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## **Vital Geographies**

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### **Abstract**

Vital Geographies comprise the geographical study of the causes and consequences of longevity and health. Vital geographies are re-drawn by major transformations in the relations between people and space, such as are at the heart of the urbanization, proletarianization, colonialism, and the foundational transition to agriculture. These transformations currently interact under the structuring framework of capitalist relations of production. In this way vital geographies combine the perspectives of Political Economy and of Political Ecology, giving us a way to address some of the dilemmas of the current changes in global environmental systems. Vital geographies shift our attention as human geographers away from issues of wealth and towards matters of health and longevity. In doing so, we emplace our economic and social geographies within the web of life and bring the central concerns of biogeography into human geography, and vice versa.

### **Keywords**

Anthropocene

Capitalocene

Colonialism

Demography

Extinction

Health

Historical Geography

Political Ecology

Political Economy

Proletarianization

Urbanisation

## Biographical Sketch

Gerry Kearns is Professor of Human Geography at Maynooth University and a member of the Royal Irish Academy. He is the author of *Geopolitics and Empire: The Legacy of Halford Mackinder* (Oxford University Press, 2009) and co-editor of *Spatial Justice and the Irish Crisis* (Royal Irish Academy, 2014). His research is at the intersection of Historical, Political and Medical Geographies.

## Glossary

**Anthropocene.** A geologic epoch in which the main controls on changes in earth surface processes, the distribution of plant and animal species, and atmospheric warming are the result of human activities.

**Capitalocene.** An alternative name for the new geologic epoch emphasising the expanded reproduction of the capitalist economy as the primary driver of unrestrained transformation of global environments.

**Colonialism.** The control of an economy by the agents of another state.

**Demography.** The study of population systems.

**Extinction.** The elimination of a species from our planet.

**Health.** A state of physical well-being.

**Historical Geography.** The study of past geographies.

**Political Ecology.** The study of the transformation of environmental systems through property-based economic systems.

**Political Economy.** The study of the transformation of economic systems through changing property relations.

**Proletarianization.** The decline of subsistence systems and the reduction of workers to wage-labour status.

**Urbanization.** The increasing share of the population living in towns and cities.

How best might we measure human flourishing? This is clearly a multi-dimensional task and yet all-too-often commentary begins and ends with some version of an economic indicator deflated by the size of the population, GDP per capita is a favorite. And yet disposable wealth is surely but a means to an end, or to many ends. To claim more might even be seen as itself evidence of bourgeois hegemony, a world in which nothing is valued that is not commodified. In many respects, money may even get in the way of the good life. We are told it can't buy us love, we are warned it makes it difficult to find salvation, harder even than for the camel to enter the city through the narrowest of gates, the Eye of a Needle. What if, instead of measuring the means by which we seek fulfilment, we could instead measure the good life as an end in itself? This prospect incites some human geographers to take up questions of longevity and health. Many elements of human flourishing are correlated with a long life, just as many harms and toxins draw life to an earlier end. The association is somewhat imprecise as there are people who find joyous realization in risk, and some pay the ultimate cost. Yet, a focus on health and longevity is a good base-line for the study of the flourishing of human communities. Such is the point of departure for a study of vital geographies. If we adopt this perspective, then, we can develop

distinctive set of perspectives on a wide range of the central themes in human geography, including urbanization, proletarianization, colonialism, and the Anthropocene.

## **Human Evolution and the Urban Penalty**

For much of human history it was unusual for folk to live beyond the age of thirty. From the Upper-Paleolithic (50,000–10,000 BP), humans begin to show a markedly higher share of older individuals in the adult population than earlier hominids had done. At about this time we find early evidence of fishing, cave-painting, clustered settlement, and then later still of agriculture. These cultural innovations may be associated with slightly more stable living arrangements, including at least extended periods each year in one location. With grandparents around, it is likely that knowledge accumulated and was passed to the next generation; quite simply, you can teach an adult far more than you could teach a child. We might also imagine that longevity may have provoked cultural development not only as science, but also as both symptom and cause of the freer time that engenders creativity of all kinds.

