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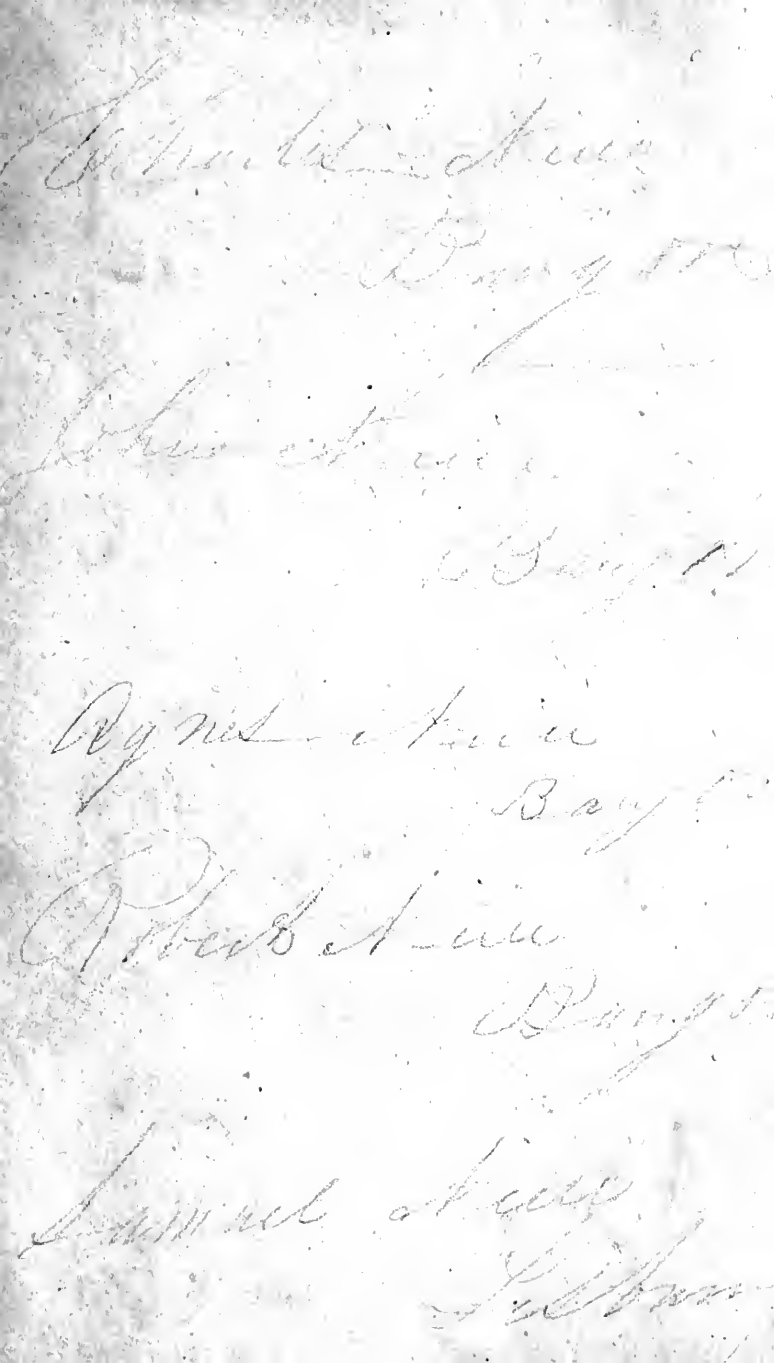

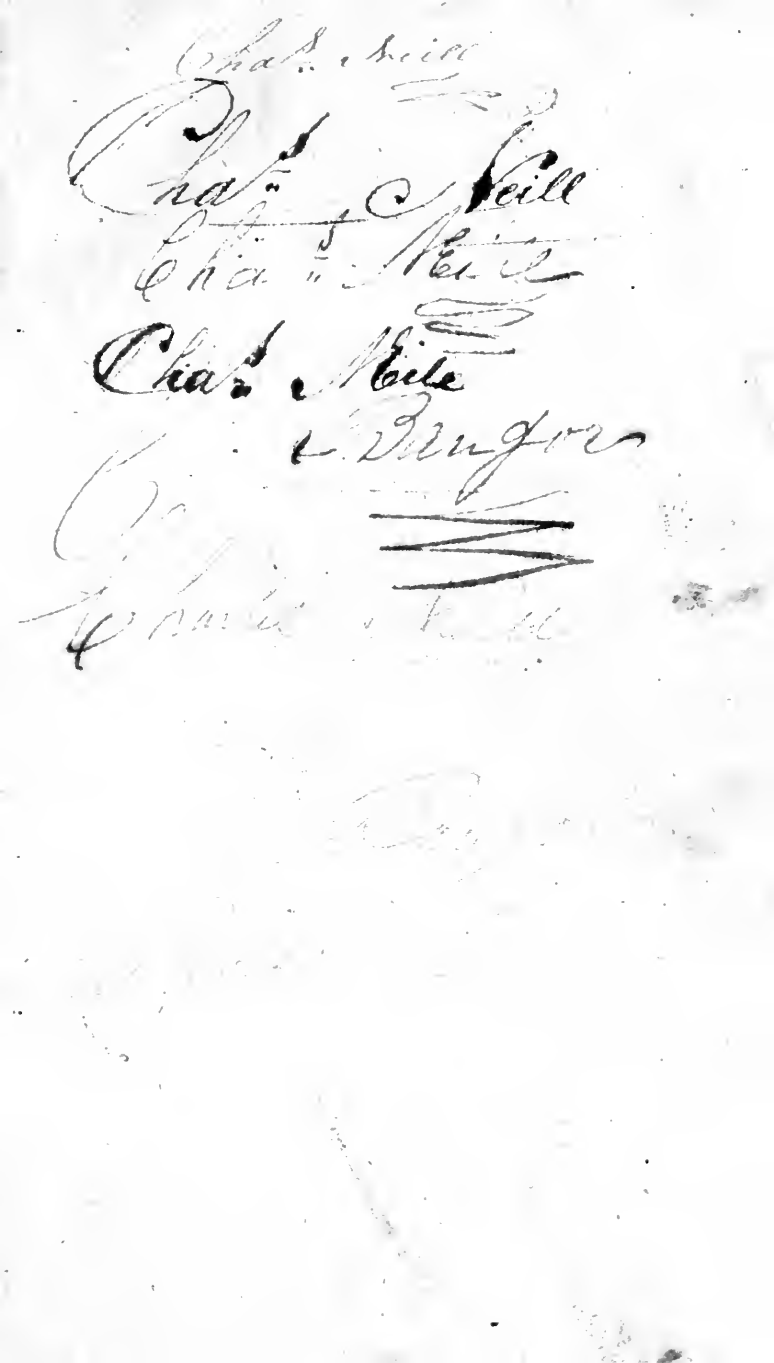

John Nicol

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John Nicol

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the 14th March 1834

STATISTICAL SURVEY

OF THE

COUNTY OF DOWN,

WITH

OBSERVATIONS

ON

THE MEANS OF IMPROVEMENT;

DRAWN UP FOR THE CONSIDERATION, AND BY ORDER

OF

The Dublin Society,

BY

THE REV. JOHN DUBOURDIEU,

RECTOR OF ANNAHILT.

Dublin.

PRINTED BY GRAISBERRY AND CAMPBELL,

NO. 10, BACK-LANE.

1802.

TO THE READER.

This Report *is at preſent printed and circulated for the purpoſe merely of procuring further information, reſpecting the ſtate and huſbandry of this diſtrict, and of enabling every one intereſted in the welfare of this country, to examine it fully, and contribute his mite to its improvement.*

The Society do not deem themſelves pledged to any opinion given by the Author of this Survey; and they deſire, that nothing contained in it be conſidered as their ſentiments; they have only publiſhed it, as the report of the gentleman, whoſe name is affixed, and they publiſh it, for the comments and obſervations of all perſons, which they entreat to be given freely, and without reſerve.

It is therefore requeſted, that the obſervations on reading this work may be returned to the Dublin Society, as ſoon as may be convenient, and which will meet with the fulleſt attention in a future edition.

PRELIMINARY OBSERVATIONS.

SO many circumſtances have conſpired to impreſs the neceſſity of an increaſed attention to agriculture, the purſuit is now become ſo faſhionable, and ſo much has already been written in recommendation of rural economy (de re Ruſtica), that any additional argument in favour of this ſubject ſeems to be ſuperfluous.

I ſhall therefore only obſerve, that, if thoſe gentlemen and farmers, inhabitants of this county, into whoſe hands this Report may fall, ſhould find in it only what is familiar to them, they will have the goodneſs to attribute that to the nature of the undertaking, and to conſider it as a proof of its fidelity; and ſhould they find it deficient, they will attribute that deficiency to the difficulty of obtaining accurate information upon ſo great

a variety of points, and not to any want of diligence in the reporter. If the readers, who are not of this county, ſhould be diſappointed in their ideas of variety of information on rural ſubjects, from a country ſo populous and ſo rich as the county of Down, that they muſt attribute to the mode of occupation, the farms being generally ſmall, and, in moſt inſtances, held as merely ſubſervient to the manufacture of the county. At the ſame time I muſt obſerve, there are many perſons, gentlemen and farmers, who are bright examples, both of attention and ſkill, in every branch of rural economy.

SUGGESTIONS

SUGGESTIONS OF ENQUIRY

FOR GENTLEMEN WHO SHALL UNDERTAKE THE FORMING OF

AGRICULTURAL SURVEYS.

GEOGRAPHICAL STATE AND CIRCUMSTANCES.

Situation and Extent,
Diviſions,
Climate,
Soil and Surface,
Minerals,
Water.

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General

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Nature of fences,
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Uſe of beer and ſpirits—whether either or which is increaſing,
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—— of fiſheries,

State of education, ſchools, and charitable inſtitutions,
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—— of circulation of money or paper,
—— of farming or agricultural ſocieties,
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—— of mills of every kind,
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STATISTICAL SURVEY

OF THE

COUNTY OF DOWN.

CHAP. I.

GEOGRAPHICAL STATE AND CIRCUMSTANCES.

SECT. I. *Situation and Extent.*

THIS county is bounded on the eaſt and ſouth by St. George's Channel, on the weſt by the county of Armagh, and a ſmall part of Louth, from which it is ſeparated by the river of Newry, on the north by Carrickfergus bay, the county of Antrim, and a part of Lough Neagh, which it ſcarcely touches. Its greateſt length, from Point Cranfield in the ſouth, to Gray Point, its moſt northerly extremity, is nearly forty Iriſh miles; but from Liſburn bridge in the weſt, to Dundrum in the eaſt, it is not more than ſixteen. The fifty-fourth degree of north latitude paſſes cloſe to Point Cranfield, and the ſixth degree of weſt longi-

tude a little to the weſt of Hillſborough. It contains by eſtimation 344,658 Iriſh, or 558,289 Engliſh acres.

Sect. 2. *Diviſions Civil and Eccleſiaſtical.*

The civil diviſion of the county is into the following baronies:

Ardes, containing about 30,000 acres, and the towns of Newtown, Bangor, Donaghadee, Portaferry.

Caſtlereagh, about 62,560 acres, and the towns of Cumber, Saintfield, and Hollywood.

Dufferin, 9,280 acres, and the town of Killileagh.

Upper Iveagh, 66,049 acres, and the towns of Loughbrickland, Rathfryland, Caſtlewellan, Roſstrevor, Banbridge, Scarva, &c.

Lower Iveagh, 56,800 acres, contains the towns of Hillſborough, Dromore, Moira, Magheralin, Waring's-town, and Gilford.

Kinalarty, 26,180 acres, contains the towns of Ballynahinch, Clogh, and Seaford.

Lecale, 32,100 acres, contains Downpatrick, the county town, Strangford, Killough, Arglaſs, and Dundrum.

Mourne, 30,000 acres, and the town of Kilkeale.

And the *Lordſhip of Newry*, 9,500 acres, with the noted town of that name.

The ſum of theſe makes 322,469 acres, Iriſh meaſure, which taken from 344,658, the contents of the county

county at large, leaves 22,489 for the different bays, lakes, &c.

