skills in weather forecasting from a very young age … Children were sent out from a very young age and expected to report the weather. When they returned inside, children were quizzed repeatedly, and sent out repeatedly, until they were able to describe in detail wind direction, cloud patterns, sky condition, and so on. (Weatherheaad, Gearhead, and Barry 2010:524).

The traditional Inuit stress on learning to read the weather reflected the fact that '[r]eading and understanding weather conditions, and how these conditions interact with other aspects of the environment [was] … critical to [their production and survival]' (Weatherhead, Gearhead, and Barry 2010:523). In the same way, if indigenous communities in general are unable to predict weather they are at increased risk within production. As such, traditional societies around the world (Barnhardt and Kawagley 2005:11; Ehlert 2010:11), including traditional societies within Ireland learned how to read the weather by observing natural phenomena, such as, seeing bright stars and expecting frost (Glassie 1982:578).

However, TEK as it pertains to weather is not a fixed thing that can be learned at one time (or indeed in one way), but instead TEK is learned over a lifetime through efforts at production within a local environment (LaRochelle and Berkes 2003:370;

Weatherhead et al. 2010:524). Additionally, the weather lore that is held by societies changes over time to adapt to changing climatic conditions (Stigter et al. 2005:263). For instance, if community elders lose faith in a particular method for weather predicting they will not pass it on (Ehlert 2012:119).

But as well as weather lore and folklore guiding production within indigenous societies in such a way that those communities are better able to respond to changing conditions of production, and, as well as folklore reflecting and reinforcing local cultural values onto the landscape so that an ethic of care and responsibility towards the land develops, there is another important medium which affects TEK within local societies, and which involves oral communication, and that is local place names.

(15.6) *Local Place Names*

Local place names are names ascribed to local spaces by local communities (Basso 1988:102). Once ascribed to a place they are also usually only known to the local communities within which they exist (Duffy 2003:19; Hunn 1996:8). They are passed on through oral communication (Hunn 1996:8) and tend not to be recorded on official maps and such like (Duffy 2004:698). Local place names can refer to where an historical event occurred, to where certain species of plant can be found, to who owns which piece of land, or who used to own certain pieces of land, to the functional qualities of a space, to what a physical entity on the landscape resembles, to where certain activities are performed, to areas that have mythical and supernatural significance, and so on (Basso 1996:13; Cruickshank 1990:63; Duffy 2004:705; LaRochelle and Berkes 2003:366; Ó Catháin and O' Flanagan 1975:249). However, regardless of the reason for why a specific name is given to a site what is important to understand is that communities only name places which have some meaning to them (Basso 1988:102). But also, features of the landscape are not the only ones that get named. Instead, coastal communities commonly also name aspects of the seascape that surrounds them (Mac Graith and Ní Ghearraigh 2004:4; Ó Catháin and O' Flanagan 1975:30).

In terms of the significance of local place names to TEK their significance is that they help local communities to understand the physical characteristics of their local environment so that production can be carried out more successfully there. Additionally, they help the local community to know where to access resources for use within production. And, because they indicate where certain activities can be carried out (Hunn 1996:18; Mac Graith and Ní Ghearraigh 2004:4; Ó Catháin and O' Flanagan 1975:69) they can encourage people to engage with those spaces to carry out those activities.

Furthermore, where names tie mythological understandings to local places they act to encourage adherence to cultural values and norms because the places so named are linked in the minds of the population to local folklore which reflects the social principles and norms that guide interaction within the community (Ó Catháin and O' Flanagan 1975:75). As understood by Berkes (1993), a named landscape is a lived landscape which contains a symbolic element (p. 5), because once named, a landscape/seascape is not only physically appropriated by a local community, but also, it is symbolically appropriated (Basso 1988:102, 1996:66-7).

> Landscape is an active medium of communication, embodying not only values and ideals, but directly influencing perception and behaviour. As a matrix of meaning, a landscape comes to embody the sensibilities of those who inhabit it. The social significance of landscape can only be discovered through consideration of the cultural processes to which it is linked. (Faulstich 1998:201).

Local place naming within societies guided by TEK is always about appropriating the environment in some way that has physical and/or cultural significance (Berkes 1993:5; LaRochell and Berkes 2003:366), and once embedded in the landscape/seascape the names then act to encourage people to use certain spaces in certain ways (Cruickshank 1990:54; Delind 2006:128; Faulstich 1998:205; 219).

But also, given that only those things that are of significance to humans are given names (Colgan 1911:1–2; Hunn 1982:833) what is also important to understand is that where an abundance of local place names is found in an area that people within that area are heavily interacting with the environment around them (Ó Catháin and O' Flanagan 1975:13; Duffy 2003:25, 2004:693-4) and using the names (Duffy 2003:25, 2004:694), because given that local place names exist at an oral level within the communities who use them, and given that names are lost within oral communities as those communities no longer make use of that which is named (LaRochelle and Berkes 2003:371), local

place names only exist as long as they are being used, and as long as people directly interact with the places they refer to (Duffy 2003:25). But also, what is important to understand about local place names is that they reflect a community's communal understanding of their environment and how the community interacts with that environment at the level of activity.

As demonstrated by Hunn (1996) in his a study of the local place names of Sahaptin Indians, what gets named by the community as a whole are …

> places where things happen, places where people fish, gather roots and berries, hunt, and camp. Rather than name each mountain, they named places in the mountains where they would go to dig roots, pick berries, hunt mountain goats, encounter spirits. Rather than name each river, they name village sites, campsites, and fishing places along those rivers. Thus plotting the distribution of named places … is one means to appreciate the ecological niche occupied by local Indian peoples. (p. 18).

While different members of a society may know more or less of the local place names embedded in the local environment (Hunn 1996:9; Ó Catháin and O' Flanagan 1975:3; 247), the crucial point to note is that many of the names will be known to the society as a whole because they reflect that society's use of, and therefore, interaction with certain places where certain activities which the society relies on occur (Hunn 1996:18).

While local place names may change over time to reflect changed understandings of the landscape (Davies 1997:88), the point to note about local place names as they affect TEK is not whether they change or not, but whether they continue to exist in a high density because local place name density is an indicator of a high degree of direct interaction with local landscapes/seascapes within production (Duffy 2003:25). Also, the more names that exist within an area the more communal that area is likely to be because local place names circulate at the level of oral communication which by its nature is communal (Ong 1967:54).

Scholars have noted, that in an area of North-West Mayo in Ireland, that there is a particularly high density of local place names across some of the townlands there: In 'the townland of Cill Ghalligán[269] in Erris in Mayo [there were in the mid-1970s] … almost one thousand place names, each with a micro-narrative attached' (Whelan

[269] This is Kilgalligan in Irish

2012:460). Likewise, right into the twenty-first century an abundance of local place names continues to exist in Portacloy (Duffy 2004:701). Additionally an abundance of local place names have been recorded in Stonefield, Carrowteige, Curraunboy, and Rossport which are all also located in Erris in County Mayo in Ireland (see Mac Graith and Ní Ghearraigh 2004). The fact that so many local place names are tied to local space within these townlands demonstrates the 'close relationship between man and the land [there]' (Ó Catháin and O' Flanagan 1975:13). But also, as I have established earlier in this thesis each of these townlands had a history of rundale, and remained communal until the end of the 1950s at least (which has been demonstrated through this study).

But also, what is important to note about local place names is that not only do they develop to reflect shared understandings of local space, and not only are they maintained where the society in general continues to interact with places that are named, and not only can local place names encourage adherence to communal values where they exist (where mythological names are embedded in local space), but also, what is important to understand is that in societies guided by TEK people commonly rely on obtaining resources/performing activities beyond the strict confines of privately held land, sourcing some resources and performing certain productive activities beyond individualised property (Altieri and Koohafkan 2008:22), and so often, many of the local place names that exist within such societies can be names that are attached to other types of property (beyond private property), such as communally held areas, and areas of open access such as the sea (see Ó Catháin and O' Flanagan 1975, Mac Graith and Ní Ghearraigh 2004). And, if local place names tied to non-privatised property continue to exist within a community it indicates the ongoing importance of communal and open access resources within that community and that people are directly interacting with those areas within production.

But also, where local place names indicate this type of heavy interaction with local communal and open access resources what it indicates is that as well as communality being a feature of production, that, communal space and the resources it holds are crucial to privatised production that occurs on privately held land. When it comes to understanding the role of local place names in supporting agriculture what is important

to understand is that unlike capitalist agriculture which relies on external inputs to support production (Lewontin 2000:95; Moore 2000:138), societies guided by TEK do not, and instead they rely on their ability to source inputs and raw materials locally (Altieri and Koohafkan 2008:22).

In short, local place names can provide a framework for 'cultural transmission and moral instruction [and can act] as a symbolic link [between local communities and] … their land' (Hunn 1996:4), so that future generations learn to view the landscape/seascape in a particular way and to interact with it in a certain way – in an ecologically responsible way. But also, local place names can encourage specific types of physical engagement with the landscape/seascape within production, and can facilitate agricultural sustainability by encouraging the use of communal space, because once space is being used communally the community as a whole monitors how that space is being used and is less likely to exploit the resources it contains as a result (Ostrom 2009:419): Local place name density can be a key to how a community interacts with their environment and with each other within production.

(15.7) *TEK and Rural Ireland*

However, despite the fact that local place name density was a feature of some communities within rural Ireland in the 1930s, Arensberg and Kimball (1967) make no reference at all to local place names of any description having any impact on production within the communities they observed. In omitting a focus on local place names within their research they missed an opportunity to offer an important perspective on culture as it acts to affect social development. Likewise, weather lore is completely ignored within their discussion despite the fact that they acknowledge that production involved organising the work calendar around weather (Arensberg and Kimball 1967:40-4).

On the other hand, Arensberg and Kimball (1967) do at least mention folklore as instrumental in shaping the agricultural practices and cultural values of the societies they examined[270] (p. 183-4; 186). Within their discussion of folklore they recognise the

[270] 'The hard-headed economists might have difficulty in assessing a system which responds to ghosts, curses, or prayers. Not so the Irish [person] … For [them] … supernatural forces are as real as, and far

older male members of the societies they observed as holding and disseminating folklore to the rest of the community (Arensberg and Kimball 1967:186). They acknowledge that folklore reflected the cultural values of the societies where it circulated (Arensberg and Kimball 1967:186-7). Likewise, they draw a link between folklore and agricultural practice when they say that folklore encouraged adherence to traditional methods of agricultural production[271] (Arensberg and Kimball 1967:183-4). They also acknowledge apprenticeship as a form of knowledge transference between generations[272] (Arensberg and Kimball 1967:50-1; 64). In all of these ways Arensberg and Kimball (1967) contribute toward understanding how local knowledge systems develop and are transferred between community members/generations to affect practice.

However, although Arensberg and Kimball (1967) offer some insight into some of the factors affecting TEK they wrongly present culture as static, and so folklore as static, as if culture and the mediums through which it circulates cannot and do not change (p. xxxi). As has already been discussed, this perception of folklore and culture is flawed,

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more potent than, a balance sheet. [Theirs] … is a perspective which accounts for success or failure within the direct context of behaviour' (Arensberg and Kimball 1967:393)

[271] 'Times of sowing, reaping, harvesting [were] … debated; the merits of various seeds [were] … disputed; shop and fair prices [were] … compared; and the community's trade often affected thus. The "old men" [were] … conservative farmers, as are most peasants, and an innovation [had to] … be thoroughly tested before it [won their approval]' (Arensberg and Kimball 1967:183)

[272] 'The growing child ordinarily sees his father as owner and principal worker of the farm. When the whole family group of father, mother, children, and whatever other relatives may be living with them, works in concert, as at the potato planting, the turf cutting, and the haymaking, it is the father who directs the " group's activities, himself doing the heavy tasks. The father looks after and takes care of the cattle, delegating minor tasks connected with them to his sons. Even though the cattle may be generally discussed by the household, he has full control of them, disposes of them, drives them to the fair, handles and uses the money got for them … Where tradition is still so strong and the incursions of trained agriculturalists still relatively infrequent, as among the small farmers, there is little variation from the tried and true way. Each operation and each tool demand a technique of their own. The father makes sure that the son learns it well' (Arensberg and Kimball 1967:50-1). Similarly, just as sons apprenticed fathers, so too, did daughters apprentice their mothers: 'Many minor tasks fall to the girl as she grows up, particularly driving and milking cattle. Her conditioning prepares her to (fill the role her mother occupies in the household. All the interior of the house, the immediate vicinity of courts and haggard where the fuel is stacked, the well, the poultry yard and sheds, are her concern. She learns to milk cows, feed the pig, tend the chickens, and look after all the young animals through helping the older women. She learns the lore of disposing of eggs, butter, and occasionally of some of the vegetable produce of the garden, potatoes and cabbage, and occasionally goes to market with her mother. In the chief business of the women, the house itself, the preparation and serving of food and the repair and upkeep of clothing, she serves a never-ending daily apprenticeship. A young girl may often be delegated to look after the hearth, make and keep the fires going, etc. Only the mother makes small purchases of food and household goods. Only the mother bakes the great variety of breads. But by the time she leaves school, the girl may be proficient in these tasks too. So also with the butter making. Income derived from this and from poultry belongs to the older woman; the girl has no share until she herself has married' (Arensberg and Kimball 1967:64)

and, any analysis that presents culture and folklore as static misses the point that adaptability is a key feature of TEK and the ability of TEK to help traditional agricultural communities support themselves sustainably over time. Whilst recognising folklore as reflecting cultural values, and as shaping cultural values, what is completely absent from Arensberg and Kimball's (1967) presentation of folklore (p. 186) is the idea that the presenter and the audience interact across the performance of folklore to shape and change it over time (Ben-Amos 1971:7). Instead Arensberg and Kimball (1967) follow other functionalist anthropological approaches to folklore and consider '*only* the context rather than the narrative form worthy of study. [They] … [treat folklore] … as a body of tradition handed down to the individual by the community in which [the individual is] … submerged, [and as if folklore only acts as] a social force exerting a practical function in day-to-day life' (Cruickshank 1981:68), when in fact folklore is also shaped in an ongoing way by the communities who maintain it.

(15.8) *Conclusion*

What all of this is to say is that TEK is a highly complex non-fixed knowledge system capable of adapting to changes in both local physical conditions of production and local cultural environments, so that, local societies guided by TEK are able to support themselves over time. But crucially, even when the physical conditions of production, and cultural environment may change TEK can offer a model for sustainable agricultural production because at its core it offers a model for communal agreement about how local space should be used. As has been demonstrated in the preceding discussion communal values are reflected in folklore and local place names. Folklore, weather lore, and local place names all develop from communal understanding of the local natural environment.

Additionally, communal knowledge continues to be spread as people interact communally across various local levels – from socialising to performing labour in the same spaces. But also, as long as people share a view of how to understand their landscape – especially where that view encourages respect and care for that landscape – and where a community continues to use that landscape in a shared way, they also monitor the use of that landscape communally and ensure its resources are not depleted.

Social mechanisms through which knowledge is developed over time, and, through which information is passed between generations are key to ensuring that people learn how to successfully produce under specific local conditions and within the accepted boundaries of local behaviour. TEK is developed through personal experience of interacting with the landscape, but it is also developed at institutional level where structures affect the shape that TEK takes within a community, with the elder males of the society holding most sway in influencing agricultural activities and opinion.

Where the values of reciprocity, sharing, and obligation exist at the social level of a society the elderly cohort of the community encourage their continuation in numerous ways, such as through disseminating folklore which reflects and encourages these communal values, but also, local mythological place names encourage adherence to these communal values in so much as they act as mnemonics for folklore tales and the values embedded within them. Where the communal values of sharing, reciprocity, and obligation are promoted this acts to encourage an ethic of care towards nature which encourages a community to work with the forces of nature, but also, not to exploit nature within the course of production.

But also, local folklore and local place names can each provide practical advice useful to agriculture (and petty commodity production) as it is carried out locally. For instance, local place names might offer information about where to find certain resources. Similiarly, folklore can contain practical instructions about how to produce under local conditions. Also, weather lore can provide communities with skills for reading the signs of nature around them for what oncoming weather to expect. This allows communities to carry out practices in advance of certain types of weather, so that as a result, agricultural productivity is safeguarded as much as possible (and also petty commodity production which supports agriculture is advantaged).

In short, TEK can help local communities to produce under difficult conditions because it can provide them with practical information about the natural world around them, but also, it can encourage attitudes towards nature which contribute to sustainability.

However, while this chapter has provided insight into how TEK works in theory to affect sustainability what is important to do at this point is use the knowledge gained here to examine TEK within an actual local context of production to demonstrate at the level of actual practice just how TEK can work at the actual concrete level of a community. As such, the following chapter explores TEK as it presented within the context of Dún Chaocháin c. 1930s-50s to affect the ability of the community there to understand their natural surroundings, to make the most of natural processes occurring within it, and to allow them to successfully carry out agricultural production in the face of marginal conditions of production without much technology. The specific questions that are asked are: How did oral culture contribute to sustainable agricultural practices? How was TEK transmitted within the community? How important was TEK to supporting agricultural sustainability?

Chapter Sixteen

TEK, Communality, & Sustainability: The Situation in North-West Mayo

(16.1) *Introduction*

Traditional Ecological Knowledge (TEK) is specific to the locality within which it circulates. Acquired over generations of direct interaction with a local environment it is held by local people and pertains to local physical environmental forces as they can impact local production (LaRochelle and Berkes 2003:362). But also, it has a cultural aspect to it in so much as it is held by a cultural group, shaped by culture, transmitted through culture, and affects culture (Hunn 1999:24). Experience, demonstration, and, oral communication together shape TEK. Once shaped, TEK is then transmitted between community members and across generations via practical instruction and through the spoken word.

At the level of verbalised communication, folklore, weather lore, and local place names provide mechanisms through which TEK is shaped, and, through which TEK affects local practice (Weatherhead, Gearhead, and Barry 2010:524; Hunn 1996:8; LaRochelle and Berkes 2003:372). In the following chapter I demonstrate the role of local folklore, local weather lore, and local place names as they affected agricultural production in an area of North-West Mayo c. 1930s-50s. I also look at local institutions and structures which acted to affect the transmission of TEK over time. And, I highlight just how important TEK was in supporting agricultural sustainability through providing local technologically specific information of use to production within the local environment, and, through encouraging an ethic of care towards nature so that nature's resources were not abused, but rather, people in the area worked with nature and supported its ability to meet human need. Oral culture encouraged this.

(16.2) *A Literate (?) but Oral Society*

TEK is linked to oral cultures (Green, Billy, and Tapim 2010:339; Snively and Corsiglia 2001:10). However, this is not to say that societies guided by TEK are illiterate. Rather, a society can be classified as oral even if members of the community can read and write as long as the dominant medium through which communication occurs between community members is the spoken word (Glassie 1982:57).

Evidence from the Census 1901 and Census 1911[273] of Ireland suggests that many members of the community being examined here, could read/read and write at the beginning of the twentieth century. As demonstrated in *Table 3*, as early as 1901 many occupants of the townlands of Kilgalligan, Carrowteige, Stonefield, Portacloy, Curraunboy, and Rossport are reported as being literate to some degree or another: It seems that many could read, and, that many others could read and write. However, while not dismissing these census findings as inaccurate, a note of caution is necessary here, because as Tobin (2014) has found in research carried out on literacy levels in Ireland 1921-1961, self-report data such as the census does not always accurately reflect genuine literacy levels of community populations: The census of 1911 indicates Ireland's literacy level to sit at approximately 90%. However, research suggests that this figure is inflated because several other documents[274] indicate that many young people left primary school with poor educational attaintment and a very basic level of literacy. One of the problems with the census figures on literacy are that no definition of literacy

[273] In the 1911 Census 0.3% of the Population of the townlands listed here did not return information on their literacy level which is why the figures do not tally to 100% when added (www.census.nationalarchives.ie)

[274] Among the documents consulted by Tobin (2014) were contemporaneous annual reports of the Department of Education, and, documents from the Irish Vocational Officers Association 'whose members were employed in the Vocational Schools set up under the VEC Act of 1930' (p. 4). Acccording to Gray and O' Carroll (2012), free secondary school was only introduced in Ireland in 1967, but 'publicly-owned vocational schools (that did not charge fees) were introduced in the 1930s' (p. 703). Where children from small-farm families progressed to secondary level education it was common for them to attend the local vocational school (Gray and O' Carroll 2012:704). However, it was often the case that these children did not progress to second level education at all. Difficulty in getting to school, the existence of corporal punishment there, the doubtful value of education received there, having to work on the farm before and after school, and economic considerations all contributed to there being a low level of secondary school attendance with many only attending school until they reached the age of fourteen (see Gray 2010): 'The School Attendance Act of 1926 had required every child to attend from six until fourteen years of age. Sanctions for non-compliance extended from visits and formal warnings to fines on parents and, ultimately committal to 'industrial schools', where children could be detained up to the age of 16' (Fahy 1992, cited in Gray 2010:24-5). 'Fahy (1992) argues that … basic literacy would have been achieved by age ten, and that in many cases poor instruction and boredom meant that children learned little from school teaching' (Gray 2010:25)

is provided which means that some may have classified themselves as literate even if they could only sign their own name (p. 1-12). However, given that no other data exists on literacy levels in the townlands involved in this study except the census of 1901 and 1911, and given that there is no specific proof that the data contained there is not accurate for the area being studied here, the following presents a breakdown of that data and the implications of that data for literacy levels as one might expect to find them in the c. 1930s-50s period based on that data.

Table 3:
1901 Census Data on Literacy Levels

Census 1901			
Townland	**% Cannot Read**	**% Can Read**	**% Can Read and Write**
Kilgalligan	75	12	13
Carrowteige	38	11	51
Stonefield	55	16	29
Portacloy	15	12	73
Curraunboy	58	8	34
Rossport	43	7	50

Source: (www.census.nationalarchives.ie)

Table 4:
1911 Census Data on Literacy Levels

Census 1911			
Townland	**% Cannot Read**	**% Can Read**	**% Can Read and Write**
Kilgalligan	38.5	11.5	50
Carrowteige	32.5	10	57.5
Stonefield	31	18	51
Portacloy	22	37	41
Curraunboy	32	21	47
Rossport	26	9.7	64

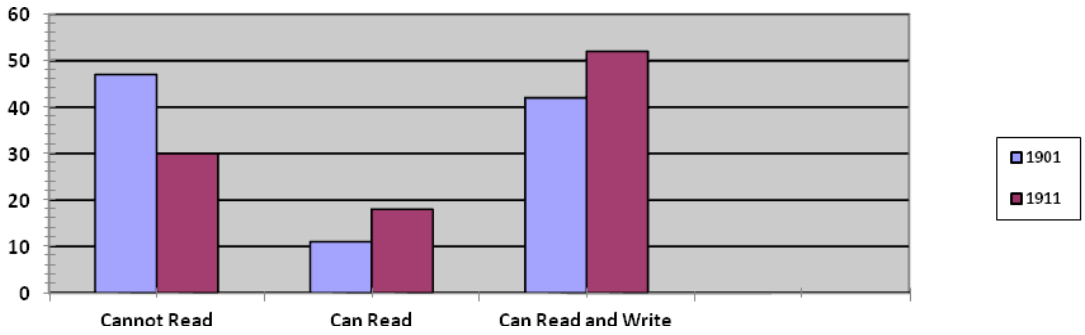
Source: (www.census.nationalarchives.ie)

With the exception of Portacloy, literacy levels for all of the aforementioned townlands are reported to have risen in the ten year period between when the Census 1901 was conducted and when information was gathered for the Census 1911 (see *Table 3* and *Table 4*).[275] With the exception of Portacloy the figures contained in *Table 3* and *Table 4* also indicate that literacy levels had increased in each of these townlands over the ten year period between when the Census 1901 was taken and between when the Census 1911 was done. However, even including the reduced literacy levels that are recorded for Portacloy between 1901 and 1911, the overall recorded growth in literacy within the area in general is notable over that ten year period. As demonstrated in *Graph 1*, when a composite comparison of the literacy levels in Kilgalligan, Carrowteige, Stonefield, Portacloy, Curraunboy, and Rossport in 1901 and 1911 is considered, significantly

[275] A possible explanation for the decrease in literacy levels recorded for Portacloy might be the birth of children into the area during that ten year period because this would sway the literacy percentage in a negative direction because the literacy statistics reflected in a census are based on the literacy levels of all members of the society regardless of age. Especially in a situation where population levels were low to begin with the birth of children into a townland could result in a large decrease in the literacy level recorded for that townland

higher literacy levels are recorded for 1911 compared to 1901 for the overall community which comprised of these townlands.

Graph 1:
Percentage Growth in Literacy in the Overall Area from 1901 to 1911



Source: (www.census.nationalarchives.ie)

Based on the already high recorded literacy levels of 1911, and based on the rate at which literacy levels are recorded as having increased between 1901 and 1911, it is surmised (based on the census data) that by the c. 1930s-50s period that, a very high percentage of the population would have been literate by then (as over fifty per cent of the community was already reported as being literate by 1911). However, the Census 1911 is the most recent census available to the public and so exact figures cannot be confirmed. However, while the society of c. 1930s-50s may have been highly literate in the sense of the majority of its population having literacy skills, it is still better understood as an oral society in terms of the communication medium through which community members interacted with each other and through which their view of reality was shaped, and thus, their behaviour.

This is despite the fact that printed mediums such as newspapers circulated within this social system.

> A lot of them used to get a newspaper on a Sunday in the shop (Francis)

However, while written information was presented to them in the form of newspapers and such like this did not necessarily result in individualised learning, but rather, newspapers were often read aloud to older members of the society.

> People would read newspapers for other people … [because] the older people wasn't able to read (Martin)

This reading to the older people not only meant that the written word was absorbed into oral culture, so that, it played a part in the development of communal meaning, but also, the fact that the people were reading newspapers to the older generation meant that the older peoples' inability to read did not serve to isolate them from scientific ideas presented through the written word. In other words, behaviour within agriculture and adherence to traditional methods of production there did not reflect non-exposure to modern ideas.

Among other things, the newspapers promoted the Western scientific principles of universality and chemical use within agriculture. For instance, generalised manurial advice was given in relation to when to apply manure, so that, soluble chemicals within it would not be washed from it by rain before crops had the chance to utilise those chemicals:

> The more reliable the manure the nearer to cropping time it should be used as the risk of its being washed by rain into drains or subsoil out of reach of plants is thus reduced. Nitrate of soda and sulphate of ammonia are very soluble (The Ballina Herald, November 21, 1931:4)

Likewise, generalised advice on livestock care was given through newspapers:

> Ringworm is easily cured by the use of simple remedies, and it can be prevented from spreading by the adoption of suitable precautions. The Department have published a leaflet on the subject (Leaflet No. 45, "Ringworm on Cattle") … The leaflet describes the symptoms of the disease, and contains instructions for the treatment of effected animals, the disinfection of byres, etc. (The Ballina Herald, January 18, 1930:1)

However, despite exposure to these types of generalised principles and despite being encouraged to adopt chemical use as part of the process of agricultural production, this was a society who was slow to incorporate change into agriculture. In part, the rejection of technology had a safety component to it. For instance, taking the example of the community's initial objection to the use of bluestone spray within potato production what is demonstrated is that safety concerns were central to the issue:

> The Congested Districts Board about sixty years ago … prescribed, as a demonstration the treatment of a growing potato patch of about ½ acre (half-acre) for every grower, and supplied the materials, and made up the mixture in their own barrels, and then with their own spraying machines, applied the mixture to the crop. The work was intended as practical and demonstrative instruction for the benefit of the small farmers and was free of charge. There was not one penny of expense charged for anything, materials, machines, vessels, or labour. The C.D.B. supplied their own labour gratis, as well as the other services and yet despite all these facilities and official benevolence, the people were so conservative of their old ideas, that not only were they averse, but they were openly hostile to the men of the C.D. Board on the occasion of their initial visit for the purpose, and openly rejected the proffered service (Iml. 1534:488)

> [When first introduced] … the people were generally opposed to it. Not that they regarded the process as being ineffective, but [because they believed that] the resultant produce (potatoes) would be dangerous for human or even animal consumption. The tubers they maintained, would be bound to have incorporated in their composition some elements of the bluestone, which they looked upon as deadly poison, and therefore such food was, in their opinion, bound to be hazardous. It was said that if a cow even snapped up and ate as much as one sprayed potato stalk, the poisoned stalks or plant would kill her, and so it would be, human beings would also suffer, if not from the immediate effect, probably later as a delayed action consequence of the poisonous mixture (Iml. 1534:486)

Encouraging these fears were …

> numerous ill-founded rumours and scares of animals having died from eating some grass and vegetation which had been inadvertently contaminated by association with the spraying material (Iml. 1534:486)

This same concern about the safety of certain technology was still shaping attitudes to technology as late as the 1950s. Attitudes toward the introduction of electricity into the area at that time offer a perfect example:

> "But, they say these electric wires are extremely dangerous, and would knock you out stone dead, if you only touched them or accidentally hit against one of them" said another man (Iml. 1534:485)

Of course there were some who were more willing to embrace new forms of technology than others, as the following reply to the aforementioned remark proves:

> "Arrah! Don't believe half what you hear about their dangers. Aren't we surrounded by dangers of one kind or another from morning till night yet we are not getting killed so often (Iml. 1534:485)

Yet, even if some of the community were more inclined toward technology than others, and, even if they tried to encourage others to engage with new technology, the fact remains that, safety concerns were a factor shaping the degree to which the community implemented changes to practice.

Of course, whether or not technology was incorporated into agriculture did not always come down to choice. Rather, where the community used chemicals within production it was sometimes the case that they did so as a requirement of law.[276]

[276] 'TIME AND PLACE FOR DIPPING, SHEEP REGULATIONS, 1930 – We the Mayo County Council … by virtue and in exercise of the powers vested in us under the Agricultural and Technical Instruction (Ireland) Act … the Diseases of Animals Acts and the orders made thereunder, and of every power enabling us in this … hereby order as follows : All sheep in the administrative area of the County of Mayo required to be dipped … shall be dipped by the owner or person in charge … at such times and at such Dipping stations as may be specified in a notice signed by an inspector of the Mayo County Council and

> You'd dip the sheep … [because] laws came out and you would have to dip them [in chemical baths] (James)

However, elsewise where law was not acting to enforce the incorporation of chemical inputs/Western science into agriculture then practices were carried out along more traditional lines. Practical experience of knowing which practices worked most successfully under local physical environmental conditions contributed to shaping which methods of production were performed, because people knew what worked within their area and they were reluctant to change how they produced until it could be proven to them that new methods worked better. But also, money was a consideration in the adoption of new technology and people felt that to carry out producing along traditional lines was to help to protect themselves against the risk of not having money to buy inputs as needed.

> People knew what worked and what didn't because they were farming in the area all of their lives and sure if they had to buy fertiliser it would cost them a lot and they didn't have the money, but anyway, they had all they needed and they knew how to use it for the land and maybe if they were having to buy fertiliser they might have problems because money mightn't be there and when … [the old way] worked why would they change (Francis)

Parental role in the education of children about farming methods also affected decisions about which practices to perform, because having been shown how to perform certain activities by their parents, and having worked alongside them within agriculture, these children when they reached adulthood felt that the methods of production that they were using were best, because in their apprenticeship to their parents this was the message they would have received each time their parents encouraged them to perform a specific activity and to perform it in a certain way.

> When you were only learning you'd be told if you were doing it wrong or right (Francis)

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served by post or otherwise on the owner or person in charge of the sheep referred to in the notice … all sheep in the areas specified shall be dipped under the supervision of a Dipping Inspector … provided that in any case inclement weather renders dipping impossible on the date appointed the dipping shall be carried out on the next day … a fee of one penny per sheep … shall be paid to the Inspector … any owner or person in charge of sheep … who fails to comply with any of these regulations shall be deemed guilty of an offence against the Disease of Animals Act' (The Ballina Herald, June 7, 1930:1). 'Whether the dipping takes place under … regulations or not, or under supervision or not, the dipping should be by thorough immersion of the sheep in an approved dip, and the greatest care should be taken in carrying out the directions given as to the using of the dips, and the length of time during which the sheep should be kept immersed' (The Ballina Herald, June 7, 1930:4)

Apprenticeship began in childhood and so views about which agricultural methods were best also began there.

> The [fathers] dug the land with the spade and prepared it. The children pitched the potatoes for them. They made the holes and the children threw the potato bits in and covered them up … Men and women worked and children helped a lot then (Jean)

However, as much as adherence to traditional methods of production within agriculture was shaped by safety concerns about technology, and by practical considerations about the local physical environment, and about access to money, and as much as it was influenced by apprenticeship and experience, these were not the only factors affecting the degree to which new ideas/Western scientific ideas were taken on board and applied. Rather, another factor acting to affect agricultural change was oral culture.

(16.3) *Folklore in North-West Mayo*

Oral communication heavily influenced the degree to which traditional practices were performed within production because this was a society within which an extremely high degree of face-to-face interaction between community members occurred on a regular basis. For instance, where the meitheal and cooring were involved in production it brought different members of the community from different households together within the context of face-to-face interaction. Likewise, where fishing crews were concerned the same thing occurred.

However, people not only came together in the performance of labour, but also they gathered in the context of socialising.

> People were in and out of each other's houses all the time (Martin)

The peak of socialising activity occurred across the winter months when agriculture and other forms of production (such as fishing) were at a virtual standstill. During the winter season, there were certain established institutions which actively encouraged people into each other's homes and into each other's company. Card playing was one of those institutions.

> They would play cards in each other's houses. They would be at that from November to March (Peadar)

'Visiting' was another social institution that brought the community together.

> They would be visiting in the winter (Seamus)

'Visiting' involved a crowd of people gathering in a particular house within the community for the purpose of enjoying group entertainment there. The following describes a visiting scene as it presented in 1949:

> The setting was as follows: - We were gathered around the turf fire which burned and blazed, and radiated heat to such extent, that positions in its immediate vicinity became untenable, and obliged many of the sitters to seek the cooler atmosphere further removed, or exchange places with others desirous of more heat and fireside comfort. This interchanging of seats went on as occasion demanded during the progress of the night's function, care being exercised by the man of the house, that the fire was kept replenished and stoked … Thus seated, and ranged around, everyone provided accommodation for himself as best he could. Sometimes they had to sit on one another's knees, owing to lack of seating facilities, the folks occasionally relieving others of the burden of nursing the seatless ones (Iml. 1245:4)

In the context of visiting, knowledge was developed by, and shared among, the community in general.

> On November's night 1949, we were gathered around the fire in a neighbour's house in Rossport. It was the usual country house meeting, where the assembled folk find a respite from their daily care … These nocturnal gatherings of the peasantry, often serve as schools of instruction on many problems, such as health of men and animals, prices of agricultural produce at fairs, and markets, matters of occupational interest … and so on. Individual information is pooled, debated, and discussed, and thus peasant knowledge and education are developed and disseminated (Iml. 1245:1)

However, although conversation was a feature of visiting and so played a role in shaping local knowledge, and therefore local behaviour, conversation was not the primary medium through which adherence to tradition was encouraged within the context of visiting.