Agriculture has complex but progressive consequences for human longevity. Improving diets will release physical energy and bringing people closer together in settlements can foster communication and innovation. But close living has its own risks. It aids infection between people, both in the faecal–oral route of many diarrhoeal diseases and the aerosol and contact of many respiratory conditions. Living adjacent to domesticated animals also has its dangers. Many animal diseases may mutate into forms that find a welcome host among people. The other side of this coin is that at least some of these diseases confer immunity and are more easily survivable when met as a child; in which case, by living together people may be exposed as children to non-fatal conditions and acquire immunity against these same conditions that pose mortal threat to adults.

These geographical bases of community life and their relations with longevity are profound and they have a particular relation with human migration, which can of course mix together people with very different disease backgrounds. The most dramatic example has been called the Columbian Exchange by Alfred Crosby. When Europeans moved to the Americas in the 16th- and subsequent Centuries, they brought their own microbes with them. The Americas did not have the same domesticated animals as Europe, Asia, and Africa. There was no developed immunity to diseases such as smallpox or influenza. The overwhelming mortality that followed contact was not succeeded by gradual recovery, because Europeans took advantage of the catastrophe, claiming the land for themselves, and removing the survivors to the margins. This demographic history brings together the focus upon “land and life” that was characteristic of Carl Sauer’s early work on agricultural origins and dispersals, with the perspectives on colonialism developed by Sauer in his later work on the European conquest of the Caribbean.

Industry, similarly, has complex but potentially progressive consequences for longevity and human flourishing. The labor productivity of agriculture was a major constraint on urbanization, establishing a limit to the ratio between food-growers and food-consumers. In the 17<sup>th</sup> and 18<sup>th</sup> Centuries, new ways of growing food released agricultural labor for cities and industry. Wrigley has shown how this release broke through the Malthusian constraints of traditional, agrarian society; population could now grow without straining the food supply. The urban share of the population grew, but for the poor, the conditions in the larger of the early industrial towns were often appalling. The accumulation of people outpaced the provision of sanitary services, such as

sewerage and water. There was a demographic urban penalty to be paid by the urban proletariat. This penalty was not really taken off until the 20<sup>th</sup> Century, and only then would the urban poor be able to share in the health benefits of better diet and, from mid-century, scientific medicine such as antibiotics and vaccination.

This progress is evident in the historical development of human heights. We can consider height as a measure of the energy left for growth after the body has met more immediate challenges of hunger and disease. Height increase is one of the elements of human health that is preserved with the bones of the dead, and cemetery studies have produced an important historical geography of human health. Although we might imagine that heights have increased over time such is not the case. Medieval Europeans were probably taller than their descendants during the early modern period and medieval heights were only regained by the Europeans of the early 20<sup>th</sup> Century. In those societies where rapid urbanization occurred before what we might call the sanitary revolution, in other words among the earliest industrializers, the drain on vitality of urban ill-health shows up as a systematic decline in proletarian heights from the mid-18th through until the late-19<sup>th</sup> Century.

With an urban society, the life chances of the poor and the rich are to some extent interdependent insofar as some public health measures must be comprehensive to take effect. No individual could contemplate the expense of building their own water supply, sewerage system, or hospital. Likewise, no individual can make themselves secure against the disease environment in which they are embedded. There is something essentially collective about the bases of good health, including both herd immunity and shared infrastructure.

Herd immunity is an important epidemiological phenomenon whereby if the number of people at risk of infection from any given contagious disease can be reduced to a sufficiently low level there is unlikely to be enough people available to sustain an epidemic and thus even those at risk of infection share in the benefit. This is why vaccination is so important. The level of coverage that is needed for this collective benefit varies with the disease. It may be as high as 95% for measles, although a good deal lower for other diseases. In many cases there is a clear geography to the take-up of vaccination. In the United States, the take-up of the vaccine that protects against the human papillomavirus (HPV) is relatively low. HPV is a necessary cause of cervical cancer. From data relating to the U.S. in 2008–2010, it is estimated that only 17.0% of women aged 18–26 had taken up the program of vaccination to completion. For the Northeast, the figure was 23.1%, for the Midwest it was 19.3%, and for the South 6.6%. Contemporaneously, the take up to completion among young women in the United Kingdom was estimated at above 80%. With vaccination, measles is preventable yet in 2017 there were some 110,000 cases worldwide, an increase of 30% over 2016 and attributable entirely to emerging gaps in vaccination coverage.