It is generally ſuppoſed, that the county of Down was reduced into ſhire ground in the reign of Queen Elizabeth, and at the ſame period divided into baronies. It is probable alſo, that the different proportions, which each barony pays towards every 100*l.* to be levied off the county at large, were ſettled at the ſame time. The proportions are as follow; and, when compared with the number of acres as ſtated above, may give ſome idea of the comparative cultivation at the time of making this regulation.

	£.	s.	d.
Ardes, - - - -	14	17	1
Caſtlereagh, - - -	16	5	0
Dufferin and Kinalarty, -	11	17	11
Upper Iveagh, - - -	15	0	0
Lower Iveagh, - - -	18	3	9
Lecale, - - - -	14	15	0
Newry with Mourne, -	9	1	3
Total, -	£.100	0	0

It is worthy of remark, that according to this aſſeſſment Lecale pays within thirty ſhillings of the ſum paid by Caſtlereagh, although the former has not much more than half the contents of the latter, and in proportion as much unprofitable land; whilſt a conſiderable part of Caſtlereagh is in quality equal to

the beſt parts of the county. This difference muſt have ariſen from the more early ſettlement and conſequent cultivation of Lecale. Its ſituation, difficult of acceſs, when once poſſeſſed by the Engliſh, muſt have given a degree of ſecurity to the perſons and properties of the inhabitants, which they ſeem to have enjoyed ſooner than the reſt of the county, it having been finally ſettled about the middle of the ſixteenth century; but long before that time, in the beginning of the twelfth century, a number of Engliſh gentlemen under Sir John de Courcy were planted there. Another circumſtance muſt have contributed to give this barony a ſuperiority over the reſt of the county at a very early period; great part of it was portioned out in the different monaſtic eſtabliſhments, which were certainly attended with this benefit, a more improved cultivation, not only from the ſuperior knowledge of the eccleſiaſtics, but from their mode of life, which was in general exempted from the interruptions, to which other proprietors were ſubject; and thoſe, who lived under them, were better protected by the prevailing religious tenets of thoſe times. To ſay that the eccleſiaſtics poſſeſſed more knowledge at that time than the reſt of mankind, is not ſaying too much for them.

The eccleſiaſtical diviſion is into the two biſhoprics of Dromore and Down; the firſt occupies the weſtern part of the county, and contains in it twenty-one pariſhes;

pariſhes; the ſecond, to the eaſt, contains forty-two. The boundaries of each dioceſe, with the ſituation and denomination of the pariſhes, may be ſeen by inſpecting the annexed map.

Sect. 3. *Climate.*

The climate of this county reſembles the reſt of Ireland in its variability; but, in general, it is not ſubject to extremes. It ſeldom experiences a long continuance of dry weather in the ſummer months, or of froſty weather in winter; and Chriſtmas often finds the fields ſtill cloathed in green. Our two ſevereſt months are commonly the two firſt of the year, and ſometimes the third is nearly conſumed, before it can be ſaid that the rigour of winter is paſt. In ſpring the prevailing winds are from the eaſt, and, at that period, generally bring fair weather with them, and prepare the ground for ſeed; nor do they entirely give way to the genial breezes from the ſouth and weſt, until May is far advanced. Dry weather does not ſeem to be attached to any particular point of the compaſs; ſome of our longeſt droughts have been with ſoutherly winds; and, although the weſtern are the moſt violent, and moſt impregnated with moiſture, yet very ſtrong gales, and heavy falls of rain, from the beginning of December until February is paſt, come from the ſouth-eaſt:

eaſt: theſe gales are often preceded by ſlight froſts, which quickly thawing, and aſcending early, are the forerunners of tremendous ſtorms of wind and rain from that quarter. In juſtice to our climate I muſt not omit the month of October, which, after the ſubſiding of the equinoctial gales, offers ſome weeks of clear and mild weather, which, probably, we prize the more, from the dread of approaching winter; and, although the north winds are the leaſt prevalent, yet, after this month, at the breaking up of the weather, ſome days, very tempeſtuous, are uſual from that point; from which, likewiſe, proceed heavy falls of ſnow, and the moſt laſting froſts. The influence of the ſea air is very ſtrongly felt upon the coaſts, where the froſt is neither ſo hard, nor of ſo long continuance, as in the inland parts, where the ground is ſometimes ſo hard as to prevent the plough from going, whilſt in Lecale, and other maritime diſtricts, it is ſufficiently open, to permit every agricultural operation to be carried on. Fogs are not frequent, except in the vicinity of the mountains, which, in general lying on the coaſt, are ſo well ventilated, that little inconvenience, and ſcarcely any damage, is experienced from them. Upon the whole, the climate of this county is amongſt the moſt wholeſome. From the ſhape of the grounds, the water runs off after every fall of rain with quickneſs, and ſeldom ſtagnates in any conſiderable quantity; and the ſoil, in moſt parts, not being retentive, and having

an

an underſtratum of rock or gravel, the moiſture evaporates ſpeedily. Inſtances, and thoſe not a few, might be produced of its ſalubrity, from the longevity of many of its natives, to which the hitherto conſtant ſupply of fuel from the numerous, though not extenſive turf-bogs, with which the country is ſtrewed, muſt greatly contribute. But, notwithſtanding what has been ſaid of the general wholeſomeneſs of this climate, the obſervation of a celebrated Iriſh phyſician ſeems to be founded in fact, that a long courſe of dry weather in ſummer, or of froſts in winter, are productive of diſorders. After a continuance of ſuch weather, low fevers are more common, than in the uſual moiſt ſtate of the air, to which the conſtitutions of the inhabitants ſeem habituated, and to whoſe health a certain portion, probably, is neceſſary. With reſpect to the fruits of the earth, extremes, either of wet or dry weather, ſeem to be unfavourable, as the years of 1799 and 1800 were equally unproductive; the crops of both years not equalling that of 1801, which ſeems to have enjoyed that happy medium of wet and dry, ſo favourable to vegetation.

Sect. 4. *Soil and Surface.*

In a country of ſuch extent as the county of Down, a great difference of ſoils muſt be expected; and, in reality,

reality, it contains every gradation, from ſandy loam to ſtrong clay; but the predominant ſoil is a loam, not of very great depth, but good in quality, and in moſt places intermixed with a conſiderable quantity of ſtones of every ſize, which is not to be wondered at, as, from the general rockineſs of the ground, quarries are to be met with near, or at no great diſtance from the ſurface in every part. This loamy ſoil is of different depths and qualities in different places, and incumbent on different ſubſtrata, which much aſſiſt its powers of production: when clay is the ſubſtratum, the loam, partaking of its nature, is much ſtronger, more retentive of water, more difficult to improve and manure, but, when brought into cultivation, its produce is more conſiderable, and ſuperior in its kind. As the ſubſoil approaches to an hungry gravel, or what is termed *till*, which ſeems to be an earth impregnated with ochreous particles, the loam loſes greatly of its fertility, and, unleſs it is conſtantly manured, and its nature changed by the mixture of ſome corrective, it is a moſt ungrateful ſoil to the farmer. Clay does not occupy a ſpace in this county of any great extent; it is moſtly confined to the eaſt coaſt of the Ards, to the pariſhes of Donaghadee and Bangor, and to the north part of the barony of Caſtlereagh, which lies in the latter pariſh. Theſe lands are of a ſtrong and good quality, requiring a high degree of manure, but repaying gratefully the expenſe and trouble laid out upon them.

them. The grain produced in this diſtrict is excellent, and I am informed, upon good authority, that, in the pariſh of Bangor, oats may be ſown, without change of ſeed, or fear of degenerating, for any length of time. Other portions of clay there are ſcattered in different parts, but not of ſufficient conſequence to be particularly mentioned. Of ſand the quantity is very ſmall, conſiſting of a few ſtripes, ſcattered along the different ſhores, of which the moſt conſiderable is that on the bay of Dundrum. Part of this is cultivated, part under rabbits and grazing ground, and part of it conſiſts of ſand-banks, which lie upon the bay, and, continually ſhifting, preclude all attempts towards improvement. There is, likewiſe, a ſmall tract of ſand lying to the ſouth of the Lagan, which continues, with ſome interruption, from the neighbourhood of Moira towards Liſburn, and thence to that part of the pariſh of Lambeg, which is in the county of Down; this, however, having a covering of loam for ſome depth, is excellent, and, when well farmed, is very productive, with this advantage, that it is managed at leſs expence of labour than any of the ſoils above-mentioned, is earlier ſown, and the grain earlier riſes, and, conſequently, ſooner out of danger. The crops of wheat, when properly prepared for, which is generally by a potatoe fallow, are equal in quantity, and little inferior in quality, to that of the beſt loam or clay. Gravelly ſoils, ſoils intermixed

with water-worn ſtones, and whoſe ſubſtrata are of the ſame nature, are ſcattered in many parts, but do not, in general, lie in any conſiderable contiguous tracts. Moory grounds are moſtly confined to the ſkirts of the mountains; and bogs, although they are frequent, are not now, as bogs, objects of improvement, for they are ſcarcely ſufficient to form a ſupply of fuel to the numerous inhabitants in their vicinity. To theſe ſoils may be added the rich and deep loams on the ſides of the different rivers, which are amongſt the moſt valuable, as they yield, every year, a luxuriant crop of graſs, without the aſſiſtance of manure, and which amount to a conſiderable number of acres. I muſt not omit that ſmall tract of loam, incumbent on limeſtone-gravel, peculiar to the neighbourhood of Moira and Magheralin: this is, by many, ſuppoſed the moſt productive ſoil in the county; this opinion is juſtified by the ſize of the timber, which is of larger growth about Moira than in any other part, Waringſtown excepted. In deſcribing the ſoils of this county, it would be moſt difficult, and, indeed, immaterial, to mark exactly, where one begins, and the other ends; and in this ſketch nothing more is meant, than to expreſs the diſtinguiſhing qualities of each, nor can it poſſibly be expected, that every particular place, which has any peculiarity, can be taken account of; to preſcribe the moſt judicious method of cultivating and improving them, would be a work of much more utility.

Surface.

Surface.

If inequality of ſurface is eſſential to the beauty of a country, none can boaſt a ſtronger claim to it than the county of Down: it contains every deſcription of ſuperficies; the plain, the detached hill, the ranges of hills, the mountains, all contribute to form a variety moſt intereſting to the beholder. The plains are moſtly confined to the banks of the rivers, the hills occupy the greateſt portion, and the lofty mountains are cloſely thrown together in the ſouthern quarter, whence they afford a ſtriking feature, and are nearly taken into every extenſive proſpect this country furniſhes. This inequality of ſurface is uſeful as well as ornamental; it facilitates the running off of the waters, and enables thoſe occupiers, who live on the ſides of rivers, to erect their dwellings out of the reach of floods, which here are not only harmleſs, but improving, whilſt other countries ſeverely ſuffer under their annual ravages.

Sect. 5. *Minerals.*

Copper ore has been found in ſeveral parts of this county. In the mountains near Roſtrevor, about five miles to the north-eaſt, in the bed of a rivulet, copper

ore was picked up many years ago, as mentioned in the Hiſtory of the County of Down, but no further ſteps were taken than to aſcertain that it was ſo, by ſending it to be tried in Dublin. It has likewiſe been found in the rocks near Portaferry, and alſo in the lead-mine at Clonligg, between Newtownards and Bangor.

Lead.

At Killough, near the quay, ſpecimens of rich lead ore have been found interſperſed amongſt the rocks; it is very heavy, and very bright, but, as it lies within half tide, it cannot be wrought but with great diſadvantage. From trials made many years ago, this ore appears to be of that ſort, which yields half its weight in good metal. Lead has alſo been found on the Blundel eſtate, within half a mile of Dundrum, amongſt the rocky grounds, a little under the ſurface. This mine was formerly worked, and given up after a conſiderable ſum was ſpent on it. Several veins have been diſcovered on different parts of this eſtate, which are ſuppoſed to be branches ſpreading from a main body, which, if found, might well repay the trouble and expence of ſearching for it. This ore is ſaid to have been rich, yielding nearly one-half its weight. Near Portaferry ſeveral veins of lead ore, I am informed, have been found. The lead mine in the mountain, or rather hill of Clonligg, between Newtownards

townards and Bangor, ſeems to have had the faireſt trial of any mine in this county; many tons of lead were raiſed from it ſome years ago, and a conſiderable ſum expended by the proprietors, and a company, who undertook it; but, after various attempts, it has for the preſent time been given up. A vein of the ſame kind of ore has been found in the demeſne of Sir James Blackwood, at Ballyleedy, and two veins of lead have been lately diſcovered on Lady Roden's eſtate, not far from Bryansford, which, I underſtand, promiſe well. No iron mines have been found, but ochreous earths abound in many places, and every attempt to find coals has hitherto proved unſucceſsful.

