

Lands of Ireland 1652

Irelands Naturall History : written by Gerard Boate

1652

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Of the Nature and Condition of the Land, both for the outward shape, and for the internall qualities and fruitfulness.

Sect. 1. *Distinction of Ireland into Champain Lands, Hills, and Mountains.*

THE Lands of this Iland, as of most all other Countries, are of a various kind and fashion : For some parts are goodly plain Champain, others are Hilly, some Mountainous, and others are composed of two of these sorts, or of all three together, and that with great variety, the which also is very great, in those three un-compounded sorts.

Sect. 2. *A necessary observation about the use of the words Hill and Mountain.*

To avoid all ambiguity, and make our selves cleerly understood in what we have said, and are further to say upon this subject, we think it necessary to forewarn our Reader, that we do use the word *Hill* in a narrower signification, than what is given to it in the ordinary use of speech. For whereas all, or most other Languages, both those which are now in vulgar use, and those which are only preserved in books, have two severall words for to signify those observable heights which appear above the ground, calling the bigger sort by one name, and the lesser sort by another : The English language useth one and the same word for both, calling *hills* as well the one as the other, without any other dis-tinction, but that sometimes the word *small* or *great* is added. Now because this word so indifferently used would cause some confusion in the matter we treat of, that hath made us restrain it to one of the sorts, and to call *hills* only the lesser sort, called in Latin *collis*, in French *colline*, in Dutch *heuvel*, and in Irish *knock*. As for the other and bigger sort, whose name in the aforesaid four languages is *mons*, *mountain*, *berg*, *slew*, we call them mountains : which word *mountains*, although it be good English, yet in common speech it is seldom made use of in that sense whereunto we apply it, but only to signifie a country wholly consisting of those great Hills, especially when the soil thereof is lean and unfruitful.

Sect. 3. *Of the Mountains of Ireland, and first of the lower sort.*

The difference betwixt Hills and mountains consisting in bigness, is of two sorts ; for in the number of mountains are counted not only those which lift up themselves very high into the air so as they may be seen many miles off, but also those, the which take up the more in length and breadth, what is wanting to them in height, ascending slopingly by degrees.

The Mountainous parts of Ireland do for the most part consist of this second part of Mountains, most of them in one quarter being muchwhat of the same height, so as sometimes one shall ride some houres together, through the mountainous country, without meeting with any one Mountain that greatly excelleth in height above the rest : the which in particular may be observed in the Mountainous Country of the Fuse, betwixt Dundalk and Armagh ; in that of Mourne, betwixt the Nurie and Dondrom (each of those two being above twelve miles long) in all that space which is betwixt Kelles, a walled town in the County of Eastmeath, and Killacolie, *alias* Bailieborough, in the County of Cavan, which being ten miles long, is almost nothing else but a continuance of hills of no great bigness, all very fruitful land both Pasture and Arable. In the County of Westmeath, from Lough-Crew to Lough-Sillon, and beyond it, as far as Ballaneach, where Mr. *William Pleving* had built a fair house and Farm ten yeares, before the late detestable Massacre and bloody Rebellion of the Irish. These hills are for the most part low and small, yet some of a good height and bigness, the ground lean, in many places very stony, in some rocky, not of any one continuall rock, but by peece-meals here and there rising and appearing. Yet are these hills in severall places wet and moorish, as well in the rocky

as other parts. These hills serve only for pasture of sheep. In the major part of the Mountainous country of Wickloe, the which beginning five miles to the South of Dublin, doth extend it self above fiftie miles in length ; and in severall other parts.

It hath been observed in many parts of Ireland, but chieflie in the county of Meath, and further Northward, that upon the top of the great hills and mountains, not only at the side and foot of them, to this day the ground is uneven as if it had been plowed in former times. The inhabitants do affirm, that their forefathers being much given to tillage, contrarie to what they are now, used to torn all to plow-Und. Others say that it was done for want of arable, because the Champain was most everywhere be-set and overspread with woods, which by degrees are destroyed by the wars. They say further, that in those times, in places where nothing now is to be seen, but great logs of a vast extent, there were thick woods, which they collect from hence, that now and then trees are digged out there being for the most part some yards long, and some of a very great bigness and length.

Sect. 4. Of the higher sort of Mountains in Ireland.

As for those other mountains, the which with an excessive height rise up towards the Skies, they are not very common in Ireland ; and yet some there be, which although not comparable with the Pyrenæi, lying between France and Spain, with the Alpes, which divide Italy from France and Germany, or with other mountains of the like vast height, nevertheless may justly be counted among the loftie mountains. Of this number are the Mountains of Carlingford, betwixt Dundalke and Carlingford, the which in a clear day may easily be seen from the Mountains to the South of Dublin, the which are more than fortie miles distant from them ; the Mountains about Lough Suillie, in the North parts of Ulster, the which may be seen many miles off in the Sea ; the Curlews, that sever the counties of Sleigo and Roscomen in Connanght ; the twelve Mountains in the North-quarter of the County of Tipperary in Munster, the which far exceeding the rest of the mountains there, are known by the name of *the twelve hills of Phelim ghe Madona* ; Knock-Patrick, in the West-part of the county of Limerick, not far from the bay of Limerick, which Mountain can be seen by the ships, which are a huge way from the land yet ; the Mountain of Brandon hills, in the County of Kerry, to the East of the haven of Smerwick, the which are discovered by the Sea-faring men, when they are above fifty miles from the land ; in the North-west quarter of the county of Waterford, called Slew Boine ; that in the mountainous country of Wickloe, which for it's fashions sake is commonly called the Sugar-loaf, and may be seen very many miles off, not only by those that are upon the Sea, but even into the land.