Instead, the telling of folklore was a fundamental part of the visiting experience.

> It was in this environment [of visiting that] … the preservation of the legends and traditions of the people, [was] perpetuated throughout centuries by the telling of … stories (Iml. 1395:7)

In other words, folklore had a significant impact on TEK as it existed within the area.

Within the institution of visiting it was the older men of the community who presented folklore to the wider community audience.

> The old people would have all the stories (Francis)

However, folklore dissemination was not restricted to the context of visiting, but, could occur generally in any setting where members of the community gathered. For instance, folklore was even told in the context of nightly fishing expeditions.

> [T]ales of the past, were also told by the fishermen in their curraghs at sea, to while away the tedious hours of the night in the intervals between the casting and boarding of their nets (Iml. 1395:7)

Likewise, folklore was also passed onto children by their parents.

> The faculty of storytelling … was in great measure hereditary. In most cases, the gift was derived from a father or mother (Iml. 1132:32)

Similarly, folklore was spread within conversational encounters between community members in general, such as when a …

> conversation [might drift] … to the subject of the fairies (Iml. 1243:240)
>
> In [a] conversation [that took place] – 23rd April 1941 – with a woman in Kilgalligan of about 65 years of age, on the subject of the death of a young married woman in the townland who left a number of young children, this woman with whom I was talking said during our discourse, "arrah! musha! That woman was taken away. There can be no doubt of it from the way it happened (Iml. 1242:568)

The view that the woman was taken away reflected the belief that it was the fairies who took her. However, while folklore could circulate at any level of the community and within various types of social encounters it was most heavily circulated within the institution of visiting.

> [To] "visiting" … we owe our folklore (Iml. 1244:454).

Folklore made references to various types of supernatural beings, but the group most often discussed were the fairies.

> You'd hear stories about ghosts and the banshee and always the fairies (Seamus)

The fact that fairies were mentioned so much – whether in story or conversational exchanges – meant that people regularly thought about them.

> They came into everything you did … fairies, fairies, fairies in everything (Seamus)

However, fairies were not only spoken about and thought about, but rather, belief in the fairies played out at the level of practices performed across the course of everyday life. For instance, even the mundane practice of milking a cow involved following fairy protocol.

> 'When [you were] milking a cow [you were supposed to] draw the three first streams of milk to the ground for the "good people" (Iml. 1242:305)

And so …

> they would strip[277] the cow to give the few drops to the fairies (Seamus)
>
> When the cows would be milked … they would throw three drops to the fairies (Sarah)

Similarly, belief in fairy presence affected behaviour in relation to cows who were in calf.

> As soon as a cow [was] … known to be in calf a red tape or thread was tied to her tail fairly high. It was allowed to remain there until the cow got well after calving. The red tape was a protection against the fairies. The custom still [survived in 1940, but was] … less common. Numbers of such cows could be seen at fairs displaying their red ribbons from their tales (Iml. 1242:386)

Fairy faith was also evident in butter churning rituals.

> When people long ago would be making homemade butter and they'd be making the butter in the churn and somebody came in [to the house] then they wouldn't let them out until they laid their hand on the dash. They would be thinking they would bring the butter with them [because they could be fairies] and they [would think they] wouldn't have any return on the butter because they'd have it taken with them. [But] … people knew what to do [and] they'd dash the churn before they would leave. They wouldn't have to be asked (Sarah)

Even the simplest activity of disposing of dirty water involved compliance with set rules to avoid angering the fairies.

> Any time of year when they would be throwing out … dirty water there were words to say (Sarah)
>
> They used to say "thuga thuga" if they threw water out of the houses (Francis)

[277] To strip the cow was to allow the first drops of milk produced from milking to fall to the ground

But also, just as everyday minor events involved fairy ritual, so too, were certain fairy influenced procedures followed in relation to bigger events, such as the construction of buildings.

> [F]or the erection of a new house, the first step [is] … when the site [is] … selected … [another step is when the man] with his spade cuts four sods of earth which he faces grass downwards at the four corners of the site, [on] … the first day. Next day he inspects the site and if the sods have not been disturbed, he continues the work of excavation and subsequent building. Should he find that the sods have not retained their status quo, or have been tampered with in any way by any supernatural agency, he abandons the project, and selects another site. There are several considerations to be taken into account from the spiritual point of view in the layout of a house, among which are direction and avoidance of an encroachment on old pathways, building near a "lis" or ancient work of building, lest there would be any inconvenience caused to the fairies who might be located at these places (Iml. 1395:489-90)

The fact that people performed such procedures, and, that they allowed the outcome of these rituals to dictate their behaviour in relation to such important decisions as house building provides irrefutable evidence of the degree to which fairy faith shaped practices within the community. Also, what is important to note is that it was not only a case of people performing rituals because they believed in the fairies, but also, what encouraged adherence to their performance were the many stories which circulated detailing how failure to comply with proper human-fairy etiquette brought disaster to the non-compliant party.

For instance, the following is an example of a story which circulated to encourage compliance with required regimes.

> In potheen making it is the invariable custom to throw out to the fairies the first glass of the spirit that falls or runs from the still into the pot – the "first shot". Departure from this rule is often followed by adverse or negative results. One time Diarmuid (Beg) Cormack was a running a still in the mountain. Whether unthinkingly or otherwise he omitted to throw out the usual "drop" to the "good people". The still was running very satisfactorily with a promise of an excellent yield or "thoradh", when his wife came in great alarm to the still house to tell him that their best cow had fallen dead at the stake. Diarmuid ran home – he had not far to go. He was a noted charm maker for man and animals … He set to work immediately "measuring" the cow and doing all the necessary acts incidental to this ministration, and through these efforts the cow suddenly became all right again. He then returned to the still house, but on his arrival he found the still full of hen's dung and dirt, and all the whiskey … destroyed (Iml. 1242: 288)

Likewise, stories were told about how siting a house in a location in contravention to fairy approval could bring misfortune to the family involved.

> Near Belderrig there was once a house built, and the people of the house were continuously meeting with misfortunes and troubles of one kind or another – sickness in family, accidents, loss of cattle and sheep from disease or falling over the cliff – the house which was a new one was built near the cliff – and mishaps were frequent and varied [But locals] … said the house was built on a wrong site, and that there would never be any luck there (Iml. 1395:490)

But also, fairy faith and the rituals it involved reflected the cultural values and norms of the society: For instance, ritualised activity reflected the fulfilment of human obligation within the human-fairy contract for peaceful co-habitation, and, obligation was a guiding principle of social life; likewise, the fact that rituals were performed at all demonstrates peoples' view of their land as a shared one (shared between themselves and the fairies), and, the reality of life was that the community shared ownership of resources (such as property), and, shared resources with each other (such as food); additionally, the social value of reciprocity is reflected in fairy practice because it demonstrates an understanding that in life one gives to receive (if fairies were given their due then humans were allowed to produce without interference). This same principle of reciprocity guided behaviour between community members.

Also, following the literature on TEK, what this strong belief in the fairies did was encourage an ethic of care towards the land (see Snively and Corsiglia 2001:12; LaRochelle and Berkes 2003:372) because of the fact that fairy faith promoted the principles of sharing, obligation, and reciprocity which encouraged people not to exploit the land within production, and also, to return inputs to the land to replace outputs removed in the course of agriculture.

Of course, practical considerations lay behind some of the fairy enforced rituals. For instance, if the case of saying words to the fairies before throwing water out of houses is considered what is found is that …

> this was meant to be the custom to get rid of the fairies but there was reason for everything and the reason for that was if people were coming visiting to the door you wouldn't throw water on them (Martin)
>
> Because people would be coming that time and there would be no lights (Martin)

Also, in choosing sites for construction, leaving sods of earth upturned to see if they were overturned by morning was a good indicator of whether a site was sufficiently

sheltered, because if it was not the sods could have ended up being overturned by the wind (and not the fairies) during the night. However, practical considerations aside, the point to note is that fairy faith existed and was reflected in practice, and that it was disseminated through oral culture, so that, ultimately oral culture promoted adherence to TEK within agriculture. However, fairy faith as disseminated through oral culture was not the only mechanism supporting TEK within the area. Rather, weather lore was another important mechanism through which TEK circulated.

(16.4) *Weather Lore and Ritual Efforts to Control Nature*

Weather lore was invaluable to production within the community and so it was developed and spread there.

> [S]kilful prediction of weather was very necessary on the part of the farmer. In the matter of weather lore through the study of the atmosphere, fogs, sun, moon, tides and winds the coastal natives were possessed of almost uncanny knowledge. They were keen students and observers of all the elements pertaining to weather, and their forecasts of the weather for several days ahead were marvels of accuracy, considering that they had no scientific or mechanical appliances to guide them, but simply the phenomena of nature (Iml. 1243:80)

For instance …

> they could tell by the sky what the weather would be like ... and the sea and the moon and the birds ... different birds would mean different things and even the animals the way they would act … There was plenty of signs known (Seán)

Some of the signs that people used to predict weather were as follows:

> One was if you seen a cow dunging and giving herself a good shake ... shivering like ... then the weather was going to break. They'd say you are going to get a couple of weeks of bad weather now (Seán)

Similarly …

> a cat sitting at the hearth with its back to the fire is a sign of bad weather. When a cat is seen scratching some object it is almost a sure sign of rain (Iml. 1242:308)

Likewise …

> if you see sheep on top of the hill and if you see them coming down and going to the lowest spot then there is awful bad weather or a storm coming. The sheep know. Or, if you are at sea and you see the weed floating on top of the water then you know there is a storm on the way … and the nets for the salmon if you see them lumping up in the sea then there is bad weather coming … They had great skill in the weather. Then they would have the open fires that time and if you seen the smoke coming down instead of going up ... [like] a puff of smoke coming down ... [then] they would say your chimney is puffing and they would say there is bad weather on the way ... rain and wind. That was another thing with the weather ... if you seen the birds flying

> high you would know there was wind on the way. If you seen the birds flying … [and] active you would know that there was wind on the way (Seamus)

People could also predict the coming of snow.

> Snow would mostly cover the lowland and ... when the snow would come and the sheep were up on the hill you would see them coming down to the hollow and [then] they'd know there would be snow in it. The sheep would know it themselves. No matter where the sheep are on a hill if there is snow coming they will come down off it and that is how the … people years ago would know there was snow coming (Anthony)

Weather predicting knowledge was gained in various ways: It was gained from lessons taught by parents; it was gathered from conversation; and, it was a feature of visiting; also, it was learned through personal experience.

Children often heard their parents discussing what weather to expect because of particular phenomena observed by them.

> You'd hear the auld lad talking about the colour of the sky and the way the animals were acting and then he knew what the weather would be (Francis)

The older people were the ones with the greatest weather forecasting skill.

> Old people by looking at the sea could tell you the weather that was coming … whether it would be good weather or bad weather (Sarah)

The older people shared this knowledge with the community. One way in which they shared this form of TEK was through conversational encounters:

> I stood among some of the old sages on the road outside as they took in their own primitive manner, meteorological and astronomical surveys of the heavens for purposes of diagnosis for prediction of the coming weather. Incidental weather portents such as fog on Glengad Hill, movements of sea birds, position of rainbow, the ocean surf, etc., etc., were discussed, and finally with the usual parting salutations of ejaculatory prayers and blessings we all went our respective ways home (Iml. 1243:223)

The ability to pick up TEK – involving weather lore or any aspect of TEK – from conversational gatherings was open to all generational levels because conversational encounters were not generationally restrictive. Rather, intergenerational conversational encounters could occur so that TEK was passed between generations in this way.

Plate 46:
Intergenerational Conversational Encounter

Source: Comhar Dún Chaocháin Teo 2001

The older people also shared weather related TEK through the institution of visiting where discussions about weather tended to precede storytelling.

> 'The [visiting] night's preliminaries began … with discussions on the weather' (Iml. 1245:4)

The significance of being able to predict weather, was that once predicted, responses could be organised accordingly to maximise on the benefit of certain types of weather, and, to reduce risks associated with other types. For instance, an expected dry spell might encourage certain activities, while an expected windy or cold spell might encourage other activities.

> If you knew it was going to be dry for a while you wouldn't have to be in such a hurry to get the hay and that in, but, if it was going to be windy you could put extra soil around stalks, and, if you knew frost was coming you could cover the pits to protect the potatoes (Francis)

In other words, having the ability to predict local weather conditions helped people in the area to organise production in the most efficient way. But people not only learned weather lore from others, they also learned how to read the weather from their own observances about the landscape: While weather lore is handed down from one generation to another so that it can remain quite stable over time, it is not a static form of knowledge and instead is adaptive. The literature recognises that weather lore can

change to adapt to changing climatic conditions (see Stigter et al. 2005:263). However, weather related knowledge can also adapt to fit changing landscape conditions. For instance, one of the informants involved in this study uses the windows of a relatively newly constructed house to help him to understand what type of weather to expect:

> If you were looking at that house over there and depending on what way the windows would look you'd know what weather to expect. When the windows look like mirrors you know you will get rain. It's about how the sun reflects there (Seamus)

Also, in addition to trying to predict weather, this was a society who also appealed to the earth/god of the earth to allow conditions to be productive for the coming agricultural year. Rituals performed on St. John's Night Eve were underpinned by this logic.

> St. John's Eve was bonfire night. Fires blazed on every hill. The origin which was pagan was of a religious character, and subsequently degenerated into a religious-cum-sportive character [But] … I remember seeing people saying their rosaries on their beads, as they performed the circle of the fire a number of times, and when leaving they took a burning brand of the fire, say a piece of burning stick, which they dropped into a potato field as an offering and invocation for a bountiful crop … [O]n that night one can see every hill top in every townland crowned with its conflagration (Iml. 1534:429)

> When they would light the fire and when everybody would come ... there was pieces of potatoes and crops set and everybody would bring these bits of timber from the bonfire … and they would carry it down the field and throw it into the potatoes or a piece of rye or oats or whatever it was. They reckoned it would keep the crops from getting disease ... keep the spuds from blight and the crops from disease. You would do it. When the fire was nearly burned you would see everybody taking a piece of a timber out of it ... The piece of timber was still alight and they would carry it down the fields and put it in with the crops (Seamus)

> They used to take a piece of the … turf or whatever would be burning and put it into the fields for a good crop (Jean)

This custom continues yet.

> It is a big custom still here today (Seamus)

Plate 47:
Remains of a St. John's Eve Bonfire in Kilgalligan in 2013

Source: Own Photograph

The lighting of ritual fires and the bringing of burning items from those fires into the fields for the purpose of securing good harvests reflected an underlying view of the land/its god as being capable of responding to human request and desire. Additionally, as with the various other rituals performed to ensure productivity, this ritual was encouraged by the community as a whole.

> The omission of compliance with this custom would be regarded as a very serious error, and hence the practice was rigidly complied with, and is even carried out to the present day, but not with the same strict adherence as formerly (Iml. 1243:90)

Oral culture encouraged adherence to this ritual, and by extension, the view that the land was not the sole property of humans, but instead, that some larger force also had claim to it.

> You'd make sure you did it because you knew from talk that if you didn't you were looking for trouble (Francis)

This view of the land as ultimately held by a higher supernatural being added another level of influence in affecting an ethic of care towards it, and thus, encouraging sustainable production.

However, in this society it was not only supernatural beings who were understood to have "powers", but also, certain people were understood to have "powers" of their own. Some members of the community were believed by the rest of the community to have "powers" to cure certain ailments.

> For severe headaches recourse was usually had to the "charm man" (Iml. 1145:140)
>
> The patient of the "badheads" goes to the man of charms who "measures"[278] the head (Iml. 1145:141)
>
> For anyone that got a bad headache they used to go with a woollen string … measure their head … he'd do that for so many times and if their head was open and using this string and whatever prayers he used to say he'd bring it back and the headache used to go (Sarah)

Likewise …

> they had a cure for dirt in your eye. Plenty of people are alive today that had that done for them. If you had dirt in your eye you went to someone who had the cure ... someone who knew how to do it and they got a saucer or a cup or a plate of water and they said some prayers and the next thing the dirt appeared on the water and I know a person alive today who swore by that (Eileen)
>
> My brother was trashing and … something got in his eye and it was bad and they brought him to this man and he said when you go home put a saucer of water out at the window outside and he did it and after a while he noticed the eye wasn't sore anymore and do you know the beard of the barley … that would stick into you [because] it was very hard and it was floating on top of the water [and no longer in his eye] (Martin)

Similarly …

> there was a charm for … children that time who would get worms and it were like oatmeal now and you put it on a small plate - a saucer - and you would put a thin cloth on the saucer and leave it there on the stomach. It was done with myself on the winter and she made the charm on the winter and I seen it and half of the meal on the saucer was gone when the cloth was taken off it (Peadar)

But, cures were not restricted to curing humans. Rather, people also believed that livestock could be cured through ritual.

> A common ailment among cattle was what was known as … "missile striking". It was supposed that the animal had been struck by some missile or object by the fairies, and was consequently ailing and pining away until death. When the animal passed into the possession of the fairies. To rescue the animal from such a fate was the job of the "charm doctor" … Some of the "charm

[278] 'Apparently the dimensions of the human head are approx. the same around the forehead, as around the top of the head and under the chin. There is, however, a slight and recognised difference of measurement being greater in the case of a woman. Should this difference between what may be called the equatorial and longitudinal heads measurements exceed the "prescribed" difference then the "medicine man" pronounces that the sufferer's head is "open" to that extent and expanding. So his job is then to restore the cranium to its normal sizes. Accordingly with a length of fairly thick woollen thread spun from black sheep's wool, he takes the aforesaid measurements of the head three times and during each operation he indulges in certain charms (prayers or incantations) and he then ties a portion of the woollen cord used by him around the head and forehead of the patient. This operation or treatment has to be performed on two consecutive Mondays and on Thursday between, in order to be fully effective. No other week days will do' (Iml. 1145:141-2)

> doctors" were supposed to be able to exercise great powers in their uncanny ministrations and their own cattle were said to be frequently visited with retributive vengeance on account of their owner's activities (Iml. 1243:93)

> There was a lot of people that had them kind of cures … there was a man back in Carrowteige and he had a cow that went down. A fine cow, well a heifer, and, it couldn't get up, and … they used to have to get people to come and lift her at a certain time of day and then she would be not too bad but she wasn't able to get up herself. But there was a crowd in it of five or six and they would come to lift her at a certain time … but this man had a charm that would do it for animals so when they went in for their dinner into the house before they were going lifting the cow and he waited there and did the charm and he went in and he told them that the cow was up. The cow got up like that when he had the charm finished and never went down like that again. But you see? Wasn't that power? (Peadar)

The power of the "charm doctors" to cure livestock was largely understood as hereditary, with the gift to cure understood to be passed through blood lines.

> The seventh son was meant to have the cures … [there was a man] and he was meant to have a cure. He used to cure horses and different things (Francis)

Of course, while the ability to cure may perhaps have been affected by hereditary factors there is also the issue that families passed knowledge among themselves so that cures stayed in families.

> They guarded the cures … Often they passed them onto the most responsible member of the family so they wouldn't be abused (Martin)

In addition to calling upon the charm people for cures, this was a society within which people had knowledge of herbs and wild plants which could also be used to treat ailments.

> They knew the herbs [and] … they knew the people who had the cures[279] (Eileen)

[279] Plankton was used to stop blood if you were bleeding. My father would put that on us if we were bleeding if we had fell. The other one was to boil and make a poultice and to put it on if you had a swelling or anything like that. The nettle was for the kidneys. They still say that and that would often be eaten boiled ... You could boil it and drink it for rheumatism. Knotted Hedge (it's a kind of a parsley), and you'd boil the root of that with a drop of gin and it's good for the kidney stones … Bird Dock ... again boil it and drink the juice and it's good for your tummy. Also to boil it and mix it up with a bit of butter and it's good for ringworm or boils or anything like that you would have. When you would be cooking it you cannot allow the person to smell it. If I was doing it for you now well then you would have to go outside while I was cooking it so that you couldn't smell it because if you smelled it then it would do you no good ... Onions was the same thing. They used to put raw onion behind the door because it collected whatever and they used to put unsalted butter behind the door to catch anything. If anyone came in that had any diseases or ailments or whatever that it would catch it … Myrtle berry was good for rheumatism. Plankton ... was supposed to be good for ulcers ... for anyone who had the varicose ulcers. Watercress ... was supposed to be good. The bog bean ... for asthma and to drink it in the morning. Daisies were good and if you had a cow who was calving but wasn't cleaning [which is expelling the afterbirth] then you would pick the daisies and boil them and give them to her to drink. [Then there was another thing] ... it grows on the cliffs there. It is a strange thing because it grows on the slit in the ground. They used it for people who had trouble sleeping but sure it was opium. You boiled and took

In combination, the presence of the charm people and the wealth of local knowledge on the curative abilities of certain plants contributed to the community's rejection of Western scientific medicine through veterinary surgeons and such like because while these medical persons may have had knowledge about how to heal, they did not possess "powers" to affect that healing. But regardless, they were not that readily needed because the community had a store of healing knowledge it could draw upon to help safeguard both human and livestock health.

> There was no going to vets that time. I never seen a vet coming to an animal. It was going to the charm people or to bone setters or that the people were going to. There was a bone setter at the mearing between Curraunboy and Carrowteige ... and they came from far and near to him. They might come to get an arm fixed or even cattle as well they might bring (Francis)

Also, where wild plants were involved in healing it encouraged the view of the land as having "powers" because it was from the land that these plants were produced. However, for the community to be able to use the resources of the earth to benefit society it was first important that they know where to locate the resources they required for certain functions. An important consideration in this regard was knowledge of local place names because these names helped to decode a vast land and seascape making it easier to know where certain resources could be found.

(16.5) *Local Place Names in North-West Mayo*

An abundance of local place names have been documented for the townlands of Kilgalligan, Stonefield, Carrowteige, Portacloy, Curraunboy, and Rossport. Local place names for the townland of Kilgalligan were first committed to paper in 1975 (see Ó Catháin and O' Flanagan 1975). Later in 2004, more local place names for the area were collected and recorded in writing (see Mac Graith and Ní Ghearraigh 2004). Ó Catháin and O' Flanagan's (1975) work involved breaking the townland of Kilgalligan into

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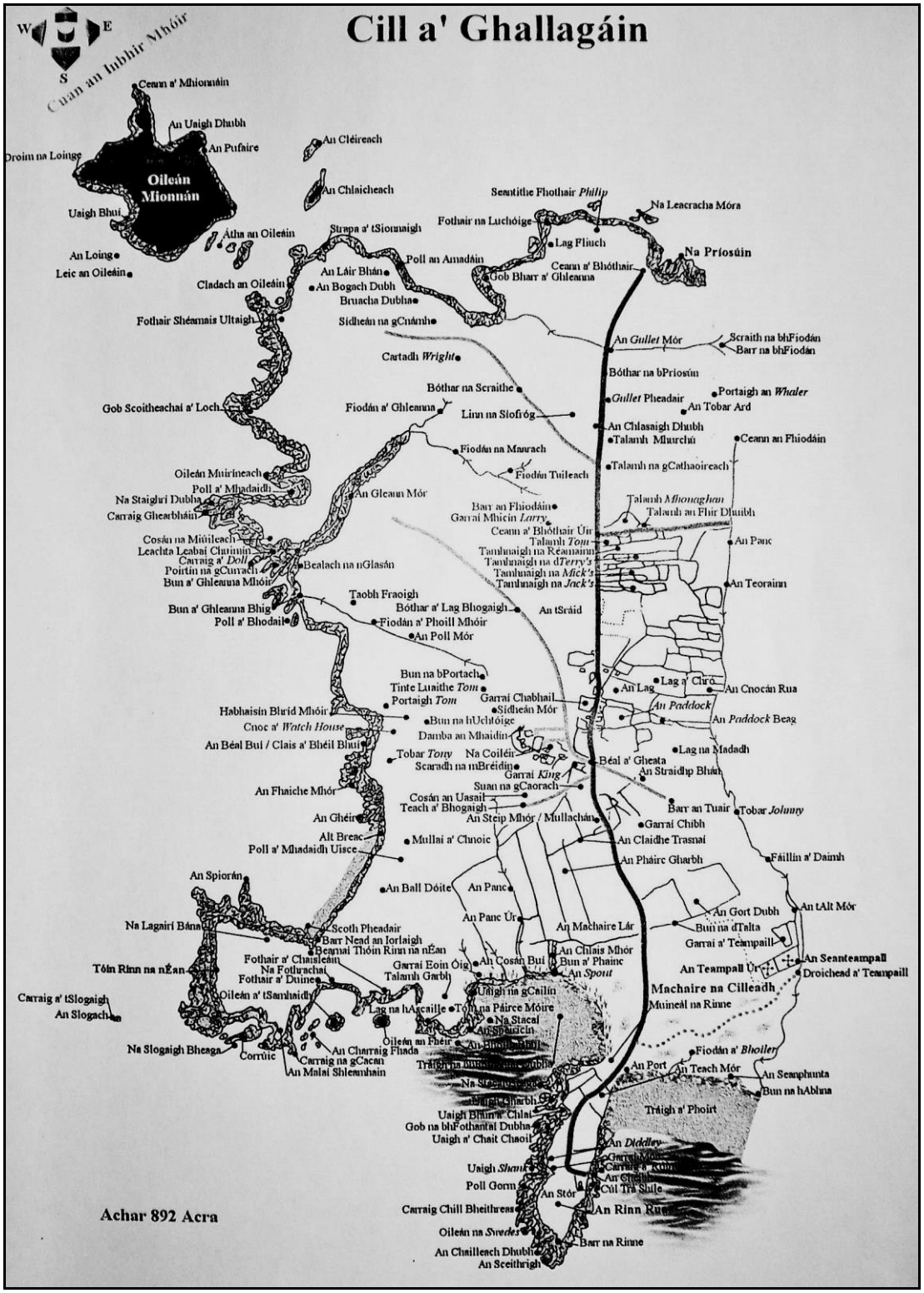
the juice of it and took it to lessen pain or to take it going to bed … Primrose ... for rheumatism. Groundsel ... to be boiled and given to a child ... it was a yellow thing and kind of hard, well leathery, and it grows everywhere if it gets into a garden, but, to boil it and give it to a child to force the measles out if they were sick with the measles. The red oak ... that would be growing on the bog ... myrtle is the English and it's like a tiny little tree and they used to use it along with heather to make the lobster pots (Eileen). And, they used to give it to any sheep that wouldn't be doing well ... boil it and give it to them (Martin)

grids and through alphanumerical coding of those grids indicating alphanumerically the location of certain place names across the townland: Letters and numbers were mapped onto sections of the townland which had been broken into grids, and the place names that each of these alphanumeric indices referred to were provided separately. In other words, while providing the local place names and while indicating the areas that they referred to within the townland, no actual map with place names attached to it is provided by them.

On the other hand, Mac Graith and Ní Ghearraigh (2004) provide a map for Kilgalligan and also maps for the townlands of Stonefield, Carrowteige, Portacloy, Curraunboy, and Rossport, and, indicate on those townland maps the areas which the local place names collected by them refer to. The local place names as they are mapped by them onto these individual townland maps for Kilgalligan, Stonefield, Carrowteige, Portacloy, Curraunboy, and Rossport, are mapped there in Irish (but, with their English translation available elsewhere within their work). I present those maps here followed by their translations (see following *Maps 2, 3, 4, 5, 6, 7*).

Map 2:
Local Place Names of Kilgalligan



Source: Mac Graith and Ní Ghearraigh 2004:17

Translations for Map 2:

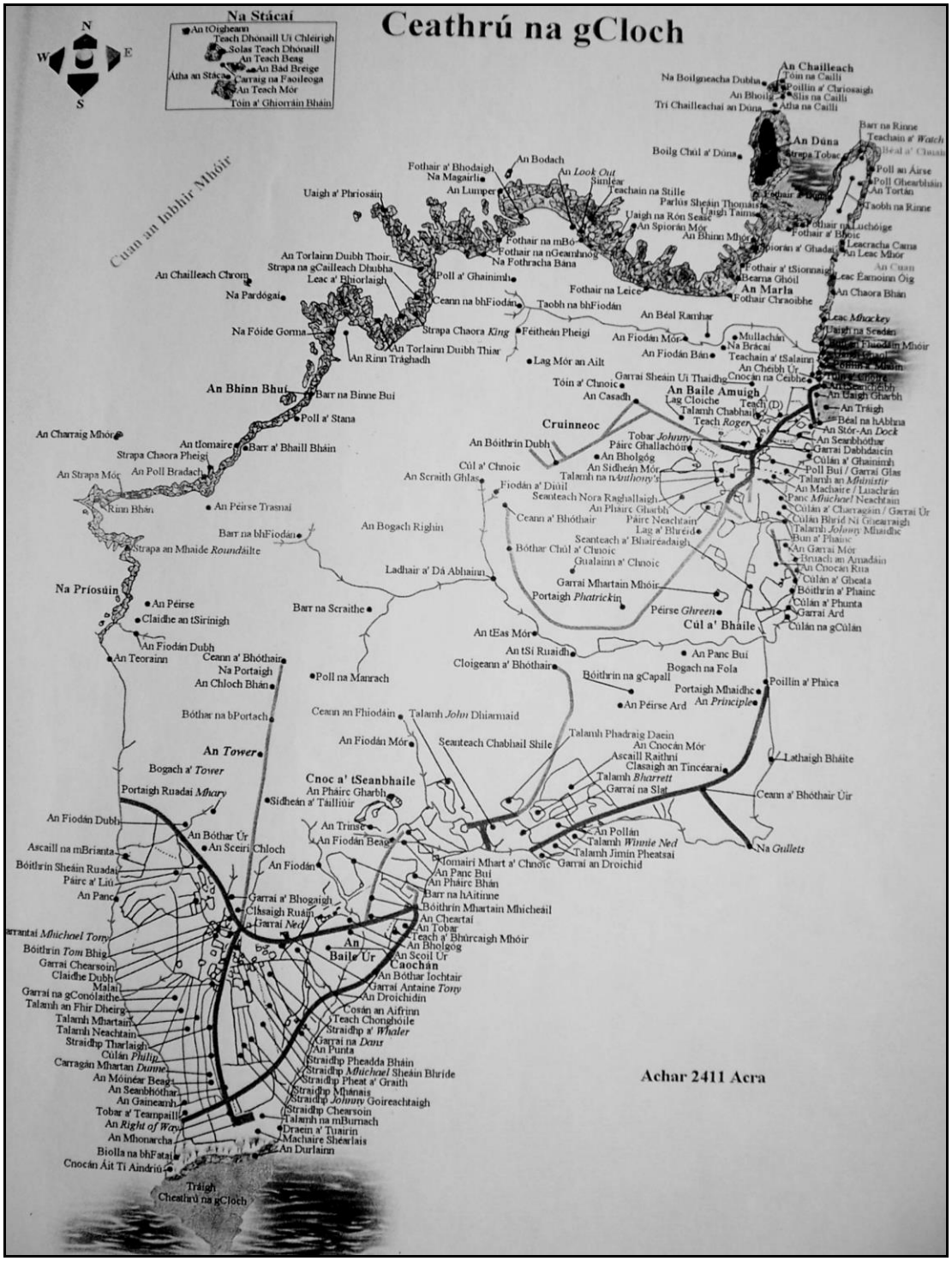
- An Teampall Úr - The New Graveyard
- Droichead a' Teampaill - The Bridge of the Graveyard
- An tAlt Mór - The Big Cliff
- An Gort Dubh - The Black Field
- Machaire na Cilleadh - The Plain
- Bun na dTalta - The Bottom of the Lands
- Fáillín an Daimh - The Small Enclosure of the Oxen
- An Pháirc Gharbh - The Rough Field
- An Claidhe Trasnaí - The Dividing Fence
- Garraí Chíbh - The Garden of the Sedge
- Barr an Tuair - The Top of the Bleaching Green
- An Straidhp Bhán - The White Stripe
- Béal a' Gheata - The Mouth of the Gate
- Garraí King - King's Garden
- Lag na Madadh - The Hollow of the Dogs
- An Paddock Beag - The Small Paddock
- Garraí Chabhail - Coyle's Garden
- An Cnocán Rua - The Red Hillock
- An Lag - The Hollow
- Lag a' Chró - The Hollow of the Hovel
- An Panc - The Gully
- Talamh an Fhir Dhuibh - The Black Man's Land
- Talamh Mhonaghan - Monaghan's Land
- An Chlasaigh Dhubh - The Black Quarry
- Carraig a' Doll - The Rock of the Doll
- Poirtín na gCurrach - The Small Anchorage of the Currachs
- An Gullet Mór - The Big Conduit
- Ceann a' Bhóthair - The Top of the Road
- Seantithe Fhothair Philip - The Old Houses of Philip's Precipice
- Na Leacracha Móra - The Big Flagstones
- Fothair na Luchóige - The Precipice of the Mouse
- Lag Fliuch - The Wet Hollow
- Gob Bharr a' Ghleanna - The Tip of the Top of the Glen
- Poll an Amadáin - The Fool's Hollow
- Strapa a' tSionnaigh - The Ledge of the Fox
- An Chlaicheach - Church Steeple? Sloping Rockface?
- An Cléireach - The Island of the Cléireach
- Oileán Mionnán - Kid Island
- Ceann a' Mhionnáin - The Tip of Kid Island
- Droim na Loinge - A Rise Bordering the Hollow
- An Uaigh Bhuí - The Yellow Cave
- An Loing - The Hollow/Basin
- Leic an Oileáin - The Flagstone of the Island
- An Uaigh Dhubh - The Black Cave
- An Pufaire - The Blow Hole
- Átha an Oileáin - The Sound of the Island
- Cladach an Oileáin - The Shore of the Island
- Bun na hUchtóige - The Bottom of the Sternum
- Damba an Mhaidín - The Dam of the Little Stick
- Bóthar na bPríosún - The Road of the Príosúin
- Sidheán na gCnámh - The Fairy Fort of the Bones
- Tamhnaigh na Mick's - The Monaghan's Meadow
- Gullet Pheadair - Peadar's Conduit
- Barr na bhFiodán - The Top (Source) of the Streams
- Cartadh Wright - Wright's Digging (Quarry)
- Scraith na bhFiodán - The Marsh of the Streams
- An Teorainn - The Boundary
- Na Príosúin - This was a cove of great geological interest due to its ancient rock foldings
- Gob Scoitheachaí a' Loch - The Tip of the Reef, Offshore from the Lake
- Fiodán na Manrach - The Stream of the Temporary Shelter
- Fiodán Tuileach - The Flooded Stream
- Barr an Fhiodáin - The Top of the Stream
- Garraí Mhicín Larry - Micín Larry's Garden
- An Gleann Mór - The Big Glen
- Oileán Muiríneach - The Island of the Marram Grass
- Poll a' Mhadaidh - The Hollow of the Dog
- Na Staighrí Dubha - The Black Stairs
- Na Fothraichaí - The Precipices
- Fothair a' Duine - The Precipice of the Person