Urban living creates scale economies in the provision of many services, particularly water provision and sewage removal. For this reason the differences between rich and poor are somewhat attenuated in cities. The United Nations' *World Mortality Report 2015* concluded that “the availability of services for the large majority of households in urban areas reduces the magnitude of the impact of household wealth.” But in many cities there are significant differences in quality and access between neighbourhoods. For example, in many Indian cities, piped water is supplied, but intermittently. Contamination in non-pressurized pipes is possible, as is contamination of water stored in the house between periods of supply. One study of the twin cities of Hubli-Dharwad compared diarrhoeal diseases in areas with a new and improved

continuous water supply with levels in areas still served only by an intermittent supply. The area with improvements showed lower levels of typhoid and, for low-income households, lower levels of bloody diarrhoea among children. Among the Millennium Development Goals promulgated by the United Nations in 2000, Target 7c promised to reduce by half the share of the population without sustainable access to basic sanitation between 1990 and 2015. In 2015 the United Nations set out its Sustainable Development Goals including as 6.2 a commitment to achieve by 2030 access to adequate and equitable sanitation and hygiene for all. Yet the number of people without a connection to a piped sewerage system is rising not falling as people continue migrating to the poor districts of cities in developing countries. In 2018 the World Health Organization estimated that there remained 2.5 billion without access to improved sanitation facilities, and 1 billion still resorting to what the WHO terms “open defecation.”

### **Social Reproduction of Proletarian Labor**

Some of the most profound reshaping of life-chances are created as part of proletarianization. The separation of the direct producers from the land created a pool of labor that was available for employment on farms or in factories. This separation is sometimes called primitive accumulation because it establishes the preconditions for capitalist accumulation, that is, the private ownership of the means of production on one side and on the other a group of workers who have no means of subsistence other than to seek employment as wage labor. In many cases this entailed breaking the resistance of communal forms of land management. It very often included reductions in the cost of the reproduction of labor power, minimizing the subsistence claims of the workers.

The breaking of collective control over land is often referred to as enclosure, and there are important geographies created through enclosure, as new landscapes of nucleated farms replaced the villages and communal spaces of yore. Enclosure ended local food sovereignty, installing a new regime of food insecurity. For example, in the fenlands of East Anglia (United Kingdom), during the early 17<sup>th</sup> Century a cabal of rich landowners, styling themselves “gentleman adventurers,” secured from the king the right to drain the fenlands so that the peat soils might be turned into farms under their various and individual ownership. This project of draining the fens was one of the great landscape projects of English history and was celebrated as such in H.C. Darby’s cross-sectional works of historical geography. Yet it was a fierce battle to dissolve the communal rights of the poor and to gift the lands to the wealthy individuals with influence at the court of the king. The common pasture, rabbit-trapping, and fishing of the un-drained fens supported a dispersed economy of small-scale farming and thousands of people lost their livelihoods when the men of capital put down pipes, pumps, and water-courses to make their large farms. As Lindley shows, the people of the fens responded with riots and, capitalizing upon the political cleavages of the English Civil War (1642–51), they largely succeeded in halting this early project of fenland drainage. The fen communities were only defeated when the drainage project was taken up again in the second half of the 18<sup>th</sup> Century.

This was a conflict between the profits of a few and the livelihoods of the many. Profit and improvement were axiomatically linked. An early 17<sup>th</sup>-Century work promoting the drainage, *A Discourse Concerning the Drayning of the Fennes* (London, 1629), asserted that the project was essential because it would be “honorable and profitable to the King, and Common-wealth in generall, and to those Countreys in particular” and such had been “the counsel and care of the state in everie age since this Kingdome began to be improved.” Improvement entailed proletarianization. But,

having bemoaned the barren fens, the writer went on to note that rebels had always besought the fens “upon the natural strength of the place and abundance of provision there.” As Lindley reports, another pamphleteer attacked the folk of the fens as “very poor, lazy, given much to fishing and idleness.” If people fed themselves by fishing, trapping, grazing a few animals on the commons, and tending a garden plot by their house, then, they could not be reduced to continual labor by the pinch of necessity. For capitalist production to flourish, the commons had to go, and livings made precarious. Reordering landscapes restructured how people met their needs.

