

The  
History Of The Survey Of Ireland,

Commonly Called

The Down Survey,

By

**Doctor William Petty,**

A. D. 1655-6.

EDITED,

FROM A MANUSCRIPT IN THE LIBRARY OF TRINITY COLLEGE, DUBLIN,  
WITH ANOTHER IN THE POSSESSION OF THE MOST NOBLE THE MARQUIS OF

LANSDOWNE,

AND ONE IN THE LIBRARY OF THE KING'S INNS, DUBLIN,

BY

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DUBLIN:  
FOR THE IRISH ARCHAEOLOGICAL SOCIETY.

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#### **EDITOR'S PREFACE.**

IT had long been known that Sir W. Petty had left an account of the Down Survey. He refers to it in several of his writings, and makes mention of it in his "Last Will and Testament," published with the volume of his Tracts, printed in Dublin, 1769. In his "Reflections upon some Persons and Things in Ireland," he states : "A fourth treatise I have, far greater than any of those above mentioned, being an history of the survey and distribution of the forfeited lands in Ireland, and withall a series of my own services and sufferings with reference there-unto, and to that nation ; which work consists chiefly of all Acts of Parliament, resolves of all general assemblies of the army, orders of the Council, acts of councils of war, results of committees, petitions of agents, references, reports and accounts, &c., relating to all and singular the premises."

In his will the following occurs : "I value my three chests of original maps and field-books, the copies of the Down Survey, with the barony maps, and the chest of distribution books, with two chests of loose papers relating to the survey, the two great barony books, and the *Book of the History of the Down Survey*, altogether, at £3000."

In the Supplement to the Third Annual Report of the Irish Record Commissioners, page 499, an extract is given from a memorandum by Mr. Hardinge, of the Surveyor-General's office, in which, speaking of documents connected with the Down Survey, more especially the barony maps, he writes: "Similar copies of these were in the possession of the Shelburne family, and deposited in Shelburne House, Stephen's-green, where I saw them about the year 1777." This seemed to render it probable that the History of the Down Survey was also still preserved among the muniments of the family, but it had never been printed.

In the year 1834, at the sale of the library of Lord De Clifford, the manuscript now printed was purchased by the late James Weale, Esq., of the department of Woods and Forests, an

ardent collector of matters and papers relating to Ireland. Mr. Weale thus described it at the time, in a letter to the Editor, dated Whitehall, April 1st, 1834: "I forget whether I have informed you of my recent acquisition of a thick folio volume of manuscript, comprising copies of all the official proceedings preliminary to and during the employment of Sir William Petty in the business of the Down Survey, with a running commentary, written by the Doctor. The writing was supposed to be Sir Willam's; but though it resembles his, I am satisfied it is only a fair transcript, made under his personal direction, of the third article mentioned by him in the pamphlet I sent to you, as ready for publication, in answer to Sankey's charges against him. Or it may be a first volume of the larger work he there speaks of, as giving a full account of the Survey.

"I bought it at the sale of Lord De Clifford's manuscripts, and Mr. Thorpe made me pay for it ; but I am very well satisfied with my bargain, for it contains an invaluable mass of information, which I have not yet discovered to be elsewhere in existence, though it is probable there may be another transcript among the Petty collections at Bowood. It bears the autograph of Sir Robert Southwell, to whom Petty seems to have communicated, *de die in diem*, *et in extenso*, even when in London together, every act of his life; and I am in hopes of discovering the letter from Petty which accompanied the volume in its transmission to Southwell.

"I propose to have a copy of it made, but until I possess such duplicate, I shall be unwilling to risk the loss of it, otherwise I would take it with me to Dublin for your inspection."

Mr. Weale died in 1838, and several of the manuscript and other works in his collection were purchased by the Government, chiefly through the enlightened and liberal intervention of the late Sir Robert Peel ; among others, the History of the Down Survey. In the year 1842, the present Earl of St. Germans was Chief Secretary for Ireland, and at his instance and recommendation this curious manuscript was presented to the Library of Trinity College, Dublin.

At that time the Irish Archaeological Society had been recently formed, and our invaluable colleague, the Rev. Dr. Todd, as Secretary to the Society, proposed to the Editor the task he is only now performing.

It is hoped that the active duties of official life, and the almost total obstruction such duties present to the prosecution of more congenial pursuits, will be admitted as a sufficient apology for the delay, and those circumstances must be most humbly pleaded in excuse for the imperfect manner in which the work has been even now performed.