Sect 5. Nature of the Ground in Ireland, and of the fruitfull grounds.

Next to the fore-going division of Ireland taken from the fashion and outward form of the land, commeth to be considered that which consisteth in the nature of the soil or ground ; some parts of the conntrie being fruitfnll, and others barren.

The fertile soil is in some places a blackish earth, in others clay, and in many parts mixt of both together : as likewise there be sundry places, where the ground is mixt of earth and sand, sand and clay, gravell and clay, or earth ; but the chalke-ground and red earth, which both are very plentiful! and common in many parts of England, are no where to be found in Ireland.

These grounds differ among themselves in goodness and fatness, not only according to the different nature of the soil whereof they consist, but also according to the depth of the mold or upper-most good crust, and the nature of the ground which lyeth next to it underneath: for the best and richest soil, if but half a foot or a foot deep, and if lying upon a stiffie clay or hard stone, is not so fertile, as a leaner soil of greater depth, and lying upon sand or gravell, through which the superfluous moisture may descend, and not standing still, as upon the day or stone, make cold the roots of the grass, of corn, and so hurt the whole.

There be indeed some countries in Ireland, where the ground underneath being nothing but stone, and the good mold upon it but very thin, it is nevertheless very fruitful in corn, and bringeth sweet grass in great plenty, so as sheep and other cattell do wonderfull well thrive there ; which kind of land is very common in the County of Galloway, and in some other Counties of Connanght, as also in

sundry parts of the other Provinces. But the reason thereof is in those parts, because the stone whereon the mould doth lye so thinly, is not Free-stone, or any such cold material, but Lime-stone, which doth so warm the ground, and giveth it so much strength, that what it wants in depth, is thereby largely recompensed.

Sect 6. *Causes hindering the fruitfulness of the ground, where the soil otherwise is not bad.*

Except in the case now by us declared, neither Corn nor Grass will grow kindly, where the ground, though otherwise good, is not deep enough, as also where it hath a bad crust underneath ; From whence it commeth, that in many places, where the grass doth grow very thick and high, the same nevertheless is so unfit for the food of beasts, that cows and sheep will hardly touch it (especially if they have been kept in better pastures first) except that by extreme famine they be compelled thereto ; and that by reason of the coarsness and sourness of the grass, caused by the standing still of the water, the which through the unfitness of the neather crust, finding not a free passage downwards, maketh cold the good mold, and the crop and grass degenerate from its naturall goodness.

For the same reason the land in many parts, where otherwise the soil in it self would be fit enough to produce good Wheat or Barley, will hardly bear any thing else but Oats, or Rye, and that none of the best : As in other parts, the fault is in the soil it self, and by the leanness thereof it commeth, that nothing else but coarse grass, and the worst kinds of grains will grow there. And onto these causes may be joyned another yet, the overshadowing of high and steep Mountains and Hills, whereby the sides thereof, and the lands, lying close under them, being deprived of the free and seasonable access of the Sun-beams, and so wanting convenient warmness, cannot afford to the things growing thereon such good and well-concocted nourishment, as unto the producing of the best and richest sorts of grains and grass is requisite.

Sect. 7. *Ireland a very fruitfull Country, especially for grass.*

These defects are not peculiar to Ireland, but common to other countries, and nowise generall in it, but only here and there in distant parts ; and where they are, they may be amended by the meanes fit and usuall for that purpose, whereof by-and-by we shall speak particularly : therefore they cannot hinder, that Ireland should not justly be counted among the fruitfulest countries of the world. And although *Orosius*, who preferreth it even before England in this particular (*Hibernia soli cæliq̄tæ temperie magis utilis Britanniā*, are his words) goeth too far, yet fullie true is the saying of *Stanyhurst*, in the preface of his Irish chronicle. *Cum Hibernia, cæli salubritate, agrorum fertilitate, ubertate frugum, pastionis magnitudine, armertorum gregibus, conferre paucas, anteferre nullas valeas* : that is, *With Ireland for wholesomness of air, fruitfulness of lands, great store of corn, abundance of pastures, and numerousness of cattell, few countries may be compared, none preferred* : as also that of *Giraldus*, *Gleba præpingui uberique frugum proventu fælix est terra, et fœcunda frugibus arva, pecore monies* : that is. *This country is happy in very rich ground, and plentifull increase of graines, the fields being fertile in corn, and the mountains full of cattell*. But although Ireland almost in every part, where the industry of the Husbandman applieth it self thereto, bringeth good corn plentifully, nevertheless hath it a more naturall aptness for grass, the which in most places it produceth very good and plentifull of it self, or with little help : the which also hath been well observed by *Giraldus*, who of this matter writeth thus : *Pascuis tamen quam frugibus, gramine quam grano fœcundior est insula. This Iland is fruitfuller in grass, and pastures, than in corn and graines*. And *Buchanan* in his second book of his History of Scotland calleth the pasture ground of Ireland *pascua fere totius Europæ uberrima*, the fruitfulest pasture ground of most all Europe.

Sect 8. *More of the plenty and goodness of the Irish pastures.*

The abundance and greatness of pastures in Ireland, doth appear by the numberless number of all sorts of cattell, especially of Kine and Sheep, wherewith this country in time of peace doth swarm on all sides, whereof in another place shall be spoken more at large : and the goodness of the same is hereby sufficiently witnessed, that all kind of cattell doth thrive here as well in Ireland, and give as good milk, butler, and cheese (with good handling) as in any other country.