Proletarian labor feeds its families through wage labor. It is a family-based system. The proletarianization of Europe in the period 1500–1800 was a radical revision of family life. Women were increasingly consigned to the domestic labor of home-making and child-rearing, even if on top of that they had also to do other paid work at home as part of the proto-industrial or putting-out system. Two developments aided this reform of family life. In the first place, the golden age of labor that followed the population collapse of the Black Death (1347–51) waned as the steady growth in population eroded the advantage conferred by labor scarcity. Second, the cultural resistance of local communities to the new improving ideology was seriously undercut by church- and state-sponsored misogyny. Women’s control over fertility and reproduction was demeaned and wise women isolated as heretical witches.

Silvia Federici notes that as men lost their independence along with their access to the commons, they were promised a new lordship over their wives. Metropolitan medicine, science and political economy displaced domestic female and familial wisdom. The labor of raising children, and of repairing and feeding male breadwinners, fell to unpaid and submissive women. An epidemic of witch-trials and burnings brought the new regime into villages across Europe, particularly in those areas most improved. There was, then, a geography to this misogyny and femicide, and in places where communal solidarity remained strong it proved more difficult to incite men to put women on trial for their lives as witches. The last third of the 16th and first third of the 17<sup>th</sup> Century saw tens of thousands of European women tortured, hanged, or burned alive and there was a brief flurry of trials and executions in New England in the last decade of the 17<sup>th</sup> Century. In place after place the independence of women was broken, preparing the way for the proletarian family in which domestic duties were the first call upon women’s time, and a public sphere in which wisdom about bodies and reproduction was a monopoly of professional men.

This diminished status for women has been enshrined in some constitutions, as with Article 41.2.1 of the Irish Constitution, which asserts that “the State recognises that by her life within the home, woman gives to the State a support without which the common good cannot be achieved.” Women’s loss of bodily autonomy to medical professions likewise has its legacy in the abortion laws of very many places where a medical opinion is necessary before women can legally access services. In Germany, for example, women in the first trimester of pregnancy can have an abortion but only if two medical practitioners approve, if they have undergone mandatory counselling at a state-approved facility, and if they have submitted to a three-day waiting period. There are variations between countries and there is evident geographical variation to this medical control over women’s bodies. Nevertheless in very many cases the social reproduction of labor remains within limits laid down by early modern misogyny and very many women face the blunt injunction described by Bertolt Brecht in “The Ballade of Paragraph 218”:

“You’ll make a simply splendid little mummy | Producing cannon-fodder from your tummy | That’s what your body’s for, and you know it, | what’s more | And it’s laid down by law.”

## **The Health Divide and Colonialism**

The geographical distinction between urban and rural settings profoundly affected what McKeown called the modern rise of population. Yet within each of these, there were significant class-based differences. There was a clear biology of class which intersected with the geopolitical economy of industrialization. The transformation of the countryside into a place of high labor productivity included also the expulsion from many districts of a subsistence peasantry. For the land to produce food for cities, it could not also be growing food for resident smallholders. In place after place, the consolidation of holdings was likewise the ejection of farming folk. This was nowhere more clear than in Ireland where, as Nally shows, the colonial management of the failure of the potato crop in the period 1845–52 promoted the clearing of the poorest people off the land and the aggregation of small-holding arable plots into larger pastures. This clearance made the Irish poor refugees in their own country. The British set no place for them at the societal table, and they starved. In their thousands, and all over rural Ireland, and then crowding the Irish towns, and then piling into British cities, or sweating through a cramped crossing to north America, and then perhaps washed up in the ethnic ghettos of a new continent, the Irish died. Colonialism exacted an appalling mortality price from the Irish.