It is scarcely necessary to say, that the Notes which have been appended to the narrative, short as they are, are confined to the elucidation of the narrative itself, and do not extend to the more general subject of the distribution of lands. Sir William Petty himself felt that a separate treatise was required for the account of that work, and it is greatly to be regretted that he did not carry out his intention of writing one. The Notes to such a work would necessarily extend to the Acts of Settlement and Explanation, involving the history of the country, and indeed, to some extent, of the families settled in it, at that period. Such a work, however, with a similar account of the contemporary removals from the other provinces into Connaught, and the manner in which they were conducted, would be a valuable addition to the general, as well as local history of Ireland.

The Editor lost no time in addressing the Marquis of Lansdowne, as well for his Lordship's concurrence in the publication of the volume, as with a view to ascertaining whether any copy still remained among the family papers. That distinguished nobleman, with his usual frankness and liberality, not only searched for the desired treasure, but intrusted it to the Editor, and sent it to Dublin, where the two copies were carefully collated and compared.

Subsequently the Editor was informed that a third copy of the manuscript was in the Library of the King's Inns, in Dublin, which was carefully read over and compared, word by word, with the others, and the differences noted. It is not known to the Librarian how the work came into the possession of the Benchers ; but its agreement with the Lansdowne copy in the words or phrases in which that copy differs from the College copy, are sufficient to show it to have been taken from the former. The writing and paper are much more modern than either of the others, probably not earlier than the middle or close of the last century. It was therefore, perhaps, transcribed from the family copy, with Lord Shelburne's permission, while that nobleman resided in Dublin.

The differences between the three are wholly unimportant, confined chiefly to the spelling of words, with, in the King's Inns copy, the omission or transposition of a few occasional paragraphs, from carelessness of the transcriber. The Lansdowne and College copies are, apparently, of the same date, and both bear corrections which appear to be by Sir William Petty himself. The discrepancies, however, between these two are such as would appear to show that neither of them is copied from the other, nor has any common original been discovered. Perhaps, if a conjecture on a subject not very important may be hazarded, it is not improbable that the narrative part of both may be written from short-hand, taken down by dictation from the author. Stenography is known to have been common at that time ; witness the Diary of Pepys, of which the short-hand original remains in the Library of Magdalen College, Cambridge ; and the following memorandum, which occurs in a volume of Petty manuscripts, now in the possession of Messrs. Hodges and Smith, of Grafton-street, shows such to have been the practice of Dr. Petty :

"His way was to retire early to his lodgings, where his supper was only an handful of raisins and a piece of bread. He would bid one of his clerks, who wrote a fair hand, go to sleep ; and while he eat his raisins and walked about, he would dictate to the other clerk, who was a ready man at short-hand. When this was fitted to his mind, the other was roused, and set to work, and he went to bed, so that next morning all was ready."

This paragraph is among many other curious notices of his habits, in explanation of the manner in which he was able to accomplish the duties of his office, as Clerk of the Council, in addition to his many other duties, as Commissioner of Distribution, Secretary to the Lord Lieutenant, Physician to the Forces, &c. But in regard to our manuscripts, it allows us to suppose that the slight differences are merely such as different clerks might make in transcribing from such an original ; as in the works published by Sir William during his life, the words are, with few exceptions, written as they would be at the present day. It has not been thought desirable, however, on this account, to depart from the manuscripts themselves. The College copy has been chiefly followed, and the Lansdowne manuscript resorted to when it removed obscurities.

In regard to the date at which the work itself was written, it is only to be observed, that the narrative terminates in July, 1659. At page 81, the author speaks of October, 1659, as past, and in the same page writes, incidentally : "A great part of the army, at least the most complaining part, had their land anno 1655, the rest receiving theirs anno 1656, since which there have been three Parliaments." We know that the Parliament which was assembled in 1656 was dissolved, in 1658, by the death of the first Protector. Richard Cromwell's Parliament, in which Dr. Petty sat for West Looe, met in January, 1659, and was dissolved in April of the same year. The remnant of the Long Parliament was called together in the following month, interrupted by Lambert in October (which may have been considered as completing a session), assembled again in December, and in March, 1660, dissolved itself, after issuing writs for the Convention Parliament, which met on the 25th April, 1660, and restored the King.