- Bun a’ Ghleanna Mhóir - The Bottom of the Big Glen
- Bun a’ Ghleanna Bhig - The Bottom of the Small Glen
- Poll a’ Bhodail - The Dark Dirty Hole
- Bealach na nGlasán - The Path of the Coalfish
- Bóthar a’ Lag Bhogaigh - The Road of the Big Hollow
- Ceann a’ Bhóthair Úir - The Top of the New Road
- Talamh Tom - Tom’s Land
- Tamhnaigh na Réamainn - The Mc Grath’s Meadow
- Tamhnaigh na dTerry’s - The Connolly’s Meadow
- Mullachán - The Rounded Summit
- Tamhnaigh na Jack’s - The Mc Grath’s Meadow
- An tSráid - The Street
- An Poll Mór - The Big Hole
- Fiodán a’ Phoill Mhóir - The Stream of the Big Hole
- Taobh Fraoich - The Hillside of the Heather
- Bun na bPortach - The Lower Part of the Turbaries
- Tinte Luaithre Tom - Tom’s Ash Fires
- Sídheán Mór - The Big Fairy Fort
- Habhaisín Bhríd Mhóir - The Little House of Bríd Mór
- Linn na Síofróg - The Pool of the Fairies
- Talamh Garbh - The Rough Ground
- Uaigh na gCailín - The Girl’s Cave
- Tóin na Páirce Móire - The Bottom of the Big Field
- Bun na hUchtóige - The Bottom of the Sternum
- Damba an Mhaidín - The Dam of the Little Stick
- Na Coiléir - The Quarries
- Tobar Tony - Tony’s Well
- Scaradh na mBréidín - The Spreading of the Tweed
- Cnocán an Uasail - The Hillock of the Gentleman
- Teach a’ Bhogaigh - The House of the Open Bog/Mountain
- An Fhaiche Mhór - The Big Grassy Area
- Plása Glas San Alt - A Grassy Patch in the Cliff
- An Ghéir - The Very Steep Cliff
- Suan na gCaorach - The Resting Place of the Sheep
- An Steip Mór - The Big Step
- Na Slogaigh Bheaga - The Small Swallow Hole
- Corrúic - The Crooked Pinnacle?
- Alt Breac - The Speckled Cliff
- Poll a’ Mhadaidh Uisce - The Hole of the Otter
- An Ball Dóite - The Burnt Spot
- An Panc - The Gully
- An Panc Úr - The New Gully
- An Machaire Lár - The Middle Field
- Garraí Eoin Óig - Young Eoin’s Garden
- Cnoc a’ Watch House - The Hill of the Watch House
- Fothair Shéamais Ultaigh - The Precipice of Séamas Ultaigh
- Fothair a’ Chaisleáin - The Precipice of the Castle
- Bearnaí Thóin Rinn na nÉan - The Gap of the Bottom of the Promontory of the Birds
- Barr Nead an Iorlaigh - The Top of the Eagle’s Nest
- Scoth Pheadair - Peadar’s Reef
- An Spiorán - The Spur
- Na Lagairí Bána - The White Hollows
- Tóin Rinn na nÉan - The Bottom End of the Promontory of the Birds
- Carraig a’ tSlogaigh - The Rock of the Swallow Hole
- Na Slogaigh Bheaga - The Small Swallow Hole
- Corrúic - The Crooked Pinnacle?
- Oileán a’ tSamhaidh - The Island of Sorrel
- Malaí Shleamhain - The Slippery Slope
- Carraig na gCacan - The Rock of the Droppings
- An Charraig Fhada - The Long Rock
- Carraig a’ tSlogaigh - The Rock of the Swallow Hole
- An Chéibh - The Pier
- Oileán a’ tSamhaidh - The Island of Sorrel
- Malaí Shleamhain - The Slippery Slope
- Lag na hAscaille - The Hollow of the Corner Field
- Clais a’ Bhéil Bhuí - The Trench of the Yellow Mouth
- Uaigh a’ Chait Chaoil - The Cave of the Thin Cat
- Poll Gorm - The Blue Hole

• Na Stacaí - The Sea Stack • An Speircín - The Small Spur • An Bhoilg Bhuí - The Yellow Reef • Tráigh na bhFothantaí Dubha - The Beach of the Black Precipices • Barr na Rinne - The Top of the Promontory • An Stór - The Store • Cúl Trá Shíle - The Back of Sile's Beach • An Seanphunta - The Old Pound • Fiodán a' Bhoiler - The Stream of the Boiler • Talamh Mhurchú - Murphy's Land • Talamh na gCathaoireach - Doherty's Land • Fiodán a' Ghleanna - The Stream of the Glen • Carraig na gCacan - The Rock of the Droppings • An Charraig Fhada - The Long Rock • Oileán an Fhéir - The Island of the Grass	• Na Stacaí Beaga - The Small Sea Stacks • An Uaigh Gharbh - The Rough Cave • Uaigh Bhun a' Chlaí - The Cave of the Bottom of the Sod Fence • Gob na bhFothantaí Dubha - The Tip of the Black Precipices • Tráigh a' Phoirt - The Beach of the Anchorage • Carraig a' Róin - The Rock of the Seal • Garraí Mór - The Big Garden • An Port - The Anchorage • Portaigh Tom - Tom's Turbaries • Strapa Tobac - The Ledge of the Tobacco • Na Gardaí Costa - The Coastguards • An Láir Bhán - The White Mare • An Béal Buí - The Yellow Mouth (Opening)	• Carraigh Chill Bheithreas - The Rock of Cill Bheithreas • Oileán na Swedes - The Island of the Swedes • An Chailleach Dhubh - The Cormorant • An Sceithrigh - The Area of Loose Stones • An Rinn Rua - The Red Promontory • An Diddley - A Field Name • Bun na hAbhna - The Bottom of the River • An Chlais Mhór - The Big Trench • Bun a' Phainc - The Bottom of the Gully • An Spout - The Spout • An Cosán Buí - The Yellow Path • Carraig Ghearbháin - Garvin's Rock • Cosán na Miúileach - The Mule's Path • Leachta Leabaí Chuimín - The Stone Cairn of Cuimín's Bed • An Teach Mór - The Big House

Source for Translations: Mac Graith and Ní Ghearraigh 2004:19-3

Map 3:
Local Place Names of Stonefield



Source: Mac Graith and Ní Ghearraigh 2004:31

Translations for Map 3:

- Leac a' Bhiorlaigh - The Flagstone of the Watercress
- Strapa an Mhaide Roundáilte - The Ledge of the Round Stick
- Rinn Bhán - The White Promontory
- An Strapa Mór - The Big Ledge
- An Poll Bradach - The Thieving Hole
- Strapa Chaora Pheigí - The Ledge of Peggy's Sheep
- An Charraig Mhór - The Big Rock
- An tIomaire - The Ridge
- Barr a' Bhaill Bháin - The Top of the White Spot Area
- Poll a' Stana - The Hole of the Barrel
- An Bhinn Bhuí - The Yellow Peak
- Barr na Binne Buí - The Top of the Yellow Peak
- Na Fóide Gorma - The Green Sods
- An Rinn Trághadh - The Promontory of the Beach
- An Torlainn Duibh Thiar - The Black Western Shore
- Strapa Chaora King - The Ledge of King's Sheep
- Na Pardógaí - The Pannier Baskets
- An Chailleach Chrom - The Bowed Hag
- An Torlainn Duibh Thoir - The Black Eastern Shore
- An Dúna - The Promontory Fort
- An tSí Ruaidh – The Red Fairy
- An tEas Mór – The Big Waterfall
- Talamh Chabhail – Coyle's Land
- Strapa na gCailleach Dhubha - The Ledge of the Cormorants
- Poll a' Ghainimh - The Sandy Hole
- Uaigh a' Phriosáin - The Cave of the Shipwreck
- Na Fothracha Bána - The White Precipices
- Fothair na nGeamhnóg - The Precipice of the Sea Terns
- An Lumper - A Type of Potato
- Na Magairlí - The Testicles
- Fothair a' Bhodaigh - The Precipice of the Old Man
- An Bodach - The Old Man
- An Look Out - The Look Out
- Simléar - The Chimney
- An Marla - The China Clay
- Bearna Ghóil - The Gap of the Steering
- Fothair a' tSionnaigh - The Precipice of the Fox
- Spiorán a' Ghadaí - The Spur of the Thief
- An Bhinn Mhór - The Big Peak
- Uaigh Taims - Taim's Cave
- Parlús Sheáin Thomáis - Seán Thomáis' Parlour
- Fothair a' Bhoic - The Precipice of the Playboy
- Fothair na Luchóige - The Ledge of the Mouse
- Fothair a' Dúna - The Precipice of the Promontory Fort
- Talamh Neachtain – Naughton's Land
- An Cnocán Mór – The Big Hillock
- An Péirse Ard – The High Stony Pathway
- Boilg Chúl a' Dúna - The Reef of the Back of the Promontory
- Trí Chailleachaí an Dúna - The Three Hags of the Promontory
- Na Boilgneacha Dubha - The Black Reefs
- An Chailleach - The Hag
- Tóin na Caillí - The Backside of the Hag
- Poillín a' Chriosaigh - The Small Hole of the Razorbill
- Slis na Caillí - The Rock Slice of the Hag
- Átha na Caillí – The Narrow Channel of the Hag
- An Bhoilg - The Reef
- Strapa Tobac - The Ledge of the Tobacco
- Barr na Rinne - The Top of the Promontory
- Teachaín a' Watch - The Watch House
- Béal a' Chuain - The Mouth of the Bay
- Poll an Áirse - The Hole of the Arch
- Poll Ghearbháin - Garvin's Hole
- An Tortán - The Hummock
- Taobh na Rinne - The Side of the Promontory
- Leacracha Cama - The Crooked Flagstones
- An Leac Mhór - The Big Flagstone
- Teacháin na Stille - The Little House of the Still
- Fothair na mBó - The Precipice of the Cows
- Uaigh na Rón Seasc - The Cave of the Barren Seals
- An Pháirc Gharbh – The Rough Field
- Seanteach Nóra Raghallaigh – Nora Reilly's Old House

- An Spiorán Mór - The Big Spur
- Fothair na Leice - The Precipice of the Flagstone
- Fothair Chraoibhe - The Precipice of the Branch
- An Cuan - Portacloy Bay
- Leac Éamoinn Óig - Éamonn Óg's Flagstone
- An Chaora Bhán - The White Sheep
- Leac Mhackey - Mackey's Flagstone
- Uaigh na Scadán - The Cave of the Herring
- Bun an Fhiodáin Mhóir – The Bottom End of the Big Stream
- Uaigh Chaol - The Narrow Cave
- Poillín a' Mhúin - The Hole of the Urine
- Tóin a' Choire - The Bottom Part of the Cauldron
- An tSeanchéibh - The Old Pier
- Teachaín a' tSalainn - The Small House of the Salt
- An Chéibh Úr - The New Pier
- Cnocán na Céibhe - The Hillock of the Pier
- An Uaigh Gharbh - The Rough Cave
- An Tráigh - The Beach
- Béal na hAbhna - The Mouth of the River
- An Dock - The Currach Pen
- An Stór - The Store
- An Seanbhóthar - The Old Road
- Ceann a' Bhóthair – The Top of the Road
- Páirc Neachtain – Naughton's Field
- Seanteach Chabhail Shíle – The Old House of Cabhail Shíle

- Garraí Dabhdaicín - Dabhdaicín's Garden
- Cúlan a' Ghainimh - The Secluded Area of Sand
- Poll Buí - The Yellow Hole
- Garraí Glas - The Green Garden
- Talamh an Mhinistir - The Minister's Land
- An Machaire - The Field
- Luachrán - The Rushy Place
- Panc Mhichael Neachtain - Michael Naughton's Gully
- Cúlán a' Charraigáin - The Secluded Area of the Mound
- Talamh Johnny Mhaidhc - Johnny Mhaidhc's Land
- Bun a' Phainc - The Bottom of the Gully
- An Garraí Mór - The Big Garden
- Bruach an Amadáin - The Bank of the Fool
- An Cnocán Rua - The Red Hillock
- Cúlán a' Gheata - The Secluded Area of the Gate
- Bóithrín a' Phainc - The Little Road of the Gully
- Cúlán a' Phunta - The Secluded area of the Pound
- Garraí Ard - The High Garden
- Cúlán na gCúlán - The Secluded Area of the Small Field
- Clasaigh Ruáin – Ruane's Quarry
- Garraí Ned – Ned's Garden
- An Baile Úr – The New Townland
- Talamh John Dhiarmaid – John Dhiarmaid's Land

- Poillín a' Phúca - The Fairy Hollow
- Lathaigh a Bháite - The Waterlogged Mire
- Ceann a' Bhóthair Úir - The Top of the New Road
- Na Gullets - The Gullets
- An Pollán - The Hollow
- Talamh Winnie Ned - Winnie Ned's Land
- Talamh Jimín Pheatsaí - Jimín Pheatsaí's Land
- Garraí an Droichid - The Garden of the Bridge
- Iomairí Mhairt a' Chnoic - The Ridges of Mart of the Hill
- An Panc Buí - The Yellow Gully
- An Pháirc Bhán - The White Field
- Barr na hAitinne - The Top of the Gorse or Furze
- Bóithrín Mhartain Mhicheáil - Martan Mhicheáil's Small Road
- An Cheartaí - The Forge
- An Tobar - The Well
- Teach a' Bhúrcaigh Mhóir - Big Burke's House
- An Bholgóg - The Spring-Well Bubble
- An Scoil Úr - The New School
- Caochán - The Caochán Sculpture
- An Bóthar Íochtair - The Lower Road
- An Droicidín - The Small Bridge
- Cosán an Aifrinn - The Mass Path
- An Principle – The Main (as in Turbary)
- Portaigh Mhaidhc – Maidhc's Turbaries
- An Panc Buí – The Yellow Gully
- Cúl a' Bhaile – The Back of the Village

- Garraí Antaine Tony - Antaine Tony's Garden
- Garraí na Dans - The Garden on the Dans
- Garraí Úr - The New Garden
- Cúlán Bhríd Ní Ghearraigh - Bríd Ní Ghearraigh's Secluded Area
- Garraí Úr - The New Garden
- Teach Chonghóile - Connolly's House
- An Teach Tabhairne Áitiúil - The Local Pub
- Straidhp a' Whaler - The Whaler's Stripe
- Biolla na bhFataí – The Dune of the Potatoes
- An Mhonarcha – The Factory
- An Right of Way – The Right of Way
- Tobar a' Teampaill – The Well of the Graveyard
- An Gaineamh – The Sand
- An Seanbóthar – The Old Road
- An Móinéar Beag – The Small Meadow
- Carragán Mhartan Dunne – Martan Dunne's Mound
- Cúlán Philip – Philip's Secluded Area
- Straidhp Tharlaigh – Tarlach's Stripe of Land
- Bogach na Fola – The Bog/Mountain of the Blood
- Talamh na nAnthony's – Anthony's Land
- An Sídheán Mór – The Big Fairy Fort
- Páirc Ghallachóir – Gallagher's Field
- Teach Roger – Roger's House
- Teach D. – D's House
- An Casadh – The Bend
- Tóin a' Chnoic – The Backside of the Hill
- An Punta - The Pound
- Straidhp Pheadda Bháin - Peadda Bán's Stripe of Land
- Straidhp Mhichael Sheáin Bhríde - Michael Sheáin Bhríde's Stripe of Land
- Straidhp Pheat a' Ghraith - Pat a' Graith's Stripe of Land
- Straidhp Mhánais - Manus' Stripe of Land
- Straidhp Johnny Goireachtaigh - Johnny Geragthy's Stripe
- Talamh an Fhir Dheirg – The Red Man's Land
- Garraí na gConólaithe – The Connolly's Garden
- Malaí – The Slope
- Claidhe Dubh – The Black Sod Fence
- Garraí Chearsoin – Carson's Garden
- Bóithrín Tom Bhig – Tom Beag's Small Road
- Garrantaí Mhichael Tony – Michael Tony's Gardens
- An Panc – The Gully
- Páirc a' Liú – The Garden of the Shouting
- Bóithrín Sheáin Ruadaí – Seán Ruadaí's small Road
- Ascaill na mBrianta – The Brian's Corner Field
- Bhí Siops Anseo in Am – There was a Shop Here Formerly
- Teach Cuartaíochta – A Rambling House
- Péirse Ghreen – Green's Stony Pathway
- Cúl a' Chnoic – The Back of the Hill
- An Scraith Ghlas – The Green Marsh
- Straidhp Chearsoin – Carson's Stripe
- Talamh na mBurnach – The Land of the Bournes
- Draein a' Tuairín – The drain of the Bleaching
- Machaire Shéarlais – Séarlas' Field
- An Durlainn – The Stony Beach
- Tráigh Cheatrú na gCloch – The Beach of Ceathrú na gCloch
- Cnocán Áit Tigh Aindriú – The Hillock of the Place of Andrew's House
- An Bóthar Úr – The New Road
- An Teorainn – The Boundary
- An Fiodán Dubh – The Black Stream
- An Péirse – The Stony Place
- Na Príosúin – The Prison
- Barr na bhFiodán – The Top of the Stream
- An Péirse Trasnaí – The Crossing Stony Pathway
- An Bogach Righin – The Tough Bog/Mountain
- Na Portaigh – The Turbaries
- Lag Cloiche – The Stony Hollow
- Teach Fód a Bhí Ann – This was a Sod House
- Fiodán a' Diúil – The Stream of the Suckling
- Tobar Johnny – Johnny's Well
- An Trinse – The Trench

• An Baile Amuigh – The Outer Village • Lag Mór an Ailt – The Big Hollow of the Cliff • Garraí Sheáin Uí Thaidhg – Seán Tigue's Garden • An Fiodán Bán – The White Stream • An Fiodán Mór – The Big Stream • Ladhair a' Dá Abhainn – The Fork of the Two Rivers • Barr na Scraith – The Top of the Marsh • Ceann a' Bhóthair – The Top of the Road • Na Portaigh – The Turbaries • An Chloch Bhán – The White Stone • Bóthar na bPortach – The Road of the Turbaries • Poll na Manrach – The Hole of the Temporary Shelter • An Fiodán Mór – The Big Stream • Ceann an Fhiodáin – The Source of the Stream • An Tower – The Tower • Ascaill Raithní – The Corner Field of the Fern • Cruinneoc – The rounded Hill	• Na Brácaí – The Temporary Shelters • Mullachán – The Rounded Height • An Béal Ramhar – The Fat Mouth • Taobh na bhFiodán – The Side of the Streams • Ceann na bhFiodán – The Top End of the Streams • Féitheán Pheigí – Peggy's Narrow Stream • Bogach a' Tpwer – The Bog (Mountain) of the Tower • Cnoc an tSeanbhaile – The Hill of the Old Settlement • An Pháirc Gharbh – The Rough Field • Sídheán an Táilliúir – The Tailor's Fairy Fort • Portaigh Ruadaí Mhary – Ruadaí Mhary's Turbary • An Fiodán Beag – The Small Stream • An Scéirí Chloch – The Place of the Loose Stones • Bóithrín na gCapall – The Small Road of the Horses • Talamh Bharrett – Barrett's Land	• An Bóithrín Dubh – The Small Black Road • Na Stácaí – The Sea Stacks • Átha an Stáca – The Sound of the Sea Stack • An Bád Bréige – The False Boat • An Fiodán – The Stream • Garraí a' Bhogaigh – The Garden of the Bog/Mountain • Talamh Phadraig Daein – Padraig Deane's Land • Garraí na Slat – The Garden of the (Sally) Rods • Portaigh Phatrickín – Patrickín's Turbary • Garraí Mhartain Mhóir – Big Martin's Garden • Seanteach a' Bhairéadaigh – Barrett's Old House • Gualainn a' Chnoic – The Shoulder of the Hill • Bóthar Chúl a' Chnoic – The Road at the Back of the Hill • Lag a' Bhréid - The Hollow of the Tweed • Clasaigh an Tincéaraí – The Tinker's Quarry

Source for translations: Mac Graith and Ní Ghearraigh 2004:33-44

Map 4:
Local Place Names of Carrowteige

Source: Mac Graith and Ní Ghearraigh 2004:45

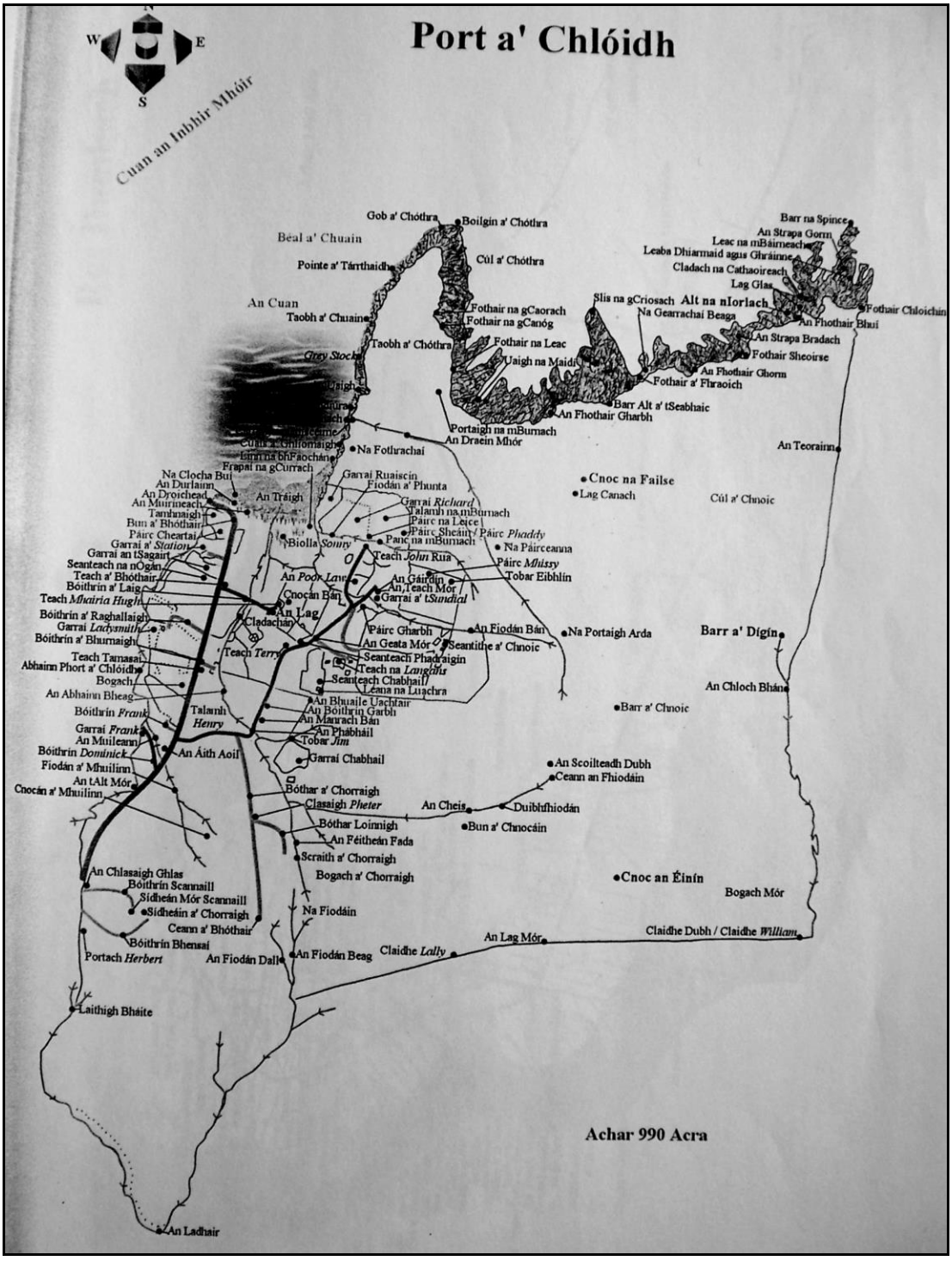
Translations for Map 4:

- Teach a' Phobail – The Church
- An tSráid – The Street
- Bóithrín na Sráide – The Small Road of the Street
- Sraith – The Marsh
- Teach na Langans – Langan's House
- An Halla – The Hall
- Teach Ghearbháin – Garvin's house
- Fiodán a' Phaoraigh – The Little Stream of the Paorach
- Féicheán – The Narrow Stream
- Garraí Chlann Dhomhnaill – The Garden of the Mc Donnell Family
- Garraí Scanaill – Scanlon's Garden
- Garraí Neachtain – Naughton's Garden
- Tobar Neachtain – Naughton's Well
- Páirceanna Neachtain – Naughton's Fields
- Scriath Phadraig Sheáin – Padraig Sheáin's Marsh
- Garraí Chúl a' Chnoic – The Garden of the Back of the Hill
- Garraí Pheat Uí Dhochartaigh – Pat Doherty's Garden
- An Baile Thíos – The Lower Part of the Townland
- An Cnocán Rua – The Red Hillock
- Cúl a' Chnoic – The Back of the Hill
- Talamh Jack Thaidhg – Jack Tigue's Land
- Straidhp na n-Oirbeard – Herbert's Stripe of Land
- Fál Mór – The Big Enclosure
- Straidhp Jack Uí Dhochartaigh – Jack Doherty's Stripe of Land
- Foinse Uisce – A Source of Water
- Talamh Antaine Philip – Antaine Philip's Land
- Poll a' Stanna – The Hole of the Barrel
- Na Fothrachaí – The Precipices
- An Ascaill Mhór – The Big Corner Field
- An Ascaill Beag – The Small Corner Field
- Tobar an Phunta Bhig – The Well of the Small Pound
- Garraí Róisín – Róisín's Garden
- An Leachta – The Stone Heap
- Draein a' Chnoic – The Drain of the Hill
- Tobar Mhicheáil – Micheál's Well
- Sídheán na gCnámh – The Fairy Fort of the Bones
- Talamh na nGraitheannaí – Mc Grath's Land
- An Baile Thoir – The Eastern Part of the Townland
- Garrantaí Scanaill – Scanlon's Garden
- Teach na gCaomhánach – Kavanagh's House
- Teach Stanton – Stanton's House
- Geata an Ghairtéil – The Gate of Cnoc a' Ghairtéil
- An Draein Uachtair – The Upper Drain
- Leachta Shéamais Uí Thaidhg – Séamas Tigue's Memorial Cairn
- Bun an Fhiodáin – The Bottom End of the Stream
- Straidhp Pheadar Uí Mhuineacháin – Peadar Monaghan's Stripe of Land
- An Draein Íochtair – The Lower Drain
- An Teorainn – The Boundary
- An Poillín – The Small Hole
- Panc a' Mhachaire – The Gully of the Field system
- Lag Glas – The Green Hollow
- Fiodán a' Bhreathnaigh – Walsh's Stream
- Cúl a' Mhachaire – The Back of the Field System
- Léana Fliuch – The Wet, Flat Damp Area
- Púnta Lárbáire – The Middle Pound
- An Tuairín – The Stream of the Bleaching
- Biollaí Sheáin Dhomhnaill – The Dunes of Seán Domhnaill
- An Machaire – The Field Systems
- Na Biollaí – The Dunes
- Teachaín na Stille – The Small House of the Still
- Na Tithe Roundáilte – The Round Houses
- An Durlainn – The Stony Shore
- Na Lochantaí – The Small Lakes
- Carraig a' tSleabhcáin – The Rock of the Sloke (Algae)
- Straidhp Shéamais Uí Chonaill – Séamas Connell's Stripe of Land
- An Fáilín Rite – The Steep Enclosure
- Straidhp Shéamais Uí Ghraith – Séamas Mc Grath's Stripe of Land
- An Díogaí – The small Yellow Drain
- An Spout – The Spout

- Straidhp Mhic Róise – Mic Róise's Stripe of Land
- Straidhp Phadraig Uí Dhochartaigh – Pat Doherty's Stripe of Land
- Straidhp Pheat Uí Neachtain – Pat Naughton's Stripe of Land
- Straidhp Mhichael Scanaill – Michael Scanlon's Stripe of Land
- Lochán na nGéabha – The Small Lake of the Geese
- Tobar a' Mhachaire – The Well of the Field System
- Straidhp Antaine Philip – Antaine Philip's Stripe
- Teach Sheáin a' Staraí – Seán a' Staraí's House
- Straidhp na mBreathnach – Walsh's stripe
- Straidhp an Mháistir Bhacaigh – The Stripe of the Lame Schoolteacher
- Garraí Shéamais Bairéad – Séamas Barrett's Garden
- Straidhp Sheáin a' Bhóthair – The Stripe of Seán of the Road
- Straidhp Antaine Shéamais – Antaine Shéamais' Stripe
- Cloch Bhán – The White Stone
- Lag na Madadh - The Hollow of the Dog
- Teach a' Nurse – The Nurse's House
- Páirc na nGiolcach – The Field of the Reeds
- Straidhp na n-Oirbeard – Herbert's Stripe of Land
- Straidhp Pheat Uí Dhochartaigh – Pat Doherty's Stripe of Land
- Straidhp Sheáin Uí Ghearbháin – Seán Garvin's Stripe of Land
- Bóthar Mhichael Sheáin – Michael Sheáin's Road
- Cnocán a' Bhréidín – The Hillock of the Tweed
- Scriath Úr – The New Marsh
- Teach Mhacaí Nuadhain – Macaí Noone's House
- Teach Pheadair Uí Mhuineacháin – Peadar Monaghan's House
- Bóthar a' Mhachaire – The Road of the Field System
- Garraí Mór – The Big Garden
- Garraí Ned – Ned's Garden
- Teach Bhensaí – Bensaí's House
- Teach Ghearraí – Gearraí's House
- Clasaigh an Tobair – The Quarry of the Well
- Teach na Phillips – The Phillip's House
- An Baile Thuas – The Upper Part of the Townland
- Teach Bhiddy Pheadair – Biddy Pheadair's House
- Seantach na Scoile – The Old School House
- Malaí – A Slope
- Páirc a' Mháistir – The Schoolmaster's Field
- An Linn Mhór – The Big Pool
- Teach Antaine Frighill – Antaine Friel's House
- Bóithrín Ghearbháin – Garvin's Small Road
- Teach Mhéabha – Méabha's House
- An Áith Aoil – The Lime Kiln
- Áith Aoil a' Factory – The Lime Kiln of the Factory
- An Right of Way – The Right of Way
- Teach a' Bhreathnaigh - Walsh's Land
- Siopa Kevin – Kevin's Shop
- Teach Sail – Sally's House
- Teach Shéamais a' Bhóthair – Séamas of the Road's House
- Teach Hugh – Hugh's House
- Talamh Mhic Róise – Mic Róise's Land
- Teach a' tSírínigh – The Sheeran's House
- Talamh Jack Uí Dhochartaigh – Jack Doherty's Land
- Talamh Mhicín angus Pheaitín Uí Dhochartaigh – Micín and Pat Doherty's Land
- Teach Sheáin a' Bhóthair – Seán of the Road's House
- Bóithrín Thaidhg – Tigue's Road
- Garrantaí na dTaidhgeannaí – The Garden of the Tigue's
- An Droichead – The Bridge
- Móinéar – Meadow

Source for translations: Mac Graith and Ní Ghearraigh 2004:47-52

Map 5:
Local Place Names of Portacloy



Source: Mac Graith and Ní Ghearraigh 2004:63

Translations for Map 5:

- Fothair Chloichín – The Precipice of the Small Stones
- Barr na Spince – The Top of the Spur (of Rock)
- An Strap Gorm – The Green ledge
- Leac na mBáirneach – The Flagstone of the Limpets
- Leaba Dhiarmaid agus Ghráinne – Diarmaid and Gráinne's Bed
- Cladach na Cathaoireach – The Chair-Shaped Stone
- Alt a n-Iolrach – The Cliff of the Eagles
- Lag Glas – The Green Hollow
- An Fhothair Bhuí – The Yellow Precipice
- An Strapa Bradach – The Thieving Ledge
- Fothair Sheoirse – Seoirse's Precipice
- An Fhothair Ghorm – The Green Precipice
- Na Gearrachaí Beaga – The Small Cuttings
- Fothair a' Fhraoich – The Precipice of the Heather
- Slis na gCriosach – The Rock Slice of the Razorbill
- Barr Alt a' tSeabhaic – The Top of the Cliff of the Hawk
- An Fhothair Gharbh – The Rough Precipice
- Uaigh na Maidí – The Cave of the Sticks
- Fothair na Leac – The Precipice of the Flagstone
- Fothair na gCanóg – The Precipice of the Fulmars
- Bogach – The Bog/Mountain
- An Fiodán Beag – The Small Stream
- Na Fiodáin – The Streams
- Fothair na gCaorach – The Precipice of the Sheep
- Cúl a' Chóthra – The Back of the Chest
- Boilgín a' Chóthra – The Small Reef of the Chest
- Gob a' Chóthra – The Tip of the Chest
- Pointe a' Tárrthaidh – The Point of the Deliverance
- Cuan Phort a' Chlóidh – Port a' Chlóidh Bay
- Béal a' Chuain – The Mouth of the Bay
- Taobh a' Chuain – The Side of the Bay
- Taobh a' Chóthra – The Side of the Chest
- Greystock – A Grey Rock
- An Uaigh – The Cave
- Slis Bhean a' tSaighdiúra – The Rock Slice of the Soldier's Wife
- An Draein Mhór – The Big Drain
- Bun na Draenach – The Lower End of the Drain
- Carraig na Coiscéime – The Stepping Stone
- Cuais a' Ghliomaigh – The Cove of the Lobster
- Linn na bhFaochán – The Pool of the Periwinkles
- Na Fothrachaí – The Precipices
- Garraí Ruaiscín – Ruaiscín's Garden
- Fiodán a' Phúnta – The River of the Pound
- Frapaí na gCurrach – The Currach Pens
- An Fiodán Bán – The White Stream
- Páirc Sheáin – Seán's Field
- Páirc Phaddy – Paddy's Field
- Tráigh Phort a' Chlóidh – Port a' Chlóidh Beach
- Na Clocha Buí – The Yellow Stone
- An Durlainn – The Stony Shore
- An Droichead – The Bridge
- An Muiríneach – The Marram Grass
- Tamhnaigh – The Meadow
- Bun a' Bhóthair – The Bottom End of the Road
- Páirc Cheartaí – Carty's Field
- Garraí an tSagairt – The Priest's Garden
- Seanteach na nÓgán – Hogan's Old House
- Teach a' Bhóthair – The House of the Road
- Bóithrín a' Laig – The Small Road of the Hollow
- Teach Mhairia Hugh – Mairia Hugh's House
- Cnocán Bán – The White Hillock
- An Lag – The Hollow
- Cladachán – The Small Stony Place
- Teach Terry – Terry's House
- Bóithrín a' Raghallaigh – Reilly's Small Road
- Garraí Ladysmith – The Garden of Ladysmith
- Bóithrín a' Bhurnaigh – The Bourne's Small Road
- Teach Tamasaí – Tamasaí's House
- Ceann a' Bhóthair – The Top of the Road
- An Fiodán Beag – The Small Stream
- An Fiodán Dall – The Blind Stream
- Bogach a' Chorraigh – The Bog/Mountain of the Uneven Ground