But it was not only in Ireland. The primitive accumulation of capitalist colonialism was founded upon dispossession. Subsistence economies, in which people grow food for themselves to eat, while trading a surplus for things not made by themselves, resist colonial exploitation, indeed, as James Scott shows, resist incorporation into states altogether. Neither adequate labour nor sufficient tradable goods are released. The first act, the so-called original or primitive accumulation, of colonialism, as with capitalism, is dispossession, the separation of the direct producers from the land. Communalism is broken, food sovereignty ended and food insecurity inaugurated. The second act is cash-based taxation. Even producers retaining some control over their land must now engage with the market, producing, as Michael Watts has shown, the cash crops that earn the money to pay the taxes to support their own colonial subjugation. This cycle intensifies food insecurity. When taxes rise, or the price paid for cash crops falls, or the cost of food rises, then, for these farmers the share of their work that supports family consumption will fall. In this way, a food shortage can become a famine crisis, as colonial powers recoup as taxes upon diminishing farm resources the spike in the costs of feeding their own armies. Perhaps nineteen million people died during the British-administered Indian famine of 1896-1902. These colonial famines, that Mike Davis has described as late-Victorian holocausts, leave the colonised countryside bereft of capital and its starving inhabitants with no choice but the path of proletarian labor, very likely in capitalist-colonial factories or on plantations. This mortality divide, then, has been credited by Davis with the creation of the pre-conditions for the global divide that is popularly known as the emergence of the Third World.

The immiseration of colonial labor opened and then deepened a global health divide. The world’s poor became hungrier. Their children grew less tall than had their parents. With time, the colonial masters could literally look down upon their colonial subjects.

There is likewise a health divide within the rich countries. For the UK in 2002–15, Paolo Zaninotto and colleagues found that for healthy men aged 50, those in the bottom third of the

incomes could expect to live free of disability for a further 23.3 years, whereas their neighbours in the top third of incomes could expect 30.9 years; for women the figures were 25.1 and 33.4 respectively. Writing of modern British society Danny Dorling has described the scandalous deepening of health inequalities over the past three decades. It is also clear that within the world's richer countries, extreme income inequality reduces the life expectancy both of rich and of poor, as explained by Kate Pickett and Richard Wilkinson in *The Spirit Level*. Equality is security and there is a mortality penalty to be paid when, as with the United States over the past four decades, the rich get much richer and the poor get poorer. The share of national income retained by the top 1% of U.S. tax units (single adults or married couples) reached historic highs of over 20% in the late 1920s. It fell thereafter, stabilizing at about 10% in period 1955 to 1985, before then rising and breaking 20% once again for the period 2005–2015. In the 1960s and 1970s the U.S. had a level of infant mortality (20.2 per 1,000 live births) that was about the same as 19 other wealthy OECD countries (20.0). There have been improvements since then and the US level came down to 9.4 for the 1980s and 90s and to 6.5 in the present century (2000-2015), but the other 19 fell to 7.3 and then to 3.9 over the same periods. The U.S. is falling behind other rich countries as a direct result of the new levels of poverty and inequality therein. The health divide responds to broader economic geographies.

In sum, there is a broad global divide between the richer and poorer countries. Across the poorer countries, longevity and health are strongly influenced by average income. But above a certain point the longevity return to wealth is swamped by an independent effect of inequality so that the more equal rich countries have better health than do the least equal. It may be that with time, the accumulating effects of serious inequality within some rich countries will depress their average health so severely as to undo the benefits of infrastructure and services that have characterized richer countries to date.

### **Vital Geographies of the Anthropocene**

This entry began by looking at the effects of agriculture on the patterns of human habitation and its health-related sequelae; however, we might pause and ask ourselves about the vital geographies of other animals. There are several ways that agriculture produces new vital geographies for the other animals. First, it is clear that in working with fire to produce clearances that sprout with young grass for ungulates to eat, people have established novel circumstances in which these animals can expand their numbers, even if they are also culled through hunting. The most dramatic of these new biomes was perhaps the North American prairie. At one point fire was used in the management of some 400,000 square miles of tall grass prairie in North America and they were grazed by some sixty million bison. The Indigenous people who followed the herds were an obstacle to European colonization and destroying the bison was one of the tactics used against Indigenous peoples. By the last decade of the 19<sup>th</sup> Century, the slaughter may have reduced the bison population by 99.999 per cent.

