

1.2 The definition of a surveyor

The role that a surveyor held in eighteenth-century society was as varied as the individual surveyors themselves. The *London Tradesman* published in 1747 defined a land surveyor as:

...employed in measuring Land, and laying it out in gardens and other kinds of policy about gentleman's seats. [They are] To have a good taste, their way he ought to travel to France and Italy, and to have a liberal education, but especially a thorough knowledge of Geometry and Designing. They may earn a Guinea a day when employed in laying out, and are always esteemed above a Mechanic.¹

The eminent Irish surveyor, Robert Gibson, defined surveying as:

...that art which enables us to give a plan, or just representation, of any piece or parcel of land, and to determine the content thereof, in such measure as is agreeable and customary to the country or place where the land is.²

Despite these useful definitions, the reality of land surveying was much more diverse in eighteenth-century Dublin. Surveyors often were employed as engravers,³ cartographers,⁴ compliers, engineers,⁵ publishers,⁶ auctioneers, architects, land agents, valuers⁷ and in the case of Patrick Roe of Smithfield, Dublin, a grocer.⁸ Surveyors regularly undertook work distant from traditional surveying roles such as William Edgeworth's description of his surveying duties with the Bogs Commission:

...to construct maps, to take levels, and to make soundings of borings in the bogs, under orders of my father, who was one of the engineers to the commission.⁹

Eighteenth-century Dublin's wider surveying community was not restricted to pure land surveyors – army and navy officers,¹⁰ cartographers, measurers¹¹ and mathematicians¹² all dabbled as surveyors and were often in direct competition for the same limited client base.

¹ R. Campbell, *The London tradesman* (London, 1747), pp 274-5. This represents a good example of the higher end of the profession of surveying in the eighteenth century. Such cases were rare in the Irish industry.

² Robert Gibson, *Treatise of practical surveying* (Dublin, 1763), p. 1.

³ John Rocque, *Exact survey of Dublin* (Dublin, 1756).

⁴ Herman Moll, *A set of twenty new and correct maps of Ireland* (London, 1728).

⁵ George Sempie, *A treatise on building in water* (Dublin, 1786).

⁶ Bernard Scalé, *An Hibernian atlas* (London, 1776).

⁷ Bernard Scalé, *Tables for the east valuating of estates* (Dublin, 1771).

⁸ Mary Colley, 'A list of architects, builders, surveyors, measurer and engineers extracted from Wilson's Dublin directories 1760-1837', p. 56.

⁹ *Report from select committee on survey and valuation of Ireland* p. 100, [445], H. C. 1824, viii.79.

¹⁰ George Taylor and Andrew Skinner, *Maps of the roads of Ireland* (London, 1777).

¹¹ For example, William Purefield, 28 July 1761 (DCA, WSC/Mins/1, p. 146).

¹² Thomas Harding, *Hibernian Journal*, 26 June 1786.

The line between surveyor and an alternative career name was often blurred and easily crossed. For example, the role of Surveyor General would suggest the title of the most senior figure in land surveying, but in actuality this role was more directed towards that of engineering and architecture,¹³ with the land surveying aspect often being covered by the Deputy Surveyor General. Chambers *Cyclopaedia* (Dublin, 1741) highlighted the various careers that could fall under the title of surveyor:

SURVEYOR, one that hath the oversight and care of considerable works, lands, or the like. See Supervisor.

Such are the surveyor general of the king's manors; surveyor of the king's exchange; surveyor general of the works; surveyor general of the crown lands, &c.

SURVEYOR of the melting, is an office of the mint, whose business is to see the bullion cast out; and that it be not altered after the delivery of it to the melter. See Mint, and Coinage.

SURVEYOR of the navy, is an office, whose business is to know the state of all stores, and see the wants supplied; to survey the hulls, masts and yards of ships; to audit the boatswains and carpenters accounts, &c. See Navy.

SURVEYOR is also used for a gauger. – And also for a person who measures and makes maps of lands.¹⁴

The title gauger, measurer and surveyor adorn eighteenth-century mapping. Towards the end of the eighteenth century many Irish surveyors would often refer to themselves as engineers or use the letters C.E. (Civil Engineer) after their name.¹⁵

Measurer versus surveyor

The role of measurer was another eighteenth century title that combined aspects of many careers, including land surveying. Each of these professions was based on precision measurement so referring to a surveyor as a measurer is not entirely incorrect - it demonstrates how difficult it is to assign surveying, measurer or gauger as career name.