SECT. 6. *Foſſils.*

THERE are ſeveral quarries of remarkable fine free-ſtone in this county; the principal are thoſe of Scraba, near Newtown, and that of Kilwarlin to the ſouth of the road from Hillſborough to Moira. That of Scraba is a very fine grained and clear-coloured ſtone, and the deeper it is ſunk, the better the quality of the ſtone. The quarry of Kilwarlin produces flags of a very great length and breadth, of different colours, from the clear ſtone-colour to a browniſh red; the former are very ſuperior in beauty and hardneſs. A ſtone of uncommon dimenſions, taken from it, is to be

ſeen

ſeen as a ſtep to the communion-table of the church of Hillſborough; it is twenty-one feet in length, and two in breadth.

Slates are raiſed in the following places; from Bangor to Ballywalter, of a great ſize, and excellent metal, rather heavy, but which ſtand the weather very well; alſo in the pariſh of Doomarah, not far from Hillſborough, at Annahilt, and near Ballynahinch. Theſe quarries all produce ſlates when ſunk to a proper depth, which, if they do not equal thoſe imported from Wales in lightneſs and colour, exceed them very much in hardneſs and durability. Beſides thoſe above mentioned, there are numerous quarries of this uſeful material in other parts of the county, which require nothing more than to be worked with ſkill and honeſty, to ſupply the wants of the circumjacent country in that neceſſary article; but where, from want of ſkill, the blocks are not raiſed of a proper ſize, and the ſlates, from want of honeſty, are broken to encreaſe the number, we need not be ſurpriſed that theſe quarries do not ſucceed.

Limeſtone is not very general; very large blocks of a yellow kind are in great abundance near Cultra, on the ſhore of Carrickfergus bay; likewiſe at Cartheſpie, on the ſhore of Strangford lough, near Comber, there is a reddiſh coloured granular limeſtone, very hard and ſparkling; but the great, and probably inexhauſtible magazine of this moſt uſeful foſſil, is found in the vici-

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nity of Moira. This ſeems to be a continuation of that body, which, with little interruption, is to be met with along the coaſt, from Magilligan in the county of Derry, following the headlands of the county of Antrim, to that range of mountains, which run north of Liſburn, and thence turning towards the weſt, it is loſt after traverſing the fertile grounds of Magheragall and Soldierſton, in the gently ſloping hills, which overhang the river Lagan between Moira and Magheralin. The quarries in that neighbourhood are very near the ſurface; they conſiſt of horizontal ſtrata intermixed with flints, in ſome places ſtratified, in others in detached pieces of various forms and ſizes; it is common to ſee three of theſe large flints, like rollers, a yard long, and twelve inches each in diameter,* ſtand perpendicularly over one another, and joined by a narrow neck of limeſtone, funnel ſhaped, as if in a liquid ſtate they had been poured into a cavity made to receive them.—Shells of different kinds are found in this ſtone; and I once ſaw part of a rib bone exactly reſembling the rib of a cow, taken out of a block of this white limeſtone, which was as hard as marble.—The marine exuviæ found in hills ſo many miles diſtant from the ſea, and ſo many feet above its ſurface, muſt be a very intereſting ſubject of contemplation for thoſe, who are engaged in any of thoſe philoſophical ſects, that upon hoſtile

* Several are in the yard of the Society.

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principles endeavour to account for the various changes this globe has undergone.

In a drain, which runs from one of these quarries, a body of red and yellow veined marble has been cut through, which promises to polish well, and will probably prove an acquisition. Quarries of a blackish and very close grained stone are opened, in several places, in contact with the limestone; they are very hard, and stand the hammer remarkably well.

Granite is to be met with in detached masses, and of various colours and fineness, in many parts of this county, but, as a great body, it is confined to the barony of Mourne, the lordship of Newry, part of Upper Iveagh, and a very small portion of the barony of Kinalarty. As the granite country is approached from the different points of the compass, a few stones of this species are perceived in the fields and ditches; by degrees these grow more frequent, and the common slaty stone of the adjacent county decreases, until at length they are nearly lost, and almost every stone on the surface is granite, and every rock is of the same. The granite country begins on the eastern coast, about a mile beyond the village of Dundrum; from thence it continues in an oblique line north-west to the mountain of Slieve Croob, where in the eastern branch of the river Lagan it is intermixed with the slaty rock, and also with a beautiful and fine grained reddish grit, that gives a very smooth surface, when applied to a grinding

grinding ſtone, and lies in ſeparate blocks of many tons weight; from hence it turns to the weſt, along the top of Slieve-na-boly, where it takes its courſe to the ſouth-weſt, and afterwards through the pariſhes of Drumgoolan and Drumballyroney, to the lordſhip of Newry, which it alſo traverſes, and at length joins the granite hills of the county of Louth. Notwithſtanding granite is the predominant ſtone in the diſtrict I have pointed out, it does not entirely exclude the ſchiſt, or ſlate, which is often ſeen in contact with it, and raiſing its head from a ſurrounding maſs of the former, which itſelf is again entirely incloſed, or ſet in ſchiſt. From theſe mountains flow the two principal rivers of the county, the Bann and the Lagan, beſides Newry river, and various ſmaller ſtreams.—Quarries of this ſtone are opened in many places, particularly in the neighbourhood of Newry, Rathfryland, and in different parts along the face of the mountains; from the little river of Annalong there is an exportation to other parts on the coaſt. This county likewiſe abounds with many other kinds of foſſils, clays of different fineneſs, marle, limeſtone gravel, &c. Upon the whole, the county of Down, from the nature of its rocks, and from the minerals already found, ſeems to deſerve the attention of an able mineralogiſt; it has already been traverſed by a very induſtrious one, whoſe labours I dare ſay will be productive of benefit, by pointing out many uſeful ſubſtances, which have hitherto been looked upon with neglect.

Sect. 7. *Mineral Waters.*

The mineral waters of this county are of two kinds, chalybeate and ſulphur. The chalybeate are numerous; thoſe, which are known, amount to eight, namely, 1. Ardmillan, on the lough of Strangford, in the pariſh of Tullynakill; 2. Killaghee, three miles weſt of Donaghadee; 3. Granſhaw; theſe two are both in the barony of Ardes; 4. Kirkdonnell, about three miles north-weſt of Newtown; 5. Magheralin; 6. Dromore; 7. Newry; and 8. at Tierkelly, two miles from Rathfryland. Theſe waters differ from each other, chiefly in the different degrees of ſtrength of the mineral impregnation. They are all, except Newry, ſtrong chalybeates, as appears from their ferruginous taſte, the purple colour they ſtrike with galls and ſumach, the blue tincture they exhibit with logwood, and the ochreous contents they yield by evaporation. The following account of experiments made on ſeveral of them is taken from the Hiſtory of the County of Down; they were made in May 1743, I have not heard of any further trials ſince that period.

Newry ſpa was examined the fourth of May, on the ſpot, at one in the afternoon; and it ſtruck a delicate purple with galls, and a deep violet, or blue, with logwood; hence it is a chalybeate, though of the weaker claſs; however, it is conſiderable enough to deſerve notice,

notice, for it depoſits an ochre, which upon calcination turns red, and is attracted by the loadſtone; and moreover it yields by evaporation a greater proportion of contents than the famous Tunbridge wells. For, as that yielded two grains and a quarter from a quart, this yielded almoſt three grains from the ſame quantity.

Dromore ſpa ſtood (for by cutting a drain it has diſappeared) in the town by the river ſide, with an expoſure to the ſouth; but being covered with an arch and trees, the ſun had no power over it. Its taſte was ſtrongly ferruginous, and it ſtruck a very deep purple with galls, and a light blue with logwood; a light purple with brandy and rectified ſpirits of wine; all evidences of an impregnation with iron, and it appeared to have few other contents; for it made a lather with ſoap, and did not curdle milk boiled with it, and by the hydrometer it appeared to be of the ſame ſpecific gravity with the water of the neighbouring river. Its operation was purgative, and it was often drank with ſucceſs in the gravel.

Granſhaw is one of the richeſt chalybeates in the county, as appeared by an examination made May 20, 1743, at ſix o'clock in the evening, (a time of day the leaſt advantageous for theſe trials) when it ſtruck a deep purple with galls, not far different from ink; and it is covered with a thick ſcum, white and yellow, and by evaporation yields five grains of ochreous ſedi-

ment from a quart, which is a greater quantity than the celebrated Aſtrope water yielded, and more than double what Tunbridge water affords from the ſame quantity; by compariſon made with the ſimple Engliſh chalybeates, it appears to be of the ſame ſtrength as the ſtrongeſt of them. It retains its qualities after being kept a fortnight, and has been preſcribed ſucceſsfully, as it ſits lightly on the ſtomach, and paſſes off quickly; and has been found ſerviceable for the gravel.

Killaghee water lies about three miles almoſt north of the former; the taſte and ſcum appeared to be the ſame as at Granſhaw; it ſtruck a deep purple with galls, but not ſo quick, nor ſo much tending to black as the other. Upon trial theſe waters have been found to bear carriage to Dublin, and, after having been kept a month, to retain all their diſtinctive qualities, their aſtringent and ferruginous taſte, and their ſtriking the ſame colours with galls and logwood; ſparkling in the glaſs, and not the leaſt fetid. This experiment proves, that our indigenous waters might be tranſported to Dublin, and to other places, and drank there to advantage, provided the ſame care was taken in bottling, corking, and roſining on the ſpot, as was taken in the two caſes above mentioned.

Tierkelly water is alſo a very ſtrong chalybeate, as appears from its thick blue ſcum, from its ſtriking a claret colour with galls, and a durable blue with logwood; whilſt

whilſt it appears by theſe trials to be well ſaturated with iron, it is otherwiſe exceedingly light, and free from any conſiderable mixture of heterogeneous matter. This water does not appear to have been much uſed, but from ſeveral caſual trials has been found effectual for the ſcurvy, both internally and externally uſed. Beſides the chalybeate waters this county poſſeſſes, there is another kind much more rare, and more worthy of attention, as it is in many caſes attended with great virtues; this is the ſulphureo-chalybeate water of Ballynahinch; this water riſes about two miles from the town, towards the north-weſt, on the ſkirts of Slieve Croob mountain. It is very clear, cold, and of a very diſagreeable taſte and ſmell, like the ſulphureous water of Aix-la-Chapelle. The quantity taken from three pints to three quarts; it ſometimes vomits, and ſometimes purges, but theſe effects are accidental, as its chief operation is by urine. Its virtues reſemble thoſe of other ſulphureous waters, particularly in its efficacy in ſcorbutic diſorders; it is applied outwardly as well as taken inwardly, great benefit often ariſing from bathing in it. The impregnating principles of this water will appear by the following experiment made on the ſpot and in Dublin, above ſixty miles diſtance, after being taken up eight days. A ſilver ſixpence, being immerſed in it for the ſpace of twelve minutes at the fountain head, came out partly of a leaden, and partly of a copper colour. That, which

was

was tranſmitted to Dublin, became of a duſky brown and yellowiſh colour, being hurt by carriage and hot weather; but it ſtill retained its ſulphureous ſmell, and heightened the colour of gold and of copper. As moſt of our ſulphureous waters bear carriage, if they were carefully bottled and corked, and brought cool, they might, no doubt, be conveyed to any diſtance, without diminution of their virtues. This water is alſo impregnated with iron, as it gives the purple colour with galls, and the blue with logwood, ſo that there is a combination of both minerals in it. Six grains of ſediment, obtained by evaporating three and one-half pints, yielded a brackiſh and bitter taſte, made an ebullition with oil of vitriol and ſpirit of ſalt, ſparkled much, ſtunk, and burned on a hot iron; and an infuſion of it in diſtilled water exhibited the ſame appearances with oil of tartar, per deliquium, and milk, as the bitter purging ſalt does; ſo that, beſides ſulphur and iron, there is alſo ſome calcareous nitre, though not in quantity ſufficient to make it a purging water. Upon the whole then, to advance the credit of our domeſtic mineral waters, ſeems an object worthy of attention, by ſhewing, that they poſſeſs all the eſſential ingredients of the foreign ones, that, mixed with certain ſubſtances, they excite the ſame appearances, and laſtly, that the virtues of each are found to be much alike, and that, conſequently, ours may, in moſt caſes, be happily ſubſtituted in their room, thereby

putting

putting the benefits to be obtained from them within the reach of ten perſons for one, that is now enabled to enjoy them.—We may add to them an alum ſpring, in the townland of Clarn, to the weſt of Clough, on Mr. Forde's eſtate; the ſtrength of it has not yet been aſcertained by any trial.