It is true, that the Irish kine, sheep, and horses, are of a very small size : but that that doth not come by reason of the nourishment and grass, but through other more hidden causes, may be easily demon-strated by the goodly beasts of the for-named kind, that are brought thither out of England, the which not only in themselves, but in all their breed, do fully keep their first largeness and goodness, without any the least diminution in any respect, so that before this last bloody rebellion the whole land, in all parts where the English did dwell, or had any thing to do, was filled with as goodly beasts, both Cows and Sheep, as any in England, Holland, or other the best countries of Europe : the greatest part where-of hath been destroyed by those barbarians, the naturall inhabitants of Ireland, who not content to have murdered or expelled their English neighbours (upon whom with an unheard-of and treacher-ous cruelty they fell in the midst of a deep peace, without any the least provocation) endeavoured quite to extinguish the memory of them, and of all the civility and good things by them introduced amongst that wild Nation ; and consequently in most places they did not only demolish the houses built by the English, the gardens and enclosures made by them, the orchards and hedges by them planted, but destroyed whole droves and flocks at once of English Cows and Sheep, so as they were not able with all their unsatiable gluttony to devour the tenth part thereof, but let the rest lye rotting and stinking in the fields.

The goodness of the pastures in Ireland doth further appear by this, that both Beef and Mutton there, as well that of the small Irish, as that of the large English breed, in sweetness and savouriness doth surpass the meat of England it self as (all those, who have tried that most confess) although England in this paticular doth surpass almost all the countries of the world.

Nerertheleas the saying of *Pomponius Mela*, That the grass here is so rank and sweet, that the cattell do burst, if they be suffered to feed too long, wherefore they be fain every day to drive them betimes out of the pastures, *Juvena adeo luxuriosa herbis, non letis modo, sed etiam dulcibus, ut se exigua parte diei pecora impleant, ac nisi pabulo prohibeantur, diutius pasta dissiliant* : the which also hath been repeated by *Salinus*, *Hibernia ita pabulosa, ut pecua ibi, nisi interdum à pascuis arceantur, in periculum agat satias* : That is, *Ireland hath such excellent pastures, that cattell there are brought into danger of their lives by over-feeding, except now and then they be driven out of the fields* ; is a mere fable, no wayes agreeable to the truth: For all kinds of cattell here, as in other countries, are continually left in the pastures day and night: neither do they through their continuall feeding ever burst or come into any danger of bursting.

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Of the severall manners of manuring and inriching the ground practised in Ireland.

Sect 1. *In some part of Ireland the ground never needs dunging.*

To amend the lean and faulty grounds, to enrich both them and the good ones, and to keep both the one and the other in heart, in preserving them from being exhausted, the dunging of the ground is usuall in Ireland as in other countries. It is true, that as approved Authors assure us, in the Iland of Zealand, part of the Kingdom of Denmark, the naturall richness of the ground is such, and so lasting, as it needeth not the succour of any artificial helps, but is very fruitfiill and aye preserveth its fertility, without putting the Husband-man to the labour and costs of dunging. That likewise there is some part in the Frowine of Munster in Ireland, where very credible persons have assured me of their own knowledge, that the land never needeth any dunging ; so as the inhabitants thereof never trouble them-selves to keep the dung of their beasts, but from time to time fling it into a River which runneth by them. But this happiness and richness of soil as it is very rare over all the world, so in Ireland too, being confined to very narrow bounds, all the rest of the Kingdom is necessitated, for the ends afore-said, to help and improve their Lands by dunging; the which they do severall manner of wayes.

Sect 2. *Of Sheeps-dung.*

The commonest sort of manuring the Lands in Ireland, is that which is done with the dung of beasts, especially of Cows and Oxen, and also of Horses mixed with a great quantity of straw, and having lye a long while to rot and incorporate well together: Whereof, as of a matter every where known and usuall, it is needless to speak farther.

Only thus much seemeth good to us not to pass over in silence, that if Sheep here, as in other countries, were housed and kept up in stables for any long time together, their excrements would make better dung, than that of any other four-footed creatures. For the land on which sheep have fed for two or three yeares together, or longer, is so greatly enriched thereby, that when it commeth to be plowed, it bringeth a much fairer and plentifulter crop, than if from the beginning it had been made Arable, and dunged after the ordinary manner. Wherefore also great Sheep-masters may set their land, where the sheep have been feeding some yeares together, as dear again by the Acre, than what at the first they could have got for it of any body.

Wherefore also it is an usuall thing in Ireland, as well as in England, to drive the sheep upon the Fallow, and to keep them there untill all the herbs which may minister any food onto the Sheep be by them consumed ; which doth the ground a great deal of good, and giveth it heart to bring afterwards the better increase. And the same also helpeth greatly for to make good grass grow upon the Arable, when the same is turned into Pasture and Meddow ; a thing ordinarily used in sundry parts of Ireland, and many times necessary for to beep the lands in heart: For ground being plowed, and the Sheep driven thither as soon as any herbs grow upon it, they do not only consume the Thistles, and other useless herbs, but cause good grass to grow up in lieu thereof, and that speedily. For in all places where their dung lighteth, of the best and sweetest sorts of grass do grow, and that within the first year, which otherwise would not have come in much longer time, and that nothing near so good generally.

Sect. 3. *An useful observation about Cows-dung.*

There is notable difference betwixt Sheeps-dung and that of other cattell, as in the goodness and richness it self, so in the particular last mentioned by them. For that of Oxen and Cows, is no wayes fit for dunging untill it is grown old, and hath lyen a soaking with straw a great while : dayly experience shewing in Ireland, as in England and other countries, that in those places of the pastures where the fresh Cow-dung falleth and remaineth, the grass the next year doth grow ranker and higher than in the rest of the same fields, but so soure and displeasing, that the beasts will not offer to touch it ; so as ordinarily you shall see these tufts of grass standing whole and undiminished in the mist of pastures, that every where else are eaten bare and to the very ground. The which as in part it may be imputed to the quantity of the dung, the which being greater than the earth can well digest, and conveniently unite with it self, cannot be turned into so good and sweet nourishment; so doth it also with-out doubt come in part through the very nature of the dung, the which of it self, and without a long preparation and alteration, is not so fit to nourish the ground, as that of sheep.