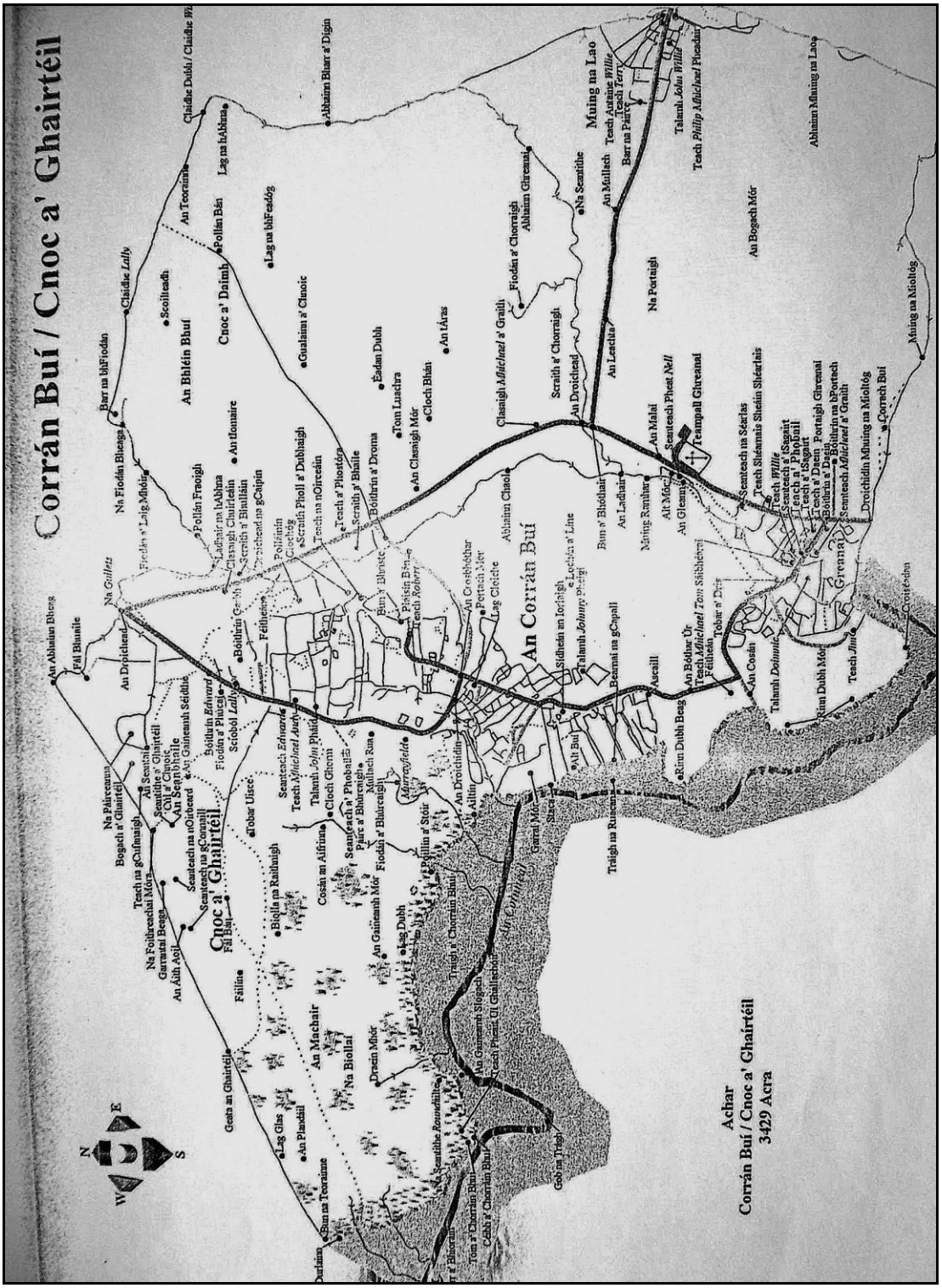
- Abhainn Phort a' Chlóidh – The Port a' Chlóidh River
- An Abhainn Bheag – The Small River
- Bóithrín Frank – Frank's Road
- An Áith Aoil – The Lime Kiln
- Garraí frank – Frank Naughton's Garden
- An Muileann – The Mill
- Bóithrín Dominick – Dominick's Small Road
- Fiodán an Mhuilinn – The Stream of the Mill
- An tAlt Mór – The Big Cliff
- Cnocán an Mhuilinn – The Hillock of the Mill
- An Chlasaigh Ghlas – The Green Quarry
- Portach Herbert – Herbert's Turbary
- Laithigh Bháite – The Waterlogged Mire
- An Ladhair – The Fork in the River
- Bóithrín Scannaill – Scanlon's Road
- Sídheán Mór Scannaill – Scanlon's Big Fairy Fort
- Na Portaigh Arda – The High Turbaries
- Claidhe Lally – Lally's Fence
- Na Fiodáin – The Streams

- Bóithrín Bhensaí – Bensaí's Small Road
- Bóthar Loinnigh – Linney's Road
- An Féitheán Fada – The Long Narrow Stream
- Clasaigh Pheter – Peter's Quarry
- Bóthar a' Chorraigh – The Road of the Uneven Ground
- Garraí Chabhail – Coyle's Garden
- Tobar Jim – Jim's Well
- An Phábháil – The Paving
- An Manrach Bán – The White Temporary Shelter
- An Bóithrín Garbh – The Small Rough Ground
- An Bhuaile Uachtair – The Upper Booley
- Léana na Luachra – The Mantle of the Rushes
- Seanteach Chabhail – Coyle's Old House
- Teach na Langans – Langan's House
- Seanteach Phadraigín – Padraigín's Old House
- Páirc Gharbh – The Rough Field
- Seantithe a' Chnoic – The Old Houses of the Hill
- An Lag Mór – The Big Hollow

- Barr a' Chnoic – The Top of the Hill
- Cnoc na Failse – The Hill of the Burnt Land
- Lag Canach – The Hollow of the Cotton Grass
- An Teorainn – The Boundary
- Cúl a' Chnoic – The Back of the Hill
- Barr a' Dígín – The Top of the Small Drain
- An Chloch Bhán – The White Stone
- Bogach Mór – The Big Bog/Mountain
- Claidhe Dubh – The Black Fence
- Claidhe William – William's Fence
- An Scoilteadh Dubh – The Black Opening
- Ceann an Fhiodáin – The Source of the Stream
- An Cheis – The Wattled Causeway
- Duibhfhiodán – The Black Stream
- Bun a' Chnocáin – The Bottom of the Small Hillock
- Cnoc an Éinín – The Hill of the Little Bird
- Sídheáin a' Chorraigh – The Fairy Forts of the Uneven Ground

Source for Translations: Mac Graith and Ní Ghearraigh 2004:65-70

Map 6:
Local Place Names of Curraunboy (and Garter Hill)



Source: Mac Graith and Ní Ghearraigh 2004:53

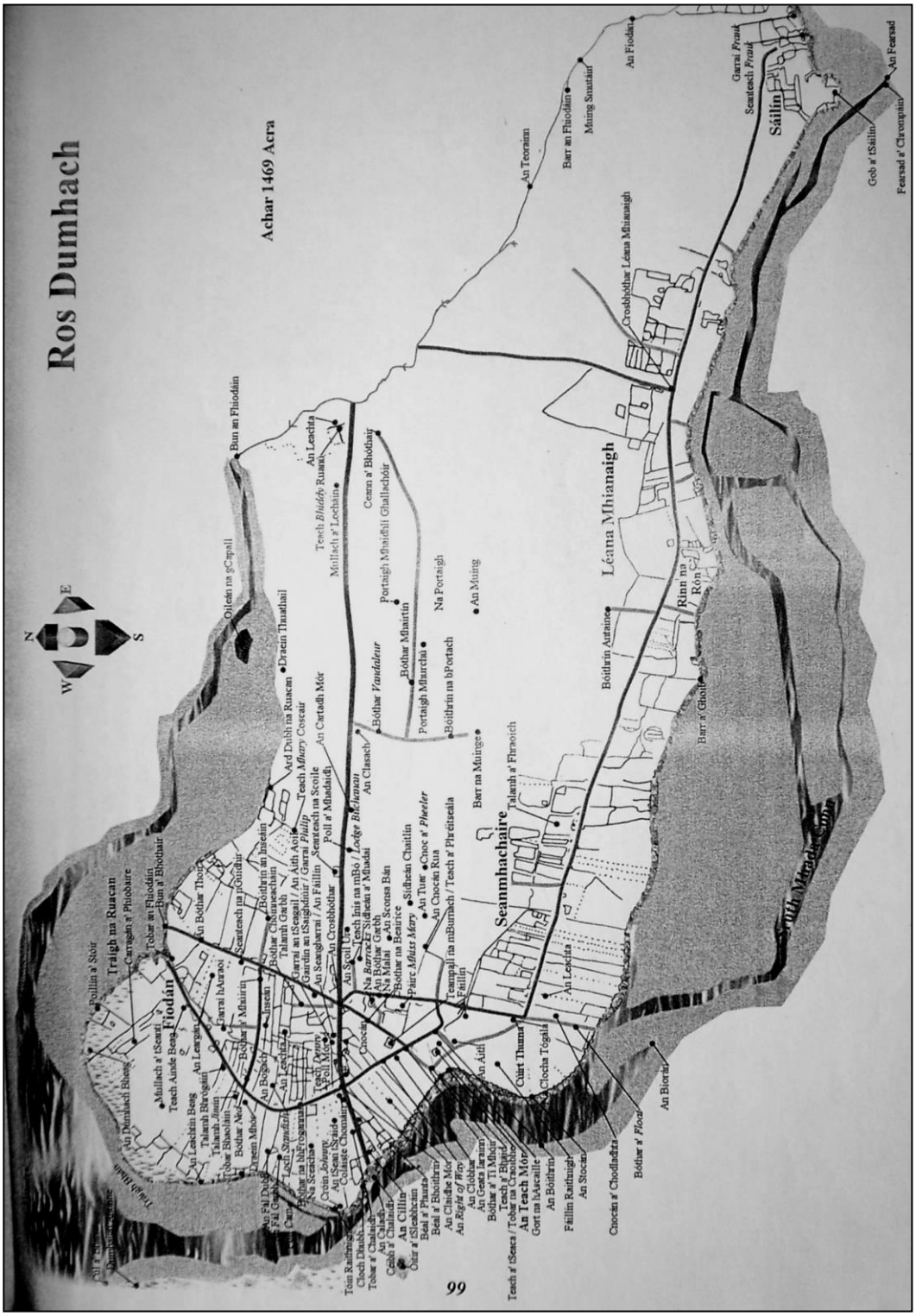
Translations for Map 6:

- Droichidín Mhuing na Míoltóg – The Small Bridge of the Marsh of the Midges
- Corrach Buí – The Yellow Uneven Ground
- Teach Mhichael Tom Sáibhéaraí – Michael Tom Sáibhéaraí's House
- Tobar a' Dris – The Well of the Briar or Bramble
- Talamh Dominick – Dominick's Land
- Teach Jim – Jim's House
- Croiséadan – The Crossing Slopes
- Rinn Dubh Mór – The Big Black Promontory
- An Cosán – The Path
- Féitheán – The Narrow Stream
- Rinn Dubh Beag – The Small Black Promontory
- An Bóthar Úr – The New Road
- Ascaill – The Corner Field
- Bearnaí na gCapall – The Gap of the Horses
- Tráigh na Ruacan – The Strand of the Cockles
- Alt Buí – The Yellow Cliff
- Staca – The Stack
- Garraí Mór – The Big Garden
- Sídheán an Iorlaigh – The Fairy Fort of the Eagle
- Talamh Johnny Pheigí – Johnny Pheigí's Land
- Lochán a' Líne – The Small Lake of the Flax
- Lag Cloiche – The Stony Hollow
- Gob na Trágh – The Tip of the Beach
- An Abhainn Bheag – The Small River
- Portach Mór – The Big Turbary
- An Crosbhóthar – The Crossroad
- Teach Robert – Robert's House
- Pláisín Bán – The Small White Level Patch
- Bun a' Bhriste – The Bottom of the Broken Area
- Ailtín – The Small Cliff
- An Droichidín – The Small Bridge
- Poillín a' Stóir – The Hollow of the Store
- Murrayfield – The Local Football Field
- Mullach Rua – The red Hillock
- Fiodán a' Bhúrcaigh – Bourke's Stream
- Páirc a' Bhúrcaigh – Bourke's Field
- Seanteach Phobail an Chorráin Bhuí – The Old Chapel of Chorráin Buí
- Cloch Ghorm – The Blue Stone
- Cosán an Aifrinn – The Mass Path
- Talamh John Pháid – John Páid's Land
- Teach Mhichael Andy – Michael Andy's House
- Seanteach Edward – Edward's Old House
- Tobar Uisce – The Spring Well
- Féitheán – The Narrow Stream
- Bóithrín Garbh – The Small Rough Road
- Scioból Lally – Lally's Stable
- Clasaigh Chuirleáin – Curley's Quarry
- Fiodán a' Phúcaí – The Stream of the Fairy
- Tom Luachra – The Tuft of Rushes
- Bóithrín Edward – Edward's Small Road
- An Gaineamh Séidthe – The Windblown Sand
- Cnoc a' Ghairtéil – Garter Hill
- Cúl a' Chnoic – The Back of the Hill
- Bogach a' Ghairtéil – The Bog of Chnoic a' Ghairtéil
- An Seantaí – The Shelter
- Na Páirceanna – The Fields
- Seanteach na nOirbeard – Herbert's Old House
- Foithreachaí Móra – The Big Precipices
- Na Garrantaí Beaga – The Small Gardens
- An Áith Aoil – The Lime Kilns
- Fál Bán – The White Enclosure
- Fáilín – The Small Enclosure
- Biolla na Rathnigh – The Dune of the Ferns
- Geata an Ghairtéil – The Gate of Cnoc a' Ghairtéil
- Lag Glas – The Green Hollow
- An Plandáil – The Plantation
- Bun na Teorainne – The Bottom End of the Boundary
- Draein Mhór – The Big drain
- Na Biollaí – The Dunes
- An Gaineamh Mór – The Big Sandy Place
- Lag Dubh – The Black Hollow
- Tráigh a' Chorráin Bhuí – The Beach of Corrán Buí
- An Coinnéal – The Channel
- Teach Terry – Terry's House
- Teach Antaine Willie – Antaine Willie's House

- Fál Bhuaile – The Booley Enclosure
- Na Gullets – The Gullets/Conduits
- Droichead na gCaipín – The Capped Bridge
- Scraith a' Bhulláin – The Marsh of the Bullock
- An tIomaire – The Ridge
- Ladhair na hAbhna – The Fork of the Rivers
- Pollán Fraoich –The Hollow of the Heather
- Fiodán a' Laig Mhóir – The Stream of the Big Hollow
- Na Fiodáin Bheaga – The Small Streams
- Barr na bhFiodán – The Top of the Streams
- Claidhe Lally – Lally's Fence
- An Bhléin Bhuí – The Yellow Groin
- Scoilteadh – The Fissure
- Cnoc a' Daimh – The Hill of the Ox
- Gualainn a' Chnoic – The Shoulder of the Hill
- Polláinín – The Small Hollow
- Clochóg – The Stony Area
- Scraith Pholl a' Dhubhaigh – The Marsh of the Blackened Hole
- Teach a' Phostóra – The Postman's House
- Scraith a' Bhaile – The Marsh of the Townland
- Bóithrín a' Droma – The Small Road of the Rounded Height
- Gob a Trágh – The Tip of the Beach
- Na Seantithe Roundáilte – The Old Round Houses
- Teach Pheait Uí Ghallachóir – Patch Gallagher's House
- Éadan Dubh – The Black Faced Slope
- An Clasaigh Mór – The Big Quarry
- Cloch Bhán – The White Stone
- Lag na bhFeadóg – The Hollow of the Plovers
- Pollán Bán – The White Hollow
- An Teorainn – The Boundary
- Claidhe Dubh – The Black Fence
- Claidhe William – William's Fence
- Lag na hAbhna – The Hollow of the River
- Abhainn Bharr a' Dígín – The River of the Top of the Small Drain
- Abhainn Ghreanaí – The River of the Gravel
- Na Seantithe – The old Houses
- Fiodán a' Chorraigh – The Stream of the Uneven Ground
- Clasaigh Mhichael a' Ghraith – Michael Mc Grath's Quarry
- Scraith a' Chorraigh – The Marsh of the Uneven Ground
- Abhainn Chaol – The Narrow River
- Bun a' Bhóthair – The Bottom of the Road
- An Droichead – The Bridge
- An Leachta – The Stone Heap (Memorial Cairn)
- Na Portaigh – The Turbaries
- Muin na Lao – The Marsh of the Calves
- Abhainn Mhuing na Lao – The River of the Marsh of the Calves
- An Gaineamh Slogach – The Quicksand
- An Durlainn – The Stony Shore
- Teach a' Daein – The Deanes' House
- Talamh John Willie – John Willie's Land
- Teach Philip Mhichael Pheadair – Philip Mhichael Pheadair's House
- Barr na Páirce – The Top of the Field
- An Bogach Mór – The Big Bog
- An Ladhair – The Fork of the Streams
- Muing Ramhar – The Wide Marshy Area
- Alt Mór – The Big Cliff
- An Malaí – The Brow
- Seanteach Pheat Nell – Pat Nell's Old House
- An Gleann – The Glen
- An Teampall – The Graveyard
- Greanaí – Gravelly Place
- Seanteach na Séarlas – Séarlas' Old House
- Teach a' Phobail Ghreanaí – The Chapel
- Seanteach a 'tSagairt – The Priest's Old House
- Teach Willie – Willie's House
- Bóithrín a' Daein – The Deanes' Small Road
- Portaigh Ghreanaí – The Turbaries of Greanaí
- Bóithrín na bPortach – The Small Road of the Turbaries
- Seanteach Mhichael a' Graith – Michael Mc Grath's Old House
- Muin na Míoltóg – The Marsh of the Midges
- Barr a' Bhioráin – The Top of the Pin (Sand Spit)
- Céibh a' Chorráin Bhuí – The Pier of Corrán Buí
- An Droichead – The Bridge
- An Mullach – The Height

Source for Translations: Mac Graith and Ní Ghearraigh 2004:55-62

Map 7:
Local Place Names of Rossport



Source: Mac Graith and Ní Ghearraigh 2004:99

Translations for Map 7:

- An Teach Mór – The Big House
- Gob a' tSáilín – The Point of the Salt Water
- Seanteach Frank – Frank's Old House
- Garraí Frank – Frank's Garden
- An Fiodán – The Stream
- Muing Smutáin – The Marsh of the Slope
- Barr an Fhiodáin – The Top End of the Stream
- An Teorainn – The Boundary
- Crosbhóthar Léana Mhianaigh – The Crossroad of Léana Mhianaigh
- Bóithrín Antaine – Antaine's Small Road
- Talamh a' Fraoich – The Land of the Heather
- An Leachta – The Memorial Cairn
- Na Clocha Tógála – The Building Stones (Court Tomb)
- An Áith – The Kiln
- Fáillín – The Small Enclosure
- Teampall na mBurnach – The Bourne's Graveyard
- Teach a' Phréitseála – The Preaching House
- An Cnocán Rua – The Red Hillock
- Cnoc a' Pheeler – The Hill of the Peeler
- An Tuar – The Bleaching Green
- Sídheán Chaitlín – Caitlín's Fairy Fort
- Bóthar na Beairice – The Road of the Barracks
- An Leachtín Beag – The Small Memorial Cairn
- Talamh Bhrógáin – Brogan's Land
- An Sconsa Bán – The White Fence
- Na Malaí – The Slopes
- An Bóthar Garbh – The Rough Ground
- Na Barracks – The Barracks
- Sídheán a' Mhadaidh – The Fairy Fort of the Dog
- Teach Inis na mBó – The House of the Island of the Cows
- Lodge Buchanan – Buchanan's Lodge
- An Clasach – The Quarry
- Bóthar Vandaleur - Vandaleur's Road
- Bóthar Mháirtín – Martin's Road
- Portaigh Mhurchú – Murphy's Turbary
- Bóithrín na bPortach – The Small Bog Road
- Barr na Muinge – The Top of the Swampy Area
- An Mhuing – The Swampy Area
- Na Portaigh – The Turbaries
- Portaigh Mhaidhlí Ghallachóir – Miley Gallagher's Turbaries
- Ceann a' Bhóthair – The Top of the Road
- Mullach a' Locháin – The Top of the Small Lake
- Teach Bhiddy Ruanaí – Biddy Rooney's House
- An Leachta – The Memorial Cairn
- Bun an Fhiodáin – The Lower End of the Stream
- Tobar an Fhiodáin – The Well of the Stream
- Teach Denny – Denny's House
- Poll Mór – The Big Hole
- An Leargan – The Sloping Ground
- Oileán na gCapall – The Island of the Horses
- Draein Thuathail – Toole's Drain
- Ard Dubh na Ruacan – The Black Height of the Cockles
- Teach Mhary Coscair – Mary Cosgrove's House
- An Cartadh Mór – The Big Excavation
- Poll a' Mhadaidh – The Hole of the Dog
- An Crosbhóthar – The Crossroad
- An Seangharraí – The Old Garden
- Fáillín – The Small Enclosure
- Seanteach na Scoile – The Old School House
- Gairdín a' tSaighdiúir – The Soldier's Garden
- Garraí Philip – Philip's Garden
- Garraí an tSeagail – The Garden of the Rye
- An Áith Aoil – The Lime Kiln
- Talamh Garbh – The Rough Land
- Bóthar Choinneacháin – Kinahan's Road
- Bóithrín an Inseáin – The Small Road of the Marginal Land
- Seanteach na nGuidhir – Mc Guire's Old House
- An Bóthar Thoir – The East Road
- Bun a' Bhóthair – The Lower End of the Road
- Carragán a' Phíobaire – The Stone Heap of the Piper
- Tráigh na Ruacan – The Strand of the Cockles
- Poillín a' Stóir – The Hole of the Store
- An Dumhnaigh Bheag – The Small Dune

• Mullach a' tSeantí – The Height of the Old House • Teach Ainde Beag – Ainde Beag's House • Coláiste Chomáin – The Secondary School • Cloch Dhubh – The Black Stone • Tobar a' Chalaidh – The Well of the Ferry • An Caladh – The Ferry • Céibh a' Chalaidh – the Pier of the Ferry • An Cillín – The Children's Burial Ground • Béal a' Phúnta – The Mouth of the Pound • Béal a' Bhóithrín – The Mouth of the Small Road • Cnocán a' Chodladhta – The Hillock of the Sleep	• Talamh Jimín – Jimín's Land • Tobar Bhaoighealláin – Boylan's Well • Bóthar Ned – Ned's Road • Garraí hAnraoi – Henry's Garden • Bóthar a' Mhúirín – The Road of the Compost • An Bogach – The Bog • Inseán – The Marginal Land • An Claidhe Mór – The Big Fence • An Right of Way – The Right of Way • Ainm Páirc – A Field Name • Tobar na Craibhe – The Well of the Branch • An Bóithrín – The Small Road • Bóthar a' Float – The Road of the Float	• Cnocán – The Hillock • An Draein Mhór – The Big Drain • An Fál Dubh – The Black Enclosure • An Fál Garbh – The Rough Enclosure • Loch Standish – Standish' Lake • Bóthar na bhFragannaí – The Road of the Frogs • Na Sceacha – The Bushes • Tóin Raithnigh – The Bottom of the Fern • Cróin Johnny – Johnny's Hovel • An tSean tSráid – The Old Street • Fáillín Raithnigh – The Small Enclosure of the Fern • An Clóbhar – The Clover

Source for Translations: Mac Graith and Ní Ghearraigh 2004:101-106

Local place names helped the community to interpret the landscape and seascape that surrounded them. Thus, they played an important role in shaping TEK as held by the society because in affecting how people comprehended their environment they affected behaviour at the level of agriculture.

A variety of local place name types with different uses for the community existed. For instance, there were names which helped the community to understand who owned which pieces of land and how it was owned.

> Machaire Shearlais/Charles's Field … [as the name indicates was] private land (Martin)
>
> Pat Monaghan's Stripe of Land was the stripe of land belonging to Pat Monaghan (Francis)
>
> The Big Bog/Mountain was commonage (Francis)

But also, beyond identifying which property regime certain areas of land were held under, and beyond identifying which pieces of privately held land belonged to whom, the names also helped people to understand the functional qualities of the land they inhabited. For instance, as the name suggests …

> An Gort Dubh/The Black Field … was a place of starvation and there was no proof ever on that part of the land. You'd see sheep picking there but there wasn't any proof in it. You wouldn't try to grow crops or anything there (Seamus)

Likewise …

> The Stony Area … it was very stony … you wouldn't grow anything there. There were old tracks in it … like kind of ridges in part of it … I never remember seeing anything growing in it … there is not much soil in it (Francis)

On the other hand, certain names indicated land productivity in certain places.

> Biolla na bhFataí/The Dune of the Potatoes [is remembered as a place for growing potatoes] … I remember potatoes being grown down there (Seamus)

Additionally, there were names which offered information on the safety of certain areas for livestock.

> Fiodán Tuilleach/The Flooded Stream … [was known to be] dangerous for sheep because they would drown in it [because] all the floods down off the hills would gather into that stream going right into the sea (Seamus)

Similarly …

> An Poll Mór/The Big Hole … was a deep hole out there near the glen … it was out this side of the glen [and] it was dangerous. It was deep. There would be water in it all the time except maybe if you would get a real hot summer or something like that and sheep might fall into the hole (Martin)

Another dangerous spot was …

> Scraith a' Chorraigh (The Marsh of the Uneven Ground) because it would be wet there. That place was always wet because the water off the hill was feeding it and it was dangerous. You could be swallowed down in it (Peadar)

Then there was also another place which potentially posed a threat to livestock safety. It was called …

> Strapa a' tSionnaigh/The Ledge of the Fox. There used to be sheep that would go down there and once they would go down they couldn't come off it. They would have to be taken off. Someone would have to go down and take them off and there might be foxes there because that's where the foxes would go for if there was anything after them. They would go there quicker than anything else (Martin)
>
> Nothing would go there only the fox and the sheep that would go there wouldn't leave it … the fox would get them (Seamus)

In acting to warn of potential dangers to livestock these types of local place names played a direct role in helping to safeguard livestock health and mortality (and thus the metabolic relationship where livestock acted as fertiliser providers to crop space). But also, there were other local place names which also contributed to agricultural production in less directly obvious ways. For instance, where names indicated the location of resources such as heather they helped to support agriculture.

> Taobh Fraoigh/The Hillside of the Heather … at the top of the glen up there … Taobh Fraoigh they used to call it. They used to use the heather from there (Francis)
>
> Pollán Fraoigh/The Hollow of the Heather … [was another place for collecting heather] In Spring time you see people would be short of fodder and they would have to go out for heather. Maybe there would be a cow calving and they would have no hay or straw with them and they used to go out for heather. And, the heather was long that time and they used to go out and cut the heather and put it into a rope and carry it home on their back for to give to the cows and the cows would eat it because they were hungry … The cows wouldn't eat the heather at any other time because it wouldn't be needed … but when there was nothing to eat, when the fodder was ate, and there was nothing growing, they used to go and cut the heather with the scythe and carry it home on their back (Sarah)

But also, other place names provided different clues as to where to source agriculturally useful materials such as stone which could be used in the construction of byres.

> Na Coiléir [The Quarry] back there at the far end of the townland … that's where they used to dig the stones for building … There were no concrete blocks and no cement that time … I dug down there myself but not much … for an old shed down there (Seamus)

Also, remembering that water availability is essential to livestock health some of the names supported agriculture by indicating where drinking water could be found.

> Tobair Uisce/The Spring Well … is down this road … that's Tobair Uisce … There was a lot of people using it one time (Peadar)

Also, some of the names indicated where shells – which could be burned for use as lime or fertiliser – could be found, such as The Strand of the Cockles (Curraunboy).

> They used to get the cockles from there, bundles of cockles they used to get there down along the seashore (Francis)

The names also suggested where resources for use within petty commodity production, might be found, which was important because agriculture relied on petty commodity production for its continuation along traditional lines.

> Taobh Fraoigh/The Hillside of the Heather [as already mentioned, was not only useful for providing heather to agriculture, but also it was a place] where heather [could be sourced for] … making the potheen (Seamus)

Similarly …

> Portach Mor/The Big Turbary … was where everyone was cutting the bogs (Peadar)

However, the names not only helped the community to decode their surroundings at a physical level. They also helped the community to understand and relate to their environment culturally by tying activities to spaces. For example …

> The Lime Kiln was where people burned lime (Francis)
>
> Na Coiléir/The Quarries is where they used to dig the stones for building … The Black Quarry was for the roads but another one was for stones (Seamus)

Other names encouraged the land to be viewed in mythological terms. Spread across the landscape were names which specifically mentioned the fairies: For instance, The Fairy

Fort of the Eagle (Curraunboy), The Fairy Fort of the Uneven Ground (Portacloy), Caitlín's Fairy Fort (Rossport), The Fairy Fort of the Dogs (Rossport), The Tailor's Fairy Fort (Stonefield), The Big Fairy Fort (Stonefield), The Big Fairy Fort (Kilgalligan), and, The Pool of the Fairies (Kilgalligan), were local place names that all existed within the area. However, for local people these were not the only names that drew fairy association.

> The Hillock of the Gentlemen was meant to be a fairy place (Francis)

The high degree of fairy associated place names that were spread across the landscape acted to strongly encourage adherence to already established cultural norms and values because they acted as constant reminders of fairy existence, and thus, constantly encouraged the values of sharing, obligation, and reciprocity which were key principles guiding human-fairy interaction within the locality.

But also, local place names of this sort were particularly durable, as evidenced by the fact that, once they were embedded in the landscape they acted to shape behaviour so that the feature of the landscape that they were attached to remained on the landscape over time even if wider changes to the landscape were occurring around it.

> Sídheán na gCnámh/ The Fairy Fort of the Bones … they reckon there used to be fairies in it long ago and cows used to go back there. Sídheáns were big banks in the mountain and if there was one of them on your land now you would never cultivate that land. You'd cultivate around it and set around it but never move it, never cultivate it (Seamus)

> There was a sídheán there and people if they were working there would not disturb it and it is still there (Peadar)

> Sídheán a' Táilliúir is to be seen still. For some reason people would not touch it and it was left there. You would see they would be digging the bog around it. They used to be cutting and then they left the bog, left that much … not touched (Martin)

Supporting non-interference with a sídheán (mound of earth associated with the fairies) was the fact that stories were told that to interfere with them was to bring bad luck onto oneself.

> If you interfered with the sídheán … You would have bad luck or something would happen (Francis)

During the period c.1930s-50s …

> traces [of these types of fairy hills were] … still visible in the shape of heaps of stones on the land, and these remains of ancient dwellings [were] … treated with the utmost reverence, and not

> withstanding their unsightly appearance in the fields, they [were] … never interfered with. Occasionally, when tampered with in the past, evil results accrued to the perpetrators. Indeed, numerous instances of evil having befallen the "offenders" could be cited (Iml. 1242:8)
>
> Some people did cultivate them but then they suffered the consequences … cattle would die or something like that … I wouldn't like to interfere with them to be honest with you (Seamus)

It made no difference if fairies were seen in these locations or not, because for all intents and purposes people did not need to see fairies in a location to believe they could be present there. For instance, fairy music, as opposed to fairy sightings, was often taken to indicate fairy presence.

> Music in the form of pipers and harpers instruments have been often heard at these ancient ruins and raths (Iml. 1242:10)
>
> The old people used to say that … music was often heard coming from the old cairns of stones in the fields – the abodes of the fairies (Iml. 1340:330)

In sum, local place names acted to help people to decode their environment across numerous levels – from helping them to understand how it was owned and by whom, where it was safe to produce, what type of production might most successfully be carried out where, where certain activities were pursued, where to source inputs and raw materials for use within agriculture and/or petty commodity production, and, which areas of the land were protected by fairies. But also, once known, the place names affected practice by encouraging people to engage with spaces in different ways and to perform certain activities in certain places. Furthermore, on a deeper level, they affected practice by reinforcing the reality that the land was a shared one, as well as reinforcing adherence to cultural values and norms within its use, so that, sustainable agricultural practices were encouraged.

But also, the high density of local place names that existed in the area not only reflected how the community understood itself to occupy the landscape, but also, they indicated that intensive direct interaction with the environment within production occurred across the level of the community because …

> there was names on everything (Seamus)

And because …

> everyone used to know the names (Francis)

But as well as a high density of local place names existing which suggests intensive and ongoing interaction with the environment within production over time, what is particularly telling about the level to which this community was engaging with the landscape over time is that some place names continued to exist within the area even though they no longer referred to conditions there.

> An Táin Raithín/ The End of the Ferns [is a name that existed in the area despite the fact that there was] … no trace of ferns there … [Yet] the place name [was] as popular … as when the derivative appellation was first applied, perhaps centuries ago (Iml. 1245:119)

Given that local place names within traditional cultures are transmitted cross-generationally through the spoken word, such a name could only exist over time if people were actually using it and they would only be using it if they were continuously interacting with the environment in the way that they were. And, the fact that so many local place names existed indicates that the land was being used communally because only where the community as a whole was constantly using the names would so many be remembered. Also, only where the community as a whole was using commonage space within production would such a density of place names be found there. In sum, local place names circulated at the level of oral culture, commonly pertained to land use, indicated communal use of space, and encouraged sustainable and communal activity.

(16.6) *Conclusion*

Oral culture in general contributed to sustainable agricultural practices because of the fact that oral culture involved the coming together of community members to create meaning through communication with one another. The fact that knowledge was created in communal settings meant that people's attitude to the world around them was less individualised and therefore more responsive to the needs of the society. While individuals developed their own knowledge through experience, and while knowledge in the form of the written word was available to them through newspapers and such like, the ideas that they individually developed were then filtered through, and affected by, the communal context wherever they shared their views with other community members.

The communal character of the environment meant that individual knowledge and ideas about agriculture were shared with the community, and in turn, shaped by the community. Also, the fact that communal knowledge production occurred within the society meant that any useful innovations discovered by individuals within the community could be more widely known to the community as a whole, so that, the community as a whole could adapt to changing circumstance, and thus, the society as a whole could continue to support itself over time.

Communal knowledge was passed through various institutions (such as visiting, the community, or the family) and various mediums (such as conversation, folklore, weather lore, and local place names), and was developed through both top-down and bottom-up processes of knowledge development and transfer (because all generations within the community acted to affect its development and handover), but structures such as respect for the TEK of the elderly, and cultural values and norms in general, heavily influenced the form that TEK took within the area and the degree to which it lasted over time as the guiding principle behind agricultural practice.