Sect. 8. *Waters.*

Besides the four principal rivers of this county, the Bann, the Lagan, Newry, and Ballynahinch rivers, few countries abound more in ſprings or running ſtreams; for, excluſive of ſuch brooks as have their ſources on the ſides of hills, there are many others, that iſſue from lakes, which are not only ſerviceable for domeſtic uſes, and for all the purpoſes of huſbandry, but are likewiſe eaſily adapted to machinery, and are, in general, from their nature, particularly favourable to the art of bleaching, in all its branches. The rapid fall in the rivers of this country makes them much leſs advantageous, when viewed in the light of waters fitted for navigation, than as powers capable of ſetting at work the machinery required in a manufacturing country; in this line the Bann ranks foremoſt, whether we conſider the length of its courſe, the quantity of its water, or the number of bleach-greens eſtabliſhed on its banks. The eaſtern and weſtern

ſources

ſources of this river take their riſe at a ſmall diſtance from each other, in that part of the mountains of Mourne called the Deer's meadow, and, after diverging from each other, join a little to the eaſtward of Rathfryland, where it becomes a large river, flows through M'Cay's-bridge to Banbridge, thence N. N. W. by Sea-Patrick and Hall's-mill, to Gilford and Portadown, where it makes a noble appearance, and, after a courſe of near thirty miles, falls into Lough Neagh near the Bann-foot ferry, in the county of Armagh. Near Portadown it is joined by the Newry Canal, which unites the bay of Carlingford with the above-mentioned lough.

The river Lagan riſes in two ſmall ſtreams; the eaſtern ſource ſprings from that part of the mountain of Slieve-Croob, which lies in the barony of Kinalarty; the weſtern from the mountain of Slieve-na-boly, in the barony of Upper Iveagh; they unite a little to the north-eaſt of Waringsford, from whence it flows to the north-weſt through the town of Dromore to Gill-hall, and, being there augmented by another rivulet from two loughs ſouth of Dromore, paſſes in a north-weſterly direction under the bridges of Donoghclony, Gihon, and Magheralin, where it turns north-eaſt, and rolls on until it arrives near Moira; flows next under Spencer's-bridge, the Maze-bridge, paſſes through a ſmall part of Liſburn, Drum-bridge, Shaw's-bridge, and, at length, under the bridge of Belfaſt, where it empties

empties itſelf into the bay of Carrickfergus, having run in the whole, after various windings, a courſe of near thirty miles from its ſource.

Newry River, or, as it is otherwiſe called, the Water of Newry, promiſed, and for ages performed, as little as any ſtream in Ireland. It is neither conſiderable from the length of its courſe, there being but a few miles from its ſource to its fall, nor from its ſize; and, with reſpect to its body of water, it was only navigable in conſequence of the tide flowing up, and, of conſequence, only ſo long, and ſo far, as it flowed. It riſes near Rathfryland towards the weſt, and in the barony of Upper Iveagh; taking firſt a ſouth-weſtern courſe, then tending to the north, runs under Crown-bridge and Sheep-bridge; it then turns nearly weſt, towards the valley which ſeparates Down from Armagh, where it takes a ſudden turn to the ſouth, and ſoon after runs into Carlingford bay.

The canal has taken away thoſe impediments, which were irremediable in the river of Newry, and, by joining this river to the Bann, has opened a communication with Lough Neagh, by which veſſels of fifty and ſixty tons paſs through the heart of Ulſter. This affords a direct inſtance of what has ſo often been laid down upon the ſubject of canals, that, by a junction of loughs and rivers, through the interpoſition of judicious and well executed cuts, many parts of this kingdom may, at no immoderate expence, be rendered,

in this reſpect, as commodious as any in the world: the beneficial conſequences of this canal being ſeen, and conſidered, is a ſtronger elucidation of this matter, than any words can afford. Whilſt I am on the ſubject of canals, it may not be improper to mention, that the good effects of the canal from Lough Neagh to Belfaſt are, in a great meaſure, loſt by the management of that part of it, which runs from Liſburn to Belfaſt. The original defect ſeems to have been, from the idea of making the river Lagan navigable, which, having a fall of ſo many feet, and being a mountain river, and, of courſe, ſubject to great floods, is the moſt unfit that can be imagined for the purpoſes of navigation, being a great part of the year rendered ſo, by the burſting of its banks, whoſe breaches cannot be repaired without draining a level, and interrupting the paſſage of boats; beſides the expence incurred by continual repairs. Had a canal been executed between the towns above mentioned, without any connexion with the river, and with the ſame ſkill as the part laterally finiſhed, the benefits would have been great indeed, and the communication certain and ſpeedy; but, as matters are ſituated at preſent, more time is conſumed in the paſſage up the river Lagan, when there is a paſſage, than would be ſufficient for the whole, on a well executed and level cut. Leaving this navigation, therefore, in the unfiniſhed ſtate, in which it is, muſt be not only a public loſs, but a loſs to the proprietor;

prietor; and it would be an undertaking worthy ſome perſon of weight and influence, to reconcile, if poſſible, all intereſts, and finally to complete ſo uſeful a work.

Ballynahinch River riſes from four different ſources, each of which iſſues from a ſeparate lake; theſe four branches united form a pretty conſiderable river, which taking a courſe E. S. E. by Ballynahinch, Kilmore, and other places, falls into the ſouth-weſt branch of Strangford Lough.

There are many other ſtreams of leſs note in the county, which it would be unneceſſary to mention, but which, in their courſe, are productive of many advantages, turning, as they flow, mills of every denomination, that are in uſe in this country, and which are capable of doing ſtill more; which capability, as we increaſe in wealth and induſtry, it is to be hoped will be turned to advantage.

The number of ſmall lakes, or loughs, is very great; they form one of the many natural beauties, with which this county abounds. A few of them have been taken advantage of, and, united with planting, make a principal feature in ſome of the moſt pleaſing ſituations; but, in general, they lie in remote places, and are totally deſtitute of wood, that beautiful accompanyment to water.

Theſe lakes, in general, abound with fiſh; pike, trout, eels, perch, and roach, of a conſiderable ſize, are found in moſt of them; thoſe, which are deep,

produce the two first mentioned, equally large and well flavoured. These are treasures, however, for some future day, as there are not any means made use of to obtain a regular supply; eels, indeed, are sometimes entrapped, by means of boxes placed across the outlets of these lakes, on their migration to the sea, during the autumnal rains.

CHAPTER

CHAPTER II.

STATE OF PROPERTY.

SECTION I.

Eſtates, and their Management.

NOTWITHSTANDING there are ſome very large eſtates in this county, property is much divided, and has all the different gradations, from the moſt opulent nobleman, to the tenant in perpetuity, who farms his own freehold. The management of eſtates is very ſimple; it conſiſts in letting the different farms, receiving the rents, and in regulating the turf-bogs. This latter branch of management requires a conſiderable degree of attention, to prevent waſte, which now is a matter of ſerious conſideration, as fuel, that eſſential to life and comfort, is likely to be ſcarce, and that at no very remote period; in many parts, it is already ſo difficult to be procured, that a whole day is conſumed in going for, and returning with one load. The conſequence of a failure in the article of turf-bog, in a country ſo populous,

populous, and ſo full of manufactures, it is hard to conjecture, and ſhould certainly be a ſtrong ſtimulus to exertion in landlords, firſt to prevent depredations on ſo eſſential an ingredient to the comfort of their tenants, and alſo to make every trial to ſupply its deficiency with coals, if this county is ſo fortunate as to contain any quantity of that valuable mineral.

One circumſtance, which ſimplifies the management of eſtates very much in this kingdom, is the cuſtom of the tenant keeping the premiſes in repair; no waſte is here committed with the idea of the landlord paying for it, nor any deduction in the yearly rent under that head; the ſole expenſe is the expenſe of receiving, and the only trouble, that of ſetting the lands and regulating the turf-bogs.

Sect. 2. *Tenures.*

I believe I ſhall not be very wrong in ſaying, that moſt of the property of the county of Down, except the biſhop's lands, is freehold; on ſeveral eſtates there are leaſes for ever, many of them of conſiderable value, others as low as forty or fifty pounds per annum; theſe having been ſet in the middle, or in the beginning of the laſt century, are at a low rent, and when put up to ſale, from coming within the reach of ſo many purchaſers, bring a much greater proportional price than more extenſive tracts.

Sect.

SECT. 3. *Rental.*

THE rental of the county of Down is very conſiderable, not leſs I, have reaſon to think from the very beſt information, than twenty ſhillings the Iriſh acre, allowing for the mountains and bogs, &c. which may be computed at 44,658 acres, the ſurplus of the total acres of the county above 300,000; ſo that the rental of the county may very fairly be given at 300,000*l.*; though the greateſt eſtate is let much lower than this, yet there are others let ſo much higher as fully to make up the deficiency. Lands in the neighbourhood of the large towns, ſuch as Belfaſt and Newry, ſet beyond their value, merely as a matter of convenience to the opulent inhabitants, not as farms. Therefore, they are not to be conſidered, as giving in the leaſt degree a general idea of what the rental produces; what is mentioned above merely refers to the average rent of the cultivable land.

CHAPTER III.

BUILDINGS.

SECTION 1.

Houſes of Proprietors.

Besides the ſeveral ſpacious habitations of the principal proprietors of this county, there are numerous and elegant modern built manſions belonging to the gentlemen; and others alſo, of an earlier date, modernized with taſte and judgment. Thoſe, though pleaſing and enchanting objects of conſideration, as ſo many proofs of the attachment of their owners to the ſoil, from whence they derive their reſources, do not ſo properly come within the idea of an agricultural report, as the farm houſes and offices.