Sect. 4. *Of Pigeons-dung.*

Pigeons-dung also is very convenient for the improvement of the ground ; and I know some in Ireland, who having tryed that, have found a wonderfull deal of good in it, incomparably more than in that of any four-footed beasts, and of Sheep themselves. But the Pigeon-houses no where in Ireland being so big as to afford any considerable quantity, and never having heard of any body there who could dung more than an Acre or two with all the Pigeons-dung which had been gathering the space of a whole twelve-moneth, it cannot well be reckoned among the common sorts.

Sect. 5. *Of Ashes and Mud.*

Besides the dung of Beasts there are usuall in Ireland, or were before this Rebellion, five or six other sorts for to Manure and Improve the ground, whereof some are as good as the dung consisting of the excrements of beasts, and others do far surpass it. One of these sorts is Ashes, and Mud another.

As for the first, I have understood of Englishmen, who had lived many years in Ireland, and all that while had exercised Husbandry, that they had used to gather all their Ashes of their hearths, bake-houses, and brew-houses, being wood ashes, and to lay them of a heap somewhere in the open air, from whence at convenient times they would carry them upon their grounds, and there spread them in the same manner as other dung, but nothing near in so great a quantity; wherein they affirmed to have found as much and more good than in any dung of beasts.

And I know severall other English, who living in Ireland, did use to take the scouring of their ditches, together with other Mud digged out of the Bogs, and having let it lye a good while a rotting in great heaps, did afterwards carry it upon their lands in lieu of dung: the which they found very good and usefull for that purpose.

These two sorts were never yet brought into common use, but only practised by some few persons, especially that of the Ashes, although in other Countries they have been known long since ; so as *Pliny*, who lived about fifteen hundred yeares ago, writeth in the ninth Chapter of the seventeenth Book of his Natural History, that in his time in that part of Italy which is situated between the Alpes and the River Po (comprehending those Countries which now are known by the names of Piemont and Lombardy) ashes were more used and commended for the manuring of the grounds, than the dung of beasts.

As concerning the burning of the Heath, and other dry herbs standing upon the ground, for to manure the land with the ashes thereof, that not properly belonging to this place, shall be spoke of more at large in some of the ensuing Chapters.

Sect 6. *Of Lime.*

The English living in Queenes-county in Leinster, having seen that in sundry parts of England and Wales, especially in Pembrookshire Lime was used by the inhabitants for the manuring and inriching of their grounds, begun some yeares since to practise the same, and found themselves so well thereby, that in a short time the use thereof grew very common amongst them, so as many of them ever after used no other kind of dung.

The manner of it was thus. Having first plowed their fields, they carryed the Lime on them, and layd it in many small heaps, leaving a convenient distance between, in the same manner as useth to be done with the dung of beasts ; and haying let them lye for some moneths, they plowed the land again to convey the Lime into the ground.

This made it so rich, that in a great while after nothing else needed to be done to it, but to let the land at a certain revolution of time lye Fallow, no other manuring at all being requisite for some yeares after : and all that while the land was very fruitfull, more than it could have been made with any ordinary dung, and very free of all sorts of bad herbs and weeds (especially for the first yeares) bringing corn with much thinner husks than that growing upon other lands.

They found that the Lime carryed upon the land hot out of the Kiln, did more good in all the fore-mentioned particulars, than when they let it grow cold first. And this they could do very easily, because Lime-stone is very plentyfull in that County, especially in the Town of Monrath, where there is a whole hill of that stone, of that bigness, that if all the adjacent Country did continually fetch it from thence for the forenamed use, it would for ever hold out sufficiently.

The Land thus manured and improved by Lime, shewed its fruitfulness not only in the following yeares, but even in the first, except the Lime had been layd on in undue proportion, and in greater quantity than was requisite ; for in that case the Lime burnt the corn, and the first yeares Crop was thereby spoyled.

In some places where the land was not cold and moyst enough to be able to endure meer Lime, they mixed the Lime with earth digged out of pits, and let that stuff lye a mellowing in great heaps for some moneths together, and afterwards carried it on the land, and manured that therewith.

Sect. 7. *A remarkable history concerning the Excellencie of Lime for the inriching of the ground.*

How incredibly the land was inriched by this kind of manuring, may be gathered by the ensuing particular, the whole Lordship of Monrath was thirty yeares agoe set by one Mr. Downings (whose it was, and who afterwards sold it to Sir Charles Coot) for fifty pounds sterling by the year, and never-

theless after a while the Farmers surrendered it unto him, complaining that they could not live by it but were quite impoverished : whereas they who farmed it next after them (being people newly come out of England) and gave an hundred and fifty pounds a year sterling for it, did not only live very freely upon it, yea grew rich and wealthie, but withal did so far forth improve the land, partly indeed with building, planting, hedging, and the like, but chiefly by this kind of manuring, that at the time when this last horrible rebellion broke forth, the same Lordship, if it had been to let out then, might have been let for five hundred pounds sterling a year : as it hath been assured me by some, who themselves had been farmers of that land.

Sect 8. Another history, showing the efficacy of Lime in this particular.