William Hawney's *The complete measurer or the whole art of measuring* (Dublin, 1730) gives an impression of what vocations fell under the umbrella term of Measurer. Hawney's description of land surveying techniques show that surveying was not his main area of knowledge in his role as a measurer. The only surveying instrument mentioned is the surveyor's chain and approximately half a dozen

¹³ Frederick O'Dwyer 'Building empires: architecture, politics and the Board of Works, 1760-1860' in *Ir. Georgian Soc. Bull.*, v (2002), pp. 108-175.

¹⁴ E. Chambers, *Cyclopaedia*, 3 ed. (2 vols., Dublin, 1741), ii, 19.

¹⁵ Arthur Neville, as listed in Colley, 'A list of architects, builders, surveyors, measurer and engineers extracted from Wilson's Dublin directories, 1760-1837', p. 48.

examples are listed describing its use to obtain distances and areas. It is possible that Hawney was familiar with the mathematics behind land measurement or perhaps was simply quoting from the books he recommended at the beginning of *The complete measurer*.¹⁶ The limits of his land surveying section are revealed as Hawney states that his examples would be useful to country farmers rather than landed gentlemen and his examples are directed towards single field surveys rather than surveys of large estates.¹⁷ He does however go into detailed measurement techniques associated with flooring, bricklaying, masonry, weights and money which seems to indicate that Hawney was involved with the building industry rather than surveying.¹⁸

In any review of the surveying population of Dublin during the period of this study, care must be taken when the title of measurer appears. The only known measurer who worked as a land surveyor is William Purefield who was employed by the Wide Street Commissioners during the 1760s.¹⁹ However that does not mean that others who referred to themselves as measurers were not involved in surveying.

Another career title associated with surveying, if not as diverse as that of measurer, is cartographer. John Rocque for example, who surveyed Dublin in 1754, described himself as a cartographer²⁰ and was involved in the mass production of maps for public sale in addition to his surveying work. A cartographer's work focused towards the marketing and compilation of maps whereas a surveyor's role would be primarily related to measurement. However, this study will show that the two terms were used interchangeably.

Surveyor regulation and associated problems in Ireland

One major problem with the definition of a surveyor in eighteenth-century Ireland was the very serious lack of regulation within the industry. Surveying was very fluidic, with amateur surveyors cropping up time and again only to disappear as quickly as they appeared. The abundance of easily read surveying manuals allowed people to self educate themselves in surveying and they could then use these skills to

¹⁶ Ward's *Young mathematicians guide*, Dr. Harris's *Elements of geometry* and Sturmius's *Mathesis Enuclata*.

¹⁷ William Hawney, *The complete measure or the whole art of measuring* (Dublin, 1730), Appendix II.

¹⁸ *Ibid.*, p. 252.

¹⁹ 15 Mar. 1762 (DCA, WSC/Mins/1 p. 146).

²⁰ *Dublin Journal*, 14 Sept. 1754.

supplement their regular income.²¹ This lack of regulation was of serious concern for some eighteenth-century surveyors as poor work by under or completely unqualified surveyors was denting public confidence in the surveying industry. Peter Callan, a surveyor based in Drogheda, was so concerned about this lack of regulation that he wrote:

Whereas the general regularity of the affairs of landlords and tenants in this Kingdom, chiefly depends on the skill, diligence and integrity of surveyors of land, since there are no Judges, no Magistrates, or incorporated Society, who legally assume to themselves the power of administrating Justice in matters of Surveying: But every man, who is please to undertake the occupation of Land-surveying (without any regular qualification) is at free liberty to impose on the public in the most important affairs, without any regular means of redress, but the liberty of the Press, to expose to public view, the unaccountable proceedings of such Surveyors as obstinately persist in known errors, to the general prejudice of Landlords and Tenants...²²

The Irish dilemma was not an isolated one but was also found in contemporary France, England, Sweden and Germany. Braddock Mead, an English cartographer, feared that the abundance of under-skilled surveyors and cartographers was reaching crisis level. His suggested solution was some sort of centralised department to regulate works in the geographic industry:

For what could redound more to the British Fame, of improving Arts and Sciences, than the setting so noble a Project on Foot?... Geography seems to merit the National Concern, more than it has hitherto experienced.²³

In Stockholm and Nuremberg, cosmographical societies had been established to filter out cartographic work that was deemed to be of too poor quality for commercial distribution.²⁴ In the 1740s, French geographer Gilles Robert de Vaugondy argued that claimants to the title of ‘geographer’ should undergo a rigorous examination before they be allowed to publish anything as well as suggesting that official support for the geographic community was ‘very much on the decline in France.’²⁵

The French government’s response to such rumblings was the official backing of the Dépôt de la Marine by Royal Decree as the only official body who could publish charts. The decree dated 5 October 1773 states that:

²¹ Peter Callan, *Dissertation on the practice of land surveying in Ireland* (Drogheda, 1758), p. 15.

²² *Universal Advertiser*, 1 Dec. 1753.

²³ Braddock Mead, *Construction of maps and globes* (London, 1717), preface.

²⁴ Mary Sponberg-Pedley, *Commerce of cartography* (Chicago, 2005), p. 192.

²⁵ *Ibid.*, p. 192.

...all marine charts, portulans, and instruction necessary for the conduct of vessels... be composed, prepared, and published exclusively at the dépôt of His Majesty by persons capable of doing the job well and that these works always be accompanied by printed analyses, with an indication of which authorities support the work. [This is done] not only in order to inspire in navigators a just confidence by exposing to them the degree of exactitude or doubt contained in these maps in each of their parts, but also in order to protect them from the dangerous uncertainty into which the heap of maps published without such particulars would throw them, maps that, although denuded of materials sufficient for their construction, are announced with fatuous titles, exaggerated in order to promote sales.²⁶

The Irish response was similar to that of France. An attempt to introduce some sort of regulation in Irish surveying was initiated in 1750 by the Deputy Surveyor-General Gabriel Stokes who was tasked to help restore the public's confidence in the surveying industry. The result was the creation of a certificate of proficiency - an official reference from the Surveyor-General's office that the holder of such a certificate was fully capable of performing surveying work to a high degree of accuracy. To support the certificate, Stokes published the following declaration:

Whereas by decretal orders from His Majesty's high court of Chancery, and court of Exchequer, the Surveyor-General is frequently directed to appoint skilful surveyors; and as the Surveyor General knows not (for want of examining, as was in the original institution of this office) who are skilful, gentlemen would do well for many other reasons, not to employ any surveyor, but such as have passed an examination, and obtained a certificate from the Surveyor-General's office, of their qualifications for the business of surveying of land, and of tracing Down Surveys.²⁷

Research conducted by J. H. Andrews shows that a total of twenty testimonials such as the one above were published in eighteenth-century newspapers and of these thirteen focused on the certificate holder's ability to copy Down Survey maps.²⁸ This ability to copy from the main source of background data for the vast majority of the country, the Down Survey, was of the utmost importance. This emphasis was present because a common solution to boundary disputes was for a surveyor to examine the area in question from the Down Survey and plot out on the ground the boundary lines using reference data from this source.²⁹ Stokes's deputy, Robert Gibson, continued the surveyor-general's certificates until 1760 and from 1765 by Roberts's son George. The certificate system was discontinued eventually in 1784.³⁰

²⁶ Oliveir Chapuis, *À la mer comme au ciel* (1700-1850) quoted by Sponberg-Pedley, *Commerce of cartography*, p. 192.

²⁷ *Dublin Journal*, 16 Dec. 1750.

²⁸ J. H. Andrews, *Plantation acres* (Omagh, 1985), p. 100.

²⁹ Robert Gibson, *Treatise on practical surveying* (Dublin, 1762), p. 284.

³⁰ Andrews, *Plantation acres*, p. 101.