Sect. 2. *Farm Houſes and Offices, &c.*

Which, as may be ſuppoſed from the general ſize of the farms, are neither large nor convenient; they conſiſt for the moſt part of a low cottage, the dwelling

dwelling houſe, which contains a kitchen, and two or three rooms on the ground floor opening into each other, without any apartments over head; and ſeldom containing any other fire place than that of the kitchen; thoſe in the other rooms having been ſhut up on the alteration in the hearth-money tax. Had parliament at that period made every houſe with two fire-places pay for one, at the uſual rate, little loſs would have accrued to the revenue, as very few would in that caſe have built up the ſecond; but the additional two and eight-pence-halfpenny, on one ſide, paid for two hearths, and the temptation of not paying any thing by having but one, has operated both againſt the revenue and the comfort of the people, who for ſo trifling a conſideration have deprived themſelves of the ſatisfaction of a ſecond fire, and conſequently no longer poſſeſs the advantage of ventilation, which from an open chimney they formerly obtained in their bed rooms, in which a circulation of air is not at preſent known, the vent which produced it, in concert with the caſual opening of the door, being now cloſed; beſides, the windows are ſeldom made to open, and where they have been made with that intention, they are ſo often out of order, or have ſo many things laid upon the inner ſaſh, that being a work of time to accompliſh it, it is ſeldom attempted. It muſt in a great meaſure be owing to the cloſeneſs of theſe apartments, to the total excluſion of freſh air, that fevers, when

once got into a family, ſeldom leave it, until they have attacked every individual. Where farms are large the houſes are in proportion good, and amongſt this claſs you ſee proportional attention to comfort and cleanlineſs in every department, within doors and without; many farmers of this claſs have houſes with a ſecond ſtory, ſlated roofs, and all the offices neceſſary towards carrying on their buſineſs to advantage, whilſt thoſe on a ſmaller ſcale, from the want of proper offices, are ever labouring under ſome inconvenience attended with loſs, which, though not much felt at the inſtant, amounts in the end to ſomething ſerious. Amongſt the reſident gentlemen much attention is paid to their farm yards, &c. and there are ſome very capital ones; but in every cow-houſe I have ſeen, except that at Mount Stewart, there is a material defect, in the want of a paſſage to carry in food and deliver it before the ſtakes, inſtead of ſqueezing between each beaſt. The bullock houſe at Mount Panther is remarkably well conſtructed likewiſe, for attending the cattle, having two rows with their heads towards each other, and a communication from one end of the building to the other between them, where turnips, &c. for the day's proviſion may be kept. The pigſty is alſo very well contrived, eſpecially the feeding troughs, into which the pigs can only put their mouths, and are thus prevented from trampling their food. Barns are not very large, nor is there that occaſion for having them ſo

roomy

roomy as in countries where the produce of a large farm is houſed at harveſt; here it is abſolutely neceſſary to ſuffer the crop to remain in ſtacks for ſome time, that it may be perfectly ſaved; when put in too ſoon it heats and grows fuſty; beſides, grain in the ſtraw can be ſecured much better from vermin on well contrived hovels than in any houſe. I underſtand that they are ſo ſenſible of this in England, they ſtack much more of their grain than they formerly did. A well ſized barn, one proportioned to the farm, is abſolutely neceſſary; nothing prevents the internal operations of huſbandry from going on with ſpirit, and indeed with economy, ſo much as being hampered, which is too much the caſe with the farmers in this county; in this particular, however, they are improving every year. The materials uſed are, ſtone and lime for the walls, for the roofs, timber raiſed from the bogs, and alſo foreign timber, but the high price of the latter has been a very great bar to improvement, for ſome years paſt; yet a great deal has been done within this laſt year, notwithſtanding this obſtacle. The uſual covering is thatch, but in many of the new buildings ſlates have been ſubſtituted; and if the quarries of that material were properly worked, the uſe of ſtraw would be much abridged. The cottages of the labourers, and weavers, who have no land, are but poor, yet even theſe are ſuperior to what they were; and as the general circumſtances of the country alter for the better,

ſo is their ſituation ameliorated. Great attention has been paid by many of the gentlemen, to have comfortable, and often elegant cottages built for their labourers. This is an attention not only humane, but politic; for the more comfortable their ſituation, the leſs willing they muſt be to leave it, and, conſequently, the more ſedulous not to commit any of thoſe faults likely to bring on their diſmiſſal.

Sect. 3. *Cottages.*

On the ſubject of cottagers much has been ſaid, and many humane perſons have turned their thoughts towards ameliorating their ſituation, which certainly in every country might admit of improvement; in this county, moſt of thoſe who come into this deſcription, are tradeſmen, principally weavers, and labourers, the latter dependant on their employers; the former free to chooſe their place of abode; labourers, of courſe, are bound to their maſters, and whilſt they remain with them, their comforts muſt depend partly on the character of their maſter, partly on their bargain with him, but moſt of all upon their own conduct. Perſons of this deſcription muſt be, in a great degree, attached to the ſoil; but ſo much of the farmer's comfort likewiſe depends on his ſervant's fidelity, and propriety of behaviour in the different functions he has to fulfil,

and

and it is ſo much his intereſt to encourage a faithful ſervant, that, in the general courſe of circumſtances, no interference can be ventured on between perſons ſo mutually connected, without the riſk of mutual injury.

With reſpect to tradeſmen, who compoſe the moſt numerous portion of cottagers, their caſe is totally different; being quite unconnected with agriculture, interference, with regard to them, cannot in any way injure its intereſts, and might much promote it, by providing them with habitations, &c. which would prevent them from graſping at ſmall farms, as ſoon as they can ſave a little money by their exertions. In villages where fuel is convenient, they might be better accommodated with ſuitable ſettlements, and, without interruption, purſue their different vocations to much more effect; and proprietors might find their account, when conſiderable tracts of land are out of leaſe, in laying apart ſome portion of it for this purpoſe. A convenient houſe, a garden, and, if thought neceſſary, graſs for a cow, would ſecure to the landlord a profit, more than adequate to the expenſe and trouble; and if the village increaſed, of which there is little doubt, it would afford a ready market to the neighbouring farmers. A code of regulations might be drawn for the general good, with which every new ſettler ſhould be made acquainted, and ſpeedy expulſion ſhould be the conſequence of a breach of them, which might be

eaſily

eaſily ſecured, by taking a bond, with a penalty, on their refuſing to quit after a certain notice. From conſidering the manner, in which perſons of this deſcription are toſſed about and harraſſed, I have taken the liberty of ſuggeſting this idea, which, properly purſued, might lead to ſomething beneficial.

CHAPTER

CHAPTER IV.

MODE OF OCCUPATION.

SECTION I.

Size of Farms.

THE farms of this county naturally divide themſelves into two kinds; the firſt, ſuch as farmers poſſeſs, and from which, without having recourſe to any other branch of induſtry, they ſupport their families; the ſecond, ſuch as are held by weavers and other tradeſmen, and are not ſufficient for their maintenance, without the intervention of ſome other occupation, unconnected with agriculture: the former run from twenty to forty, fifty, and, in ſome inſtances, ſo far as an hundred acres; the latter contain every diſtinction, from one to twenty acres; ſome of this laſt mentioned claſs may not be weavers themſelves, but moſt of them employ looms.

The minute diviſion of lands, which ſo much prevails in this county, is owing to various cauſes; many farms have been brought to this ſituation, by the holders

holders of them portioning each child with their ſhare of the land; others, by the temptation of a profit rent, a much eaſier way of living than by labour, let off part of their lands to under-tenants, that, on the expiration of the leaſes, were taken as tenants by the landlords, who thus anſwered two purpoſes; one, of providing for thoſe already found on their eſtates, and the other, of increaſing their intereſt by the number of freeholds. But, from whatever cauſe this diviſion has ariſen, it certainly has proved very prejudicial to agriculture, and not very conducive to the general comfort of the claſs of men, whom we are ſpeaking of, as muſt be evident to thoſe, who have paid attention to the ſituation of the country; in years of plenty they may do tolerably well, as they will have leſs to buy, and what they want may be obtained at an eaſier rate; but in times of ſcarcity their lot is much more hard, and fraught with more difficulties, than the mere manufacturer's, for the former has all the labour and expenſe of ground, beſides the rent, without a ſubſiſtence, whilſt the latter has only the increaſed price of proviſions to ſtruggle with. The number of petty landholders, who have been ruined, and obliged to diſpoſe of their little properties, by the laſt two years of ſcarcity, is too ſtrong a corroboration of what is here advanced, to admit of contradiction. In this caſe, as in many others, it is much eaſier to ſee the evil, than to point out the remedy; and this mode of occupying

land

land ſeems to have taken too deep root in the ſyſtem, to be either eaſily or ſpeedily altered. The further ſubdiviſion of land may be prevented; clauſes may be inſerted in leaſes, to prevent the alienation of land in ſmaller portions; but it will be impoſſible, I fear, to bring together the disjointed parcels, ſo as to form, in their ſtead, farms, on which a regular and profeſſed huſbandman can exiſt. The moſt profitable ſize of farms has never yet been aſcertained, but to common ſenſe it muſt be very plain, that no farm can be profitably occupied, that will not give conſtant employment to a certain number of men, and a certain number of cattle; for every hour, that either the one or the other is without an object tending to the general end, is a certain loſs. No farm, to ſpeak of farming as a profeſſion, ſhould contain fewer acres, than would give conſtant employment to two horſes or oxen, becauſe every day they are idle is a charge againſt the profit; but in this country, could things be brought to that ſituation, that two farms, taken together, ſhould employ two draft beaſts, all work, that requires two, being performed by a mutual lending of cattle (provincially neighbouring), a very great point would be gained, as much, I think, as can be expected; and even to advance ſo far muſt be the work of time, not to be accompanied with circumſtances of hardſhip to the preſent tenants or their heirs. But, whilſt theſe obſervations offer themſelves, from the recent impreſſions of the ruin and emigration

of ſo many individuals of this claſs, nothing can be further from the ideas of the writer than the ſuppoſition, that it is impoſſible for the holder of a few acres to thrive upon them; but it requires a greater proportion of ſteadineſs, exertion, and induſtry, to ſupply the place of conſtant employment in the farm, than is generally ſuppoſed, and a greater degree of thought and quickneſs are requiſite, to prevent loſs of time in the neceſſary attendance, than fall to the ſhare of thoſe, who are moſt frequently to be met with. A cottager, whoſe holding is juſt ſufficient to maintain his cow or two, with a well incloſed and well cultivated garden, who makes no attempt to raiſe a crop of grain, and who is either at conſtant work with ſome farmer, or is maſter of a trade, has an enviable lot compared with the farmer, whoſe half-manured and half-cultivated fields are a conſtant ſource of diſappointment to himſelf, and of loſs to the public. What ſtrikes me upon the ſubject is this, that the induſtrious cottager, whether labourer or weaver, is, in his way, as beneficial to the public, and as comfortable to himſelf, as any other denomination of perſons, but that every gradation from him to the real farmer, with ſome exceptions, is only a gradation of difficulties. But, whilſt I have thus ſtated the moſt ſtriking diſadvantages, at leaſt in my idea, of ſmall farms, it is but fair to mention one circumſtance in their favour; the very great exertions of the occupiers towards raiſing a quantity of potatoes

ſufficient

ſufficient for their conſumption; this, along with the ſucceeding crop of grain, in ſome degree counterbalances the miſmanagement attending them; for, to obtain that deſirable and neceſſary object, every method is uſed in making manure, by which, at leaſt, one crop ſucceeds a fallow.

Character of the Farmers.

It is a difficult matter to give a general character of the inhabitants of any extenſive diſtrict, eſpecially where there is a very great difference in their ſituation and circumſtances. The farmer of an extenſive tract, whoſe poſſeſſions put him nearly on a par with gentlemen of ſmall incomes, will naturally aſſume the character of that rank, to which he at leaſt approaches; whilſt the renter of a few acres ſinks, nearly to the level of the tradeſman or labourer. It is, therefore, neither in one or the other of theſe denominations, that we are to look for the general characteriſtic of our farmers, but in the middle claſs, the poſſeſſors of from twenty to fifty acres: theſe we ſhall find to be a reſpectable body of men, whether conſidered in point of underſtanding, or morals; ſharp and clever in their dealings, as may be expected from the cloſe population of the country, the conſtant intercourſe, and continual making of bargains, as well as their regular attendance on markets and fairs, which are held in every town, and which are

reſorted to for amuſement and ſociety, as well as for buſineſs. It is not, therefore, in this country that we are to look for the rural ſimplicity of the paſtoral ages; the children, being early initiated into the habits of induſtry, ſoon ſeem to know the value of their labours; and by acquiring, at that period, ſome little claim to property, gain a degree of knowledge, which never afterwards leaves them; and that their habits of induſtry are even increaſing, muſt be apparent to every obſerver, from the increaſing comforts, both in their habitations and dreſs. After having ſaid ſo much, it will not be deemed too ſtrong an aſſertion to add, that, as tenants, they are unexceptionable; and that an eſtate, portioned out amongſt men of this deſcription, where nothing is deducted for repairs, where there are no poor rates, and where tithes are moderate, muſt be productive, and not difficult to manage.

SECT. 2. *Rent in Money, in kind, in perſonal Services.*

THE rent is always paid in money; ſome landlords have dainty fowl; but perſonal ſervices are never exacted, except in the caſe of cottiers, who generally are bound to pay the rent of their little holdings in labour.

SECT.