This would fix the date of our history towards the end of 1659, or beginning of the following year, which is confirmed by many parts of the narrative, as well as by other works of the author.

Thus, in the volume called "Reflections upon some Persons and Things in Ireland," which was probably written very shortly afterwards, he speaks of the change of government : "My adversaries having thrown down the government, laws, and governor under which I acted, may oppress me too." This would seem to refer to the destruction of the Protectorate by the army, not to the restoration of the monarchy. Again, in the present work, as well as in the "Reflections," he always speaks of Henry Cromwell, for whom he appears to have entertained a sincere respect and esteem, in the past tense, but had not yet arrived at the time when, in some of his later writings, he adopts the phraseology of the monarchy, and calls Oliver "the Usurper."

He had, therefore, only reached his thirty-sixth year (having been born in 1623), an age at which it is the lot of few men to record the successful accomplishment of so great a work, and the performance of such multifarious and complicated duties.

In regard to the designations Civill Survey and Grosse Survey, which occur so frequently, and Down Survey, which more especially has been a subject of conjecture, it will be seen by this work that the Civill Survey was the terrier or list of forfeited lands, prepared under the commissioners appointed by the commission of 1st June, and Act of 26th September, 1653. The Grosse Survey was the designation by which the surveys ordered by the commission above quoted are referred to in the Act. It is, therefore, the name given by Dr. Petty to the surveys made under that Act by his predecessor Mr. Worsley, and others, which furnished only the "grosse surrounds" of the lands surveyed ; and the Down Survey was so called simply to mark its distinction from those former surveys, by its topographic details being all laid down by admeasurement on maps. This is well expressed in the letter from Mr. Weale, already quoted, in which he says : "Childish as the etymon has always sounded in my ears, I am obliged to admit that the Survey obtained its name solely from the continued repetition of the expressions, 'by the survey laid down,' 'laid down by admeasurement,' in contra-distinction to Worsley's surveys, the word Down being so written as often as it occurs in the MS."

It must be admitted that the name would have equally applied to the Strafford Survey, which it is now clear was also laid down on maps, but for the sake of contrasting Dr. Petty's work, by some distinctive cognomen, with the Civil and Grosse Surveys. It was indeed, so far as relates to the name, only carrying out the instructions given by the commissioners to the old surveyors, before the Survey was undertaken as a whole by Dr. Petty, as will be seen by a paper printed in the Appendix (p. 388), where they are ordered to "sett *downe*" certain boundaries "in a touch plott." It may also be observed, that the name is still used in Ireland among the country surveyors of the old school, for any survey laid down on a map, as distinguished from a mere list of areas, which they also call a survey.

The volume of "Reflections" above alluded to was printed in London, in 1660, and reprinted in Dublin, in 1790. It contains a general account of the principal matters connected with the Survey, and the troubles which it brought upon its author, purporting to be a correspondence between Dr. Petty and a friend, but obviously written altogether by the Doctor himself. It is seasoned with a breadth and drollery which the Doctor intended to avoid in this graver work, but it may, nevertheless, be read with advantage in connexion with our present History.

The Act of Parliament of 26th September, 1653, and the Ordinance, Commission, and Instructions connected with it, in virtue of which the Survey was made, are so frequently referred to in the History, and are so essential to a good understanding of it, that it has been thought desirable to print them in the Appendix. They occur in Scobell's Acts and Ordinan-

ces, published by authority, under the Protectorate, in 1658. The volume is not common, but there is a fine copy in the Library of Trinity College.

In illustration of the Civill and Grosse Surveys, a copy is also given of two of the Orders and Instructions of the Commissioners Fleetwood, Corbet, and Jones, from many which are still preserved among the papers of the old Surveyor-General's office, in the Record Branch of the Office of the Paymaster of Civil Services in Ireland. Also, from the same valuable depository, an example of the descriptive part of each of those works, and of the Strafford Survey, from a rare volume of MS. Collectanea, preserved and arranged by the zeal and care of the present keeper of those records, W. H. Hardinge, Esq. ; and, for comparison with them, a reference-sheet of the Down Survey. The Maps of that work are too well known to render any illustration of them necessary. It is known, also, how extensively they suffered from the fire which destroyed the Council Office, and Surveyor-General's office, in 1711, when the greater part of the contents of those depositories were consumed or lost. Their present condition, and the extent to which they were preserved from the conflagration, with the restoration of the barony maps, by copies made by General Vallancey, are fully detailed in the Supplement to the Third Report of the Irish Record Commissioners. Since these documents have been placed in their present location in the Custom House, several additional manuscript volumes, and fragments of maps and papers, have been collected and arranged by Mr. Hardinge ; so that all which now remains of the great work of Dr. Petty is easily accessible, and, being in an insulated stone building, is practically secure from similar accident for the future.