The procurement of a certificate of proficiency from the surveyor general's office however did not mean that a certified surveyor's measurements went unquestioned or that other surveyors respected the certificate. In 1760 measurements taken by a Meath-based certified surveyor, John Magennus, were brought under scrutiny by another surveyor, John O'Brien of Dunboyne. O'Brien had publicly stated that Magennus's measurements of lands in Linnanstown, county Meath, differed from his measurements by two acres. In order to defend his work, Magennus sent his field notes to the eminent Dublin surveyor Jonathan Barker who confirmed that Magennus's notes were indeed correct. The latter also visited the land in question to survey and compare the two separate results. Aside from having his notes and surveys confirmed by a well-known and respected surveyor, Magennus in addition felt it necessary to assure the public that he had been trained and certified in the art of surveying by Robert Gibson, the then deputy surveyor general and included a reference from Gibson in the same newspaper article stating such:

I certify, that I have instructed Mr. John Magennus, at Mulhuffey, near Kilcock, Land Surveyor, in the essential parts of surveying; and that he is duly qualified to perform any survey, however complex or difficult, to the greatest certainty; as also to divide lands, and trace defaced mearings from the Down, or any other Survey. Given under my hand in Dublin, July 21st, 1760. Robert Gibson, Teacher of Mathematics.³¹

O'Brien responded to Magennus's article on 2 August 1760 stating that he had brought two surveyors to lands in Raddinstown, not Linnanstown, in order to confirm his work and that they had agreed with him. Magennus appeared to have confused the two areas. O'Brien however was critical of Magennus's reference to his professional qualifications:

But, as he believed said advertisement calculated to introduce Mr. Gibson's certificate, he is willing to leave the gentleman all the advantages that may possibly assure to him from so ingenious a method of growing into acquaintance with the world...not withstanding the airs he puts on in newspapers.³²

As mentioned previously, the office of surveyor general predominantly fell to individuals involved in engineering or architecture rather than land surveying. This confusion in name extends from the creation of the office in the early seventeenth century with the combination of the positions of 'Superintendent of the Castles' and the 'Supervision of Royal Works' and was originally called 'Director-General and

³¹ *Universal Advertiser*, 26 July 1760.

³² *Ibid.*

Overseer of the Fortifications and Buildings of Ireland' when it was created in 1613.³³ The official title of 'Surveyor General of the Fortifications and Buildings' was used from 1670 onwards and was held by six men,³⁴ starting with William Robinson in 1670 and ending with Thomas Eyre in 1762.³⁵ Thomas Burgh, who held the position from 1703 to 1725, and who was an accomplished architect, briefly wrote on a method of calculating the area of a piece of land³⁶ yet it appears to be more a work of mathematical theory than a practical method of surveying in the field. He was also involved with surveys of Dublin bay and harbour for proposed engineering works.³⁷

Peter Callan developed his own theories of how the surveying profession could be regulated. His proposal was that the industry could be more governable through a series of annual meetings where surveyors and their instruments would be appraised and if they were deemed insufficient then they should be suspended.³⁸ Those performing such inspections were to be selected on a five-year basis from among members of the surveying community and that the members of the *Dublin Society* should be responsible for the inspector's appointment.³⁹ Each surveyor would be required to recite an oath at each annual meeting stating that he would perform his duties in a diligent and impartial matter.⁴⁰ Callan also called for the standardisation of the paralleled paper on which surveys were drawn to eliminate it as a source of contention and that every map must legally have the surveyor's name upon it.⁴¹ The surveying community in eighteenth-century Ireland never adopted Callan's ideas.

The makings of a surveyor

Eighteenth-century surveyors covered a wide spectrum of professionalism and personality with no two surveyors having the exact same balance of either. It is necessary therefore to examine not only what employers looked for in their surveyors, but also surveyor's opinions on others who practiced their trade.

³³ R. Loeber, *A biographical dictionary of architects in Ireland, 1600-1720* (London, 1981), p. 23.

³⁴ William Robinson (c.1642-1712), Thomas Burgh (1700-30), Edward Lovett Pearce (1731-33), Arthur Dobbs (1734-44), Arthur Jones Neville (1744-1752) and Thomas Eyre (1752-62).

³⁵ O'Dwyer, 'Building empires: architecture, politics and the Board of Works, 1760-1860' pp 108-75.

³⁶ Thomas Burgh, *A method to determine areas of right-lined figure universally* (London, 1724).

³⁷ Thomas Burgh and Captain John Perry, *Dublin Bay* (London, 1728).

³⁸ Callan, *Dissertation on the practice of land surveying in Ireland*, p. 47.