SECT. 3. *Tithes,*

ARE very moderately ſet in the county of Down; incumbency bargains are very common; the rate from 1*s.* to 1*s.* 6*d.* per acre on the whole farm; one or more ſubſtantial men binding themſelves in each townland, for the payment of the whole tithes of it. Potatoes do not pay tithe; in ſome pariſhes there is a modus for flax, in others none. Upon the whole, the people are at leaſt as leniently dealt with by the clergy, as they are by thoſe proprietors, in whoſe hands the tithes of their reſpective eſtates are veſted; and the interference of a tithe farmer being in general diſpenſed with, as well as the annual ſetting, the whole buſineſs is generally ſettled in that amicable manner, ſo highly creditable to the clergy, and ſo comfortable for the people.

SECT. 4. *Of Poor Rates.*

WE have none.

SECT. 5. *Leaſes,*

ARE generally freehold; ſome for lives and years, others for lives alone. Some idea of the diviſion of land

land may be formed from the number of freeholders, amounting to 6000 in the election of 1790; since that period they are considerably increased.

Sect. 6. *Expense and Profit.*

I shall not attempt to calculate the expense and profit of the farmers of this county; their system is for the most part so little regular, that nothing very exact can be given upon the subject; but I shall state the particulars of two farms, of fifty acres each, one managed so far systematically, that clover, to a certain amount, is sown every year, and allowed to continue two years, and when two years old regularly broken up; and the other, in the common method of ploughing the heart out of the ground, and letting it come to grass of itself. Particulars of Mr. Gracey's farm, in Lecale, of fifty acres: eight acres wheat, eight acres barley, eight acres oats, eight acres potatoes, sixteen acres of clover, one and two years old, and two acres of meadow; stock, seven cows and a bull, seven young cattle, fifteen sheep, three pigs, and six horses; all on sixteen acres of clover. Particulars of a farm of fifty acres, managed in the usual way, without clover, &c.: wheat four acres, barley four acres, oats eight acres, potatoes four acres, meadow four acres, grass twenty-six acres; stock, four horses, eight cows, six young cattle,

cattle, and a few ſheep. Thus we ſee, that by means of clover there are twelve acres more in crop, than on land of equal quality without it; and that ſixteen acres of clover feed one-third more ſtock, than twenty-ſix acres of common graſs, and in a much better manner. If we go on to calculate the produce of both farms, we ſhall find very near 100*l.* per annum difference in the value; and had one half of the clover been cut and given to cattle in the houſe, it would have much increaſed the difference. If, then, the introduction of clover alone gives ſo decided a ſuperiority, how much greater would the ſuperiority be, if to it was added green food for cattle in winter, and the introduction of ameliorating crops between each crop of grain? It is by ſuperior management, more than by ſuperiority of ſoil, that Norfolk produces better than any part of England. I muſt add, that Mr. Gracey's farm is cultivated in a very complete manner.

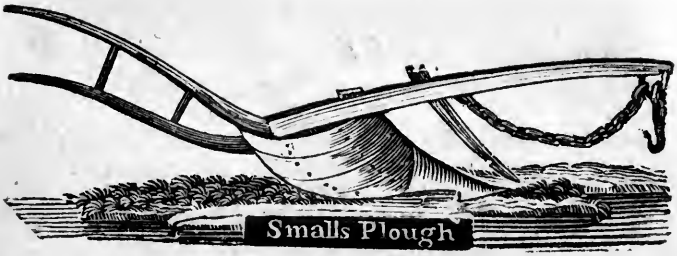
CHAPTER

CHAPTER V.

IMPLEMENTS.

THE implements of huſbandry in general uſe are few and ſimple. Cars for draught, ploughs for tillage, of no great ingenuity in their fabric, but light and ſtrong; harrows either for one or two horſes, differing from each other in ſize, not in conſtruction; except in ſome inſtances, where the latter have a hinge in the middle, to accommodate the ſhape of the implement to the ridge. In the hands of gentlemen, and of ſome firſt rate farmers, there are many new implements. In their ſyſtem carts are often preferred to cars, and although theſe in large farms may give way to them, with ſmall farmers they muſt hold their place; the expenſe of the former being above the reach of their finances. If no other inconvenience was to be the reſult, it would not be of much conſequence; as a car well fitted with all its furniture, of ſideboards, for carrying manure, potatoes, &c. and a crib, calculated for holding a load of turf, is ſufficient for moſt purpoſes, either of carriage or of agriculture,

on



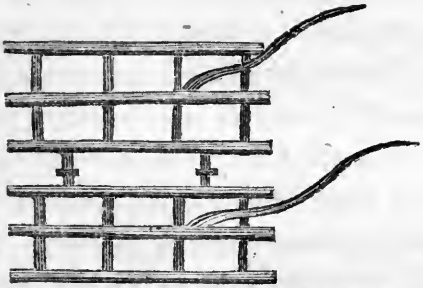
See page 49.

on a ſmall farm. One improvement ſtill remains to be adopted in their conſtruction; having the wheels to turn on the axis, inſtead of the axis turning with them; this would facilitate their movement, and prevent them from hurting the roads, which in turning ſhort they are apt to do. Carts of a light kind, for one horſe, on level roads, would probably be an improvement, eſpecially for conveying bulky materials; but whether their being introduced into the general ſyſtem of rural economy, in this hilly country, would be of material utility, I am not ſo well convinced; that vehicle, whoſe application is leaſt confined, as being adapted to every variety of ſurface, which is moſt handy, leaſt liable to be put out of order, and the cheapeſt, certainly has conſiderable and well founded pretenſions; and, though gentlemen are very commendable in making trial of every thing, which ſeems an improvement, they ſhould conſider maturely before they go to great expenſe in procuring a new machine, whilſt one is at hand, which at one-third of the coſt may anſwer their purpoſes much better.

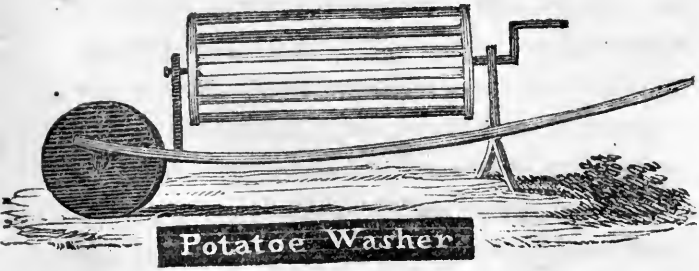
Ploughs of many ſorts have been introduced by attentive cultivators; the Scotch plough, invented by Small, and imported by Mr. Chriſty, ſeems to be getting into general uſe amongſt gentlemen farmers; it certainly, when well managed, and in a ſoil not too much incumbered with ſtones, does its work in a very maſterly manner, from the formation of the mold-board in

particular; it ſtirs the ground, and reduces it to a degree of fineneſs more expeditiouſly than thoſe in common uſe, whilſt the ſhare is calculated to cut and raiſe the furrow from the bottom, which, by this means, with leſs toil to the horſes, is completely laid in its place. The expenſe of this plough is about five pounds; this will for ſome time operate againſt its general uſe, as well as the difficulty of getting them made, which cannot be done by every common ſmith or carpenter; I have given a drawing of this implement, which will convey a better idea than any deſcription. The Rotheram plough, uſed by Mr. Ward, at Bangor, does its work very neatly, and with great appearance of eaſe; I ſaw two horſes not remarkable for ſize plough up a ruſhy field without difficulty, the land was not ſtony, and the fin upon the ſhare cut through the roots of the ruſhes without a check; when the ground is ſtony, a ſock is put on without a fin. At the Biſhop of Dromore's, Engliſh ploughs are alſo uſed with ſucceſs, and alſo by the farmer in the park at Hillſborough, who, when in the Biſhop's ſervice, introduced ploughing without a driver; a cuſtom, which is daily gaining ground. By Mr. Crawford, of Crawford's-burn, a drill plough was uſed for ſeveral years, which diſtributed the ſeed with great exactneſs; but, as it does not anſwer for ſtony ground, he has of late laid it aſide. Beſides theſe ploughs, Mr. Chriſty uſes a ſtripping plough, for taking away the earth from the

potatoe



POTATOE DRILL HARROW



See page 51.

potatoe drills; a double mold-board plough for earthing them up; alſo a plough for taking them out of the ground, which laſt inſtrument, I underſtand, does the buſineſs very completely: a drawing of which is hereunto annexed. The ſame gentleman uſes a horſe-hoeing plough, in all operations where it is required. Likewiſe a drill-barrow,* for beans, &c.

Of harrows I have not much to ſay, only, that the above mentioned ingenious cultivator places the teeth with the edge towards the line of draught, having them previouſly formed like the blade of a knife, the better to cut the furrows. His harrow for going between the potatoe drills, and eradicating the weeds before they are horſe-hoed, is a very nice machine; by means of the handles, and a hinge in the middle, they can be accommodated to any diſtance: a drawing accompanies this. Beſides this, he uſes a potatoe or turnip cutter, and a ſtraw ditto; likewiſe a potatoe waſher, his own invention, of which I have alſo made a drawing; by taking out one of the bars the potatoes are put in, this is replaced, and by turning the handle, the waſher ſtanding about half way in water, the buſineſs is quickly and effectually done. But the ſtraw cutter, imported by Mr. Moore of Eglantine, is a moſt complete machine; the knives are placed in a wheel, the ſtraw in a box, which regularly delivers it, and it is

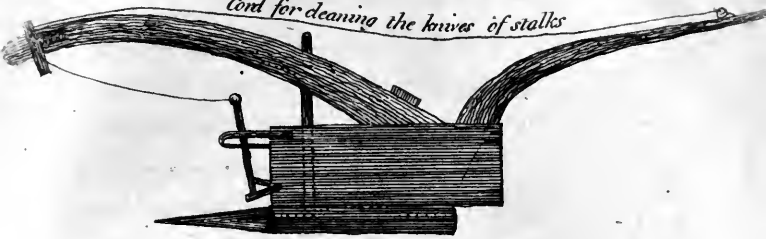
* Seminators for the drill, of a new conſtruction, may be ſeen at the repoſitory of the Society.

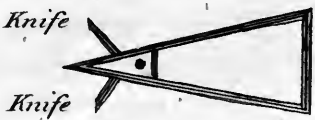
cut to any length, from half an inch to two inches, according to the manner it is ſet. A potatoe-cutter at Mr. Douglas's, of Grace-hall, deſerves mention; the potatoes are put into a hopper, and fall from thence upon a cylinder, in which knives are placed at equal diſtances, their edges downward; there is then fixed in the ſide of the machine oppoſite, and juſt below the hopper, a number of blades equal to that in the cylinder, and adapted to the interſtices; the hopper being filled with potatoes, the cylinder is turned by means of a handle like a grinding-ſtone; which motion making the potatoes fall, in their deſcent they are cut by the knives, and received into a box below: a buſhel of potatoes can be cut in this way in a few minutes.