In the Appendix it has also been thought desirable to print copies from several papers relating to the Survey, subsequently to the Restoration, which occur, with many others of the same date, in a series of manuscript volumes in the Record Tower of Dublin Castle, under the care of Sir William Betham. These volumes are described by Mr. Groves, in the Appendix to the Fifteenth Annual Report of the Irish Record Commissioners.

In the College copy of this manuscript there is a memorandum, in the handwriting of Mr. Weale, detailing the contents of the volume, and other circumstances and conjectures connected with it; and one also by Mr. Hardinge, both of which, as they give authenticity to the volume, are appended to these remarks.

To this Preface is also appended, as introductory to the larger history, a paper called "'A briefe Account of the most materiall Passages relating to the Survey managed by Doctor Petty in Ireland : anno 1655, 1656.'" This is from a manuscript volume in the Paymaster of Civil Services' Office, which contains numerous valuable papers. Some of them appear to be autograph, and some are of a private nature ; one of these, containing instructions to his agent in Kerry, is printed in the Appendix, as evincing the watchfulness with which Sir William regarded his Irish property.

A work called "A Briefe of Proceedings between Sir Jerome Sankey and the Author, by Sir W. Petty," is mentioned by Watts as published in London, in 1660 ; but, after much search, the Editor has been unable to discover any copy of it. It is probably a condensed view, similar to the manuscript mentioned above, but relating to the proceedings detailed in the concluding chapters of this work, as that does to the Survey itself, and may have been put forth by Dr. Petty for his immediate justification at the time.

The Editor has now to perform the agreeable duty of acknowledging his obligations to all who have furnished him with information in the course of this work ; more especially to his friends, the Rev. Dr. Todd, and Dr. Aquilla Smith, on whose kind advice and assistance he has been allowed on all occasions to rely, a privilege of which he has largely availed himself; also to Sir William Betham; and to W. H. Hardinge, Esq., the zealous keeper of the valuable papers accumulated in the Record Branch of the Paymaster of Civil Services' Office; from

both of whom he has received every facility and assistance in consulting the muniments committed to their charge.

#### DOCUMENTS REFERRED TO IN THE FOREGOING.

Memorandum by Mr. Weale, on Sir William Petty's *History of the Down Survey of Ireland*.

This is unquestionably a very valuable manuscript, and contains an historical relation of proceedings taken towards carrying into effect the Act passed in the Parliament of the Commonwealth of England, in 1653, for the Survey and Distribution of the Forfeited Lands in Ireland, drawn up by Sir William Petty himself, in vindication of his conduct in the business, and in answer to the charges brought against him by Sir Jerome Sankey and others.

I bought it at the sale, at Christie's, of the Southwell Collections at King's Weston, after the death of Lord De Clifford, whose ancestor, Sir Robert Southwell, Secretary of State, temp. James II. and William III., was the most intimate friend of Sir William Petty. It bears the autograph of Sir Robert on the fly-leaf, and some of the marginal notes are certainly in the handwriting of Sir William ; but although the character of the manuscript, generally, strongly resembles that of some early autograph manuscripts of Sir William, I doubt whether he would have spared the time required to make a fair transcript of so bulky a composition, however laborious he was at the period of its compilation. I incline, therefore, to think, that the manuscript is the work of some clerk in his employment, whose handwriting had been formed on the model of his own, and that it is the fair copy prepared for the Press.

It is distinctly mentioned in his publication, entitled "Reflections upon some Persons and Things in Ireland," &c., printed at London, 1660, in 8vo., as one of the works he had then in hand, relating to the forfeitures in 1641 ; and among the original correspondence between Sir William Petty and the Southwells, which was disposed of at the same sale, I found several of Sir William's and Sir Robert's letters, in which it was also referred to. See also Thorpe's Sale Catalogues of the Southwell Manuscripts, purchased by him at the same auction.