Before we give over this discours of Lime, we shall adde to what hath been said already, that in some other parts of Ireland, where this manuring with Lime was not used nor known, the vertue of Lime in this particular hath been found out by meer chance. For some persona known to me, who lived but a few miles from Dublin, having understood that the crows (wherewith they were much plagued, and who did use to make very great spoil of their grains) would not touch the corn wherewith the Lime was mixed, did cause unslaked Lime to be mingled with water, making it as thinne as if it had been for the whitening of walls, and very well besprinkled the corn therewith, before it was carried to the fields to be sown, and that after this manner, the corn lying on a heap, one turned it with both hands, whilst another sprinkled on the fore-said stuff, doing so until the whole heap was thoroughly besprinkled ; at other times they mingled dry Lime with the corn, and afterwards besprinkled the whole heap with fair water through and through, for the same purpose, and hereby they did not only obtain the aforesaid end, of preserving the corn from the crows, but had thereby a fairer and better crop, than ever before their land had produced.

Sect 9. Of Sea-sand.

Lime is much used in the province of Munster, as in other parts of Ireland, so for to manure the ground withal, where the sea-sand likewise is greatly used to the same end, not only in places lying on the sea-side, but even ten, twelve, and fifteen miles into the land, whither it was carried in some places by boats, and in others upon carts, the charges being sufficiently recompensed by the profit comming from it. For they used it for the most part only upon very poor land, consisting of cold clay, and that above half a foot deep: which land having been three or four times plowed and harrowed (in the same manner as is usuall to be done with fellow) the sand is strawed all over very thinly, a little before the sowing time : the which being done, that land bringeth very good corn of all sorts, not only Rye and Oates, but even Barley and Wheat, three yeares one after another ; and having lyen fallow the fourth year, for many yeares after it produceth very clean and sweet grass ; whereas formerly, and be-fore it was thus manured, it produced nothing but moss, heath, and short low furze: which herbs are fired upon the ground, and the ground stubbed, before it be plowed the first time.

It is not any peculiar sort of sea-sand, nor out of any particular places, which is used for this purpose, but that which every where lyeth on the strands. And this manner of manuring the land with sea-sand is very common in the two most Westerly Shires of England, Cornwall, and Devonshire, from whence those, who first practised it in Ireland, seem to have learned it.

Sect. 10. Of Brine or Pickle.

The goodness of the sea-sand consisteth chiefly in its Saltness, for which reason pickle itself is very good for this purpose ; it being very well known to severall English dwelling about the Bond and Colraine, that were Farmers of the Salmon-fishing there, who used every year carefully to keep the fowl pickle, comming of the Salmon at their repacking; and having powred it among the ordinary dung of cattle and straw they did let them lye a good while a mellowing together. Hereby it was greatly strengthened and enriched, so that the land being dunged with it, did bear much better and richer crops than that which was manured only with common dung without the mixture of it

Sect. 1. *Of the Marle in Ireland, and the manner of Marling the land there.*

MARLE is a certain sort of fat and clayish stuff, being as the grease of the earth ; it hath from antient times been greatly used for manuring of land both in France and England, as may appear out of *Pliny* in the sixth, seventh, and eighth Chapters of his seventeenth Book. The same also is still very usuall in sundry parts of England, being of an incomparable goodness : The which caused the English, who, out of some of those places where Marie was used, were come to live in Ireland, to make diligent search for it, and that with good success at last; it having been found out by them within these few yeares, in severall places ; first in the Kings-county, not far from the Shanon, where being of a gray colour, it is digged out of the Bogs ; and in the County of Wexford, where the use of it was grown very common before this Rebellion, especially in the parts lying near the sea; where it stood them in very good steed, the land of it self being nothing fruittull. For although the ground (for the most part) is a good black earth, yet the same being but one foot deep, and having underneath a crust of stiff yellow clay of half a foot, is thereby greatly impaired in its own goodness. In this depth of a foot and a half next under the clay, lyeth the Marle, the which reacheth so far downwards, that yet no where they are come to the bottom of it. It is of a blew colour, and very fat (which as in other ground, so in this, is chiefly perceived when it is wet) but brittle and dusty when it is dry.

Sect. 2. *The manner, charges, and profit of Marling the ground.*

The Marle is layed upon the land in heaps, by some before it is plowed, by others after, many letting it lye severall moneths ere they plow it again, that the Rain may equally divide and mixe it ; the Sun, Moon, and Air mellow and incorporate it with the earth. One thousand cart-loads of this goeth to one English acre of ground ; it being very chargeable, for even to those who dig it out of their own ground, so as they are at no other expences but the hire of the labourers, every acre cometh to stand in three pounds sterling. But these great expences are sufficiently recompenced by the great fruitfulness which it causeth, being such, as may seem incredible; for the Marled-land, even the very first year, fully quitteth all the coat bestowed on it. There besides it is sufficient once to marle, where-as the ordinary dunging must be renewed oftentimes.

Sect. 3. *The usage of the Marled-land, practised by them of the County of Wexford.*

The good usage of the Marled-land, to keep it in heart for ever after, doth consist, in the opinion and practice of some, in letting it lye Fallow at convenient times, but the ordinary manner, commonly practised by the inhabitants of the County of Wexford, and counted the best by them, is, that having sowed it five or six yeares together, with the richest sorts of Corn, to wit, Wheat and Barley (especially that sort which in some parts of England, and generally in Ireland, is peculiarly called Bear, being a much richer Grain than the ordinary Barley) it being afterwards turned to Pasture, whereunto it is very fit, forasmuch as it bringeth very sweet grass in great abundance: For the Marie is also used on Meddows at the first, with very good success, improving the same most wonderfully.

If the Marled-land be thus used, and by turns kept under Corn, and Grass, it keeps its fruitfulness for ever ; where to the contrary, if year after year it be sowed till the heart be drawn out, it's quite spoyled, so as afterwards it is not possible to bring it again to any passable condition by any kind of dunging, or marling. This would ordinarily be done in the space of ten yeares ; for so long together the Marled-land may be sowed, and bring every year a rich crop of the best Corn.