³⁹ *Ibid.*, p. 45.

⁴⁰ *Ibid.*, p. 46.

⁴¹ *Ibid.*, p. 47.

The desired qualities in surveyors varied from employer to employer. These could range from a good moral and religious background⁴² to an in-depth understanding of the science and art of surveying and engineering.⁴³ The head of the French Dépôt de la Marine during the mid-eighteenth-century, Nicolas Bellin, described what he looked for in a good cartographer when he wrote:

From the start he needs to have memory, a love of work, patience, and a flair for order and arrangement. Then he needs a sufficient command of geometry and astronomy, after which comes the long and sterile study of voyages and the critical discussion of their reports and journals, sources continually filled with uncertainties and errors that even the most assiduous labour sometimes cannot conquer. Add to this some knowledge of foreign languages...⁴⁴

The question of professional honesty amongst surveyors was discussed during a parliamentary review of surveying and valuation in Ireland in 1824. When asked how checks were carried out on surveyors involved with the valuation of land, Richard Griffith explained:

The person who surveyed the land should not be the valuator, he should be merely the surveyor, there would be no use in bribing him, because the only thing he could do would be to make an inaccurate survey, which would afterwards be detected.⁴⁵

Sixty-six years earlier Callan commented on the subject of professional morality and honesty declaring:

...it is morally impossible for any man dextrously to command a pen, or any mechanical tool, without some years constant application acquiring the command of hand, in the particular station he intends to render himself useful to the public; especially a surveyor of land, whose head ought to have been furnished with proper ideas, and hand with proper command, before he should undertake business of such important consequence which few surveyors ever desired to acquire any more than a month or two's instruction.⁴⁶

The Irish engineer/surveyor George Semple listed the desirable qualities that he looked for when hiring surveying staff for his various projects:

1st: He must be extremely well versed in the business of a surveyor of land, in all its various branches, and be able to produce specimens of his own work actually performed with his own hands.

2nd: He must be sober, diligent and strictly honest

3rd: He must be healthy, active, able and willing to undergo the most laborious fatigue that can properly relate to the business of his vocation, and give due and personal

⁴² *Dublin Journal*, 2 Nov. 1754.

⁴³ *Freeman's Journal*, 22 Sept. 1787.

⁴⁴ Sponberg-Pedley, *Commerce of cartography*, p. 25.

⁴⁵ *Report from select committee on survey and valuation of Ireland*, p. 49 [445], H. C. 1824, viii.79.

⁴⁶ Callan, *Dissertation on the practice of land surveying in Ireland*, p. 11.

attendance to it. And it may be presumed, that no gentleman will use means to impose on the board, by endeavouring through their influence, to put any person into such a weighty employment who doth not enjoy those, or the like qualifications. This ought to be strictly observed, because many weighty matters depend on it.⁴⁷

The phrase ‘his own work actually performed with his own hands’ is the key to Semple’s statement. A surveyor must, above all else, be capable of measuring and recording geographical data in the field and be able to defend his work.⁴⁸ Cartographers and geographers are mainly restricted to collating the work of others to produce their work.

Semple’s second point was not one he adhered to in his own professional career. The Wide Street Commissioners in fact fired Semple in the 1750s due to a serious disagreement over the possession of maps that the Commissioners had ordered (see Chapter 4) and so his career might not be the best professional moral compass from which to take a bearing.⁴⁹

Not everyone employed as a surveyor was as passionate or as honest as Semple may have wished. In his *Dissertation on the practise of land surveying* (Drogheda, 1758) Peter Callan presented an interesting analysis both of the types of surveyors as well as the many frauds and fakes operating in Ireland during the mid-eighteenth-century. Callan’s own division of surveyors mentioned:

Complete Surveyors: Those surveyors who were well educated, well equipped and who had the talent and skill to perform accurate surveys.

Grand Surveyors: Men who bullied their clients by sheer force of will and a grandiose attitude and were more than willing to take bribes to see that their work always favoured their clients.

Bungling Surveyors: These surveyors had rudimentary skills but often resorted to guessing rather than accurate surveying techniques. They could either be honest men but just not particularly good surveyors, or dishonest men whose employer were willing to let them rule in their favour and defend them if found out declaring that the poor man’s intention was very honest; and that his error proceeded from the want of sufficient skill and experience...⁵⁰

Serious problems arose when both the tenant and the landlord hired their own bungling surveyor:

⁴⁷ George Semple, *Treatise of building in water in two parts* (Dublin, 1780).