Whether the original draft of the manuscript, or any other copy of it, be in existence, must always remain doubtful ; but, after much research and inquiry, I have not discovered any evidence or notice indicating that another had been made, or was known to be extant. If there be another copy or fragment, either in the autograph of Sir William, or a transcript by some other hand, it is most likely to be found in the Marquis of Lansdowne's collections of Sir William's papers and muniments of title to the property he inherits from him.

As to the intrinsic value of the manuscript, independently of all personal matter in vindication of his own conduct, or in crimination of the parties opposed to him, it contains numerous official documents, relating to the several surveys of Irish forfeited estates, made under the direction of the Earl of Strafford, when Lord Deputy of Ireland in the reign of King Charles I., as well as those called the Grosse and Civill Surveys, and Sir William's own Survey, called the Down Survey, made in pursuance of the Act of 1653, and according to which last-mentioned Survey upwards of eight million acres of land were assigned and distributed under the provisions of the Acts of Settlement and Explanation, temp. Charles II., which constitute the foundation of more than half the present titles to property in Ireland.

The transcripts of those documents contained in the volume are, I have some reason to believe, the only existing record of all or the greater part of them, for it is believed that the original office-books, which contained entries of the Proceedings, were all destroyed by the fire at the Council Office, in Dublin, which occurred in 1711 ; and after the numerous researches I have had occasion to make, during the last ten years, among all the records and

muniments preserved in the public offices in Dublin, relating to the forfeited estates, and likewise among private collections, I have never alighted upon any of the originals, or copies of any of them.

For these reasons, great care should be taken for the preservation of this volume, and which I would myself deposit in the New Record Office at Dublin, if in justice to ray family I could afford to sacrifice to public use the money it ought to produce to them by a sale of it.

This volume, and the folio volume in MS. relating to the Irish Forfeitures of 1689, and the volume of printed Proclamations, published in Ireland during the reign of James II., are beyond all estimate the most valuable articles in my collections.

York Buildings, London, (Signed)  
James Weale.

*April 16, 1837.*

Memorandum by Mr, Hardinge.

I BELIEVE the whole of the above account to be correct, and that the originals of the books described are not in existence. If they are, they should be found amongst the Parliamentary Records in the charge of Sir William Betham, at the Record Tower.

The volumes would be very useful, in conjunction with the 1688 forfeited records, in the custody of the Paymaster of Civil Services.

(Signed)  
Record Office, Custom House, W. H. Hardinge.

*March 18, 1841.*

*A brieft Accompt of the most materiall Passages relatinge to the Survey managed by Doctor Petty in Ireland, anno 1655 and 1656[1].*

BARRONYES in Irland are of various extents, vizt., some but 8000 acres, and some 160,000 acres.

The first survey or old measurement was performed by measuringe whole baronyes in one surround, or perimeter, and payinge for the same after the rate of 40s for every thousand acres contayned within such surround ; whereby it followed that the surveyors were most unequally rewarded for the same worke, vizt., he that measured the barrony of 160,000 acres did gaine neere five tymes as much per diem as he that measured that of 8000 acres. Besides, wheras 40s were given for measuringe 1000 acres, in that way 5s was too much, that is to say, at 5s per 1000 a surveyor might have earned above 20s per diem cleare, wheras 10s is esteemed, especially in long employments, a competent allowance.

The error of this way beinge discerned, the same undertakers order, that instead of measuringe entire baronyes as before, that scopes of forfeited profitable lands should bee measured under one surround, bee the same great or small, or wheather such scopes consisted of many or few ffarme lands, townelands, ploughlands, or other denominations usuall in each respective county or barrony. And for this kind of works the surveyor was to have 45s for every thousand acres, abatinge proportionably for such parcells, either of unprofitable or unfor-

feited land as should happen to be surrounded within any greater scope. Now this latter way, besides the inconveniencies above mentioned, laboured with this other and greater, vizt., that by how much the measurer's paynes and worke was greater, by soe much his wages and allowance was lesse, soe as noe surveyor could foresee wheather hee should be able to performe his respective undertaking at the rate above said, or that hee should not gaine exorbitantly by it.

Hereupon Dr Petty propounded that the whole land should be measured both accordinge to its civill bounds, vizt., by barronyes, parishes, townelands, ploughlands, balliboes, &c., and alsoe by its naturall boundings by rivers, ridges of mountaines, rockes, loughes, boggs, &c. ; as answeringe not onely the very ends of satisfyinge the adventurers and souldiers then in view, but all such other future ends whatsoever as are usually expected from any survey.