Nevertheas this is not generall, but taketh place only in the worsor kind of ground ; for where the land of it self is better and richer, there after Marling, Wheat and other Corn may be sowed, not only for ten yeares together, but longer : for very credible persons have assured me, that some parts of the County of Wexford having borne very good Corn for thirteen yeares together, and afterwards being turned to pasture, it was as good and fertile as other Marled-grounds that had been under Corn but five or six yeares.

Sect. 4. *Of the Marle in Connaught.*

The Province of Connaught (by what hath been discovered) is much more plentifull in Marle, than Leinster, as in other Counties, so in those of Roscomen, Sleigo, and Galloway, almost in every part of

it. It is there of three severall colours, some being white as chalk, other gray, and some black ; but none blew, as that in the County of Wexford. It lyeth nothing deep under the upper-ground, or surface of the earth, commonly not above half a foot ; but its own depth is so great, that never any body yet digged to the bottom of it.

The land which they intend to marle in this Province, is commonly plowed in the beginning of May, and lying five or six weeks (until it be sufficiently dried and mellowed by the Sun and Wind) they harrow it, and then having brought the Marle upon it, five or six weeks after it is plowed again, and a third time about September: After which third plowing they sow it with Wheat or Barley, where-of they have a very rich crop the next year.

Sect. 5. Property and usage of the Marled-lands in Connaught.

Land Marled in that manner as we have said, may be sowed ten or twelve yeares together; the first eight or nine with Wheat, and Bear, or Barley, and the remaining three or four yeares with Oates, afterwards the land is turned to pasture, and having served some, yeares in that kind, it may be Marled anew, and made as good for Corn as at the first.

For the observation of those of the County of Wexford, that land may not be Marled more than once, doth not take place in Connaught, where it is an ordinary thing, having some space of yeares to make it again. I know some Gentlemen who have caused some parcels of land to be Marled thrice in the space of twenty yeares, and have found very good profit by it. But whether this be caused by the difference of the ground and Marle (appearing also hereby, that in Connaught they scarce lay the fourth part of the quantity of Marle on the ground of what they do in the County of Wexford) or by the carelessness or want of experience of those of that County, I am not yet fully informed. But thus much is known as well in Connaught as other parts, that those who sow the Marled-land until it can bear no more, and be quite out of heart, will find it exceeding difficult, if not altogether impossible ever to amend or improve the same again by any means whatsoever.

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Of the Heaths and Moores, or Bogs in Ireland.

Sect 1. Of the Moory, or Boggy Heaths..

HAVING spoke of the fruitfull lands of Ireland, it followeth that we treat of those which are neither fit for the bringing of Corn, or feeding of Cattell ; some being such for want of good soil, and others through superfluous moysture.

Of the first sort are those places where the ground consisting of meer rock, sand, or earth, naturally unfruitfull hath no good mould at the top sufficient for Corn or Grass to root, and to draw convenient nourishment out of it, the ground being bare, or over-grown with only Moss, Heath, Furze, Brakes, Thorns, Rushes, and the like.

The places whose ground is bare, are nothing frequent, nor of any great bigness in Ireland, and rather on the sea-side than within the land. But the other are very common throughout the whole Kingdom, not only in the Mountains (many whereof do for the most part consist of nothing else) but also in the Hilly quarters, the Plain-countries, and in many places of great extent, taking up some miles in length and breadth. Most of these Wastes in the Plain-counties and Valleys, as also some on the Mountains and Hills, are Moory and Boggy, fit for to dig Turf out, to the great commodity of the inhabitants, in places where other fuel is wanting. So that these parts of Land, although barren and producing no kind of thing for the food of man or beasts, may not be reckoned in the number of those which are altogether unprofitable, being of good use in the parts far distant from the Sea, where they can have no Sea-coale, and where woods are wanting, nor well live. Some of these dry, or red Bogs, as commonly they are called (the first, in comparison of those whereof presently shall be spoken, the other, because the earth in them for the most part is reddish, and over-grown with Moss of the same colour) are in some parte of a vast extent ; instance that by the Shanon-side, beginning hard by

Atlone, and following the course of the River down towards Limerick, which being two or three miles broad in most parts, is said to be upwards of fifty miles in length.

Sect. 2. *Of the dry Heaths.*

There are some dry Heaths in Ireland, for the most part on the Mountains, and very few in the plain countries ; to the contrary of England, where, as well as in Netherland, Germany, and other countries, those Heaths on plain ground are very common in sundrie parts of the land, and many of them of a great extent, having very many miles in compass ; and where any such dry Heaths are in Ireland, the land for the most part is not altogether barren, but grassy between and at the bottome of the Heath ; so as the Heath being burnt (a thing much used in Ireland both by the English and Irish) the land bringeth reasonable good and sweet grass, fit for sheep to feed on ; and with a little extraordinary labour and costs brought to bear corn.

Others of these Heaths are grassy, having the grass growing not all over among the Heath, but in spaces by it self: as upon the Heath between the Town of Kildare and the Liffie ; which is famous over all Ireland by the name of the Currough of Kildare, being a hilly ground, at its highest near the said town, from thence towards the Liffie descending by degrees, about three mites long, and two or three broad, divided into rowes, of heath and grass ; which being of no great breadth, and many in number, do lye by the side one of another throughout the whole earth, each of those rowes extending it self in length from the one end of the Currough to the other, the rowes of Heath are about a stone cast over in some places, in some more, in others less : but those of grass a good deal narrower than the others, being always alike green and dry, in the winter as well as the summer, and clothed with short grass, but very sweet and good, very convenient for sheep to feed on ; of the which always in time of peace, a very great number is grazing here, the whole Currough being a Commons.