While physical environmental conditions were obviously important in affecting agricultural behaviour, practice was also heavily influenced by cultural structures and influences. Within the folklore, the weather lore, and the local place names that circulated within the community were reflected the cultural values and norms of the society. Through the medium of the spoken word, but also, the landscape – where symbolic meanings were embedded in it as a result of the aforementioned – these cultural values were given form at the level of practice, but crucially, the form that the practices took reflected and encouraged an ethic of care towards nature which was the strongest influence in their achieving sustainability.

This ethic of care towards nature which involved following the principles of sharing, obligation, and reciprocity was heavily influenced by the communal character of the society because these were the same principles guiding social interaction there, and just as the TEK literature understands that an ethic of care towards nature can develop within societies where those societies believe some supernatural power to exist above them, and supernatural beings to exist alongside them, so too, do the members of a

communal society experience ‘the communal’ standing above them to shape their actions, and other community members standing alongside them, so that, individual behaviour in communal contexts is shaped by each of these factors. In other words, just as TEK promoted sustainability, so too, did communality.

Section 8

Tying It All Together

Chapter Seventeen

Conclusion

(17.1) *Introduction*

This chapter is about tying all of that which has come before it together. It is about combining insight gained from the various system level analysis' sections that have preceded this chapter in a way that allows for answering the research question of, how does a rundale system of production context affect the metabolic relationship and ecological sustainability within agriculture?

The order of the chapter repeats the order of the work as a whole, which is to first consider the forces acting to affect the metabolic relationship and ecological sustainability across different system levels – the property system level, the economic system level, the non-agricultural system of production level, the spatial system level, the ecological system level, and the knowledge system level – as they each operated to affect the metabolic relationship, and ecological sustainability in a particular way, before summing up how they interacted to affect the overall socio-ecological relationship and ability of the system to be ecologically sustainable under a rundale system of production context.

The chapter begins with a focus on the property system level.

(17.2) *Property System Level*

Within the rundale system of agricultural production, the metabolic relationship, and ecological sustainability as it occurred within crop producing/individually held space there, was shaped by wider community decisions about which crops to grow within that space, when to plant and harvest those crops, whether to rotate those crops across space and time, what order to rotate them in, and how to use arable land in relation to livestock production (Coll and Bell 1990:81-2: Yager 2002:155; 158). The reason that

the community could exert such a level of influence on the metabolic relationship and ecological sustainability as it occurred within individual production was because this was a system of production that involved the use of both 'private' and communal property at the same time (Slater and Flaherty 2009:10). One aspect of the communal character of property was that commonage existed. Another was that privately worked plots were held in open communal fields. The fact that property was organised in this way meant that within the mixed crop and livestock production system pursued under rundale that the community as a whole had to follow a common order as to how they used local land (Yager 2002:168). This was so for a number of reasons: (1) Livestock and crops were pursued together with livestock generally being held on communal land, but, being allowed access to the crop producing open field area in the postharvest period which meant that all crops had to be harvested from there before a certain time, when the community as a whole would return livestock to that area, as otherwise any individually produced crops still remaining there would have been destroyed by entering livestock; (2) the plots held within the open fields were narrow and organised tightly up against each other which meant that only one type of crop could be grown in a field at any particular time because of the threat of cross pollination between neighbouring plots that was otherwise likely to occur; (3) as there was usually only a small number of open fields supporting crop production what this meant was that only a very limited amount of crop types could be grown based on the logic of one crop type for one field (Coll and Bell 1990:81-2; Flaherty 2014:36; Slater and Flaherty 2009:15; Taylor 1980:171; Yager 2002:155-61). The effect of the aforementioned on the metabolic relationship and ecological sustainability within individual production was that at any one crop production period an individual was involved in '*multiple metabolic relationships and ecological efforts'* across different crop producing spaces involving different crops, but more than that, an individual was involved in '*multiple metabolic relationships and ecological efforts that were communally guided'.*

It was the communal system and not the individual who decided which crops were to be grown in which fields at which times and in which order they were to be rotated with each other over space and time, so that although *the individual was instrumental in affecting the metabolic relationship and ecological sustainability* within their individual plot *the community as a whole shaped the conditions of production under which the metabolic relationship and efforts at ecological sustainability occurred* (from the social

processes side of the nature-society relationship involved in agriculture) because the community and not the individual dictated choice of crops grown, where crops were to be grown at a particular time, and how they were to be rotated across space and time in relation to each other (Yager 2002:155-6).

The fact that the community and not the individual dictated (from the social processes side of the socio-ecological relationship) the conditions of production that individuals had to negotiate within crop production meant that individuals were constrained in applying innovations within production because firm boundaries existed around what they could produce, the time frame within which they had to produce it, and the level to which they could adopt new practices within a crop production setting where the plots of others were unenclosed and up against one's own. But also, where one's own plot was narrow to be begin with the use of machinery within it would have been counterproductive. In other words, *the property system* under which crop production was being pursued *acted* to impede processes of individualisation and scientisation (the process of incorporating Western scientific principles into production) so that agricultural production was carried out along more traditional and less individualised lines. This was significant because individualisation and scientisation within agricultural production has been found to contribute to undermining the metabolic relationship and ecological sustainability (Foster 2002:96; Foster and Magdoff 2000:54; Moore 2000:145). Thus, *where structures of the communal property system impeded capitalist processes they helped to protect the metabolic relationship and ecological sustainability.*

However, property system level structures were not the only ones helping to safeguard the socio-ecological relationship. Adherence to traditional practices within agriculture was also encouraged on other system level fronts, such as the economic system level.

(17.3) *Economic System Level*

Tradition guided practices at the economic system level of a rundale community: It guided relations of production between community members (Ó Danachair 1981:25-6; Slater and Flaherty 2009:8; 14) which by extension affected nature-society interaction at

the level of the socio-ecological relationship. Relations of production as experienced by rundale communities could involve two levels of interaction. On the one hand, rundale community members could find themselves involved in monetised relations of production involving community members working outside of the community for certain periods of time, or working within it for state bodies and such like, but crucially where rundale community members were involved in monetised relations of production it was only in situations where those community members worked for non-community members. In contrast, relations of production between community members were non-monetised and were guided by a moral economy as opposed to the financial one (Dowling 1999:176; Yager 2002:162). Thus, rundale community members found themselves engaged in one set of relations of production that operated at a formal level – commoditised relations of production – and another set of relations of production that operated at an informal level where local norms and values guided interaction and set the limits of behaviour and expectation.

The key principles guiding relations of production between community members were sharing, obligation, and reciprocity (Yager 2002:174). In other words, communal principles guided relations of production between locals. These principles were operationalised in the practice of cooring and through the meitheal, and, were reflected in the exchange of gifts, goods, and services within the community without money being involved (Arensberg and Kimball 1968:255). Instead of being driven by financial concern, relations of production while containing an element of self-interest - because all members of the community expected to be the receivers of aid as and when needed - were more reflective of a mindset which valued the protection of the community as a whole as opposed to individuals within it seeking to rise above and separate themselves from their community.

While individualised labour occurred within the community so that families performed most agricultural tasks alone, there were certain other tasks which families habitually performed alongside others within agriculture (Arensberg 1937:64; Yager 2002:174), so that, a community collective as opposed to the individual family was operating to affect the socio-ecological relationship at that point, and, because all tasks within agricultural production are linked to each other within the overall agricultural system what this

meant was that even at the level of the performance of agricultural practices within the rundale setting that the community once again affected the socio-ecological relationship practically: At the property system level the community affected which practices were performed, where they were performed, and when they were performed, but, at the level of the economic system where the community participated in the performance of labour on individual holdings then the community acted as an element within the agricultural labour process itself, and as an active element within the agricultural labour process they actively contributed to shaping the socio-ecological relationship as experienced by individuals.

Even where it may seem that the community did not participate in affecting the socio-ecological relationship at the labour process level - because of the fact that collective labour was not actually involved in supplying fertiliser and such like to soil, but instead, collective labour was associated with tasks such as bringing in the hay harvest - what is important to understand is that in helping to secure the hay harvest, for instance, *the collective indirectly supported the socio-ecological relationship as experienced by individuals* through the fact that hay was used as fodder, and, where livestock manure was used as fertiliser then fodder quality and quantity affected livestock manure fertilising quality and thus the metabolic relationship. So although the collective labour offered through cooring was a few steps removed from the metabolic relationship and issues directly associated with ecological sustainability it affected the socio-ecological relationship nonetheless. This link between fodder and fertiliser is discussed in more detail later on, but for now, the point to note in relation to the ecological link between fodder protection and crop productivity is that *collective labour contributed to safeguarding the metabolic relationship at individual farm level* where it helped to ensure that individual families were safeguarded against risks associated with labour supply or any other issue that might affect the ability of the family to successfully harvest their crops. But, *the performance of collective labour was guided by the communal principles of sharing, reciprocity, and obligation, so that, communal values as they were operationalised within labour positively affected the metabolic relationship and ecological sustainability.*

Additionally, behind the communal institutions of cooring and the meitheal lay various other communal institutions, such as visiting, card playing, raffles, and so on which brought people together collectively in socialising contexts and through doing so encouraged the continuation of collective effort within agriculture (Arensberg and Kimball 1968:185). Thus, each of these *communal institutions associated with socialising contributed to safeguarding the socio-ecological relationship at individual farm level despite the fact that they seem to operate separate to the agricultural system*. The fact is that, no such separation existed because although agriculture operated within a specific sphere where the aim of activity was to produce, and visiting and such like operated in the sphere of socialising where the aim of activity was entertainment, the agricultural sphere and sphere of socialising overlapped (Brody 1973:29) because the same people were involved in both, and because the people that were involved in both were dealing with relatively the same conditions of production. But also, the people involved in both spheres were people who belonged to the same wider community which promoted certain cultural norms and values so that those *values and norms were reinforced whenever individual members of the community interacted with each other, so that, collective behaviour at the level of socialising fostered the continuation of collective behaviour at the level of agriculture* (see McNabb 1964). This was especially so where the cultural norms and values of the society were openly expressed in conversation and/or where they were reinforced through the telling of stories which promoted those values.

Also, as well as cultural institutions operating to promote adherence to tradition within agriculture, also acting to promote compliance with tradition were cultural structures which encouraged the opinion that traditional methods were best. The behaviour of individuals at the level of individual agricultural practices on individually held land was affected by the respect that they had for the wisdom of male community elders in relation to agriculture. Also, where the elderly males of the society promoted adherence to tradition then this was the guiding principle which others followed. And, it was often through the institution of visiting that the elderly males had the greatest opportunity to affect local behaviour in this way because it was there that they had a community audience to hear their opinions, which were often disseminated through the medium of storytelling, proverbs, and such like (Arensberg 1937:139; Arensberg and Kimball 1968:184). Thus, what also strongly affected the socio-ecological relationship at

individual farm level were local cultural structures which allowed one group – the elderly male cohort of the society – to model for others how to behave within production, and crucially, where that group promoted adherence to tradition underpinned by communal values and norms then relations of production between community members were able to accommodate modernising processes such as commercialisation without relations of production becoming commoditised and without agriculture being opened up to strong market influence. The way that collective behaviour facilitated agricultural production in the face of commercialisation is discussed in more detail soon, but for now the point to note is that *collective behaviour as it operated at the level of agriculture, and as it was supported through various cultural institutions, structures, and mechanisms acted to help safeguard the socio-ecological relationship at individual farm level* by (as earlier discussed) ensuring that certain agricultural tasks such as harvesting could be successfully completed even if resources were limited within a family at a particular point in time.

But also, as recognised by Arensberg and Kimball (1967) something else that affected the degree to which tradition was adhered to were sanctions for non-participation in cooring and such like (Arensberg and Kimball 1968:71; Arensberg 1937:68; Byrne et al. 2001:1xxxiii; Curtin 1986:60), with for instance a community member being isolated from the rest of the community if they failed to participate. But, sanctions not only operated at the level of isolation, they also operated at the level of opinion with people being labelled 'odd' if they failed to participate in collective activities. Also, it was not only a case of 'real sanctions' but also 'perceived sanctions' that affected behaviour because one of the drivers of behaviour within rundale communities was a belief in a metaphysical world inhabited by supernatural beings who while not usually visible to the human eye were understood to exist nonetheless, but more than that, they were understood to occupy the land alongside their human counterparts, and those 'human counterparts' believed that failure to abide by established traditions of behaviour would bring harm to them and/or their efforts at production in different ways (Arensberg 1937:181-216). Thus, regulation of behaviour was being affected at the level of the actual and the believed (Slater and Flaherty 2009:14). In other words, *behaviour was being regulated directly by the community – where isolation, or labelling of individuals occurred for non-compliance with community norms - and indirectly by the community*

where community values were internalised through belief systems so that people were monitoring their own behaviour.

The fact that the community and individuals themselves were both operating to regulate individual behaviour in line with traditional values – communal values – meant that agriculture was more strongly encouraged to follow a traditional model of production which incorporated traditional norms and embodied traditional values than would have been the case had only the community been regulating behaviour, or, if only the individual had been regulating their own behaviour. In other words, the socio-ecological relationship benefited from its embeddedness within an economic system driven by a moral economy which upheld communal values. At the level of the economic system, this value system meant (as already said) that resource limitations did not negatively impact the socio-ecological relationship by impeding the ability of individual producers to fulfil agricultural tasks which ultimately fed back into affecting the metabolic relationship and ecological sustainability, but also further to that, *the metabolic relationship and ecological sustainability were supported by the communal value system that underpinned the rundale system of production where those same communal norms and values spilled over into other forms of production outside of agriculture to affect relations of production there* as is now to be discussed.

(17.4) *Non-agricultural Systems of Production Level*

In addition to agricultural production within which the community came together at specific points to perform collective labour for the primary purpose of producing use value goods, what also occurred under the rundale system of production context investigated here was that agriculture was pursued alongside other forms of production. This is not unusual for a rundale system of production. Scholars have noted that rundale could entail a mix of agricultural production and non-agricultural production. This mix of production systems was important to providing money needed to meet expenses (Slater and Flaherty 2009:19). The rundale system investigated here engaged in various forms of petty commodity production – fishing for the market, turf production for sale, seaweed collection for sale, and potheen making for the market. Where petty commodity production was carried out within the community it always involved the coming together of different community members, but correspondingly, although

community members came together to produce exchange value goods money never exchanged hands between the individuals involved in these various enterprises. Rather, collective production for the market occurred without relations of production between the people involved becoming commoditised. The reason for this relates back to the earlier discussion of relations of production as they were shaped by the communal context within which production occurred (which was one where the moral economy shaped relations of production between community members). The fact that relations of production were non-commoditised within the different forms of petty commodity production carried out meant that the community was facilitated in pursuing these activities because access to money for labour was not required.

Of course 'wages' were a feature of life in the area with women/girls working for the local knitting factory, and men engaging in occasional work such as road mending offered through state bodies, and also, 'wages' were available from outside of the area through seasonal migration abroad. And, in all of these ways locals were involved in commoditised relations of production. However, when it came to ordering their own systems of production it was 'norms and values' and not 'wages' that were the drivers shaping how production occurred locally. At the level of petty commodity production the moral economy articulated with the money economy to encourage the community to produce exchange value goods but to do so in a way that adhered to traditional principles of conduct: That is to say, *they operated communally in the face of capitalism.*

Of course culture was not the only guiding force driving how relations of production were organised in relation to petty commodity production. Instead practical considerations also came into play. For instance, fishing was not an enterprise that could safely or even practically (because of the weight and size of the curraghs that had to be carried to and from the shore) be carried out as a solo activity. But, beyond issues of practicality such as requiring several men to come together as a crew if fishing was to be carried out at all, what was also reflected in, and encouraged through, the coming together of individuals to co-operate within production, were communal values. Taking the example of potheen distilling in the area, what is particularly noteworthy about this form of petty commodity production is that even those members of the community who

were not directly participating in the activity – and thus were not going to gain financially from it – actively co-operated at the level of the community to try to ensure the successful carrying out of this enterprise by others, despite the risk to themselves of being prosecuted by the law for facilitating the activity (because the activity was illegal). Their complicity in the activity despite the fact that they stood to receive no financial benefit from it, but at the same time stood the risk of prosecution themselves, can be explained by the fact that this form of production – as with all forms of production involving the collective labour of community members only – was embedded within the overall communal context of production which existed in the area and which encouraged an ethic of care toward fellow members so that rules of behaviour within the society were more strongly influenced by local culture than external legal criteria.

In other words, petty commodity in the area was facilitated by the areas communal underpinnings, but also, the success of petty commodity production affected the socio-ecological relationship within agriculture, because in a situation where money from production was required to meet spiralling commercialisation, had petty commodity production not been able to respond to this modernising process then agriculture would have been forced to, which means that agriculture would have had to gear itself toward the production of exchange value goods as opposed to producing use value products. While agriculture did have an exchange value production element to it in so much as livestock were sold on the market it was nonetheless largely use value production oriented, and specifically, in terms of crop production no crops were sold on the market. Had crop production become exchange value focussed then it can be expected that the socio-ecological relationship within agriculture would have been drastically different to what it was: Gone would have been traditional practices involving people relating to each other/interacting with each within production in traditional ways. In its place would have been more modern practices and more individualised production oriented toward the market. This would have had serious negative implications for the socio-ecological relationship tied to local agriculture.

Of course, the success of petty commodity production in the area was not the only contributing factor allowing agriculture to be carried out along traditional lines (so that

the socio-ecological relationship was safeguarded), but also, apart from wages earned in different ways (as mentioned earlier) the state also provided various forms of social welfare to the society, so that, money was more readily available which meant that agriculture was not as exposed to market influences. The state also supported agriculture indirectly by supporting petty commodity production through the supply of infrastructure to the area, such as roads and piers (Curtin 1986:72; Hannan and Commins 1992:98; Kennedy 1991:494; MacGraith and Ní Ghearraigh 2004:13; Micks 1925:35), and also a factory to the area to employ people there. However, the role of the state in affecting the socio-ecological relationship is ambiguous because on the one hand the state supported the relationship in the aforementioned ways, but on the other hand, the state required that in order to be eligible for certain forms of welfare (notably, the farmer's dole which many relied on) that individuals had to engage with wage labour as a matter of criteria if they were to receive such welfare payments. Thus, the state in this way pushed the community towards commoditised relations of production so that they were more a feature of local life than they might otherwise have been, so that, without the already strong communal structures in place to curb tendencies towards commoditisation this could seriously have affected the metabolic relationship and ecological sustainability within agriculture in the area by encouraging financial as opposed to moral considerations to guide interaction with nature. In short, *strong communal structures protected the metabolic relationship and ecological sustainability in the face of commoditisation*. But also, when it came to the success of petty commodity production in the area, there were more things influencing the success of petty commodity production than communal structures (social structures). Issues relating to resource availability within the local physical environment also affected the success of petty commodity production there.

(17.5) *Spatial Systems Level*

As earlier indicated in the property system level discussion, this was a community within which private property existed alongside communal property, but also, this was a community which had access to the open-access area of the sea. Petty commodity production relied on access to the both the commonage and the sea, with fishing being pursued at sea, seaweed collecting for sale being pursued on commonage shore areas, turf production being pursued on commonage land, and potheen distilling occurring

across different commonage areas such as on commonage land or high above sea level in cliff caves.

But also, beyond the fact that commonage – of the shore, bog, and mountain type - and the sea facilitated petty commodity production in the area what is important to note is that a relationship existed between the spaces of the commonage and the sea that could affect the degree to which different forms of petty commodity production could be pursued locally. Specifically, as relates to the usefulness of the sea to petty commodity production what was found is that where the sea was verged by cliffs then the sea could not be accessed from there for fishing, on the other hand a cliff lined commonage could facilitate potheen distilling by helping the distillers to evade capture by the law. Similarly, only if the commonage of a townland was fronted by a shore area could seaweed collection for sale be pursued there. In other words, even where commonage and the sea existed together with the possibility of offering opportunities to petty commodity production in the area, the specific way that commonage and the sea existed spatially in relation to each other at townland level affected which forms of petty commodity production could be carried out where across the different townlands, which meant that although all of the townlands involved in this study had access to commonage and the sea that some were advantaged over others in terms of which forms of petty commodity production they could successfully engage with. In other words, *nature's forces were affecting how the society developed* (see Moore 2003). For instance, Kilgalligan sold seaweed to alginate firms (whereas other townlands did not). This was because of the fact that the type of seaweed required for industrial purposes washed up on the Kilgalligan townland shore and not on the other townland shores, so that, it was possible for Kilgalligan people to engage with this form of petty commodity production while the other townlands could not. And, where spatial issues affected the ability of a townland to engage in petty commodity production or to engage in it as successfully as another townland then *spatial issues affected the degree to which petty commodity production within a townland could help safeguard the metabolic relationship and ecological sustainability there*: These spatial issues because they affected petty commodity production also indirectly affected the metabolic relationship and ecological sustainability although they may seem distantly removed from it if the overall context of production is not considered.

But spatial issues beyond crop producing space not only affected the metabolic rift and ecological sustainability by affecting the degree to which different forms of petty commodity production could be pursued in the different townlands, but also, they affected agriculture itself because the different commonage areas associated with the different townlands could have different levels of resources available to agriculture within them. Specifically, if the case of shore commonage is considered what is important to understand is that no direct correlation existed between the level of shells found along a shore, or, the level of seaweed that might be found growing on rocks there. Instead, one townland might have a shore where shells could readily be found so that those shells could be used as lime within agriculture, or one shore could have mossy seaweed growing on rocks there while another might not, which meant that one townland was advantaged over the other in terms of access to lime for reducing soil acidity for instance, and the other was advantaged in relation to having access to seaweed for use as fertiliser within crop production.

This issue of differential access to these types of resources affected the metabolic relationship and ecological sustainability because it meant that some areas were advantaged in having necessary inputs available to them, but the issue of differential access to resources as just highlighted became even more problematic where crops were being produced near to the shore, because crops produced in that location were often at increased risk – when compared to crops planted further inland - of damage occurring to them within the course of production there, so that, access to fertiliser to support crop production in this type of location was even more important than it would otherwise have been. Specifically, where crops were being produced near to the shore they were at increased risk of being broken from wind and being burned through sea spray (containing salt) that was carried in wind. When this happened it was necessary to provide extra fertiliser to crops at that time which meant that the spatial system in terms of the location of crops and fertiliser sources within it affected the socio-ecological relationship in different ways across the different townlands examined here. In other words, soil fertility requirements were not static across production within this community but rather *soil fertility requirements were affected by spatial issues, so that, the socio-ecological relationship was affected by relationships between crop production, weather, and location as they interacted at the level of spatial nodes within local space.*

But also, it was not only a case of crop production being affected by natural phenomena as it occurred during crop development, but rather, so too was crop production in the area affected by natural phenomena as they interacted together even before land in the area was used to support crop production. The situation was that some of the areas being used to support crop production were 'naturally' more productive than others, to the point where some of the other areas had to be brought into a state of productivity before crops could be produced on them at all. This meant that where crops were being produced on land that was not 'naturally' productive that access to inputs was more important in relation to crops being produced on that land because of the natural tendency of that land to revert to its natural state (of unproductiveness). In other words, *more labour and more inputs were required to safeguard the metabolic relationship and ecological sustainability where crops were produced in spaces that were not by themselves 'naturally productive'.*

However, this is not to say that a linear cause and effect relationship existed between the addition of inputs to soil and soil fertility maintenance there. Rather, the situation was much more complex than that because of the fact that ecological systems do not simply accept the imposition of a social form on them. Instead, nature has motive forces of its own that operate to affect the agricultural labour process associated with maintaining the metabolic relationship and ecological sustainability within crop production (see Slater 2014a, 2014b).

(17.6) *Ecological Systems Level*

Ecological systems are complex and are affected by processes occurring both within soil – at the level of soil type, soil structure, soil depth, and the amount of soil organisms in soil - and external to soil - such as those associated with topographical and weather systems. But also, soil systems are affected by the social form of production – for instance a communal mode of production context or a capitalist one - under which they are produced. The fact that soil can be affected by different processes occurring within and external to it indicates that soil itself is a process subject to change over time. Thus, the labour process involved in soil fertility maintenance and soil productivity maintenance must respond to this fact if sustainable agricultural production is to be achieved. *In order to be able to respond to soil's processual character what is required*

is that nature's motive forces as they interact with each other in specific ways within a specific locality be understood (see Slater 2014b). Within the context of rundale where crop production was spread across various different spaces, each with their own mix of soil conditions and elevation the complexity involved in safeguarding the *metabolic relationship/s and ecological sustainability* within crop production there involved much more than a general understanding of how nature's motive forces interacted locally. Instead, *required to support the metabolic relationship and ecological sustainability within a rundale system of production context was micro-level local understanding of how nature's forces interacted with each other locally across time and local space.*

Also, considering that much of the land in rundale communities was of a marginal quality so that only a very limited amount of arable land was actually available to crop production what this meant was that there was an even greater urgency to respond to how local natural forces were interacting/might interact with each other at particular times within a particular crop production space because failure to do so could quickly mean the loss of much of the harvest. Of course, risks to crop production were somewhat reduced by the fact that crops were being produced across a mix of soil types and elevations (McCourt 1955:374-5; Whelan 2012:453) so that some sections of soil might be affected by certain phenomena, such as weather, in a particular way that others were not. However, given the often very limited amount of arable land available to individual families even small losses to production within it could have significant consequences. In terms of direct consequences to households these losses could affect the ability of households to meet their immediate needs, but also beyond the immediate effect that weather could have on crop production it could also have indirect consequences for later efforts at crop production where livestock manure was used as fertiliser. This point will be discussed in more detail soon, but for now the point to note is that *labour processes involved in successful crop production required responsiveness to changing soil conditions and crop needs as they occurred.*

Soil as a process involved different system elements/moments within it interacting with each other in different ways at different points in time to affect the soil process in different ways depending on their specific combination at any specific point of interaction/metabolising point (Slater 2010a:10). This meant that *the labour process*

involved in maintaining soil productivity could alter across production, so that an essential feature of the labour process was that it be adaptable in quick time and be able to respond to whatever issues that arose as a result of the interaction of the different entities/moments at different times in different ways. In other words, *nature's motive forces influenced the labour process involved in safeguarding the metabolic relation and ecological sustainability because the labour process involved in maintaining crop productivity involved responding to issues of soil type, soil structure, soil depth, the presence of soil organisms within soil, weather, and topography, as they each on their own and in combination with any of the others at a particular point in time affected the metabolic relationship and ecological sustainability*.

However, this is not to say that nature's forces determined productivity. Rather, it is to indicate that nature acted as a causal force in directing the labour process at particular points across the labour process involved in soil productivity maintenance. But, while nature's forces did have this capacity to direct labour in certain directions at certain times what is important to understand is that *nature's forces/processes did not determine productivity although the society discussed here actively engaged with nature's processes and brought them together in a way that promoted crop productivity*.

Specifically, in terms of supporting the socio-ecological relationship involved in agriculture, labour was employed in relation to soil across two levels – the content level and mechanics level of soil – to create conditions most conducive to crop production (Slater 2014a:5: Marx 1981:651). In each case the commonage was essential to providing both the chemical inputs and other materials required to affect more permanent changes to soil at the level of soil form. For instance, fertiliser sources were found on the commonage, but also, stones that could be used for drains to improve soil structure and therefore responsiveness to fertiliser applications were often also commonly sourced from the commonage (which was only available to support crop production because of the specific property system that existed within the area).

But also, something else to consider is that it was not only a case of fertiliser sources being available from the commonage, but different types of fertiliser were available

there which could either be used as fertiliser in their own right, or, could be combined with other fertilisers to offer a superior form of fertiliser than if only one type of material had been used as fertiliser on its own. But also, even beyond understanding that there were different types of fertiliser available on the commonage it was also the case that even fertiliser types which seemed homogenous – such as seaweed – often were not. Instead, taking the example of seaweed there were different types of seaweed that were more or less useful to particular types of crop production than others, and in fact, complicating the matter further it was also the case that the *over application of certain types of fertiliser to soil could actually undermine its ability to be productive in the same way that the under application of fertiliser to soil could*, as was discussed in relation to the danger of over application of 'red seaweed' to land. However, where the commonage existed so that different types of fertiliser containing different mixes of nutrients could be found *the commonage not only acted to safeguard the metabolic relation by supplying fertiliser to agriculture, but a variety of fertiliser sources that could be used together to maximum effect in safeguarding the metabolic relationship.*

Furthermore, although social forms were imposed on earth matter to make it more productive, and although the presence of commonage (as a result of the rundale system of production context within which agriculture was being pursued) facilitated the agricultural labour process in responding to processes occurring in nature as they happened, this is not to say that nature's forces were dominated by labour, but instead, at all times they were merely harnessed by the society in such a way that they were of maximum benefit to crop productivity within the local setting (Marx 1981:784).

No simple input-output model was involved in maintaining soil productivity. Rather, multiple processes interacted to affect the labour process involved at different points in time and at different points across local space (Schneider and McMichael 2010:468). However, while no direct cause and effect relationship existed between the elements of the soil, the crop systems they were required to support, and local weather and topography as it interacted with soil to affect crop systems, what was clear within the society being investigated here was that *there was a definite correlation between the area's rundale context and the degree to which the metabolic relationship and ecological sustainability within production was able to be safeguarded there*.

Specifically, what was found was that when it came to interacting with nature that *the area's rundale context facilitated the community in 'working with nature' to most successfully produce under a difficult marginal production context where only a very low level of technology was available to them.*

Instead of using a high level of technology what they did instead was bring entities from nature together in combinations that promoted crop productivity in numerous ways. For instance, they brought different materials together to create a superior form of fertiliser, and they added stones to soil to create drains to reduce issues of waterlogging, and in so doing they were using materials supplied by nature to make other features of nature – as presented locally - work better together to support local crop production. And, *under the difficult physical environmental conditions that confronted the community within agriculture it was only possible to harness nature's forces to the extent that they did because of the fact that they had communal property/resources available to them.*

But also, even in the technology that they used, they actively helped to safeguard the socio-ecological relationship in different ways. For instance, their use of spades to dig the ground served the purpose of also freeing nutrients from subsoil so that it was available for uptake by crops (Bell and Watson 1986:57). Additionally, it was not only in relation to agriculture that they demonstrated a 'working with nature attitude' because even in the case of petty commodity production what happened was that they worked around issues of seasonality in participating in the various forms of petty commodity production that they engaged in. But, within agriculture in particular what happened was that the way that agriculture was carried out reflected *an ethic of working with nature and of responding to issues within production as they arose in line with the interaction of certain of nature's motive forces with others at particular points in time and space.*

Particularly illustrative of how they 'worked with nature' was their use of the ridge and furrow system of cultivation which allowed them various opportunities of improved crop productivity through the creation of micro-climatic conditions within the crop bed itself that could increase soil depth where soil depth was shallow, that could improve

soil structure where it was weak, that could offer increased protection to crops from issues of waterlogging associated with rain, that could reduce the risk of cold crop bed conditions associated with frost, and that could limit risks posed by strong wind that was a threat to crop production especially in the early stages (Bell 1984:81; 84; Bell and Watson 2008:205; Gillmor 1977;76; Lysaght 2000:205).

But also, their ability to 'work with nature' - to respond to nature, and to appropriate the forces of nature in a way that supported the socio-ecological relationship involved in agriculture - was heavily affected (as previously indicated) by the fact that commonage existed as a form of property within the area because the commonage supplied various inputs to agriculture that were involved in 'working with nature' within crop production on private land. For instance, where crops were damaged by wind (despite best efforts to stop this from happening by planting them within a ridge and furrow system of cultivation), then fertiliser was often sourced from the commonage at this point within crop production, and applied between the stalks of the growing crops to try to counteract whatever damage had already occurred to them.

But also, the commonage was essential to maintaining the socio-ecological relationship within crop producing space in other ways beyond supplying inputs directly to crop production. Specifically, *the commonage played a role in safeguarding the metabolic relationship where the commonage helped to safeguard livestock health within production*. By supporting livestock health what the commonage did was contribute to safeguarding the nutrient quality of livestock manure produced by them, so that, a higher quality fertiliser was available to crops where those livestock performed the function of fertiliser providers (in the form of their manure) to crop space.

As indicated earlier in relation to the property system as it operated under rundale, one of the issues guiding practices performed within crop production space was the fact that livestock were produced alongside crops within this overall system of agricultural production with livestock predominantly being grazed on commonage land, but also, at the postharvest stage also being grazed on the crop producing fields, so that, crops had to be removed from that space by that time (Flaherty 2014:36; Taylor 1980:171).

However, crop production under rundale was not only affected by the fact that the crop and livestock system overlapped with each other at this level of space, but also, *the crop producing space and the commonage space were linked to each other through livestock grazing on the commonage* because livestock health – which ultimately affected the nutrient quality of the manure they produced as fertiliser - was affected by the level and mix of nutrients ingested by livestock as they grazed there. *Thus, processes occurring on the commonage indirectly affected the metabolic relationship within crop producing space.*

Specifically in relation to grazing opportunities offered to livestock across the commonage what is important to understand is that different areas of the commonage contained different mixes and levels of nutrients so that for livestock health to be maintained it was necessary that they have access to these different grazing grounds at different times. Furthermore, the commonage was also instrumental in affecting livestock health in other ways. For instance, the commonage could provide opportunities for shelter for livestock so that they were healthier as a result. However, what is important to note is that opportunities for shelter varied between the townlands so that issues of housing of livestock were more important in some of the townlands than others which indicates that *the metabolic relationship as it was affected by the interaction of commonage space and private crop producing space through livestock grazing was also affected by issues of local topography.*

However, although commonage may not have provided equal opportunities for shelter, with the result that some townlands had to house livestock more often than others, it did at the same time provide materials through natural processes occurring on the commonage that could be brought together through labour to create appropriate shelter. Thus, through the provision of these various natural materials – which were themselves the results of natural processes involving the interaction of different features of nature with each other – the commonage offered yet another opportunity to help to safeguard the metabolic relationship within crop production because in providing materials which could be combined through human ingenuity and effort to provide necessary shelter to livestock then those livestock could be kept healthier as a result, and thus, could

contribute to the socio-ecological relationship as it occurred at the level of nutrient exchange tied to crop production.

Of course, the health of housed livestock can be adversely affected under certain conditions, such as if livestock bedding is not regularly changed (because bedding can become very wet and filled with bacteria). However, the commonage in offering a superior form of bedding – in the form of peat – which was highly absorbent so that livestock had a drier bed available to them also acted to support the metabolic relationship by helping to safeguard livestock health in this way. Also, the fact that peat could be readily sourced from the commonage without financial cost also acted to encourage its use and meant that the commonage in providing an ongoing source of high quality bedding to housed livestock also promoted their health on yet another level. In other words, *the presence of common property space supported livestock health without financial cost to producers, so that, by extension the commonage helped to safeguard the metabolic relationship as affected by the issue of livestock bedding where the housing of livestock affected their role as fertiliser providers*.