Mr. Chriſty claims the merit of erecting the firſt threſhing machine in this kingdom; I ſhall here quote his own words from a letter to me containing much valuable information. "In the year 1796, I was at great pains in inſpecting many of the beſt machines in Scotland, making draughts of them, and a model to erect one on my farm, on the beſt principles. I employed a good workman, who had done ſomething in that way before, but had never attempted, nor ever ſeen one on my plan, who executed the work by my directions, and put me in poſſeſſion of a machine, which, although not ſo elegant in the workmanſhip as ſome others he has ſince made, yet does the buſineſs as effectually and expeditiouſly as any I have ſeen in

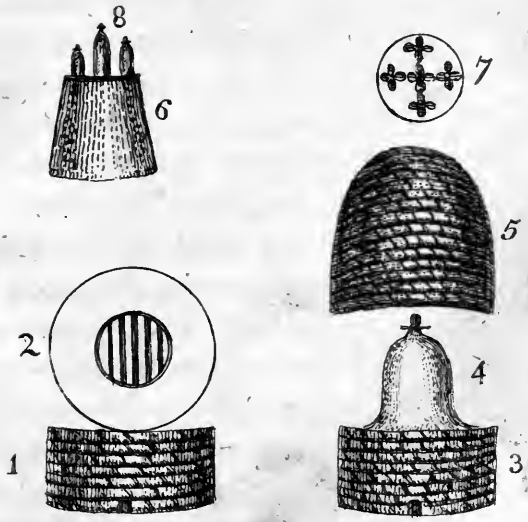
my

Plough *for taking out* Potatoes *P. 51.*

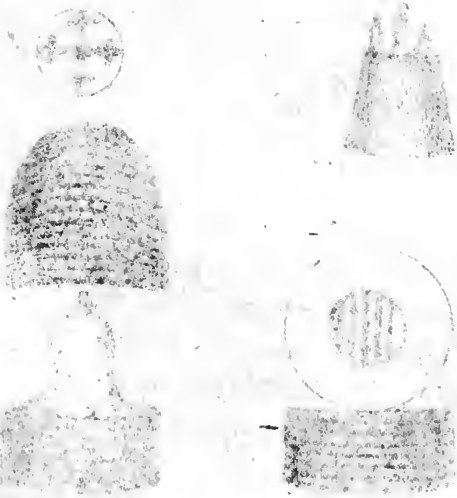




Plan of the Mould board



New constructed Beehive P. 210.



my late journey through ſome of the moſt improved parts of Scotland; and it has one improvement on all thoſe, that have come under my inſpection, which is what I call equalizing levers for adjuſting the draught of the horſes, which effectually prevents one horſe from drawing leſs than another." Mr. Chriſty has adapted to this machine one for rolling and ſcotching flax; likewiſe a ſteel mill for flour; and he has alſo added millſtones for grinding oats, &c. After this it is unneceſſary to add, that Mr. Chriſty has a head admirably fitted for inventing or improving machinery. Mr. Ward, of Bangor, has a threſhing machine likewiſe, erected by the maker of Mr. Chriſty's; the houſe which contains it being ſo lofty, that the horſes work underneath in turning the large wheel, ſimplifies it very much. The attendance required in threſhing days is, two or three horſes and a driver; a man to throw up the ſheaves, one to unbind them and make them ready for the perſon, who feeds the machine; and another to take away the ſtraw. The man, who throws up the ſheaves, can likewiſe take away the grain from the fan; but to fill that up, and meaſure it, requires the interference of another. The whole number to carry on the buſineſs effectually, five men and a boy to drive; with this force three times the quantity of grain is got out, beſides its being half cleaned; but the greateſt advantage attending it is the facility, with which a great quantity of grain is got ready for market,

ket, in a comparatively ſhort time, and the opportunity of employing men and horſes under cover in bad weather. The expenſe of one of theſe machines, (ſuch as are mentioned above) is nearly 100*l.* the intereſt of which would pay for the threſhing of one hundred and twenty boles of oats, of ten buſhels each, at one ſhilling per bole, which is the uſual price; to which, if the actual expenſe of the operation by the machine, and the wear and tare of it are added, it will not be found to anſwer, except on larger farms than are to be met with in this country; but I underſtand they are now made in Scotland of various dimenſions, and adapted to the ſize of every farm. In many ſituations a great improvement might be made by having them moved by water, which would ſave a great conſumption of horſes, on whom the labour is very ſevere. A convenient ſtraw houſe ought always to accompany a threſhing machine, to prevent the fodder from being ſpoiled; which even expoſure to the air renders leſs grateful to cattle.

Fans for winnowing are in general uſe, ſome with ſingle, others with double blaſts; but, to clean grain completely, the boards for ſeparating the ſtrong from the weak grain ſhould be moveable on a pivot, to enlarge or contract the ſpace, through which the grain falls, according to the degree of cleanneſs, that is intended; one at Mr. Chriſty's, on this conſtruction, ſeparates the grain as effectually as the barn floor, or winnowing

winnowing out of doors. Rollers are uſed with great ſucceſs in light grounds; and even in heavy land, when dry, I have uſed a roller after a ploughing and harrowing, and previous to another ſtirring; in that caſe I found it nearly equal to a ploughing, the cloddy parts being completely reduced by the operation. The turnip drill-barrow, uſed in the park at Hillſborough, which is puſhed by a man as a common wheel-barrow, is very light, goes on very quickly by changing the wheeler, and diſtributes the ſeed with great preciſion. I have been thus particular in deſcribing the different implements, uſed in this county, to ſhew that we have, in the farming way, many perſons attentive to whatever is looked upon as likely to promote improvement in huſbandry, and likewiſe to diſſeminate, as far as it is in my power, the knowledge of what is uſeful.

CHAPTER

CHAPTER VI.

INCLOSING.

SECTION I.

Fences.

THE incloſures (I wiſh I could ſay fences) of the county of Down are a general diſgrace to it; with ſome exceptions, they conſiſt of a ditch and bank, from two to four feet wide by the ſame dimenſions in depth, without quicks of any kind, or ſometimes with a few plants of furze ſtuck into the face of the bank, or ſome of the ſeed of the ſame ſown on the top: this laſt mode, if generally adopted, would at leaſt be a good temporary fence, and afford ſhelter to cattle, and promote the growth of graſs, which, from want of ſuch encouragement, is very late in riſing through the greateſt part of this country; but furze, when ſown on the top of the bank, unleſs cut with care and attention, grows thin at the bottom, and dies in a few years. Another kind of incloſure, very much in uſe, eſpecially in the ſtony and mountainous

mountainous parts, is the dry-ſtone wall; this, though a very unſightly fence, and, from the manner in which it is made, requiring, in common with the other, continual repair, has this merit at leaſt, that, in making it, the ground is cleared of part of its encumbrance, and that it ſtands upon a very ſmall ſurface; beſides, it is moſtly found in places, not only where ſtones abound in the ſoil, but where the rock, being but a little way under the ground, makes ſinking difficult, if not impracticable. Notwithſtanding this general cenſure on the mode of incloſing, there is not any country where the art of raiſing hedges is better underſtood, and more completely carried into execution, than it is here by numerous individuals, both gentlemen and farmers; and it is rather a matter of ſurpriſe, that their example does not more generally influence their neighbours. The additional expence of quicks is a mere trifle, when compared with the utility and beauty of the practice; its advantages need not to be dwelt on, they are apparent to every eye, in the ſecurity they afford to the crops, the protection they impart to the graſs from the withering blaſts of the early months, and the ornament they beſtow on the face of the country. If landlords were to make it a condition, on the renewal of leaſes, that all hedges between farms ſhould be made new, and planted with white-thorn quicks and trees of different kinds, the banks well backed up, ſo as to protect them from cattle, it would, in a courſe of time, and

that of no great length, make this one of the moſt charming counties in Ireland: ſuppoſe the trees and quicks were given as an inducement, the ſum would not be great on the whole; and as leaſes in general fall gradually, the diſburſements would be gradual, and come at the fitteſt time imaginable, along with an increaſing income. Although there is great induſtry exerted by the farmers, in manuring and improving, yet the want of good incloſures gives a general appearance of ſlovenlineſs to their labours, which in other reſpects they do not deſerve; and it is often to be regretted, that a field of potatoes, drilled in a moſt complete manner, ſhould be ſurrounded by a ditch, not capable of affording it the protection neceſſary to it, and which it merits ſo well. If the time, which is annually loſt in repairing old fences, was laid out with judgment, in making a certain portion of new ones every year, in a very ſhort time it would preclude the neceſſity of the former, beſides all the other benefits, that would accrue.

The fences moſtly in uſe amongſt thoſe occupiers, who have ſuperior ideas of their utility and beauty, are trenches and banks, varying in ſize and dimenſions, according to the ſituation of the grounds, or the fancy of the maker; the trenches are made often ſo large as ſix feet wide by five in depth, but five by four is more uſual, the bank, of conſequence, proportionate to the trench; the latter dimenſions form a ſufficient defence in moſt caſes, and where the quicks are carefully wed

for

for three or four years, cattle will not readily attempt to paſs it. In weeding young hedges, great care ſhould be taken to avoid breaking the tender ſhoots, which is moſt effectually done by beginning at the bottom, putting in the hand between the plants, or, where room is wanting, the fingers only, and neatly drawing the weeds downward; afterwards you may proceed to thoſe above, which may be done with leſs danger of miſchief, the ſhoots being more viſible. An obſervation well worth communicating was made to me by a gentleman near Moira, who is a very accurate judge, that quicks grow more rapidly in ſmall than in large ditches, in conſequence of which he has altered his mode of making them; but, that the fence may be effectual from the beginning, he backs his banks up very high, and makes a little parapet on the brink of the gripe, which anſwers the double purpoſe of ſtrengthening the fence, and of protecting the thorns from being ſpoiled by cattle browſing on them from the front. Another gentleman, in the ſame neighbourhood, always cuts his quicks after being ſet two years, and finds that, after this operation, they grow with ſo much vigour, that at the end of four or five years he has a fence, ſtronger by much than in the uſual mode of not cutting them, until four or five years planted; but it muſt be noticed, that he cuts them quite cloſe to the bank. One objection to fences made in this way, eſpecially where the fields are ſmall, is the quantity of ground conſumed by

them; this objection is certainly juſt; but in this country, where timber is ſo ſcarce, there is no other method of protecting the quicks; but, when theſe are grown to a proper height and thickneſs, why ſhould not the trench be filled up? which may be done partly with ſtones, thereby preſerving its quality as a drain; and the ſtones being covered with earth, the land may be cultivated to the edge, ſo that nothing of it ſhall be loſt but the bank, and even it not entirely ſo, as in time it will afford ſome graſs. This mode I find to anſwer particularly well on the ſides of hills, nor do I ſee why, in moſt ſituations, it may not with equal propriety be carried into execution.

Sunk fences are getting much into faſhion in gentlemens' improvements; they are, without doubt, the beſt adapted of any others to form the neceſſary diviſions in a demeſne, as, with them, you may follow every inclination of the ground, without breaking in upon the beauty of the whole, and have at the ſame time the convenience of a ditch and drain, without the diſadvantage of injuring your view, beſides the benefit of a quantity of earth, which, when properly mixed with lime or dung, forms a ſupply of manure for the adjoining grounds; another circumſtance in their favour is this, you loſe only the breadth of the drain, the land being profitable to the brink. White-thorn quicks are thoſe in general uſe; they are generally planted in ſingle rows, and are no more than one or

two

two years old; ſome gentlemen, who are more attentive, plant two rows, and have their plants three or four years old; this is a great advantage in raiſing a fence expeditiouſly, but it is more expenſive, and old quicks are hard to be obtained. There are various opinions upon the exact place where the thorns ſhould be planted; ſome perſons ſet them on the ſoil, others a foot above it, as they are not, in that ſituation, ſo much in the way of the weeds; but certainly, the nearer they are to the good ſoil the better for them, and their rapid growth will amply repay the trouble of keeping them clean. The quicks moſtly uſed in this county are brought from Dublin and other places; they are to be met with in all the markets in ſpring, and coſt from three to five ſhillings per thouſand, according to their quality; this regular demand for them is a good ſymptom, and gives great reaſon to hope, that, with ſome attention in the managers of eſtates, and with ſome encouragement from their landlords, and alſo from ſome inducements held out on this head by the Agricultural Society of the county of Down, the nakedneſs of our land will not much longer be a reproach to us.

Sect. 2. *Gates.*

Where fences are neglected, it would be unnatural to expect, that much attention ſhould be paid to gates; conſequently there are very few, except amongſt thoſe perſons, who are careful in forming and preſerving their hedges. The uſual method of putting cattle into the fields is, by a buſh ſtuck in between two jambs of ſtone or ſods, which is put into its place, or removed from it, at the evident peril of the fingers. Some good effect, however, attends this want of gates, for, where a gate is ſeen neatly made and painted, and judiciouſly hung, it makes a pleaſing impreſſion, whilſt in a country, where ſuch conveniencies are common, it would be paſſed by unnoticed. In the conſtruction of gates, an evident improvement was pointed out to me by Mr. Chriſty of Kircuſſock; the diagonal ought to be dovetailed into the upper part of that ſide of the gate, by which it hangs; the narrow part or neck of the dovetail being the lower, of courſe the weight of the farther part of the gate is completely counteracted, for the more it preſſes, the tighter the joint is pulled, which cannot give way, unleſs ſome lateral preſſure is applied to remove it from its place. Something of this

this kind is abſolutely neceſſary, to remedy the defect incident to moſt gates, that of drooping at the points, and being wrecked to pieces by rubbing on the ground in opening and ſhutting.

CHAPTER

CHAPTER VII.

ARABLE LAND.

SECTION I.