The objection was, that the same would not be don under twenty yeares tyme, and the settlement must be soe longe retarded. It was answered, that security should be given for performinge the whole in thirteen months, provided the allowance might be somewhat extraordinary. Hereupon the army agree to give out of their owne purses soe much as should be requisite over and above what the councill were limited unto by their superiours.

This undertaking extended onely to the provinces of Ulster, Lienster, and Manster (that of Connaght beinge reserved for the Irish), nor unto all the lands in the said three provinces, although the same labour and method would have effected the whole, and more, as well as what was.

Now the method and order used by the said Petty in this vast worke was as followeth, vizt.:

Whereas surveyors of land are commonly persons of gentile and liberall education, and their practise esteemed a mistery and intricate matter, farr exceedinge the most parte of mechanickall trades, and withall, the makeinge of their instruments is a matter of much art and nicety, if performed with that truth and beauty as is usuall and requisite. The said Petty, consideringe the vastnesse of the worke, thought of dividinge both the art of makeinge instruments, as alsoe that of usinge them into many partes, vizt., one man made onely measuringe chaines, vizt., a wire maker ; another magneticall needles, with their pins, vizt., a watch-maker ; another turned the boxes out of wood, and the heads of the stands on which the instrument playes, vizt., a tumor ; another, the stands or leggs, a pipe maker; another all the brasse worke, vizt., a founder ; another workman, of a more versatile head and hand, touches the needles, adjusts the sights and cards, and adaptates every peece to each other.

In the meane tyme scales, protractors, and compasse-cards, beinge matters of accurate division, are prepared by the ablest artists of London.

Whether alsoe was sent for, a magazin of royall paper, mouth-glew, colours, pencills, &c. At the same tyme, a perfect forme of a ffeild booke haveinge bin first concluded on, uniforme bookes for all the surveyors were ruled and fitted accordinge to it, and moreover large sheetes of paper, of perhaps five or six ffoote square, were glewed together, and divided throughout into areas of ten acres each, accordinge to a scale of forty Irish perches to an inch, and other single sheets (by a particular way of printinge dry, in order to prevent the uncertaynties of shrinkinge in the paper) were lined out into single acres.

Dureinge the same tyme, alsoe, portable tables, boxes, rulers, and all other necessaryes, as alsoe small Ffrench tents, were provided to enable the measurers to doe any buisnesse without house or harbour, it beinge expected that into such wasted countryes they must at some tymes come.

Duringe the same tyme, alsoe, bookes were preparinge of all the lands' names to be measured, and of their ould proprietors, and guesse-plotts made of most of them, whereby not onely to direct the measurers where to beginne, and how to proceed, &c., but alsoe to enable Petty himselfe how to apportion unto each measurer such scope of land to worke uppon, as hee might be able to finish within any assigned tyme.

At the same tyme care was taken to know who were the ablest in each barrony and parish to shew the true bounds and meares of every denomination, what convenient quarters and harbors there were in each, and what garrisons did everywhere lye most conveniently for their defence, and to furnish them with guards, and with all who were men of credit and trade in each quarter, fitt to correspond with for furnishinge mony by bills of exchange and otherwise ; and, lastly, who were men of sobriety and good affection, to have an eye privatly over the carriage and diligence of each surveyor in his respective undertakinge.

Another person is appoynted to sollicite under offices for mony, and to receive it from severall publike and private persons, uppon whome each summe was assigned by the publike Treasurer. The same alsoe paid bills upon stated accompts, drew bills of exchange into the country, &c., as alsoe attended the course of coynes, which often rose and fell in that time ; and was to beware of adulterate and light peeces, then and there very rife.