But also, the commonage in providing an 'endless' supply of 'free' peat for bedding also facilitated the metabolic relationship through the fact that the peat's highly absorbent character allowed valuable nutrients stored in livestock urine to be captured alongside livestock dung, which effectively meant that the overall quality of the fertiliser produced was better, because more nutrients were being caught, but especially because, livestock urine is much more nutrient potent than livestock dung (Addiscott 1996;16; Gahan 2001d:56). Also, *the fact that the commonage could provide a ready supply of peat to use as bedding, meant that, a higher volume of bedding was being fertilised which meant that a greater volume of fertiliser was available to spread across crop production space. But also, to add to all of that, the peat itself while an inorganic material encouraged organic processes such as fermentation to occur within it once it had become soiled, so that, the soiled peat ended up providing an 'alive' fertiliser to crop space which was important because microbial activity can encourage crop productivity* (Clavin 2008:8; Estabrook 1998:19; Greenland 1977:120; Nicholls and Altieri 2005:26; Thrupp 2000:277).

But also, livestock processes as they occur at the corporeal level of livestock can affect the metabolic relationship within mixed crop and livestock systems in other ways beyond performing the function of fertiliser providers. Livestock also contributed to the metabolic relationship where they were managed in such a way so that they could act as efficient weed control agents: They were used to reduce weed levels within crop producing space so that crops would not have to compete so strongly with weeds for precious nutrients present there; and also, especially where cattle were the primary livestock supplier of fertiliser to crop space then the combination of sheep and livestock together within the system of production was particularly important where noxious weeds were involved (specifically ragwort) because sheep were more tolerant of them. Thus, sheep could be used to eradicate weeds that were noxious to cattle from cattle grazing space (Cameron 1935:277; Olson and Lacey 1994:105). Thus, *livestock processes as they interacted with other livestock processes within the rundale system of production context could affect the metabolic relationship.*

Also, further complicating the issue of safeguarding the metabolic relationship under rundale was the fact that livestock fodder – in the form of already harvested crops – could be affected by weather so that either its nutrient status could be reduced and/or the quantity of fodder available could be diminished (Fageria, Baligar and Jones 2011:82; Leeuwis 1989:82; Vincent 2005:109). For instance, rain could wash nutrients from fodder. But also, fodder quantities could be diminished by weather in other ways, such as if hay was blown away. Thus, precautions had to be taken to make sure that fodder quantity and quality was safeguarded, and in order to safeguard fodder from damage or loss, resources from the commonage were often used to protect harvested crops in various ways even if alternative resources which could have been used for the same purposes were available within the privately held farm space. This was so because of the fact that the commonage offered superior materials suited to the purposes they needed them for. For instance, rushes (sourced from the commonage) to protect stored tubers or to make thatch were considered superior to other relatively similar materials that could have been provided from private land. Thus, there was a preference for using these commonage resources even where relatively similar resources were also available on private holdings for the simple fact that the commonage often offered superior natural materials that could be used to support agriculture. In other words, *the*

commonage supported the metabolic relationship by often supplying superior natural materials to agriculture which ultimately affected crop production.

But what all of this points to is not only that the commonage was essential to agriculture – because it provided resources to agriculture and often superior resources at that, and because as earlier mentioned it supported petty commodity production so that agriculture could aim primarily at use value production carried out along traditional lines – but also, the reason that the commonage and private land could be used together in such complementary ways involving such detailed understanding of the natural world as it could affect production was that this was a community who had access to a knowledge store and attitude to nature that allowed them to know how to successfully protect the metabolic relationship and ecological sustainability in the many ways that they did on a day-to-day-year-after-year basis. In other words, a knowledge store was held that allowed individuals access to the detailed locally specific technological and adaptive knowledge that they had. This knowledge store had not been produced overnight, but rather, it was the product of knowledge accumulated over generations of people working with nature under the specific local physical and cultural conditions of production as encountered by them.

(17.7) *Knowledge Systems Level*

When it came to interacting with nature within production this was a community who knew how to get the best from their local environment despite marginal and changeable conditions of production. Their adaptability in the face of threats to production as they occurred was nothing short of amazing, but while a certain amount of the knowledge they possessed came from observation and experience much of it had been passed to them through cultural mechanisms reflecting cultural awareness of the processes of nature as they occurred around them in different combinations across different parts of local space at different times to potentially affect the metabolic relationship and ecological sustainability in certain ways across space and time within the locality.

Lessons about natural processes as they interacted to affect production across local space at particular times were forthcoming through cultural mechanisms associated with

the oral culture that dominated interaction between community members. Specifically, local folklore, weather lore, and local place names were passed on through the spoken word (Green, Billy, and Tapim 2010:339; Snively and Corsiglia 2001:10) where it was used in general conversation, but most influentially where it was used within the context of visiting because within the context of visiting the community as a whole gathered together (although of course not all at the same time) so that different generations were present to hear knowledge that was being disseminated (Arensberg and Kimball 1968:186) - most often through the elderly males of the community, but anyone could contribute to knowledge development within this context or any other where knowledge was developed (Ben-Amos 1971:7-8).

However, practical knowledge was not the only type of knowledge being developed in these contexts where the community gathered to produce knowledge communally. Instead, a way of relating to the world/a philosophy of how to interact with others around them and with nature within production was also fostered. Especially through the medium of folklore were messages distributed about what was acceptable as proper conduct within relations of production (and in life in general) (Carter, Donald, and Squires 1993: xxii; xxiii; xiv; Harwood 1976:784). Importantly, folklore encouraged adherence to established/traditional values of communality – sharing, obligation, and reciprocity – between community members in story form so that wherever these stories were later told they acted to promote an ethic of care towards nature because they fostered communal values which had been projected into them at the level of the communal society within which the stories circulated. The ethic of 'working with nature' (as discussed earlier) was strongly influenced by the fact that communal values shaped social relations of production and social life in general, and where these *communal values were embedded in folklore then this folklore acted to shape and reinforce adherence to those same values across interactions within production as they occurred between nature and society.*

Furthermore, where communal values were embedded in folklore and then that folklore was further embedded in the landscape through local place names (Ó Catháin and O' Flanagan 1975:75), then what happened as a consequence of this was that when people interacted with those symbolically named areas their knowledge of the name and its

meaning further acted to reinforce their adherence to communal ways because those values were being remembered because named landscapes act as an 'instrument of thoughts' (Basso 1988:102) (albeit at a sub-conscious level). Where communal values were embedded in the landscape through the combination of local folklore and local place names then communal values affected nature-society interaction within the course of production on that landscape encouraging society not to exploit nature within the course of production. Thus, *communal values where they were projected onto the landscape acted to support the metabolic relationship and ecological sustainability.*

Additionally, where folklore encouraged belief in the presence of fairies, and where this belief was so deeply held that rituals were performed because of it what happened then was that, each time a ritual was performed this too would further promote adherence to communal values (Arensberg 1937:199), which by extension again encouraged an ethic of care towards nature, because *where communal values are internalised to the point where they lead to the performance of rituals then attitudes are firmly engrained and where a communal mind set guides interaction with nature then nature is treated more respectfully within that interaction* (Berkes 1993:5; Berkes, Colding, and Folke 2000:1259).

But this oral culture/a communal culture not only operated to affect attitudes, but also it offered practical instruction useful to the performance of certain tasks. Folklore often contained practical advice (Harwood 1976:789), but so too did many of the local place names provide functional services to the community by helping them to decode the landscape and seascape around them (see Hunn 1996, Ó Catháin and O' Flanagan 1975, and Mac Graith and Ní Ghearraigh 2004), so that, they could better perform agriculture and petty commodity production – which supported agriculture – there. In other words, *local place names operated at the communal level of the society to allow them to understand their physical environment better and to relate to that environment within production in a responsible way to the benefit of the metabolic relationship and ecological sustainability.*

Similarly, local weather lore helped the community to understand natural phenomena so that weather could be predicted (Ehlert 2012:113-4). This facilitated agriculture and helped to safeguard the metabolic relationship and ecological suatainability in various ways (Altieri and Koohafkan 2008:23-4). For instance, if frost was expected then extra soil could be added to crop beds to protect roots from the cold. Or, preparations could be made in advance of expected cold weather so that tubers stored in pits were also safeguarded from frost through the addition of extra soil to the top of the pit at that time. In other words, this form of knowledge allowed adaptations to be made in the face of expected weather as and when it was expected which benefited the socio-ecological relationship through the fact that pre-emptive measures could be taken to safeguard crop production in numerous ways as a result. But, weather lore, as with the other mediums through which knowledge was disseminated was only so well known to the community and therefore so effective in helping it to safeguard the metabolic relationship and ecological sustainability within it because of the fact that the society was a communal society which allowed such locally specific knowledge of agricultural production under local conditions to be shared among the community as a whole so that individuals within it could benefit from it. In other words, *the communal context of production because it facilitated the development and dissemination of local weather related information through the medium of weather lore supported the metabolic relationship and ecological sustainability at individual farm level by providing to the individual a wider range of knowledge about local weather phenomena as it would impact local production than they could have ever hoped to have developed by themselves, and also, even had they had access to meteorological information, that information would have been general to the region and not necessarily specific to the locality*.

(17.8) *Conclusion*

In sum, what should be clear from the preceding discussion is that a rundale/communal system of production context affected the metabolic relationship and ecological sustainability in a very particular and positive way. It affected the organisation of property so that the metabolic relationship and ecological sustainability within privately held crop producing space could be supported through access to commonage: The metabolic relationship and ecological sustainability was supported through commonage acting to provide inputs directly to crop production (such as seaweed for fertiliser), and/or inputs such as stones for drains, but also, the commonage facilitated livestock

production (because livestock manure was used as fertiliser), and also, the commonage provided opportunities for petty commodity production that supported the metabolic relationship and ecological sustainability within agriculture by allowing agriculture to aim primarily at use value production so that nature's resources were not exploited within production in line with individualisation and the need to compete on the market.

Also, as well as providing access to communal property which facilitated the metabolic relationship and ecological sustainability in the aforementioned ways the rundale system of production context also helped to protect the metabolic relationship and ecological sustainability through the fact that it encouraged communal values which encouraged co-operative labour so that risks to harvests, for instance, were reduced (which was important to the metabolic relationship where fodder provided from those harvests was needed to produce livestock manure that was to be used as fertiliser), and the communal value system encouraged co-operation within petty commodity production which as previously said supported agriculture, but also, the communal value system encouraged the community to interact with nature in an ecologically sustainable non-exploitative way reflecting an ethic of care toward nature which reflected values operating at the level of social relations.

Additionally, the rundale system of production context affected the metabolic relationship and ecological sustainability by encouraging people to come together as collectives to participate in labour together, but also, to socialise together which had the effect that communal values and traditional ways of interacting with nature were safeguarded to the benefit of the metabolic relationship and ecological sustainability, but also, knowledge of how to produce successfully under difficult marginal conditions of production without the use of a high degree of technology was enabled.

Furthermore, the rundale system of production context within which people were accessing the same spaces, performing the same activities there, reliant on the same resources, and understanding the world around them in a shared way all contributed to the community as a whole regulating the behaviour of others in relation to nature's resources as they were present within local space. But even more than that, because

communal values – which encouraged an ethic of care toward nature – were reinforced each time community members interacted with one another, each time they frequented shared productive spaces within the community, each time they participated in the performance of collective labour with others (without money exchanging hands), each time they socialised with each other in each other's homes, each time they listened to the same stories, and so on, what happened at the level of the individual was that communal values which fostered sustainable agricultural practices were reinforced for them at the level of their individual psyche's so that those values were internalised with the result that they affected their overall behaviour, to the point where the individual also regulated their own behaviour in relation to others, and by extension regulated their own behaviour in relation to nature, so that the metabolic relationship and ecological sustainability were safeguarded by the rundale context of production which encouraged a particular type of behaviour – communally informed behaviour - which supported sustainable production.

However, what should also be clear by now is that society alone did not simply act on and toward nature in a certain way, but also nature's forces and those of society interacted together at all stages of agricultural production (and also petty commodity production) to affect how sustainable the agricultural system that was in place actually was, because as identified by Moore (2003) where nature and society interact with each other directly within production – with Moore's example being agriculture – then natural and social processes operate co-constitutively with one another to shape each other and the sustainability of the system (p. 447; 450; 452).

In essence, the overall short answer to how did a rundale system of production context affect the metabolic relationship and ecological sustainability within agriculture, is that, it supported it across multiple system levels which all ultimately fed back into how nature and society interacted within agriculture so that agriculture was carried out sustainably: It provided each individual producer with access to communal space (and with the opportunity to access open-access areas through that communal space); it provided individual producers with labour where it was needed, but within a relationship that encouraged communal values; it provided opportunities to the community to engage with petty commodity production without processes of

commoditisation and individualisation taking hold; it enabled the community to counteract risks to agriculture posed by location, topography, weather, and soil processes as they interacted together, but also, to correspondingly harness nature's forces (as they occurred locally) to support agriculture in a way which they could not do if relying on their privately held land only; and, it offered a way for a body of locally specific technologically detailed adaptive knowledge to be held by individual producers whilst being developed by the community as a whole. But also, 'the way of knowing' held by the society reflected the communal values which underpinned it and projected those values into nature-society interaction within agriculture so that agriculture was pursued in a sustainable way; furthermore, the rundale/communal system of production context allowed for informal mechanisms of regulation to exist with both the individual and the community monitoring behaviour toward nature to the benefit of the metabolic relationship and ecological sustainability.

The absolute key finding of my research is that:

Communality helps to safeguard the metabolic relationship and ecological sustainability in numerous ways!

Bibliography

Abaye, A. O., V. G. Allen, and J. P. Fontenot. 1994. "Influence of Grazing Cattle and Sheep Together and Separately on Animal Performance and Forage Quality." *Journal of Animal Science* 72:1013–22.

Abergel, Elisabeth A. 2011. "Climate-Ready Crops and Bio-Capitalism: Towards a New Food Regime?" *International Journal of Sociology of Agriculture and Food* 18(3):260–74.

Ackroyd, S., and J. Hughes. 1983. *Data Collection in Context*. London: Longman.

Addiscott, Thomas M. 1996. "Fertilizers and Nitrate Leaching." Pp. 1–26 in *Issues in Environmental Science and Technology: 5 Agricultural Chemicals and the Environment*, edited by R.E. Hester and R.M. Harrison. Cambridge: Royal Society of Chemistry.

Akram-Lodhi, A. Haroon, and Cristobal Kay. 2010a. "Surveying the Agrarian Question (Part 1): Unearthing Foundations, Exploring Diversity." *The Journal of Peasant Studies* 37(1):177–202.

Akram-Lodhi, A. Haroon, and Cristobal Kay. 2010b. "Surveying the Agrarian Question (Part 2): Current Debates and Beyond." *The Journal of Peasant Studies* 37(2):255–84.

Alavi, Hamza. 1973. "Peasant Classes and Primordial Loyalties." *The Journal of Peasant Studies* 1(1):23–62.

Almquist, Eric L. 1979. "Pre-Famine Ireland and the Theory of European Proto-Industrialization: Evidence from the 1841 Census." *The Journal of Economic History* 39(3):699–718.

Altieri, Miguel A. 1999. "Applying Agroecology to Enhance the Productivity of Peasant Farming Systems in Latin America." *Environment, Development and Sustainability* 1:197–217.

Altieri, Miguel A. 2000. "Ecological Impacts of Industrial Agriculture and the Possibilities for Truly Sustainable Farming." Pp. 77–92 in *Hungry for Profit: The Agribusiness Threat to Farmers, Food, and the Environment*, edited by Fred

Magdoff, John Bellamy Foster, and Frederick H. Buttel. New York: Monthly Review Press.

Altieri, Miguel A. 1983. "The Question of Small Farm Development: Who Teaches Whom?" *Agriculture, Ecosystems and Environment* 9:401–5.

Altieri, Miguel A. 1993. "Ethnoscience and Biodiversity: Key Elements in the Design of Sustainable Pest Management Systems for Small Farmers in Developing Countries." *Agriculture, Ecosystems and Environment* 46:257–72.

Altieri, Miguel A. 2000. "The Ecological Impacts of Transgenic Crops on Agroecosystem Health." *Ecosystem Health* 6(1):13–23.

Altieri, Miguel A. 2004. "Linking Ecologists and Traditional Farmers in the Search for Sustainable Agriculture." *Frontiers in Ecology and the Environment* 2(1):35–42.

Altieri, Miguel A. 2005. "The Myth of Coexistence: Why Transgenic Crops Are Not Compatible with Agroecologically Based Systems of Production." *Bulletin of Science Technology & Society* 25(4):361–71.

Altieri, Miguel A. 2007. "Fatal Harvest: Old and New Dimensions of the Ecological Tragedy of Modern Agriculture." Pp. 189–213 in *Sustainable Resource Management: Reality or Illusion*. Cheltenham: Edward Elgar.

Altieri, Miguel A., Charles A. Francis, Aart van Schoonhoven, and Jerry D. Doll. 1978. "A Review of Insect Prevalence in Maize (Zea Mays L.) and Bean (Phaseolus Vulgaris) Polycultural Systems." *Field Crops Research* 1:33–49.

Altieri, Miguel A., and Parvis Koohafkan. 2008. *Enduring Farms: Climate Change, Smallholders and Traditional Farming Communities*. Penang: Third World Network.

Altieri, Miguel A., Deborah K. Letourneau, and James R. Davis. 1983. "Developing Sustainable Agroecosystems." *BioScience* 33(1):45–49.

Altieri, Miguel A., and Walter Pengue. 2006. "GM Soybean: Latin America's New Coloniser." *Seedling*:13-7.

Altieri, Miguel A., and Victor M. Toledo. 2005. “Natural Resource Management Among Small-Scale Farmers in Semi-Arid Lands: Building on Traditional Knowledge and Agroecology.” *Annals of Arid Zone* 44(3&4):365–85.

Anderson. Kevin B. 2010. *Marx at the Margins: On Nationalism, Ethnicity, and Non-Western Societies*. London: The University of Chicago Press.

Anderson, Robert T., and Gallatin Anderson. 1962. “The Indirect Social Structure of European Village Communities.” *American Anthropologist* 64(5):1016–27.

Andrews, Richard, and Jude England. 2012. “New Forms of Dissertation.” Pp. 31–46 in *The SAGE Handbook of Digital Dissertations and Theses*, edited by Richard Andrews, Erik Borg, Stephen Boyd Davis, Myrrh Domingo, and Jude England. London: Sage Publications Ltd.

Antonesa, Mary et al. 2006. *Researching and Writing Your Thesis: A Guide for Postgraduate Students*. Maynooth: NUIM.

Arensberg, Conrad M. 1937. *The Irish Countryman: An Anthropological Study*. London: MacMillan and Co.

Arensberg, Conrad M., Solon T. Kimball. 1968. *Family and Community in Ireland*. Cambridge: Harvard U. Press.

Ashenafi, Zelealem Tefera, and N. Leader-Williams. 2005. “Indigenous Common Property Resource Management in the Central Highlands of Ethiopia.” *Human Ecology* 33(4):539–63.

Atkinson, Dorothy. 1973. “The Statistics on the Russian Land Commune.” *Slavic Review* 32(4):773–87.

Attwood, E. A. 1967. “Agricultural Developments in Ireland, North and South.” *Statistical and Social Inquiry Society of Ireland* XXI(5):9–34.

Ball, Michael S., and Gregory W. H. Smith. 1992. *Qualitative Research Methods*. London: Sage Publications Ltd.

Banaji, Jairus. 1976. “The Peasantry in the Feudal Mode of Production: Towards an Economic Model.” *The Journal of Peasant Studies* 3(3):299–320.

Banaji, Jairus. 1977. “Modes of Production in a Materialist Conception of History.” *Capital and Class* 1(3):1–44.

Banks, M. 2001. *Visual Methods in Social Research*. London: Sage Publications.

Barnhardt, Ray, and Angayuqaq Oscar Kawagley. 2005. “Indigenous Knowledge Systems and Alaska Native Ways of Knowing.” *Anthropology and Education Quarterly* 36(1):8–23.

Barry, John. 1999. *Environment and Social Theory*. London: Routledge.

Barry, Pat, and Brendan Swan. 2008. “Managing the Conversion Process Successfully.” Pp. 21–25 in *Principles for Sustainable Development*, from Teagasc Organic Production Research Conference Proceedings. Ireland: Teagasc.

Basset, J. A., and Curtis. 1985. “The Nature and Occurrence of Sand-Dune Machair in Ireland.” *Proceedings of the Royal Irish Academy. Section B: Biological, Geological, and Chemical Science* 85B:1–20.

Bassett, Raewyn B. 2010. "Iterative." Pp. 503-505 in *Encyclopedia of Case Study Research*, Vol. 1, edited by Albert J. Mills, Gabrielle Eurepos, and Elden Wiebe. London: Sage Publications Inc.

Basso, Keith H. 1988. “‘Speaking with Names’: Language and Landscape Among the Western Apache.” *Cultural Anthropology* 3(2):99–130.

Basso, Keith H. 1990. *Western Apache Language and Culture: Essays in Linguistic Anthropology*. Tucson: The University of Arizona Press.

Basso, Keith H. 1996. *Wisdom Sits in Places: Landscape and Language Among the Western Apache*. Albuquerque: University of New Mexico Press.

Beaufort, Daniel Augustus. 1792. *Memoir of a Map of Ireland*. London: W. Faden, Geographer to the King.

Ben-Amos, Dan. 1971. “Toward a Definition of Folklore in Context.” *The Journal of American Folklore* 84(331):3–15.

Beilin, Ruth, Serenity Hill, and Tamara Sysak. 2011. “Where Is the Coherent Response to Climate Change and Peak Oil? An Examination of Policy and Practice

Affecting Agriculture in Regional Australia." *International Journal of Sociology of Agriculture and Food* 18(3):199–216.

Bell, Jonathan. 1984. "A Contribution to the Study of Cultivation Ridges in Ireland." *The Journal the Royal Society of Antiquaries of Ireland* 114:80–97.

Bell, Jonathan. 2008. "Rundale in the Glens of Antrim." *Ulster Folklife* 52:38–59.

Bell, Jonathan, and Mervyn Watson. 1986. *Irish Farming: Implements and Techniques 1750-1900*. Edinburgh: John Donald Publishers.

Bell, Jonathan, and Mervyn Watson. 2008. *A History of Irish Farming 1750-1950*. Dublin: Four Courts Press.

Benton, Tim G., Juliet A. Vickery, and Jeremy D. Wilson. 2003. "Farmland Biodiversity: Is Habitat Heterogenity the Key?" *Trends in Ecology and Evolution* 18(4):182–88.

Berg, Bruce L. 1998. *Qualitative Research Methods for the Social Sciences*. 3rd ed. London: Allyn and Bacon.

Berg, Bruce L. 2004. *Qualitative Research Methods: For the Social Sciences*. 5th ed. London: Pearson Limited.

Berkes, Kikret. 1993. "Traditional Ecological Knowledge in Perspective." Pp. 1–10 in *Traditional Ecological Knowledge: Concepts and Cases*. Ontario: Canadian Museum of Nature.

Berkes, Kikret, Johan Colding, and Carl Folke. 2000. "Rediscovery of Traditional Ecological Knowledge as Adaptive Management." *Ecological Applications* 10(5):1251–62.

Berman, Matthew. 2009. "Moving or Staying for the Best Part of Life: Theory and Evidence for the Role of Subsistence in Migration and Well-Being of Artic Inupiat Residents." *Polar Geography* 32(1-2):3–16.

Bernstein, Henry. 2009. "V.I. Lenin and A.V. Chayanov: Looking Back, Looking Forward." *Journal of Peasant Studies* 36(1):55–81.

Berto, Rita. 2007. “Assessing the Restorative Value of the Environment: A Study on Elderly in Comparison with Young Adults and Adolescents.” *International Journal of Psychology* 42(5):331–41.

Biswas, Pradip Kumar. 2001. “Surplus Yield and Production Structure: The Case of Small-Scale Rural Industries in West Bengal.” *The Journal of Peasant Studies* 28(2):119–45.

Bohac, Rodney D. 1985. “Peasant Inheritance Strategies in Russia.” *The Journal of Interdisciplinary History* 16(1):23–42.

Booth, William James. 1994. “On the Idea of the Moral Economy.” *The American Political Science Review* 88(3):653–67.

Branch, G. M., J. May, B. Roberts, E. Russell, and B. M. Clark. 2002. “Case Studies of the Socio-Economic Characteristics and Lifestyles of Subsistence and Informal Fishers in South Africa.” *South African Journal of Marine Science* 24(1):439–62.

Breathnach, Ciara. 2004. “The Role of Women in the Economy of the West of Ireland, 1891-1923.” *New Hibernia Review* 8(1):80–92.

Breathnach, Ciara. 2005. *The Congested Districts Board of Ireland, 1891-1923: Poverty and Development in the West of Ireland*. Dublin: Four Courts Press.

Brenan, James. 1901. “Marketing of Irish Lace.” Pp. 264–65 in *Ireland: Industrial and Agricultural, Handbook for the Irish Pavilion, Glasgow International Exhibition*, edited by W.P. Coyne. Dublin: Browne and Nolan Ltd.

British Farmer’s Magazine. 1863. *British Farmer’s Magazine*. London: Rogerson and Tuxford.

Brody, Hugh. 1973. *Inishkillane: Change and Decline in the West of Ireland*. London: Jill Norman & Hobhouse Ltd.

Bronner, Simon J. 1983. “‘Visible Proofs’: Material Culture Study in American Folkloristics.” *American Quarterly* 35(3):316–38.

Bryman, A. 2004. *Social Research Methods*. 2nd ed. Oxford: Oxford Press.

Buraway, Michael. 1988. “The Extended Case Method.” *Sociological Theory* 16(1):4–33.

Burr, Vivien. 2003. *Social Constructionism*. Essex: Routledge.

Busch, Lawrence. 2011. “Climate Change: How Debates Over Standards Shape the Biophysical, Social, Political and Economic Climate.” *International Journal of Sociology of Agriculture and Food* 18(3):167–80.

Bushnell, John. 1988. “Peasant Economy and Peasant Revolution at the Turn of the Century: Neither Immiseration nor Autonomy, the Roots of Otherness.” *Russian Review* 47(1):75–88.

Butler, Mr. 2001a. “Congested Districts Board for Ireland, County of Kerry - Unions of Kenmare and Killarney, Report of Mr. Butler, Inspector, District of Kenmare.” Pp. 197–201 in *On the Verge of Want*, vol. b, edited by James Morrissey. Dublin: Crannóg Books.

Butler, Mr. 2001b. “Congested Districts Board for Ireland, County of Kerry - Union of Cahersiveen, Report of Mr. Butler, Inspector, District of Valencia.” Pp. 202–6 in *On the Verge of Want*, edited by James Morrissey. Dublin: Crannóg Books.

Buttel, F. H. 2004. “The Treadmill of Production: An Appreciation, Assessment, and Agenda for Research.” *Organization & Environment* 17(3):323–36.

Buttel, Frederick H. 1997. “Social Institutions and Environmental Change.” Pp. 40–54 in *The International Handbook of Environmental Sociology*, edited by Michael Redclift and Graham Woodgate. Cheltenham: Edward Elgar.

Buttel, Frederick H. 2002. “Environmental Sociology and the Classical Sociological Tradition: Some Observations on Current Controversies.” Pp. 35–48 in *Sociological Theory and the Environment: Classical Foundations, Contemporary Insights*, edited by Riley E. Dunlap, Frederick H. Buttel, Peter Dickens, and August Gijswijt. Oxford: Rowan & Littlewood Publishers, Inc.

Buttel, Frederick H., Peter Dickens, Riley E. Dunlap, and August Gijswijt. 2002. “Sociological Theory and the Environment: An Overview and Introduction.” Pp. 3–31 in *Sociological Theory and the Environment: Classical Foundations,*

Contemporary Insights, edited by Frederick Buttel, Peter Dickens, Riley E. Dunlap, and August Gijswijt. Oxford: Rowan & Littlewood Publishers, Inc.

Byres, T. J. 1985. "Modes of Production and Non-European Pre-Colonial Societies: The Nature and Significance of the Debate." *The Journal of Peasant Studies* 12(2-3):1–18.

Byrne, Anne, Ricca Edmondson, and Tony Varley. 2001. "Arensberg and Kimball and Anthropological Research in Ireland: Introduction to the Third Edition." Pp. 1–101 in *Family and Community in Ireland*. Ireland: Clasp Press.

Cameron, Ewen. 1935. "A Study of the Natural Control of Ragwort (Senecio Jacobaea L.)." *Journal of Ecology* 23(2):265–322.

Carolan, M. S. 2005a. "Society, Biology, and Ecology: Bringing Nature Back Into Sociology's Disciplinary Narrative Through Critical Realism." *Organization & Environment* 18(4):393–421.

Carolan, Michael S. 2005b. "Realism Without Reductionism: Toward an Ecologically Embedded Sociology." *Human Ecology Review* 12(1):1–20.

Carter, Erica, James Donald, and Judith Squires. 1993. "Introduction." in *Space and Place: Theories of Identity and Location*, edited by Erica Carter, James Donald, and Judith Squires. London: Lawrence & Wishart.

Castree, Noel. 2000. "Marxism and the Production of Nature." *Capital and Class* 24(3):5–36.

de Castro, Fabio. 2006. "Patterns of Resource Use by Caboclo Communities in the Middle-Lower Amazon." P. 157–80 in *Amazon Peasant Societies in a Changing Environment: Political Ecology, Invisibility and Modernity in the Rainforest*, edited by Cristina Adams, Mark Harris, Rui Murrieta, and Walter Neves. Netherlands: Springer.

Catton, William R., and Riley E. Dunlap. 1980. "A New Ecological Paradigm for Post-Exuberant Sociology." *American Behavioral Scientist* 24(1):15–47.

Chevalier, Jacques M. 1983. "There Is Nothing Simple About Simple Commodity Production." *The Journal of Peasant Studies* 10(4):153–86.

Chubb, Basil. 1970. *The Government and Politics of Ireland*. Oxford: Oxford University Press.

Clark, Brett. 2003. "Ebenezer Howard and the Marriage of Town and Country." *Organization & Society* 16(1):87–97.

Clark, Brett, and John Bellamy Foster. 2010. "The Dialectic of Social and Ecological Metabolism: Marx, Meszaros, and the Absolute Limits of Capital." *Socialism and Democracy* 24(2):124–38.

Clark, Brett, and Richard York. 2005. "Carbon Metabolism: Global Capitalism, Climate Change, and the Biospheric Rift." *Theory and Society* 34:391–428.

Clarkson, Leslie. 1999. "The Modernisation of the Irish Diet, 1740-1920." Pp. 32–43 in *Rural Change in Ireland*, edited by John Davis. Belfast: Queen's University Belfast.

Clausen, Rebecca, and Brett Clark. 2005. "The Metabolic Rift and Marine Ecology An Analysis of the Ocean Crisis Within Capitalist Production." *Organization & Environment* 18(4):422–44.

Clavin, Dan. 2008. "Organic Versus Conventional Farming: An Environmental Comparison Review." Pp. 3–20 in *Principles for Sustainable Development*, from Teagasc Organic Production Research Conference Proceedings. Ireland: Teagasc.

Cohen, Anthony P., and Nigel Rapport. 1995. "Introduction: Consciousness in Anthropology." Pp. 1–20 in *Questions of Consciousness*, edited by Anthony P. Choen and Nigel Rapport. London: Routledge.

Colgan, Nathaniel. 1911. *Gaelic Plant and Animal Names and Associated Folk-Lore*. Dublin: Hodges, Figgis & Co.

Coll, Fred, and Jonathan Bell. 1990. "An Account of Life in Machaire Gathlan (Magheragallan), North-West Donegal, Early This Century." *Ulster Folklife* 36:80–85.

Confino, Michael. 1985. "Russian Customary Law and the Study of Peasant Mentalities." *Russian Review* 44(1):35–43.

Conry, M. 1963. *Topography and Land Forms*. Dublin: An Fóras Talúntais.

Conry, M., and P. Ryan. 1963a. "Geology." Pp. A5-A9 in *West Cork Resource Survey*. Dublin: An Foras Talúntais.

Conry, M., and P. Ryan. 1963b. "Soils." Pp. A15-A43 in *West Cork Resource Survey*. Dublin: An Fóras Talúntais.

Conway, A., and T. Nolan. 1963. *Grassland Management and Utilisation*. Dublin: An Foras Talúntais.

Corbin, Juliet, and Anselm Strauss. 2008. *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory*. 3rd ed. London: Sage Publications Ltd.

Corduff, Michael. 1974. "Rundale in North Erris." U.C.D., Dublin (unpublished manuscript).

Costanza, Robert, and Patten Bernard C. 1995. "Defining and Predicting Sustainability." *Ecological Economics* 15:193–96.

Costanza, Robert, Lisa Wainger, Carl Folke, and Karl Gören Mäler. 1993. "Modeling Complex Ecological Economic Systems: Toward an Evolutionary, Dynamic Understanding of People and Nature." *Bioscience* 43(8):545–55.

Cousins, Mel. 2003. *The Birth of Social Welfare in Ireland, 1922-52*. Dublin: Four Courts Press.

Cray, Ed, and Francis D. Adams. 1958. "Fairy Rath." *Western Folklore* 17(4):282.

Creswell, J. 2003. *Research Design: Qualitative, Quantitative, and Mixed Approaches*. London: Sage.

Cronon, William. 1990. "Modes of Prophecy and Production: Placing Nature in History." *The Journal of American History* 76(4):1122–31.

Cruickshank, Julie. 1981. "Legend and Landscape: Convergence of Oral and Scientific Traditions in the Yukon Territory." *Arctic Anthropology* 18(2):67–93.

Cruickshank, Julie. 1990. “Getting the Words Right: Perspectives on Naming and Places in Athapaskan Oral History.” *Arctic Anthropology* 27(1):52–65.

Curtin, Chris. 1986. “The Peasant Family Farm and Commoditization in the West of Ireland.” Pp. 58–76 in *The Commoditization Debate: Labour Process, Strategy and Social Network*, edited by Norman Long, Jan Douwe Van der Ploeg, Chris Curtin, and Luke Box. Wageningen: Wageningen Agricultural University.

Curtin, Chris. 1996. “Back to the Future? Communities and Rural Poverty.” Pp. 248–73 in *Poverty in Rural Ireland: A Political Economy Perspective*, edited by Chris Curtin, Trutz Haase, and Hilary Tovey. Dublin: Oak Tree Press.

Curtis, Bruce, and Cate Curtis. 2011. *Social Research: A Practical Introduction*. London: Sage Publications Ltd.

Czap, Peter Jr. 1967. “Peasant-Class Courts and Peasant Customary Justice in Russia.” *Journal of Social History* 1(2):149–78.

Damerow, Gail. 2011. *The Backyard Homestead Guide to Raising Animals*, edited by Sarah Guare. North Adams, MA: Storey Publishing.