Sect. 3. *Of the wet Bogs.*

The places barren through superfluous moysture, are Bogs called by the Irish Moores, whereof Ireland is full. There is three or four different sorts of them ; grassy, watery, muddy, and hassocky, as appeareth more largely by the following description. But the English Irish have given the name of Bogs, not only to the wet, of which we are now to treat, but as well to the turf moores of all sorts, not excepting the red bog, which in most places is firm enough to bear a man, or unshod nagge going over it, but is not for any great weight. But we shall in the following chapters speak in order of the four sorts of wet bogs, which above we have mentioned, and afterwards in its due place treat of the turf and red moores, as occasion shall require.

Sect. 4. *Of the Grassy Bogs.*

The grassy Bogs are all over covered with grass, looking fair and pleasant, as if they were dry ground and goodly meddows ; whereby many, who not knowing the nature of those places, and because of the greenness suspecting no evill, go into them to their great trouble, and many times to the extreme danger of their lives, for the earth being very spungy can bear no weight, but as well men as beasts, as soon as they set foot on it do sink to the ground, some knee deep, others to the wast, and many over head and ears : for all or most Bogs in Ireland having underneath a hard and firm gravell are not of an equall depth, which in some is only of two or three feet, in others five, six or more, insomuch that those who fall into the deepest places of these bogs, can hardly escape, but for the most part do perish, being pitifully smothered.

Some of these Bogs do so dry up in the summer that they may be passed without danger ; the which in particular falleth out in the great Mountains in Munster in the County of Kerry, called Slew-Logher, upon which all kind of cattell do grase the summer long being every where full of good and sweet grass, knee deep in most places ; whereof not the tenth part being eaten (for if all the cattell of that Province were driven thither and left all the summer upon the place it would hardly be consumed) the rest is spoyled when the wet weather commeth in, and stayeth the rain-water from descending; through which the ground rotteth in that manner, that all winter long it is unpassable for men and beasts.

But the deepest Bogs are unpassable in the summer as well as in the winter, yet most of them have firm places, in narrow paths, and in some larger parcels ; by the meanes whereof those, unto whom they are known, can cross them from one side to another, where others who are not used to them do not know in what part to set one step; in which nimble trick, called commonly treading of the Bogs, most Irish are very expert, as having been trained up in it from their infancy.

The firm places in passing, or but lightly shaking them, tremble for a great way, which hath given them the name of Shaking-Bogs ; and where they are but of a small compass, Quagmires.

Sect. 5. Of the Watery-Bogs, and of the Miry Bogs.

The Watery-bogs are likewise clothed with Grass, but the water doth not sink altogether into them, as into the former, but remaineth in part standing on the top (in the same manner as in some of the Grassy-bogs, and in all the low Pastures and Meddows of Holland) by reason whereof these Bogs are not dangerous ; for every one at the first sight may easily discern them from the firm ground.

These two sorts are in many parts found apart, and in others mixed and interlaced ; and likewise parcels both of the one and the other are found up and down in the Moory-heaths and Red-bogs.

Both these sorts, as well the Watery as the Green-bogs, yeeld for the most part very good Turf, much better than the Red-bogs, whereof more shall be spoken hereafter.

The Miry-bogs do consist of meer mud and mire, with very little or no grass upon them. These are commonly of a very small compass, whereas most part of the other two are of a notable extent, and some of severall miles in length and breadth.

Sect. 6. Of the Hassocky-Bogs.

Hassocky-bogs we call those, whose ground being miry and muddy is covered over with water a foot or two deep, in some places more, in others less ; so as one would sooner take them for Loughs, were it not that they are very thick overspread with little Tufts or Ilets, the which consisting of reeds, rushes, high sower grass, and sometimes with little shrubs, the most part are very small, and have but a few feet in compass; some of them being of the bigness of a reasonable big chamber. These little Islets or Tufts being so many in number, and spread over all the Bog, there remaineth nothing between them but great plashes of water (in regard whereof these Bogs might well be called Plashy-bogs) in some places wider, in others narrower, so as from the one men may well step or leap to the other ; that which those who are expert in it know how to do very nimble, and so to run from one part of the Bog to another : For the roots of the Rushes, Reeds, and other things growing on those Tufts, are so inter-woven, that they can easily bear a man who lightly treadeth upon them, although they have very little earth, and are wondrous spongy ; so as they, when the water being drained, the bog is dried round about, may easily be plucked from the ground.

The English inhabiting in Ireland have given these Tofts the name of Hassocks, and this sort of Bogs, Hassocky-bogs ; Of which Bogs Munster and other Provinces are not altogether free, but most of them are found in Leinster, especially in Kings and Queenes-county, where also the other sorts of Bogs are very common; whereas otherwise Connaught is generally fuller of Bogs than any of the other Provinces.

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Originall of the Bogs in Ireland ; and the manner of Draining them practised there by the English Inhabitants.

Sect. 1. Of the originall of Bogs in this Countrie.

VERY few of the Wet-bogs in Ireland are such by any naturall property, or primitive constitution, but through the superfluous moysture that in length of time hath been gathered therein, whether it

have its originall within the place itself, or be come thither from without. The first of these two cases taketh place in the most part of the Grassy-bogs, which ordinarily are occasioned by Springs; the which arising in great number out of some parcel of ground, and finding no issue, do by degrees soak through, and bring it to that rottenness and spunginess, which nevertheless is not a little increased through the rain-water comming to that of the Springs.