⁴⁸ Peter Callan versus John Bell, *Universal Advertiser* 1 Dec. 1753-22 May 1759, *Dublin Journal*, 23 Jun. 1759 – 21 July 1759, *Dublin Gazette*, 20 Oct. 1759-27 Sept. 1760.

⁴⁹ 22 Jan. 1759 (DCA, WSC/Mins/1, p. 18).

⁵⁰ Callan, *Dissertation on the practice of land surveying in Ireland*, p. 13.

...the pernicious consequence of which is universally known by sad experience; each of the said contending parties being equally fluent in impertinent propositions, and groundless contradictions; likewise jarring and fighting for several days together, sometimes for several months, about a small piece of work; wasting the time, and consuming the substance of both landlord and tenant: At last both parties are obliged, with mutual consent to send for a *Grand Surveyor*, in order to leave the decision to the said controversy to his arbitral at which the said Grand Surveyor appears with domineering air, and seeming arbitrary power. Oh! Then whoever bribes him best may be sure the depending debate shall be decided in his favour.⁵¹

The irony of which detailed description of this is that Callan himself was involved in a similar dispute with another surveyor, John Bell, both writing angry challenges to each other over several years.⁵²

Callan's opinion of self-educated surveyors was shown in more graphic detail when he stated:

The said Fops are like unexperienced book-taught pilots in dangerous harbours, in which they should soon be foundered or dashed against the rocks; or like a Man-of-War manned and commanded by unexperienced book-taught sailors, in which circumstances they should soon fall into the bottom of the sea or the hands of their enemies.⁵³

Callan estimated that there were one hundred practical surveyors in Ireland, aside from 'fops' and 'pretenders'. The majority of the former were dishonest and fraudulent and cost the economy up to six thousand pounds per annum through their poor surveying.⁵⁴ Callan's opinion must be treated as biased as he has a recorded history of disputes with other surveyors,⁵⁵ yet it does give a fascinating glimpse into the darker corners of the Irish surveying industry at the time.

Despite their descriptions of moral guidelines and desirable personal traits, there were surveyors outside of Ireland who placed a more rigid definition on surveying often avoided by many eighteenth-century Irish surveying authors. English authors George Adams and John Grey separately listed the defining points that consisted of the profession of a land surveyor:

⁵¹ Ibid., p. 14.

⁵² *Dublin Gazette*, 27 Sept. 1760.

⁵³ Callan, *Dissertation on the practice of land surveying in Ireland*, p. 16. The term 'Fop' was a pejorative term for a foolish man over-concerned with his appearance and clothes.

⁵⁴ Ibid., p. 17.

⁵⁵ *Dublin Gazette*, 27 Sept. 1760.

1. Measuring of straight lines.
2. Finding the position of straight lines with respect of each other.
3. Laying down, or planning upon paper these positions and measures.
4. Obtaining the superficial measure of the land to be surveyed.

We may therefore define land surveying to be the art which teaches us to find how many times any customary measure is constrained in a given piece of ground, and to exhibit the true boundaries thereof in a plan or map.⁵⁶

It is unknown why Irish authors failed to define their profession in such a clinical manner as Adams and Grey, however it is important to note that neither mentioned the referencing of previously existing cartographic data in their definitions, which was a regular occurrence in the Irish industry at the time.

The eighteenth-century Irish surveyor can be viewed as an individual who was technically qualified to gather data in the field with a variety of instrumentation, capable of working with existing maps in order to extract relevant information as well as compiling data from various sources and able to take map data back to a real world environment and plot it as required. For the purpose of this study, all those who were involved in either the production of maps from the geographical data gathered by their own observations in the field, that is surveyors, and those whose maps are produced from the compilation of the work of others, that is, geographers and cartographers, shall be grouped into the greater realm of the surveying industry.

⁵⁶ George Adams, *Geometrical and graphical essays* (London, 1803), p. 182. John Grey added – ‘laying out ground’ and ‘division of ground’ to his definition, John Grey, *The art of land-measuring explained* (London, 1757), p. 15.