Davies, Ken. 2005. “Ragwort Poisoning in Livestock: Prevention and Control.” Retrieved August 5, 2014 (https://www.gov.je/SiteCollectionDocuments/Environment%20and%20greener%20living/ID%20RagwortPoisoningUKLeaflet.pdf).

Davies, Norman. 1997. *Europe: A History*. London: Pimlico.

Delind, Laura B. 2006. “Of Bodies, Place, and Culture: Re-Situating Local Food.” *Journal of Agricultural and Environmental Ethics* 19:121–46.

Deloughan, Fiona. 2011. *Contemporary Narrative: Textual Production, Multimodality and Multiliteracies*. London: Continuum International Publishing Group.

Delve, Robert, and Joshua Ramisch. 2006. “Land Management Options in Western Kenya and Uganda.” Pp. 319–32 in *Strategies for Sustainable Land Management in the East African Highlands*, edited by J. Pender, Dr. Frank Place, and Simeon Ehui. Washington: International Food Policy Research Institute.

Denzin, N., and Y. Lincoln. 1998. *The Landscape of Qualitative Research*. London: Sage.

Desonie, Dana. 2008. *Geosphere: The Land and Its Uses*. New York: Chelsea House.

Devereux, Paul. 2004. *Fairy Paths in Ireland & Wales: A Literature and Field Study of Cognised Landscapes in Two Celtic Countries*. International Consciousness Research Laboratories Report. Retrieved April 21, 2010 (http://www.icrl.org/pdf/Fairy_Paths_Devereux_Tech_Rpt).

Diamond, S. 1963. "Climate." Pp. A10-A14 in *West Cork Resource Survey*. Dublin: An Fóras Talúntais.

Dickens, Peter. 1997. "Beyond Sociology: Marxism and the Environment." Pp. 179–94 in *The International Handbook of Environmental Sociology*, edited by Michael Redclift and Graham Woodgate. Cheltenham: Edward Elgar.

Dillon, Thomas. 1930. "Iodine and Potash from Irish Seaweed." *Studies: An Irish Quarterly Review* 19(74):267–78.

Dobson, Philip J. 2005. "Critical Realism as an Underlying Philosophy for IS Research." Pp. 606–11 in *Encyclopedia of Information Science and Technology*, vol. 1, edited by Mehdi Khosrowpour. London: Idea Group Inc (IGI).

Dodgshon, Robert A. 1975. "Towards an Understanding and Definition of Runrig: The Evidence for Roxburghshire and Berwickshire." *Transactions of the Institute of British Geographers* 15–33.

Donnelly, Alison, Mike B. Jones, and John Sweeney. 2004. "A Review of Indicators of Climate Change for Use in Ireland." *International Journal of Biometeorology* 49:1–12.

Doran, Henry. 2001a. "Congested Districts Board for Ireland, County of Leitrim - Union of Carrick-On-Shannon, Report of Henry Doran, Inspector, District of Kiltubbrid." Pp. 67–76 in *On the Verge of Want*, edited by James Morrissey. Dublin: Crannóg Books.

Doran, Mr. 2001b. "Congested Districts Board for Ireland, County of Mayo - Unions of Swinford and Claremorris, Report of Mr. Doran, Inspector, District of

Kiltimagh." Pp. 104–10 in *On the Verge of Want*, edited by James Morrissey. Dublin: Crannóg Books.

Dowling, Martin W. 1999. *Tenant Right and Agrarian Society in Ulster 1600-1870*. Dublin: Irish Academic Press.

Duffy, Patrick. 2003. "Change and Renewal in Issues of Place, Identity and the Local." Pp. 13–29 in *Engaging Spaces: People, Place and Space from an Irish Perspective*. Dublin: Lilliput Press.

Duffy, Patrick. 2004. "Unwritten Landscapes: Reflections on Minor Placenames and Sense of Place in the Irish Countryside." Pp. 689–711 in *Surveying Ireland's Past: Multidisciplinary Essays in Honour of Anngret Simms*, edited by H. Clarke, J. Prunty, and M. Hennessy. Dublin: Geography Publications.

Duffy, Patrick. 2007. *Exploring the History and Heritage of Irish Landscapes*. Dublin: Four Courts Press.

Dugget, Michael. 1975. "Marx on Peasants." *The Journal of Peasant Studies* 2(2):159–82.

Dunlap, Riley E. 1997. "The Evolution of Environmental Sociology: A Brief History and Assessment of the American Experience." Pp. 21–39 in *The International Handbook of Environmental Sociology*, edited by Michael Redclift and Graham Woodgate. Cheltenham: Edward Elgar.

Dunlap, Riley E. 2008. "Promoting a Paradigm Change: Reflections on Early Contributions to Environmental Sociology." *Organization & Environment* 21(4):478–87.

Dunlap, Riley E., and Brent K. Marshall. 2007. "Environmental Sociology." Pp. 329–40 in *21st Century Sociology: A Reference Handbook*, vol. 2. Thousand Oaks, CA: Sage.

Eaton, Henry. 1980. "Marx and the Russians." *Journal of the History of Ideas* 41(1):89–112.

Ehlert, Judith. 2012. *Beautiful Floods: Environmental Knowledge and Agrarian Change in the Mekong Delta, Vietnam*. Zurich: LIT Verlag.

Eke, Kathryn R., Alan D. Barnden, and David J. Tester. 1996. “Impact of Agricultural Pesticides on Water Quality.” Pp. 43–56 in *Issues in Environmental Science and Technology: 5 Agricultural Chemicals and the Environment*, edited by R.E. Hester and R.M. Harrison. Cambridge: Royal Society of Chemistry.

Emmison, Michael, Philip Smith, and Margery Mayall. 2012. *Researching the Visual*. 2nd ed. London: Sage Publications Ltd.

Engels, Frederich. 1884. *The Origin of the Family Private Property and the State*. Peking: Foreign Language Press.

Engels, Frederich. 1971. *Marx, Engels: Ireland and the Irish Question*, edited by R. Dixon. Moscow: Progress Publishers.

Estabrook, George F. 1998. “Maintenance of Fertility of Shale Soils in a Traditional Agricultural System in Central Interior Portugal.” *Journal of Ethnobiology* 18(1):15–33.

Evans, Bryce. 2011. “Coercion in the Irish Countryside: The Irish Smallholder, the State, and Compulsory Tillage 1939-45.” *Irish Economic and Social History* 38:1-17.

Evans, E. Estyn. 1973. *The Personality of Ireland; Habitat, Heritage and History*. New York: Cambridge University Press.

Fageria, Nand Kumar, Virupax C. Baligar, and Charles Allan Jones. 2011. *Growth and Mineral Nutrition of Field Plants*. Boca Raton: CRC Press, Taylor and Francis Group.

Fahy, Edward. 1975. “Irish Agriculture in the 1970s: Maximising the Profits: And the Risks.” *An Irish Quarterly Review* 64(254):121–31.

Faulstich, Paul. 1998. “Mapping the Mythical Landscape: An Aboriginal Way of Being-in-the-World.” *Philosophy & Geography* 1(2):197–221.

Ferguson, Alastair J. D., Mick J. Pearson, and Colin S. Reynolds. 1996. “Eutrophication of Natural Waters and Toxic Algal Bloom.” Pp. 27–41 in *Issues in Environmental Science and Technology: 5 Agricultural Chemicals and the*

Environment, edited by R.E. Hester and R.M. Harrison. Cambridge: Royal Society of Chemistry.

First Report of the Relief Commissioners, constituted under the act 10th Vic., cap. 7. 1847.

Flaherty, Eoin. 2014. "Assessing the Distribution of Social-Ecological Resilience and Risk: Ireland as a Case Study of the Uneven Impact of Famine." *Ecological Complexity* 19:35–45.

Foster, John Bellamy. 1999. "Marx's Theory of Metabolic Rift: Classical Foundations for Environmental Sociology." *American Journal of Sociology* 105(2):366–405.

Foster, John Bellamy. 2000. *Marx's Ecology: Materialism and Nature*. New York: Monthly Review Press.

Foster, John Bellamy. 2002. *Ecology Against Capitalism*. New York: Monthly Review Press.

Foster, John Bellamy. 2005. "The Treadmill of Accumulation: Schnaiberg's Environment and Marxian Political Economy." *Organization and Environment* 18(7):7–18.

Foster, John Bellamy. 2009. *The Ecological Revolution: Making Peace with the Planet*. New York: Monthly Review Press.

Foster, John Bellamy, and Paul Burkett. 2000. "The Dialectic of Organic/Inorganic Relations: Marx and the Hegelian Philosophy of Nature." *Organization and Environment* 13:403–25.

Foster, John Bellamy, and Paul Burkett. 2001. "Marx and the Dialectic of Organic/Inorganic Relations." *Organization & Environment* 14(4):451–62.

Foster, John Bellamy, and Fred Magdoff. 2000. "Liebig, Marx, and the Depletion of Soil Fertility: Relevance for Today's Agriculture." Pp. 43–60 in *Hungry for Profit: The Agribusiness Threat to Farmers, Food, and the Environment*, edited by Fred Magdoff, John Bellamy Foster, and Frederick H. Buttel. New York: Monthly Review Press.

Frankenberg, Ronald. 1966. *Communities in Britain: Social Life in Town and Country*. Harmondsworth: Penguin Books.

Fraser, David, Joy Mench, and Suzanne Millman. 2001. "Farm Animals and Their Welfare in 2000." Pp. 87–99 in *The State of the Animals 2001*, edited by D.J. Salem and A.N. Rowan. Washington: Humane Society Press.

Freeman, T. W. 1943a. "The Congested Districts of Western Ireland." *Geographical Review* 33(1):1–14.

Freeman, T. W. 1943b. "The Changing Distribution of Population in County Mayo." *Statistical and Social Inquiry Society of Ireland* XVII:85–106.

Freeman, T. W. 1947. "Farming in Irish Life." *The Geographical Journal* 110(1/3):38–55.

Gahan, F. G. Townsend. 2001d. "Congested Districts Board for Ireland, County of Sligo - Union of Sligo, Report of F.G. Townsend Gahan, Inspector, District of Grange." Pp. 55–65 in *On the Verge of Want*, edited by James Morrissey. Dublin: Crannóg Books.

Gahan, Mr. 2001a. "Congested Districts Board For Ireland, County of Donegal - Union of Milford, Report of Mr. Gahan, Inspector, District of Fanad." Pp. 5–17 in *On the Verge of Want*, edited by James Morrissey. Dublin: Crannóg Books.

Gahan, Mr. 2001b. "Congested Districts Board For Ireland, County of Donegal - Union of Glenties, Report of Mr. Gahan, Inspector, District of Glencolumbkille." Pp. 18-29 in *On the Verge of Want*, edited by James Morrissey. Dublin: Crannóg Books.

Gallagher, Patrick H., and Thomas Walsh. 1941. "Characteristics of Irish Soil Types. Part 1." *Proceedings of the Royal Irish Academy. Section B: Biological, Geological, and Chemical Science* 47:205–49.

Gardiner, M. J., and T. Radford. 1980. *Soil Associations of Ireland and Their Land Use Potential*. Dublin: An Fóras Talúntais.

Gardiner, M. J., and P. Ryan. 1969. "A New Generalised Soil Map of Ireland and Its Land-Use Interpretation." *Irish Journal of Agricultural Research* 8(1):95–109.

Geary, Laurence M. 2011. "The Medical Profession, Health Care and the Poor Law in Nineteenth-Century Ireland." Pp. 189-206 in *Poverty and Welfare in Ireland 1838-1948,* edited by Virginia Crossman and Peter Gray. Dublin: Irish Academic Press.

Gibbon, Peter. 1973. "Arensberg and Kimball Revisited." *Comparative Studies in Society and History* 20(3):429–53.

Gibbon, Peter, and Chris Curtin. 1978. "The Stem Family in Ireland." *Comparative Studies in Society and History* 20(3):429–53.

Gibbon, Peter, and Chris Curtin. 1983. "Some Observations on 'The Stem Family in Ireland Reconsidered.'" *Comparative Studies in Society and History* 25(2):393–95.

Gillmor, Desmond A. 1969. "Cattle Movements in the Republic of Ireland." *Transactions of the Institute of British Geographers* (46):143–54.

Gillmor, Desmond A. 1970. "Spatial Distribution of Livestock in the Republic of Ireland." *Economic Geography* 46(4):587–97.

Gillmor, Desmond A. 1977. *Agriculture in the Republic of Ireland*. Budapest: Akademiai Kiado.

Glassie, Henry. 1982. *Passing the Time: Folklore and History of an Ulster Community.* Dublin: The O' Brien Press.

Glassie, Henry. 1995. "Tradition." *The Journal of American Folklore* 108(430):395–412.

Goldburg, Rebecca J. 1992. "Environmental Concerns with the Development of Herbicide-Tolerant Plants." *Weed Technology* 6(3):647–52.

Gray, Jane. 1993a. "Folk Poetry and Working Class Identity in Ulster: An Analysis of James Orr's 'The Penitent'." Pp. 1-40 in *Maynooth University ePrints and eTheses Archive*. Retrieved September 12, 2014. (http://eprints.maynoothuniversity.ie).

Gray, Jane. 1993b. "Rural Industry and Uneven Development: The Significance of Gender in the Irish Linen Industry." Pp. 1-27 in *Maynooth University ePrints and eTheses Archive*.
Retrieved October 9, 2014 (http://eprints.maynoothuniversity.ie).

Gray, Jane. 2003. "The Irish, Scottish and Flemish Linen Industries During the long Eighteenth Century." Pp. 1-52 in *Maynooth University ePrints and eTheses Archive.* Retrieved August 13, 2014 (http://eprints.maynoothuniversity.ie).

Gray, Jane. 2005. *Spinning the Threads of Uneven Development: Gender and Industrialization in Ireland During the Long Eighteenth Century*. Oxford: Lexington Books.

Gray, Jane. 2006. "Gender Composition and Household Labour Strategies in pre-Famine Ireland." *History of the Family* 11:1-18.

Gray, Jane. 2010. "Poverty and the Life Cycle in 20th Century Ireland: Changing Experiences of Childhood, Education and the Transition to Adulthood." *Working Paper. Combat Poverty Agency*. (unpublished). Retrieved August 10, 2014. (http: ://eprints.maynoothuniversity.ie).

Gray, Jane and Aileen O' Carroll. 2012. "Education and Class-Formation in 20th Century Ireland: A Retrospective Qualitative Longtitudinal Analysis." *Sociology* 46(4):696-711.

Green, Donna, Jack Billy, and Alo Tapin. 2010. "Indigenous Australian's Knowledge of Weather and Climate." *Climatic Change* 100:337–54.

Greenland, D. J. 1977. "Soil Damage by Intensive Arable Cultivation: Temporary or Permanent?" *Philosophical Transactions of the Royal Society of London. Series B, Biological Efficiency* 281(980):193–208.

Griffith, Richard. 1856. *Griffith, General Valuation of Rateable Property in Ireland, Act 15 and 16 Victoria, Cap. 63, Counties of Mayo and Sligo, Valuation of the Several Tenements in the Union of Ballina*. Dublin: Alex. Thom and Sons: Her Majesty's Stationery Office.

Grove, J. Morgan, and William R. Burch,. 1997. “A Social Ecology Approach and Applications of Urban Ecosystem and Landscape Analysis: A Case Study of Baltimore, Maryland.” *Urban Ecosystems* 1:259–75.

Gulia, Kuldip Singh. 2005. *Human Ecology of Sikkim*. Delhi: Kulpaz Publications.

Guppy, Neil. 1986. “From Traps to Draggers: Domestic Commodity Production in Northwest Newfoundland, 1850-1982 by Peter Sinclair: Review.” *The Canadian Journal of Sociology* 11(3):352–55.

Haldon, John F. 1993. *The State and the Tributary Mode of Production*. London: Verso.

Hammersley, M., and P. Atkinson. 1983. *Ethnography: Principles in Practice*. London: Routledge.

Hammersley, Martyn, and Paul Atkinson. 1995. *Ethnography: Principles in Practice*. 2nd ed. London: Routledge.

Hannan, Damian F. 1982. “Peasant Models and the Understanding of Social and Cultural Change in Rural Ireland.” Pp. 141–66 in *Ireland: Land, Politics and People*, edited by P.J. Drudy. Cambridge: Cambridge University Press.

Hannan, Damian F., and Patrick Commins. 1992. “The Significance of Small-Scale Landholders in Irelands Socio-Economic Transformation.” *Proceedings of the British Academy* 79:79–104.

Harper, D. 1987. “The Visual Ethnographic Narrative.” *Visual Anthropology* 1(1):1-19.

Harris, Rosemary. 1988. “Theory and Evidence: The ‘Irish Stem Family’ and Field Data.” *Man, New Series* 23(3):417–34.

Hartig, Terry, Kalevi Korpela, Gary W. Evans, and Tommy Garling. 1997. “A Measure of Restorative Quality in Environments.” *Housing, Theory and Society* 14(4):175–94.

Harvey, Clodagh Brennan. 1989. “Some Irish Women Storytellers and Reflections on the Role of Women in the Storytelling Tradition.” *Western Folklore* 48(2):109–28.

Harvey, Lee, and Morag MacDonald. 1993. *Doing Sociology: A Practical Introduction*. London: MacMillan.

Harwood, Frances. 1976. "Myth, Memory, and Oral Tradition: Cicero in the Trobriands." *American Anthropologist* 78:783–96.

Hastings, Catríona. 2009. *Ag Bun Na Cruaiche: Folklore and Folklife from the Foot of Croagh Patrick*. Dublin: Nonsuch Publishing.

Hess, Charlotte, and Elinor Ostrom. 2003. "Ideas, Artifacts, and Facilities: Information as a Common-Pool Resource." *Law and Contemporary Problems* 66(1/2):111–45.

Hill, Stuart B., Steve Wilson, and Kevin Watson. 2004. "Learning Ecology. A New Approach to Learning and Transforming Ecological Consciousness." Pp. 47–64 in *Learning Toward an Ecological Consciousness: Selected Transformative Practices*, edited by Edmund O' Sullivan and Marilyn M. Taylor. Hampshire: Palgrave Macmillan.

Hjorth, Peder, and Ali Bagheri. 2006. "Navigating Towards Sustainable Development: A System Dynamics Approach." *Futures* 30:74–92.

Hoffman, E. 2007. "Open-Ended Interviews, Power and Emotional Labour." *Journal of Contemporary Ethnography* 36:318–46.

Holden, N. M., and A. J. Brereton. 2004. "Definition of Agroclimatic Regions in Ireland Using Hydro-Thermal and Crop Yield Data." *Agricultural and Forest Meteorology* 122:175–91.

Holliday, A. 2007. *Doing and Writing Qualitative Research*. 2nd ed. London: Sage Publications.

Holm, Gunilla. 2010. "Visual Research Methods: Where Are We and Where Are We Going?" Pp. 325–42 in *Handbook of Emergent Methods*, edited by Sharlene Nagy Hess-Biber and Patricia Leavy. New York: Guildford Press.

Holt, Jodie S., and Homer M. Lebaron. 1990. "Significance and Distribution of Herbicide Resistance." *Weed Technology* 4(1):141–49.

Hopcroft, Rosemary L. 1999. *Regions, Institutions, and Agrarian Change in European History*. Michigan: The University of Michigan Press.

Hunn, Eugene. 1982. "The Utilitarian Factor in Folk Biological Classification." *American Anthropologist, New Series* 84(4):830–47.

Hunn, Eugene. 1996. "Columbia Plateau Indian Place Names: What Can They Teach Us?" *Journal of Linguistic Anthropology* 6(1):3–26.

Hunn, Eugene S. 1999. "The Value of Subsistence for the Future of the World." Pp. 23–36 in *Ethnoecology, Situated Knowledge/Local lives*, edited by Eugene S. Hunn. Tucson: University of Arizona.

Hunt, E. K. 2003. *Property and Prophets: The Evolution of Economic Institutions and Ideologies*. 7th ed. New York: M.E. Sharpe.

Huntington, Henry P. 2000. "Traditional Ecological Knowledge in Science: Methods and Applications." *Ecological Applications* 10(5):1270–74.

Huntington, Henry P., Shari Gearheard, Andrew R. Mahoney, and Anne K. Salomon. 2011. "Integrating Traditional and Scientific Knowledge through Collaborative Natural Science Field Research: Identifying Elements for Success." *Arctic* 64(4):437–45.

Hutchinson, Bertram. 1970. "On the Study of Non-Economic Factors in Irish Economic Development." *Economic and Social Review* 1(4):509–30.

Hynes, Stephen, Cathal Buckley, and Thomas M. van Rensburg. 2007. "Recreational Pursuits on Marginal Farm Land: A Discrete-Choice Model of Irish Farm Commonage Recreation." *Economic and Social Review* 38(1):63–84.

Inglis, Henry D. 1835. *A Journey Throughout Ireland, During the Spring, Summer, and Autumn of 1834*. 3rd ed. London: Whittaker & Co.

Jackson, John A. 1967. *Report on the Skibereen Social Survey*. Dublin: Human Sciences Committee.

Jervell, Anne Moxnes. 1999. "Changing Patterns of Family Farming and Pluriactivity." *European Society for Rural Sociology* 39(1):100–116.

Jessop, Bob. 2002. “Capitalism, the Regulation Approach, and Critical Realism.” Pp. 88–115 in *Critical Realism and Marxism*, edited by Andrew Brown, Steve Fleetwood, and John Michael Roberts. London: Routledge.

Johnson, James H. 1958. “Studies in Irish Rural Settlement.” *Geographical Review* 48(4):554–66.

Jones, Owain. 2000. “(Un)ethical Geographies of Human-Non-Human Relations: Encounters, Collectives and Spaces.” Pp. 267–89 in *Animal Spaces, Beastly Places: New Geographies of Human-Animal Relations*. Florence: Routledge.

Jordan, Nicholas R. 2002. “Sustaining Production with Biodiversity.” Pp. 155–68 in *The Farm as Natural Habitat: Reconnecting Food Systems with Ecosystems*. London: Island Press.

Katz, Sandor Ellix. 2003. *Wild Fermentation: The Flavor, Nutrition, and Craft of Live-Culture Food*. Vermont: Chelsea Green Publishing Company.

Kearney, Anne R., and Daniel Winterbottom. 2006. “Nearby Nature and Long-Term Care Facility Residents.” *Journal of Housing for the Elderly* 19(3):7–28.

Kelley, Oliver H., and Thomas A. Woods. 1991. *Knights of the Plow: Oliver H. Kelley and the Origins of the Grange in Republican Ideology*. Ames: Iowa State University Press.

Kelly, Mary. 2007. *Environmental Debates and the Public in Ireland*. Dublin: Institute of Public Administration.

Kennedy, Liam. 1991. “Farm Succession in Modern Ireland: Elements of a Theory of Inheritance.” *The Economic History Review* 44(3):477–99.

Kenny, Kevin. 1998. *Making Sense of the Molly Maguires*. Oxford: Oxford University Press.

Kilroe, J. R. 1902a. “The Soils of Ireland.” Pp. 28–35 in *Ireland: Industrial and Agricultural*, edited by W.P. Coyne. Dublin: Browne and Nolan Ltd.

Kinsella, Jim, Susan Wilson, Floor de Jong, and Henk Renting. 2000. “Pluriactivity as a Livelihood Strategy in Irish Farm Households and Its Role in Rural Development.” *Sociologia Ruralis* 40(4):481–96.

Kitch, Sally. 2000. *Higher Ground: From Utopianism to Realism in American Feminist Thought and Theory*. London: University of Chicago Press.

Klenke, Karin. 2008. *Qualitative Research in the Study of Leadership*. Bingley: Emerald Group Publishing Ltd.

Knight, Patrick. 1836. *Erris in the “Irish Highlands” and the “Atlantic Railway.”*Dublin: Martin Keene and Son.

Knowles, Kelly Anne. 2008. “GIS and History.” Pp. 1–25 in *Placing History: How Maps, Spatial Data, and GIS are Changing Historical Scholarship*, edited by Kelly Anne Knowles and Amy Hillier. U.K.: Transatlantic Publishers Group Ltd.

Kornblum, William. 2008. *Sociology in a Changing World*. 9th ed. Belmont, CA: Wadsworth.

Kuo, Frances E., William C. Sullivan, Rebekah Levine Coley, and Liesette Brunson. 1998. “Fertile Ground for Community: Inner-City Neighbourhood Common Spaces.” *American Journal of Community Psychology* 26(6):823–51.

Laheen, Mary. 2010. *Drystone Walls of the Aran Islands: Exploring the Cultural Landscape*. Cork: Collins Press.

LaRochelle, Serge, and Fikret Berkes. 2003. “Traditional Ecological Knowledge and Practice for Edible Wild Plants: Biodiversity Use by the Ramámuri, in the Sirerra Tarahumara, Mexico.” *International Journal of Sustainable Development and World Ecology* 10(4):361–75.

Lee, J. 1963. *Soil Survey of Special Farms*. Dublin: An Fóras Talúntais.

Lee, J. 1974. “An Analysis of Land Potential for Grazing in Ireland with Particular Reference to Farm Size Relationships.” Pp. 149–82 in *Trinity’s Access to Research Archive*. Dublin: Trinity College Dublin. Retrieved September 13, 2011 (www.tara.tcd.ie/bitstream/2262/6038/1/jssisiVolXXIIIPartI_149182.pdf).

Leeuwis, Cees. 1989. *Marginalization Misunderstood: Different Patterns of Farm Development in the West of Ireland*. Wageningen: Agricultural University Wageningen.

Lefale, Penehuro Fatu. 2010. "Ua 'afa Le Aso Stormy Weather Today: Traditional Ecological Knowledge of Weather and Climate: The Samoa Experience." *Climatic Change* 100:317–35.

Lewin, Moshe. 1985. "Customary Law and Russian Rural Society in the Post-Reform Era." *Russian Review* 44(1):1–19.

Lewontin, R. C. 2000. "The Maturing of Capitalist Agriculture: Farmer as Proletarian." Pp. 93–106 in *Hungry for Profit: The Agribusiness Threat to Farmers, Food, and the Environment*, edited by Fred Magdoff, John Bellamy Foster, and Frederick H. Buttel. New York: Monthly Review Press.

Lidskog, R. 2001. "The Re-Naturalization of Society? Environmental Challenges for Sociology." *Current Sociology* 49(1):113–36.

Liodakis, George. 2003. "The Role of Biotechnology in the Agro-Food System and the Socialist Horizon." *Historical Materialism* 11(1):37–74.

Little, Daniel. 1986. *The Scientific Marx*. Minneapolis: University of Minnesota Press.

Llambi, Luis. 1988. "Small Modern Farmers: Neither Peasants nor Fully Fledged Capitalists?" *The Journal of Peasant Studies* 15(3):350–72.

Lohr, Virginia L., and Caroline H. Pearson-Mims. 2000. "Physical Discomfort May Be Reduced in the Presence of Interior Plants." *International Human Issues in Horticulture* 10(1):53–58.

Lowen, Sara. 1991. "The Tyranny of the Lawn." *American Heritage*: 45–55.

Lysaght, Patricia. 2000. "Food-Provision Strategies on the Great Blasket Island: Livestock and Tillage." Pp. 195–215 in *From Corrib to Cultra: Folklife Essays in Honour of Alan Gailey*. Belfast: Institute of Irish Studies.

Lysaght, Patricia. 2002. "Review: Family and Community in Ireland." *Béaloideas* 70:257–63.

Mac Cárthaigh, Críostóir, and Barry O' Reilly. 2001. "Ó Bhun Go Barr an Bhaile: Recent Settlement on the Great Blasket Island." Pp. 149–64 in *Northern Lights: Following Folklore in North-West Europe*. Dublin: University College Dublin Press.

Mac Graith, Uinsíonn, and Treasa Ní Ghearraigh. 2004. *The Placenames and Heritage of Dhun Chaocháin in the Barony of Erris, County Mayo*. Castlebar, Mayo: Arna clo ag Cashin Printing Services Ltd.

MacManus. 1959. *Irish Earth Folk*. New York: Devin-Adair Pub.

Male, D. J. 1971. *Russian Peasant Organisation Before Collectivisation: A Study of Commune and Gathering 1925-1930*. London: Cambridge University Press.

Mancus, Philip. 2007. "Nitrogen Fertilizer Dependency and Its Contradictions: A Theoretical Exploration of Social-Ecological Metabolism." *Rural Sociology* 72(2):269–88.

Mandel, Ernest. 2002. *An Introduction to Marxist Economic Theory*. Chippendale: Resistance Books.

Manuel-Navarrette, David. 2013. "Human-Environmental Integration and Social Power in Global Environmental Change Research." Pp. 305–15 in *A Changing Environment for Human Security: Transformative Approaches to Research, Policy and Action*, edited by Linda Sygna, Karen O'Brien, and Johanna Wolf. New York: Routledge.

Marx, Karl. 1964. *Karl Marx: Pre-Capitalist Economic Formations*, edited by Hobsbawn. London: Lawrence & Wishart.

Marx, Karl. 1975. *Collected Works*, vol. 4. London: Lawrence and Wishart.

Marx, Karl. 1976. *Capital: A Critique of Political Economy*. Middlesex: Penguin Books.

Marx, Karl. 1981. *Capital*, 3. Middlesex: Penguin Books.

Marx, Karl and Engels, Frederick. 1971. *Ireland and the Irish Question*. Moscow: Progress Publishers.

Marx, Karl and Engels, Frederick. 1975. *Collected Works*, vol. 6. London: Lawrence and Wishart.

Marx, Karl and Engels, Frederick. 1987. *Collected Works*, vol. 25. London: Lawrence and Wishart.

Marx, Karl and Engels, Frederick. 1988. *Collected Works*, vol. 30. London: Lawrence and Wishart.

Mason, J. 1996. *Qualitative Researching*. London: Sage.

Massey, Doreen. 2005. *For Space*. London: Sage Publications.

May, T. 2001. *Social Research: Issues, Methods, and Process*. 3rd ed. Buckingham: Open University Press.

Mayo County Library. *Satellite Map*. Retrieved February 28, 2014 (www.mayolibrary.ie).

Mayumi, Kozo. 1991. "Temporary Emancipation from Land: From the Industrial Revolution to the Present Time." *Ecological Economics* 4:35–56.

McClintock, Nathan. 2010. "Why Farm the City? Theorizing Urban Agriculture Through a Lens of Metabolic Rift." *Cambridge Journal of Regions, Economy and Society* 3(2):191–207.

McCourt, Desmond. 1955. "Infield and Outfield in Ireland." *The Economic History Review* 7(3):369–76.

McCulloch, G. 2004. *Documentary Research in Education, History, and the Sciences*. U.K.: Routledge.

McDonagh, John. 1998. "Rurality and Development in Ireland - the Need for Debate?" *Irish Geography* 31(1):47–54.

McEvoy, Phil, and David Richards. 2006. "A Critical Realist Rationale for Using a Combination of Quantitative and Qualitative Methods." *Journal of Research in Nursing* 11:66–78.

McKenna, John, Anne Marie O' Hagan, James Power, Michael Macleods, and Andrew Cooper. 2007. "Coastal Dune Conservation on an Irish Commonage: Community-Based Management or Tragedy of the Commons?" *The Geographical Journal* 173(2):157–69.

McNabb, Patrick. 1964. "Social Structure." Pp. 193-247 in *The Limerick Social Survey*. Tipperary: Muintir na Tíre Rural Publications.

Merfield, Charles. 2008. "Fundamentals of Nutrient Management: Why Nutrient Replacement is Essential in Organic and All Agriculture." Pp. 71–99 in *Principles for Sustainable Development*, from Teagasc Organic Production Research Conference Proceedings. Ireland: Teagasc.

Merriam, S. 2002. *Qualitative Research in Practice: Examples for Discussion and Analysis*. San Francisco: John Wiley and Sons.

Micks, Mr. 2001. "Congested Districts Board for Ireland, County of Donegal - Union of Glenties, Report of Mr. Micks, District of 'The Rosses.'"Pp. 40–54 in *On the Verge of Want*, edited by James Morrissey. Dublin: Crannóg Books.

Micks, William L. 1925. *An Account of the Constitution, Administration and Dissolution of the Congested Districts Board of Ireland From 1891-1923*. Dublin: Eason & Son Ltd.

Middendorf, Gerad, Mike Skladany, Elizabeth Ransom, and Lawrence Busch. 2000. "New Agricultural Biotechnologies: The Struggle for Democratic Choice." Pp. 107–24 in *Hungry for Profit: The Agribusiness Threat to Farmers, Food, and the Environment*, edited by Fred Magdoff, John Bellamy Foster, and Frederick H. Buttel. New York: Monthly Review Press.

Millar, James R. 1970. "A Reformulation of A.V. Chayanov's Theory of the Peasant Economy." *Economic Development and Cultural Change* 18(2):219–29.

Mironov, Boris. 1985. "The Russian Peasant Commune After the Reforms of the 1860s." *Slavic Review* 44(3):438–67.

Mol, A. P. J. 2006. "From Environmental Sociologies to Environmental Sociology?: A Comparison of U.S. and European Environmental Sociology." *Organization & Environment* 19(1):5–27.

Moon, David. 1999. *The Russian Peasantry 1600-1930: The World the Peasants Made*. London: Longman.

Moore, Jason W. 2000. "Environmental Crises and the Metabolic Rift in World-Historical Perspective." *Organization and Environment* 13(2):123–57.

Moore, Jason W. 2001. "Marx's Ecology and Environmental History of World Capitalism." *Capitalism Nature Socialism* 12(3):134–39.

Moore, Jason W. 2003a. "Capitalism as World-Ecology: Braudel and Marx on Environmental History." *Organization Environment* 16(514):431–58.

Moore, Jason W. 2003b. "'The Modern World-System' as Environmental History? Ecology and the Rise of Capitalism." *Theory and Society* 32(3):307–77.

Moore, Jason W. 2011. "Ecology, Capital, and the Nature of Our Times: Accumulation & Crisis in the Capitalist World-Ecology." *American Sociological Association* XVII(1):107–46.

Moore, Joseph G. 1995. "On the Problems and Possibilities of Green Social Theory." Pp. 171–84 in *Environmental Sociology: Theory and Practice*, edited by Michael D. Mehta and Ouellet Éric. Ontario: Captus Press.

Morrison, Ken. 2006. *Marx, Durkheim, Weber: Formations of Modern Social Thought*. 2nd ed. London: Sage.

Morrissey, James. 2001. "Introduction." Pp. vii–ix in *On the Verge of Want: A Unique Insight into Living Conditions Along Ireland's Western Seaboard in the Late 19th Century*, edited by James Morrissey. Dublin: Crannóg Books.

Mulder, Monique Borgerhoff, and Peter Coppolillo. 2005. *Conservation: Linking Ecology, Economics, and Culture*. Oxfordshire: Princeton University Press.

Murdoch, Jonathan. 2001. "Ecologising Sociology: Actor-Network Theory, Co-Construction and the Problem of Human Exemptionalism." *Sociology* 35(No. 1 Part 1):111–33.

Murphy, Raymond. 1995. "Sociology As If Nature Did Not Matter: An Ecological Critique." *British Journal of Sociology* 46(4):688–707.