But the principall division of this whole worke was to enable certayne persons, such as were able to endure travaile, ill lodginge and dyett, as alsoe heates and colds, beinge alsoe men of activitie, that could leape hedge and ditch, and could alsoe ruffle with the severall rude persons in the country, from whome they might expect to be often crossed and opposed. (The which qualifications happend to be found among severall of the ordinary shouldiers, many of whom, havinge bin bred to trades, could write and read sufficiently for the purposes intended.) Such, therefore (if they were but headfull and stedy minded, though not of the nimblest witts), were taught, while the other things aforementioned were in doinge, how to make use of their instruments, in order to take the bearinge of any line, and alsoe how to handle the chaines, especially in the case of risinge or fallinge grounds ; as alsoe how to make severall markes with a spade, whereby to distinguish the various breakings and abutments which they were to take notice of ; and to choose the most convenient stations or place for observations, as well in order to dispatch as certaynty. And lastly, they were instructed, per autopsiam, how to judge of the valines of lands, in reference to its beare qualities, and accordinge to the rules and opinions then currant, to distinguish the profitable from such as was to be thrown in over and above, and not paid for at all. Another sort of men, especially such as had beene of trades into which payntinge, drawinge, or any other kind of designinge is necessary, were instructed in the art of protractinge, that is, in drawinge a modell or plott of the lands admeasured, accordinge to a scale of 40 perches to the inch, accordinge to the length and bearinge of euery side transmitted vnto the said protractors in the ffeild bookes of the measurers last above described ; the which protractions were made uppon the papers aforementioned, which were squared out into areas, some of 10, some of single acres. These men, and sometimes others of smaller abilities, were employed to count how many of the said greater or lesser intire areas were comprehended within every surround.

And withall unto how many inteire acres the broken skirtinge reduced from decimall parts did amount unto, which worke was soe very easie, that it was as hard to mistake, as easie to discover and amend it, and infinitely more obvious to examination and free from error, then the usuall way of reduceinge the whole surround into triangles was, and deducing the content from laborious prostapheresis of them. The next worke was reduceinge barrony plotts, which, accordinge to the scale of 40 perches to the inch, were somtymes 8 or 10 foot square, or thereaboutes, within the compasse of a sheet of a royal paper, whether the scale happended to be greater or less, soe as all the barrony plotts, being reduced to one size, might be bound up together into uniforme bookes, accordinge to the countyes or provinces unto which they did

belonge. These reducements were made by paralelagrames, of which were made greater numbers, greater variety, and in larger dimensions, then perhaps was ever yet seene upon any other occasion. Some hands that were employed in the said reducements did, for the most parte, performe the colouringe and other ornament of the worke.

Over and above all these, a few of the most nasute and sagacious persons, such as were well skilled in all the partes, practices, and frauds, appartayninge unto this worke, or whereunto it was obnoxious, did in the first place view the measurers ffeild bookes, and there by the same critickes as artists discernen originalls from coppies in paintinge, and truely antique medalls from such as are counterfeit, did endeavour to discover any falsification that might be prejudiciall to the service. The same men alsoe reprotracted the protractions above mentioned, compared the comon lines of severall men's worke, examined wheather any of the grounds given in charge to be admeasured were omitted ; and, lastly, did cast up all and every the measurers workes into linary contents, accordinge to which the said Petty paid his workmen, although he himselfe were paid by the superficial content, or number of acres, which the respective admeasurements did conteyne ; the which course of payment he tooke to take away all byas from his under measurers to returne unprofitable , for profitable, or vice versa, he himselfe haveinge engaged, in an ensnaringe contract, begetinge suspicions of those evils against him, in as much as he was paid more for profitable then unprofitable land; for some parcells of unprofitable receveinge nothinge at all. Ffor this end he paid his under-surveyors by the linary content of their worke as aforesaid, though some suspect he rather did it to obscure his gaines, as well from those that employed him as those others whome himselfe employed, and withall, by removeinge the old surveyors from of their old principles, and confoundinge them with new, to make them more amenable to his purposes. The quantitie of line which was measured by the chaine and needle beinge reduced into English miles was enough to have encompassed the world neere five tymes about.

There doe remaine of this worke, as large mapps as a sheet of royall paper will conteyne, of every parish distinctly, by as large a scale as such sheets of paper will contayne, and other mapps of the same size for every barrony.

These are fairely bound up in large bookes, according to their countyes, and the bookes kept in a cabinet of the most exquisit joyner's worke, made for the purpose, of 60*l* value. Mapps of each county and province, as alsoe of the whole island, wil be published in print, according to the severall ancient and moderne divisions of the same, which have often changed by reason of the often change of proprieties, occasioned by the often rebellions and revolutions there.

[1] From a manuscript in the Record Branch of the Office of the Paymaster of Civil Services in Ireland.

**The history of the survey of Ireland, commonly called the Down survey, A.D. 1655-6 (1851)**

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