Thereafter, much of the Great Plains was broken into by ploughing, which produced new vital geographies because the new, large, monocultural fields of grain removed the habitats of many species of rodent, bird, and insect, as part of a more general extension of intensive agriculture into lands that were formerly exploited for only a fraction of the biomass they created each year. Plants that cannot be eaten are weeds and are eliminated with pesticides, while animals that share the food standing in fields are predators and are scared away, trapped, shot, or poisoned. Under the auspices of the United Nations the Intergovernmental Science-Policy



Platform on Biodiversity and Ecosystem Services warned in 2019 that perhaps 25% of assessed species of animals and plants faced extinction, a rate tens to hundreds of times quicker than seen over the past 10 million years. Within the food economy, the range of varieties of plant and animal are narrowing. Vitality on earth is being simplified.

The vital geographies within agriculture are even more curt. Pigs might live for between five and twenty years or more were they not butchered. But they are butchered, and at ages between six and seven months. There may be just a little shy of 800 million pigs in world agriculture, more than half of them in China. The fate of chickens is even more dramatic. Each year, some 50 billion chickens are killed within the food industry. Some six billion of these are male chicks destroyed soon after hatching as surplus to requirements within the egg-laying industry. About 40 billion chickens are killed for meat each year, and they have generally reached an age of six to seven weeks by the time their short lives are ended. They might otherwise live for six to ten years. These vital geographies are the dark side of the agricultural revolutions that feed an increasingly carnivorous human population that has doubled over the past half century.

The pace of change in the supports of life on planet earth is increasing at such a rate that, rather than talk about a new set of global environmental systems dating back to the origins of agriculture, many speak of a Great Acceleration after World War II. In some respects this dramatic alteration in the global web of life is a matter of diffusion, with fossil-fuel based economies and meat-based diets modelled on the developed North being taken up in the formerly less developed South. But the acceleration is also a product of the imperative to growth embedded in the imperatives of capitalist reproduction. It is in this respect that Jason Moore has identified the insertion of capitalism into the web of life as the fundamental basis of our modern era, which Moore terms the Capitalocene. Certainly, the vital geographies of proletarianization, colonialism and the intensifying inequality of wealthy societies under the impress of neoliberal priorities, stand testimony to the ways the political economy of capitalism reshapes the reproduction, extension, and abridgement of lives, both for humans and for other animals.

The web of life is a set of interconnections and the reduction in variety within the plant and animal species exploited in agriculture, the depletion of the population of native species in most habitats (fallen by something like 20% within the past century), and with perhaps one million distinct living species in danger of extinction, the redundancy that is central to the resilience of ecosystems is threadbare. A geographical perspective that puts lives at its core allows us to link the geographical traditions of political economy and political ecology. Capitalism has reshaped the bases of human reproduction and its environmental consequences, principally through meat-based agriculture, have imperilled the survival of many categories of living things. Our Vital Geographies are currently morbid and dangerously close to mortal.

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- 10656. Industrial City
- 10671. Marxist Geography
- 10648. Global North/Global South
- 10691. Radical Geography
- 10717. Capitalocene, The
- 10673. Neoliberalism
- 10626. Biosecurity
- 10230. Foodscapes
- 10744. Land Use Change
- 10776. Biodiversity
- 10777. Biopolitics

10785. Environmental Geopolitics  
10786. Environmental Justice  
10751. Political Ecology  
10237. Agri-Environmentalism and Rural Change  
10245. Comparative Urbanism  
10251. Demographic Transition  
10252. Demography  
10278. Livelihoods  
10284. Megacities  
10294. Mortality  
10307. Poverty  
10234. Reproductive Rights  
10342. Rural Populations  
10267. Global Urbanism  
10356. Urbanization  
10338. Population and Development  
10503. The Anthropocene  
10800. Anti-Colonialism  
10804. Colonialism  
10184. Food Regimes  
10887. Gender, Historical Geographies of  
10206. Patriarchy  
10991. Health in the Anthropocene: From the Global to the Local  
10388. Health Geography  
10438. Communicable Diseases, Globalization of  
10373. Epidemiological Transition  
10386. Globalization and Health  
10389. Health Inequalities  
10413. Planetary Health  
10031. Capitalism  
10459. Environment, Historical Geography of  
10461. Famine  
10463. Field Systems and Enclosure  
10004. Deforestation  
10014. Sustainability  
11005. Feminist Political Economy