Murphy, Raymond. 2002. “The Internalization of Autonomous Nature into Society.” *The Sociological Review* 50(3):313–33.

Neenan, M. 1963. *Crop Husbandry*. Dublin: An Fóras Talúntais.

Ní Ghearraigh, Treasa, and Uinsíonn Mac Graith. 2009. *Cill Ghallagáin Graveyard in the Parish of County Mayo*. Mayo: Comhar Dún Chaocháin Teo.

Nicholls, Clara I., and Miguel A. Altieri. 2004. “Designing Species-Rich, Pest Suppressive Agroecosystems Through Habitat Management.” *Agronomy* 43:49–62.

Nicholls, Clara I., and Miguel A. Altieri. 2005. “Designing and Implementing a Habitat Management Strategy to Enhance Biological Pest Control in Agrecosystems.” *Biodynamics* 251:26–36.

NUI Maynooth. 2011. “Research Ethics.” Retrieved February 28, 2011 (http://research.nuim.ie/support-services/research-ethics).

O’ Brien, Martin, Charles Spillane, Conor Meade, and Ewen Mullins. 2008. “An Insight into the Impact of Arable Farming on Irish Biodiversity: A Scarcity of Studies Hinders a Rigorous Assessment.” *Biology and Environment: Proceedings of the Royal Irish Academy* 108B(2):97–108.

O' Carroll, Aileen, and Jane Gray. 2010. "A Life History and Mixed Methods Approach to Examining Turning Points as the Intersection Between Biography and History." Pp. 1-27 in, *NIRSA Working Paper Series*. National University of Ireland, Maynooth: NIRSA. Retrieved August 10, 2014. (http://eprints.maynoothuniversity.ie).

Ó Catháin, Seamas, and Patrick O’ Flanagan. 1975. *The Living Landscape: Kilgalligan, Erris, County Mayo*. Dublin: Comhairle Bhéaloideas Eireann an Coláiste Ollscoile.

Ó Danachair, Caoimhín. 1981. “An Rí (The King): An Example of Traditional Social Organisation.” *Journal of the Royal Society of Antiquaries of Ireland* 111:14–28.

Odinsson, Eoghan. 2010. *Northern Lore: A Field Guide to the Northern Mind-Body-Spirit*. US: Eoghan Odinsson.

Ó Gráda, Cormac. 2002. "The Greatest Blessing of All: The Old Age Pension in Ireland." *Past and Present* 175:124-61.

Oguamanam, Chidi. 2007. "Tension on the Farm Fields: The Death of Traditional Agriculture?" *Bulletin of Science Technology & Society* 27(4):260–73.

Olson, B. E., and J. R. Lacey. 1994. "Sheep: A Method for Controlling Rangeland Weeds." *Sheep and Goat Research Journal, Special Issue* 10:105–12.

Ong, Walter J. 1967. *The Presence of the Word: Some Prolegomena for Cultural and Religious History*. London: Yale University Press.

Ong, Walter J. 1982. *Orality and Literacy: The Technologizing of the Word*. London: Methuen.

Ordnance Survey Ireland. 2014. (www.mayolibrary.ie).

O' Rourke, Eileen. 2005. "Socio-Natural Interaction and Landscape Dynamics in the Burren, Ireland." *Landscape and Urban Planning* 70:69–83.

O' Rourke, Eileen, and Nadine Kramm. 2009. "Changes in the Management of the Irish Uplands: A Case-Study from the Iveragh Peninsula." *European Countryside* 1:53–66.

Ostrom, Elinor. 1990. *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge: Cambridge University Press.

Ostrom, Elinor. 2009. "A General Framework for Analyzing Sustainability of Social-Ecological Systems." *Science* 325:419–22.

O' Thuathaigh, Gearóid. 2008. "Once Upon a Time in the West." *Field Day Review* 4:314–25.

Otway, Caesar. 1841. *Sketches in Erris and Trawly*. Dublin: William Curry, Jun. & Company.

Paoletti, Maurizio G., and David Pimentel. 1996. "Genetic Engineering in Agriculture and the Environment." *BioScience* 46(9):665–73.

Patton, Quinn M. 2002. *Qualitative Research and Evaluation Methods*. 3rd ed. New Delhi: Sage.

Peace, Adrian. 1989. "From Arcadia to Anomie: Critical Notes on the Constitution of Irish Society as an Anthropological Object." *Critique of Anthropology* 9(1):89–111.

Pedretti, Erminia, and Barbara J. Soren. 2006. "Reconnecting to the Natural World Through an Immersive Education." *Canadian Journal of Science, Mathematics and Technology Education* 6(1):83–96.

Peterson, Dallas E. 1999. "The Impact of Herbicide-Resistant Weeds on Kansas Agriculture." *Weed Technology* 13(3):632–35.

Pilgrim, Sarah E., Leanne C. Cullen, David J. Smith, and Jules Pretty. 2008. "Ecological Knowledge is Lost in Wealthier Communities and Countries." *Environmental Science and Technology* 42(4):1004–9.

Pink, Sarah. 2001. *Doing Visual Ethnography: Images, Media and Representation in Research*. London: Sage Publications.

Popay, Ian, and Roger Field. 1996. "Grazing Animals as Weed Control Agents." *Weed Technology* 10(1):217–31.

Post, Charles. 2011. *The American Road to Capitalism: Studies in Class-Structure, Economic Development, and Political Conflict, 1620-1877*. Netherlands: Brill.

Poteete, Amy R., and Elinor Ostrom. 2004. "In Pursuit of Comparable Concepts and Data About Collective Action." *Agricultural Systems* 82:215–32.

Rennings, K., and H. Wiggering. 1997. "Steps Towards Indicators of Sustainable Development: Linking Economic and Ecological Concepts." *Ecological Economics* 20(1):25–36.

Riley, Mark, and David Harvey. 2005. "Landscape Archaelogy, Heritage and the Community in Devon: An Oral History Approach." *International Journal of Heritage Studies* 11(4):269–88.

Riley, Mark, and David Harvey. 2007. “Oral Histories, Farm Practice and Uncovering Meaning in the Countryside.” *Social and Cultural Geography* 8(3):391–415.

Robertson, Heather J., and Richard G. Jefferson. 2002. “Nature and Farming in Britain.” Pp. 123–36 in *The Farm as Natural Habitat: Reconnecting Food Systems with Ecosystems*, edited by Dana L. Jackson and Laura L. Jackson. London: Island Press.

Roche, Mr. 2001a. “Congested Districts Board for Ireland, County of Cork - Union of Skibereen, Report of Mr. Roche, Inspector, District of Baltimore.” Pp. 207–11 in *On the Verge of Want*, edited by James Morrissey. Dublin: Crannóg Books.

Roche, Mr. 2001b. “Congested Districts Board for Ireland, County of Cork - Union of Bantry, Report of Mr. Roche, District of Sheepshead.” Pp. 217–20 in *On the Verge of Want*, edited by James Morrissey. Dublin: Crannóg Books.

Rodman, Margaret C. 1992. “Empowering Place: Multilocality and Multivocality.” *American Anthropologist, New Series* 94(3):640–56.

Rolleston, T. W. 1901. “Art and Cottage Industries of Ireland.” Pp. 266–78 in *Ireland: Industrial and Agricultural, Handbook for the Irish Pavilion, Glasgow International Exhibition*, edited by W.P. Coyne. Dublin: Brown & Nolan Ltd.

Rosa, Eugene A., and Lauren Richter. 2008. “Durkheim on the Environment: Ex Libris or Ex Cathedra? Introduction to Inaugral Lecture to a Course in Social Science, 1887-1888.” *Organization and Environment* 21:182–87.

Rose, G. 2001. *Visual Methodology*. London: Sage.

Rosset, Peter M. 2000. “Cuba: A Successful Case Study of Sustainable Agriculture.” Pp. 203–14 in *Hungry for Profit: The Agribusiness Threat to Farmers, Food, and the Environment*, edited by Fred Magdoff, John Bellamy Foster, and Frederick H. Buttel. New York: Monthly Review Press.

Rossman, Gretchen B., and Sharon F. Rallis. 2003. *Learning in the Field: An Introduction to Qualitative Research*. 2nd ed. London: Sage Publications.

Rudqvist, Anders. 1986. *Peasant Struggle and Action Research in Colombia*. Uppsala: Uppsala University.

Rudra, Ashok. 1988. “Pre-Capitalist Modes of Production in Non-European Societies.” *The Journal of Peasant Studies* 15(3):373–94.

Ruttledge-Fair, Robert. 2001a. “Congested Districts Board for Ireland, County Mayo - Union of Westport, Report of Major Robert Ruttledge-Fair, Inspector, District of Achill.” Pp. 91–97 in *On the Verge of Want*, edited by James Morrissey. Dublin: Crannóg Books.

Ruttledge-Fair, Robert. 2001b. “Congested Districts Board for Ireland, County Mayo - Union of Belmullet, Report of Major Robert Ruttledge-Fair, Inspector, District of Belmullet.” Pp. 98–103 in *On the Verge of Want*, edited by James Morrissey. Dublin: Crannóg Books.

Ryan, P. 1963. "Introduction." Pp. A1-A3 in *West Cork Resource Survey*. Dublin: An Fóras Talúntais.

Salazar, Carles. 1996. “Between Morality and Rationality: An Analysis of Interpersonal Economics in Rural Ireland.” *The Economic and Social Review* 27(3):235–52.

Sammon, Patrick J. 1997. *In the Land Commission: A Memoir 1933-1978*. Dublin: Ashfield Press.

Schnaiberg, Allan. 1993. “The Political Economy of Environmental Problems and Policies: Consciousness, Conflict, and Control Capacity.” Retrieved September 13, 2012 (http://www.sociology.northwestern.edu).

Schneider, Mindi, and Philip McMichael. 2010. “Deepening and Repairing, the Metabolic Rift.” *The Journal of Peasant Studies* 37(3):461–84.

Schutt, Russell K. 2004. *Investigating the Social World: The Process and Practice of Research*. 4th ed. London: Pine Forge Press.

Schutt, Russell K. 2006. *Investigating the Social World: The Process and Practice of Research*. 5th ed. London: Pine Forge Press.

Scully, John J. 1971. *Agriculture in the West of Ireland: A Study of Low Farm Income Problems*. Dublin: Department of Agriculture and Fisheries.

Second Report of the Relief Commissioners, constituted under the act 10th Vic., cap. 7. 1847.

Senior, Nassau William. 1868. *Journals, Conversations and Essays Relating to Ireland*. London: Longman's.

Shanin, Teodor. 1983. *Late Marx and the Russian Road: Marx and "the Peripheries of Capitalism."*New York: Monthly Review Press.

Shaw, Alexander W. 1901. "The Congested Districts Board for Ireland." Pp. 150–59 in *Ireland: Industrial and Agricultural, Handbook for the Irish Pavilion, Glasgow International Exhibition*, edited by W.P. Coyne. Dublin: Brown & Nolan Ltd.

Shipway, Brad. 2011. *A Critical Realist Perspective of Education*. New York: Taylor & Francis.

Shortell, Timothy, and Jerome Krase. 2013. "On the Visual Semiotics of Collective Identity in Urban Vernacular Spaces." Pp. 108–28 in *Sociology and the Visual Sphere*, edited by Regev Nathansohn and Dennis Zuev. Oxon: Routledge.

Sider, Gerald. 2006. "The Production of Race, Locality, and State." *Anthropologica* 48:247–63.

Silverman, D. 2001. *Interpreting Qualitative Data*. London: Sage.

Silverman, David. 2006. *Interpreting Qualitative Data*. 3rd ed. London: Sage Publications.

Slater, Eamonn. 2014a. "Marx on Cultivated Soil: Unearthing the Dialectics of Earth Capital". (unpublished manuscript).

Slater, Eamonn. 2014b. "Marx and Engels on the Dialectics of Climate: Ireland and It's 'Heavy Atlantic Westerly Rain Clouds'". (unpublished manuscript).

Slater, Eamonn, and Eoin Flaherty. 2009. "Marx on Primitive Communism: The Irish Rundale Agrarian Commune, Its Internal Dynamics and the Metabolic Rift." *Irish Journal of Anthropology* 12(2):5–34.

Slater, Eamonn, and Terrence McDonough. 2008. “Marx on Nineteenth-Century Colonial Ireland: Analyzing Colonialism as a Dynamic Social Process.” *Irish Historical Studies* 36(142):153–72.

Smith, David Norman. 2002. "Accumulation and the Clash of Culture's: Marx's Ethnology in Context." *Rethinking Marxism: A Journal of Economics, Culture and Society* 14(4):73-83.

Snively, Gloria, and John Corsiglia. 2001. “Discovering Indigenous Science: Implications for Science Education.” *Science Education* 85(1):6–34.

Soffe, Richard J., ed. 2003. *The Agricultural Notebook*. 20th ed. Oxford: Blackwell Publishing Company.

Spaargaren, Gert, and Arthur P. J. Mol. 1992. “Sociology, Environment, and Modernity: Ecological Modernization as a Theory of Social Change.” *Society and Natural Resources* 5(4):323–44.

Spencer, Stephen. 2011. *Visual Research Methods in the Social Sciences: Awakening Visions*. Oxon: Routledge.

Stahl, Henri H. 1980. *Traditional Romanian Village Communities: The Transition from the Communal to the Capitalist Mode of Production in the Danube Region*. London: Cambridge University Press.

Stake, Robert E. 1995. *The Art of Case Study Research*. London: Sage Publications.

Stigter, C. J., Zheng Dawei, L. O. Z. Onyewotu, and Mei Xurong. 2005. “Using Traditional Methods and Indinenous Technologies for Coping with Climate Variability.” *Climatic Change* 70:255–71.

Strauss, Anselm, and Juliet Corbin. 1990. *Basics of Qualitative Research: Grounded Theory Procedures and Techniques*. London: Sage Publications.

Swann Jones, Steven. 1995. *The Fairy Tale: The Magic Mirror of Imagination*. London: Routledge.

Taylor, Lawrence J. 1980. “Colonialism and Community Structure in Western Ireland.” *Ethnohistory* 27(2):169–81.

Taylor, Steven J., and Robert Bogdan. 1998. *Introduction to Qualitative Research Methods: A Guidebook and Resource*. 3rd ed. New York: John Wiley and Sons Inc.

Teagasc. 2011a. *Fact Sheet: Noxious Weeds*. Ireland. Retrieved February 24, 2011 (www.teagasc.ie).

Teagasc. 2011b. *Fact Sheet: Ragwort*. Ireland. Retrieved February 24, 2011 (www.teagasc.ie).

Teddlie, C., and A. Tashakkori. 2003. "Major Issues and Controversies in the Use of Mixed Methods in the Social and Behavioral Sciences." in *Handbook of Mixed Methods in Social and Behavioral Research*. Thousand Oaks, CA: Sage.

Telo da Gama, L. 2006. "Animal Genetic Resources and Sustainable Development in the Mediteranean Region." Pp. 127–36 in *Animal Products from the Mediteranean Area, 119,* edited by Joao Manuel de Carvalho and Ramalho Ribeiro. Wageningen: Wageningen Academic Publishers.

Teoman, Ozgur, and Muammer Kaymak. 2008. "Commercial Agriculture and Economic Change in the Ottoman Empire During the Nineteenth Century: A Comparison of Raw Cotton Production in Western Anatolia and Eygpt." *The Journal of Peasant Studies* 35(2):314–34.

Third Report of the Relief Commissioners, constituted under the act 10th Vic., cap. 7. 1847.

Thompson, Stith. 1946. *The Folktale*. London: Holt, Rinehart and Winston.

Thrupp, Lori Ann. 2000. "Linking Agricultural Biodiversity and Food Security: The Valuable Role of Sustainable Agriculture." *International Affairs* 76(2):265–81.

Tindall, David B. 1995. "What is Environmental Sociology? An Inquiry into the Paradigmatic Status of Environmental Sociology." Pp. 33–60 in *Environmental Sociology: Theory and Practice*, edited by Michael D. Mehta and Éric Ouellet. Ontario: Captus Press.

Tobin, Maighread. 2014. "Literacy in Ireland 1921-1961: Lessons from the Archives." Presented at *Challenging Injustice in Ireland: Learning from the Past, Actions for the Future Conference*. UCD. October 4th 2014.

Tosh, J. 2002. *The Pursuit of History: Aims, Methods, and New Directions for the Study of Modern History*. 3rd ed. London: Longman.

Tovey, Hilary. 1992. "Development of the Field." *Irish Journal of Sociology* 2:96–121.

Tovey, Hilary. 2001. "Creating and Re-Creating Modernity: Peasantisation and De-Peasantisation in Ireland." Pp. 306–29 in *Europe's Green Ring*, edited by Leo Granberg, Imre Kovach, and Hilary Tovey. Aldershot: Ashgate.

Tovey, Hilary. 2003. "Theorising Nature and Society in Sociology: The Invisibility of Animals." *Sociologia Ruralis* 43(3):196–215.

Tucker, Vincent. 1989. "State and Community: A Case Study of Glencolumbcille." Pp. 283–300 in *Ireland from Below: Social Change and Local Communities*. Galway: Officina Typographica Galway University Press.

Turner, R. J., W. Bond, and G. Davies. 2004. "Dock Management: A Review of Science and Farmer Approaches." Pp. 53–56 in *Proceedings of the BGS/AAB/COR Conference*. Newport, Shropshire, UK: Springer.

Urquhart, Cathy. 2013. *Grounded Theory for Qualitative Research: A Practical Guide*. London: Sage Publications Ltd.

Vagstad, Nils, Hans Olav Eggestad, and Tyra R. Høyås. 1997. "Mineral Nitrogen in Agricultural Soils and Nitrogen Losses: Relation to Soil Properties, Weather Conditions, and Farm Practices." *Ambio* 26(5):266–72.

Vaillancourt, Jean-Guy. 1995. "Sociology of the Environment: From Human Ecology to Ecosociology." Pp. 3–32 in *Environmental Sociology: Theory and Practice*, edited by Michael D. Mehta and Eric Ouellet. Ontario: Captus Press.

Van Rensburg, Tom M., Eithne Murphy, and Paul Rocks. 2009. "Commonage Land and Farmer Uptake of the Rural Environment Protection Scheme in Ireland." *Land Use Policy* 26:345–55.

Van Straaten, Peter. 2008. “Fertilizer Raw Materials.” Pp. 241–46 in *Encyclopedia of Soil Science*, edited by Ward Chesworth. Dordrecht: Springer.

Varley, Anthony. 1983. “‘The Stem Family in Ireland’ Reconsidered.” *Comparative Studies in Society and History* 25(2):381–95.

Vincent, Barbara, ed. 2005. *Farming Meat Goats: Breeding, Production and Marketing*. Collingwood: Landlinks Press.

Walsh, James A. 1976. “Spatial-Temporal Variation in Crop Production in the Republic of Ireland.” *Irish Jounal of Agricultural Economics and Rural Sociology* 6(1):55–73.

Walsh, James F. 2008. *Quickening the Earth: Soil Minding and Mending in Ireland*. Dublin: UCD School of Biology and Environmental Science, University College Dublin.

Walton, John. 1992. “Making the Theoretical Case.” Pp. 121–38 in *What is a Case? Exploring the Foundations of Social Inquiry*. Cambridge: Cambridge University Press.

Weatherhead, E., S. Gearhead, and R. G. Barry. 2020. “Changes in Weather Persistence: Insight from Inuit Knowledge.” *Global Environmental Change* 20:523–28.

Weigert, Andrew J. 1997. *Self, Interaction, and Natural Environment: Refocusing Our Eyesight*. Albany: State University of New York.

Whelan, Kevin. 2012. “Clachans: Landscape and Life in Ireland Before and After the Famine.” Pp. 453–76 in *At the Anvil: Essays in Honour of William J. Smyth*, edited by Patrick J. Duffy, William Nolan, David J. Butler, and Patrick Nugent. Dublin: Geography Publications.

Willoughby, Ian. 1996. "Noxious Weeds." *Forestry Commission Research Information Note 274*. Edinburgh: Forestry Commission.

Wilson, Thomas M. 1984. “From Clare to the Common Market: Perspectives in Irish Ethnography.” *Anthropological Quarterly* 57(1):1–15.

Wittman, Hannah. 2009. “Reworking the Metabolic Rift: La Via Campesina, Agrarian Citizenship, and Food Sovereignty.” *Journal of Peasant Studies* 36(4):805–26.

Wolf, Steven A., and Frederick H. Buttel. 1996. “The Political Economy of Precision Farming.” *American Journal of Agricultural Economics* 78(5):1269–74.

Wyse, Donald L. 1994. “New Technologies and Approaches for Weed Management in Sustainable Agriculture Systems.” *Weed Technology* 8(2):403–7.

Yager, Tom. 2002. “What Was Rundale and Where Did It Come From?” *Béaloideas* 70:153–86.

Yarwood, Richard, and Nick Evans. 1998. “New Places for ‘Old Spots’: The Changing Geographies of Domestic Livestock Animals.” *Society and Animals* 6(2):137–65.

Yarwood, Richard, Nick Evans, and Julie Higginbottom. 1997. “The Contemporary Geography of Indigenous Irish Livestock.” *Irish Geography* 30(1):17–30.

York, Richard, and Riley E. Dunlap. 2012. "Environmental Sociology." Pp. 504–21 in *The Wiley-Blackwell Companion to Sociology*, edited by George Ritzer. West Sussex: John Wiley & Sons.

Zemke-White, W. Lindsey, and Massao Ohno. 1999. “World Seaweed Utilisation: An End-of-Century Summary.” *Journal of Applied Psychology* 11:369–76.

Appendix I:

Issues of Access to Data

Interviews

As I was not known to the research participants, just as they were they known to me, when the decision to use interviewing was made, what was important at the start of the interviewing process was that I have access to someone connected with the community being studied who could facilitate my entry into that community. People who can provide this facility to researchers are known as gatekeepers (Schutt 2004:288). I was lucky enough to have such a gatekeeper available to me in the form of my host whom I stayed with while conducting research in the area.

In his role in introducing me to community members he opened up a world to me that otherwise would have been closed. I would have been restricted from entry into that world on a number of fronts had he not helped me to overcome each obstacle to entry as it emerged. Specifically, what was involved in this study was travelling a long distance from my base to a remote community in North-West Mayo and seeking to talk to the most elderly locals there about life as it existed in the area years before. And, while I had foreseen that I would need help in accessing this community because of the fact that I was alien to it what I had not foreseen was that language could pose a problem to this access (because I wanted to interview people from my own country), nor, did I initially understand the need for emphasising (and having a local confirm) that I had family ties to the area, as this made a huge difference to my being able to access the interview population who have participated in this study.

The interviewing process required that I call to the homes of prospective research participants, so that even on that front my host was vital to the research process because he not I knew the geography of the area and where different people lived, and he accompanied me each time that I called to a prospective research participant's home for the first time. But also, beyond accompanying me to their homes so that I could locate

them what also happened every single time I entered one of the research participant's homes to be first introduced to them was that each time myself and my host arrived at one of these homes we were greeted in Irish with the research participants looking inquisitively at me. The next thing that happened on each occasion was that my host would speak to them in Irish for a short while explaining to them that I was staying with him and that I had a family connection to the area. At this point they usually asked 'Bearla nó Gaeilge? meaning should they speak to me in Irish or English, to which my host would reply 'Bearla'/ English.

From this point on, they would engage with me through English asking about different family members and how they all were and what they had been doing lately. Some even hugged me once it had been established that I was related to a certain person. Tea was usually put on at this point and some form of food offered. I realised very quickly that establishing a connection with the area, sharing news, and partaking in the consumption of food and drink offered was all part of a ritual that contributed to their willingness to participate in my research. But, had my host not first introduced me to them and established that he was trying to help me with my research by allowing me to stay in his home, and had he not established for me that I had family connections to the area, and had he not broken down the language barrier for me I cannot imagine that many (if any) of the research participants would have been willing to respond to my request for an interview. Yet, with his help every person that was approached, bar one exception, agreed to participate and even the one exception who did not want to participate still welcomed me into her home and offered me food, tea, and conversation there.

Folklore Notebook Manuscripts

Language once again became an issue in relation to accessing material through the folklore manuscripts collected by the National Folklore Archive. One of the problems with using the folklore manuscripts was finding manuscripts that were written in English because the area involved in this research is a gaeltacht area[280] and at the time when the folklore manuscripts were being collected many of the folklore collectors in the area were writing their notes in Irish. This meant that these notes were automatically closed off to me because while I can speak some Irish I would not be proficient enough

[280] Gaeltacht areas are Irish speaking areas

to translate the amount of detail they contained. As such, I could only use those manuscript notes which were in English.

However, I was lucky that as it worked out one of the most prolific collectors for the National Folklore Department as a whole was a native of the area I wanted to investigate - Michael Corduff - and he had contributed volumes of folklore on the area to the department in English. However, while gatekeepers per se, were not such an issue in accessing this material I did require help in understanding how to actually access material as it was stored. This help came in the form of staff working in the National Folklore Department UCD and also in the form of librarians working within my university library.

In order to locate the manuscript notebooks for individual collectors I first had to consult the index card reels - of which there were 39 - to identify on which of the 604 microfilm reels that comprised the collection I would find the information I wanted. Using the index reels it was possible to search the collection by subject, collector name, narrator, or geographic area. As I wanted information provided by the collector Michael Corduff I consulted the index of collectors (reel 35) so that I would know where to locate his notebooks within the collection. Different reels had different Iml. numbers. The index reel provided the information about which reels contained which Iml. numbers. Once the Iml. number[281] was located on the reel the next step was to locate the relevant page numbers. The index reel had also provided information on which page numbers to consult once a specific reel and Iml. there in had been located. I identified which Iml. numbers were relevant to the area and which pages within each Iml. were relevant to the research topic. Also, as I consulted the reels I also found some information (in English) from another collector who also worked in the area Seán Burke (c.1930s-50s). Thus, I also noted which Iml.s had been contributed by him.

[281] The reference Iml. is to the collector's notebook (Imleabhar)

Photographs

In terms of collecting primary photographic data, this involved having to travel to the location in question. Once there, it required much walking around the area as some areas photographed were not accessible by car. Again, while gatekeeping per se was not involved in accessing this source of data it was necessary for me to be shown where some of the things that I photographed existed within the area. For instance, I would never by myself have known where to locate the lime kiln that I photographed (see *Plate 21*), but only knew of its location through research participants who directed me to its location. Essentially, what this meant was that in this case while a gatekeeper was not necessary in the traditional sense of being required to introduce to me to people, that, the research participants actually ended up performing the role of gatekeeper to their landscape in introducing me to locations within their landscape and decoding that landscape for me.

As to the secondary photographic data[282] available in the form of archival photographs collected through The National Folklore Photograph Collection, and through Comhar Dún Chaocháin Teo there was a more clearly defined gatekeeping element involved in accessing these sources. Specifically, the Comhar Dún Chaocháin Teo sourced photographs were provided to me by representatives of Comhar Dún Chaocháin Teo. And, these photographs would not have been accessible to me had those people not provided them to me as a gift to help me with my research, in the form of a CD containing those photographs.

As for collecting archival photographs through the National Folklore Collection[283], what was involved was visiting the National Folklore Department UCD to consult the photographic collection held there, but also, some of the photographs were available online through the U.C.D. Digital library (IVRLA) Folklore Photograph Collection. Where photographs were sourced directly from the National Folklore Department UCD

[282] 'Historical … research often relies on secondary data' (Schutt 2004:349) 'Secondary data … are data that the researcher did not collect him - or herself to answer the research question of interest' (Schutt 2004:348)

[283] Note: Some of the National Folklore Collection photographs used within this research were also sourced through Comhar Dún Chaocháin Teo, but where this occurred they are referenced as having being sourced from the National Folklore Photograph Collection, as per the request of representatives of Comhar Dún Chaocháin Teo

there was a gatekeeping element to their collection because prior to even being admitted to the department to view the photographs stored there consent for entry to the department to consult the photograph collection held there had to be gained through a written access permission request. Additionally, once allowed to view the photographs there a fee was required to have those photographs made available as a source of data, because once relevant photographs were chosen for analysis these photographs were made available to the researcher through electronic files, but only after they had been purchased.

However, where photographs were sourced through the U.C.D. Digital library (IVRLA) Folklore Photograph Collection no such payment was required. Nor, was any payment required for any of the National Folklore Photograph Collection photographs sourced through Comhar Dún Chaocháin Teo. In having access to archival photographs either through Comhar Dún Chaocháin Teo, or, the U.C.D. Digital library (IVRLA) Folklore Photograph Collection it was possible (because no cost was involved) to access and use as data many more archival photographs than would have been possible if the only archival photographs available to me had been through the National Folklore Department. However, there were issues of copyright to consider (as discussed in the Methodology Chapter).

Maps

As for the maps used within this research, no issues of access surrounded the satellite map showing the extent of marginal land in the area and the level of private property there (*Map 1*) as it was readily available through *Google Maps*. However, there were copyright issues to consider (as discussed in the Methodology Chapter).

Likewise, there were no issues of access around the collection of local place name maps used as data here because these maps were available through a published book (see Mac Graith and Ní Ghearraigh 2004). However, again there were issues of copyright to consider (as discussed in the Methodology Chapter).

Census Data

As for the census sample, there were also no issues of gatekeeping there because census data is publicly available. Also, something that facilitated this research was that the census data was available online. I obtained the data from the census bureau online through *www.census.nationalarchives.ie*. The procedure involved in accessing the census sample used within this research was as follows: I looked up the census data for 1901 and 1911 for the townlands of interest to this research. I found the information for each townland by choosing the 'browse census' option in the home page, then selecting the year of interest, then selecting Mayo as the county of interest, then in order to bring up the information of Rossport/Rosdoagh, I selected Muingnabo as the relevant district electoral division (D.E.D.) and then chose Rosdoagh from the list of townlands that this brought up. In order to bring up the townlands of Stonefield, Carrowteige, Portacloy, Kilgalligan, and Curraunboy, I selected Knockadaff as the D.E.D. and then one by one selected Carrownaglogh/Stonefield, Carrowteige, Portacloy, Kilgalligan, and Currannboy (this is how Curraunboy is listed in the census). What appeared at this stage was a list of all of the houses in each townland indexed by house number and surnames in house. In order to see the information for each household I clicked 'view occupants' and then when the page opened I ticked the box 'show all information'. At this point I was able to see what occupations were listed in the data and the degree to which the head of households classified themselves as farmers or as having other occupations. I was also able to see what level of literacy existed within the society and information about population levels there.

Griffith Valuation

Similarly, no issues of access surrounded the Griffith Valuation sample (beyond requiring access to my university library where a copy of the Griffith Valuation is held on microfiche there).

Newspapers

Similarly, no issues of access surrounded the newspaper sample beyond the requirement of having library access. Copies of The Ballina Herald were available through Mayo County Library where they were held in digitised form making it possible to copy

relevant sections of the newspapers onto a USB stick so that they could be brought away for analysis at a later stage. A selection of dates, between1930-1959 were randomly chosen to provide a sample of The Ballina Herald Newspaper. The end sample contained hundreds of pages.

As for the newspapers sourced through the National Library which was the source for the other newspapers used here they were also held there in digitised form. They were searched using key word terms to make the process more efficient.

Appendix II:

Ethical Issues

For research involving human subjects, NUI Maynooth, Ethics Committee, advises that 'researchers must consider the ethical implications and, where applicable, psychological consequences for the participants in their research' (NUI Maynooth 2011:16). In order to fulfil the ethical requirements of social science research what is involved is that, (1) research should cause no harm to participants (2) participation should be voluntary and involve informed consent (3) researchers should fully disclose their identity to participants (4) anonymity and/or confidentiality must be maintained for research participants if it is promised to them (5) and, the benefits of carrying out the research must exceed foreseeable risks (Schutt 2004:54). Each of these requirements was adhered to within this research.

I provided the research participants with an information sheet about my research and asked them to fill out consent forms to indicate that they had agreed to participation in this study. Both the information sheet and consent forms given to participants had been approved by the Ethics Committee N.U.I.M. prior to my starting the interview process. Consent was acquired from participants for repeated interviews if they were needed, for the recording of the interviews, and for the data gathered to be used by myself in this research and follow up publications and contexts. The participants were assured that the data would be safeguarded and anonymised so as to protect their identities. They were also made aware that they could access the data at the discretion of the researcher, that they could withdraw from the study at any time and could withdraw their data up until the work is published, and that they could contact my supervisor or the university to inquire further about the research if they so wished to, or, if they felt that the information or guidelines that they were given had been neglected or disregarded, or if they were unhappy about the process involved that they could contact the Secretary of the National University of Ireland Maynooth Ethics Committee. Contact details were provided for myself, my supervisor, and the secretary of the ethics committee.

Also, in addition to the fulfilling the above mentioned requirements this research also fulfilled another ethical consideration in relation to the photographs and maps used within the research: As the archival photographs were available through collections it was necessary to seek permission for their use[284]. Likewise I required permission to use the satellite map (*Map 1*) and local place name maps (*Map 2, 3, 4, 5, 6, & 7*). I secured permission to use each of these data sources (see Methodology Chapter for more detail).

[284] 'Analysis of historical documents or quantitative data collected by others does not create the potential for harm to human subjects that can be a concern when collecting primary data. [However, it] … is still important to be honest and responsible in working out arrangements for data access [and use] when data must be obtained from designated officials or data archives' (Schutt 2004:360-1)

Appendix III:

Interviewee Data

Name	Sex	Approx. Age Range			Key Personal Memory Snippets of Interviewees (c. 1930s-50s)
		75-79	80-85	86-90	
Anthony	Male	√			Anthony remembers his father milling rye with a stone mill
Eileen	Female	√			Eileen remembers many of the cures that people had
Fintan	Male	√			Fintan remembers that there was a lot of seasonal migration
Francis	Male	√			Francis remembers two big barrels of salted fish that used to sit at the gable of his house and how he used to eat so much fish at that time
Hannah	Female	√			Hannah remembers how she constantly thought about the fairies and was terrified of them
Martin	Male	√			Martin remembers when there was no fences on the land only mearings
Jean	Female	√			Jean remembers all of the donkeys that used to be in the area and how they helped with the work
Sarah	Female	√			Sarah remembers longing for the new potato harvest because she disliked having to eat yellow meal when potatoes were in short supply
Seamus	Male	√			Seamus remembers fishing on the sea in a curragh and how he and the rest of the crew would carry the curragh to and from the water
Seán	Male	√			Seán remembers that as a teenager he used to work in England for a few months of the year
Jack	Male		√		Jack remembers that times were hard and that even if you were injured or sick you still had to work
Peadar	Male		√		Peadar remembers how people used to make the sign of the cross on a cow who had calved before she could be milked
James	Male		√		James remembers how his mother used to churn butter and how he used to drink the butter milk that was produced
John	Male			√	John remembers people bringing eggs to the shop and getting goods in return
Margaret	Female			√	Margaret remembers earning money knitting for the local factory when she was young