But the two other sorts, *viz.* the watery and Hassocky-bogs, are in some places caused by the rain-water only, as in others through brooks and rivelets running into them, and in some through both together ; whereunto many times also commeth the cause of the Grassy-bogs, to wit, the store of Springs within the very ground: and all this in places, where or through the situation of them, and by reason of their even plainnees or hollowness, or through some other impediment, the water hath no free passage away, but remaineth within them, and so by degrees turneth them into Bogs.

Sect. 2. Retchlesness of the Irish, cause of most of the Bogs. Of trees found in Bogs.

So that it may easily be comprehended, that whoso could drain the water, and for the future prevent the gathering thereof, might reduce most of the Bogs in Ireland to firm land, and preserve them in that condition. But this hath never been known to the Irish, or if it was, they never went about it, but to the contririe let daily more and more of their good land grow boggy through their carelessness, whereby also most of the Bogs at first were caused.

This being otherwise evident enough, may further be confirmed by the whole bodies of trees, which ordinarily are found by the turf diggers very deep in the ground, as well of other trees, as of hasels : likewise they meet sometimes with the very nuts themselves in great quantity, the which looking very fair and whole at the outside, as if they came but newly from the tree, have no kenell within the same, through the great length of time being consumed and turned into filth.

And it is worthie of observation, that trees, and trunks of trees, are in this manner found not only in the Wet-bogs, but even in the heathy ones or Red-bogs, as by name in that by the Shanon-side, whereof hath been spoken above : in which bog the turf diggers many times do find whole Fir-trees deep in the ground ; whether it be that those trees, being fallen, are by degrees sunk deeper and deeper (the earth of that Bog almost every where being very loose and spungy, as it is in all such Bogs) or that the earth in length of time-be grown over them.

Sect. 3. Draining of the Bogs practised by the English in Ireland.

But as the Irish have been extreme careless in this, so the English, introducers of all good things, in Ireland (for which that brutish nation from time to time hath rewarded them with unthankfulness, hatred, and envy, and lately with a horrible and bloody conspiracie, tending to their utter destruction) have set their Industrie at work for to remedy it, and having considered the nature of the Bogs, and how possible it was to reduce many of them unto good land, did some yeares since begin to go about it all over the land, and that with very good success ; so as I know Gentlemen, who turned into firm land three or four hundred acres of Bog, and in case that this detestable rebellion had not come between, in a few yeares there would scarce have been left one acre of Bog, of what was in the lands and possession of the English ; except only those places whose situation is altogether repugnant to draining, because that the water either through the hollowness of the place, as in the inclosed valleys and deep dales between the hills and mountains, or through the too great evenness and plainness of the ground not inclining to any one part more than another, cannot be drawn away at all ; and except such parcels as needs must have been kept for turf, and Red bogs who are very unfit for draining, for the trenches being made, the earth on both sides will sink into them again, and choak them up.

Sect. 4. Profit reaped by the draining of Bogs.

This draining of the Bogs as it tended not a little to the generall good of the whole land, by amend-ing the Air (whereof we shall have occasion to say more in some other place) and otherwise, so it brought great profit unto the Authors, for the land or soil of the Bogs, being in most places good of itself, and there besides greatly enriched by the lying still and the soaking in of the water for the

space of so many yeares, the same being drayned through the draining of the water, is found to be very fit either to have corn sowed upon, or to be turned into pastures ; making also excellent meddows : so as those, who have tried that, do affirm, that the meddows gained out of the Bogs might be compared with the very best of their other meddows, yea many times surpassed the same in goodness : and this took place chiefly in the Grassy bogs or Shaking bogs, whose fruitfulness in this particular, and in the plentiful production of very sweet and deep grass, after the draining off the water, was very wonder-full ; and all this without any other trouble or costs bestowed upon these meddows, than that they dunged them the first year, to warm them the better and the sooner, and more thoroughly to amend the remainders of that coldness and rawness contracted through that long and constant continuance of the water upon them ; after which once dunging, afterwards for a good many yeares nothing else needed to be done to them.

Sect. 5. Manner of draining the Bogs.

This draining of the Bogs was performed in the manner following. On that side of the Bog, where the ground was somewhat sloping, they cut a broad deep Trench, beginning it in the firm ground, and advancing it unto the entrance of the Bog, into which Trench the water would sink out of the next parts of the Bog in great abundance, and that many times so suddenly, as if a great sluice had been opened, so as the labourers were constrained to run out of it with all speed, lest the force of the water should overwhelm and carry them away. Some part of the Bog being by this means grown reasonable dry within a short space of time, opportunity thereby was ministred to advance the Trench farther into the Bog ; and so by little and little they went on with it untill at hist they carryed it quite across the Bog, from the one side to the other : and having done this, they made a great many lesser Trenches out of the main one, on both sides of the same ; the which bringing the water from all the parts of the Bog unto the main Trench, did in a little while empty the Bog of all its superfluous moysture, and turn it into good and firm ground.

Sect. 6. Observation about the falling and settling of the Bogs at their draining.

The green or Grassy bogs, the which having all their moysture and water inwardly, are thereby wonderfully swelled and puft up, use by means of this draining to fall very much, and to grow a great deal lower, and that not only apparently, so that the ground which before the draining was five or six feet high, commeth at last to be not above two or three feet high ; but sometimes also suddenly, and within the space of four and twenty, or eight and forty houres ; whereas ordinarily that useth to come to pass in greater length of time ; and although the ground by falling in this manner, may seem thereby to have been subject to return to its former boggy condition on the least occasion; nevertheless there was no danger of that, as long as the Trenches were kept open, and thereby the passage kept free for the water, which from time to time would from all parts of the drained Bog be sinking into them. This water, as at the first draining, so ever after, was by the main Trench carryed unto some Brook, River or Lough, according as one or other of them was next at hand, and the situation of the land would give opportunity.

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