Tillage.

TILLAGE is the dividing or breaking the ground, by ſpade, plough, hoe, or any other inſtruments, which divide by their force or action. Land is fitted for the production of vegetables, by dividing the ſoil; and the more the particles of the earth are divided, the more the internal pores or ſurfaces are multiplied: the more ſurfaces there are formed by diviſion, the more the earth is enabled to furniſh food for plants, and conſequently the more fruitful it is. Tillage and manure both contribute to this end; they mutually aſſiſt each other; and it is on a judicious management of both that ſucceſs in agriculture depends. That ſtrong land requires a greater proportion of one and the other, than land of a lighter texture, muſt be allowed; but a conſiderable degree of attention muſt be paid, to remedy

medy the defects of the latter, as well as of the former, which will appear more clearly by considering the defects of each. In strong land the natural pores, or interstices, are too small, the artificial ones are too large; this defect is increased by insufficient tillage; of this most farmers of any experience are aware, and, by the different operations of husbandry joined with manure, endeavour to open what is too close, to admit the passage of the roots in its natural state, and to close what is too open to afford the necessary pressure. Strong ground breaks into clods or lumps, when badly tilled; roots cannot penetrate into, but get between these, where they perish for want of nourishment. Light land has its natural, as well as its artificial pores, too large. Pores, that are too large in any land, can be of little use to roots, except to afford them a passage to other cavities more proper for them; for if, in any place, they lie open to the air, they are dried up and spoiled before they reach them; for no root can take in any nourishment from any cavity, unless it comes in contact with, and passes against the superficies of that cavity, which includes it; but a root is not pressed by the superficies of a cavity, whose diameter is greater than the root, and consequently it cannot be nourished therein. From this statement we find, that strong land requires to be opened, for the admission of roots; light land to be closed, to prevent their passing too freely, and without a proper degree of pressure; the great

object, therefore, of tillage is, to bring the ground to that ſtate, in which the root can paſs freely in ſearch of its proper food, and at the ſame time to have ſuch a degree of firmneſs, as will in its paſſage afford the root its neceſſary ſupport. The land in this county being generally in its quality light loam, and rendered much more ſo by a conſiderable quantity of lime, &c. and the idea, that much ploughing *breaks the heart of it*, being very prevalent, has made me dwell upon this ſubject, and endeavour to point out the reſult of a defective ſyſtem of tillage; the evils of which are ſo ably expoſed in the writings of the claſſical Tull, the father of the horſe-hoeing huſbandry; and who, however he might have erred by adhering too cloſely to the idea of tillage without manure, has done more towards explaining the true principles of managing the different ſoils, than any writer on rural affairs, I believe I may ſay, in this, or any other country.

Let us now ſee, how far the general practice here agrees with the above-mentioned principles of cultivation. The firſt object with the farmer is, to enrich his ground with lime, marle, or ſand; after this, his next object is, to reap the benefit of his induſtry; accordingly he breaks up his ground as ſoon as it has received the intended advantage from the manure; on this he ſows oats, which he repeats year after year upon one ploughing, until his land, from the quantity of manure and imperfect cultivation, loſes all power of production.

production. When ground is treated in this barbarous manner, the foot ſinks into it after harrowing as into a bed of aſhes, whilſt that, which is properly tilled, has an elaſticity to the tread, that can eaſily be diſtinguiſhed from the dead ſoftneſs juſt mentioned; ſome land there is, however, of ſuch a fortunate texture, that even this treatment does not ruin it, but what is the conſequence? It encourages other farmers to go on with this deſtructive practice, until their land is ſo completely exhauſted, that it is incapable even of yielding graſs, and can only be recovered by lying in lea, and the application of earth, that has not yet felt the baneful influence of the ſyſtem ſo generally in uſe. There is ſcarcely any part of this county, in which the effect of land thus abuſed may not be ſeen; as ſoon as the farina of the ſeed is gone, and the roots are left to ſhift for themſelves, the hollowneſs of the ground is ſuch, as not to afford them nouriſhment; in conſequence the plants die, and leave their place to be occupied by weeds, which from their conſtitution are better enabled to ſtruggle with accumulated difficulties.

SECT. 4 *Fallowing.*

FALLOWING is ſeldom practiſed, except in a few inſtances where a gentleman or farmer of experience and

ſpirit wiſhes to bring a piece of land into cultivation, that has never born crops before, or that has been hurt by the mode of miſmanagement mentioned in the firſt ſection; ſpeedily to accompliſh either purpoſes this muſt be a good method; but except there is ſome urgent reaſon, it ought never to be reſorted to, as its place can generally be ſupplied by a fallow crop, which, if well managed, will at leaſt pay the expenſe, and leave the ground in as good a ſtate as a ſimple fallow. It is a curious circumſtance, that a fallow, and a fallow crop, although their mode of acting are ſo very different, ſhould be attended with nearly the ſame advantageous effects; the firſt acts by expoſing the earth to the ſun and air, the latter by the excluſion of both; and the more perfectly the one is expoſed, and the other ſhaded, the more completely the intended advantage is gained.

Sect. 3. *Rotation of Crops.*

On a judicious rotation of crops depend the regular profits of farming; we may, certainly, by laying on conſiderable quantities of manure, force a very great produce for a few years; but that muſt have a period, for ſtrong ſtimulants in the end muſt exhauſt; but land treated in the Norfolk method, where turnips or clover

clover invariably precede barley or wheat, may like that country retain its productive qualities without diminution, probably for ages. And when we add to theſe ameliorating vegetables juſt ſpoken of, potatoes, cabbages, carrots, peas, beans, vetches, &c. the rotation of crops may be varied ad infinitum; adapting the change of ſpecies to the nature of the ſoil. In this county, except from the diverſity given by potatoes, (with ſome few exceptions) we have nothing but the one dull round of crops of grain upon the ſame field; until being worn out it is given up, and another portion is attacked with the ſame ſenſeleſs obſtinacy, and reduced to the ſame ſtate. Nothing is more common than to hear a farmer ſay, his ground will produce but one good crop after potatoes, and nothing is more common than to ſee him, with that conviction on his mind, riſk another crop without even a ſecond ploughing; whereas, if he laid down this field with clover or hay-ſeed, he would nearly have a certainty of four years good produce from one manuring; firſt potatoes, ſecond barley or oats, third clover or hay, and fourth oats, excellent, or probably wheat. Thus, by dividing a farm into ſix parts, and manuring every year one-ſixth, there will be two-ſixths in grain, and two-ſixths under preparation for grain, two more for graſs, or any other management agreeable to this ſyſtem. The only part of this county, where any thing reſembling a rotation is purſued, is in the barony of Lecale; I mean

generally,

generally, for in many parts there are perſons fully aware of the miſchief of continued cropping without graſs or fallow. But even in Lecale, two, and ſometimes three crops are ſucceſſively taken. Marle has ſo much enriched their ground, and they are ſo very careful in the management of their potatoes, and ſow ſo much clover, that they ſuffer much leſs by this practice than might be expected; although their produce is certainly not equal to what it would be under a more perfect ſyſtem. The following is the courſe of crops on Mr. Gracey's farm, near Ballee; firſt,

THE POTATOE COURSE.

1. Potatoes drilled and manured with 160 carloads per acre.
2. Wheat, one ploughing to ridge it up.
3. Oats, two ploughings.
4. Barley, three ploughings.
5. Clover.

MARLING COURSE.

1. Oats.
2. Barley.
3. Barley.
4. Oats.
5. Barley, two or three ploughings.
6. Clover.

In

In the firſt courſe, if clover was ſowed over the wheat, and came in inſtead of 3. oats, the courſe would be excellent, as the clover might be ſucceeded by any crop of grain; or if peas were to form the third, the effect would be equal. The marling courſe might be much improved alſo, by ſowing clover with the ſecond barley crop. One obſervation, however, muſt be made reſpecting marle, that it has ſo great an effect in ameliorating the ſoil, to which it is congenial, that a leſs regular rotation may be admitted for ſome years after it is introduced; the ſame obſervation will apply to lime, but the ſame objection lies againſt both, that they leave the ground in a worſe ſtate than they found it, when followed too far. Many farmers, I underſtand, have gone ſo far as to take ten or even twice that number of crops, upon the ſtrength of marling; but they begin now to be ſenſible of the impropriety of this mode. Amongſt many different courſes of crops, I noted the following, which will ſhew, that in Lecale there is more ſyſtem than in the other parts of the county; and this advantage I believe is entirely owing to the general uſe of clover; which, though it is not ſo often as it ſhould be in its right place, is invariably had recourſe to in the end, as will appear by what follows.

LEA.

1. Oats, one ploughing.
2. Wheat, two ditto.
3. Oats, one or two ditto.
4. Barley, three ploughings.
5. Clover.

Or, 1. Potatoes,
2. Flax,
3. Wheat, two ploughings, and ſome manure.
4. Barley, three ploughings.
5. Clover.

ANOTHER COURSE.

1. Potatoes.
2. Barley, ridged up.
3. Barley, three ploughings.
4. Clover, two or three years.

Or, 1. Potatoes, or, 1. oats.
2. Flax, — 2. wheat.
3. Barley, — 3. oats.
4. Barley, — 4. potatoes.
5. Clover, — 5. barley and clover.

Wheat is moſtly ſown after potatoes, ſometimes after clover, but the crops are reckoned thin, which is not ſurpriſing, as the clover is generally ſown after two or more crops of grain; if wheat ſucceeded clover, which ſucceeded barley after potatoes, the caſe would be very different; but if wheat is better after potatoes than any other preparation, why ſhould not clover be harrowed over the wheat in ſpring? the harrowing will improve the wheat, and the upright growth of wheat

wheat is very favourable to young clover. In addition to the rotation of crops, which begin by a fallow, there is another courſe, which muſt be adverted to, that upon land, which, by the aid of lime or marle, is enabled to produce, independent of a fallow; many farms having been dreſſed with theſe manures at a great expenſe, a judicious management of them is of great conſequence; this courſe, from the enriching qualities of theſe ſubſtances, which make a total change in the land, may admit of a greater latitude, and a lay of clover or graſs may very properly be conſidered as not much inferior to a fallow. The courſes, which I have obſerved as moſt deſerving attention on land ſo improved, that had been for ſome years in graſs, and, conſequently, free from weeds, and which had acquired a pretty ſtrong ſward, are as follows; firſt, oats on one ploughing, the furrows well cleared, ſo as to afford an additional covering to the ſeed; ſecondly, wheat, often on one ploughing, and often very good; third, barley, two or three ploughings, the produce great: with this laſt clover or graſs are ſown, and the land ſuffered to lie for three years; where the ground is light, wheat is often the firſt crop after graſs; and when the ſoil is of that nature, the wheat ſhould be followed by barley, and laid down again. In this way land may be kept clean and in good heart for a number of years. A ſkilful farmer, in the neighbourhood of Liſburn, told me, that, by managing his fields in this way, at the end

of twenty-five years after liming they were as rich as the firſt day. Marſhall, in his Rural Œconomy of the Midland Counties, ſpeaking of the Leiceſter management in breaking up their graſs-grounds, expreſſes himſelf thus: "If fallowing can be diſpenſed with in any caſe, it may be under the management of this diſtrict, where only three arable crops are taken, before the land be laid down again to graſs." In another place he ſays, "What a new ſyſtem of huſbandry is this; at firſt ſight ſlovenly in the extreme; yet it is poſſible that, before I have been twelve months longer in this diſtrict, I may conceive it to be for lands, which are equally productive of graſs and corn, an eligible ſyſtem of management." What would Mr. Marſhall ſay of our mode? Ten or more crops following. The labour attending this plan is ſmall, ſix ploughings in all; one for oats, two for wheat, three for barley. The great objection to this ſyſtem is, the fear of weeds, which may intrude from three ſucceſſive corn crops; but, if the land has been free from them in the beginning, I ſhould think, by particular attention in weeding the ſecond crop, and by a complete winter fallow for the third, this evil might be avoided. To carry this plan into execution with effect, that part of the farm, on which it is to be practiſed, ſhould be divided into equal fields, as nearly of the ſame quality as poſſible; for on this circumſtance a good deal depends, as light land is much more liable to weeds than heavy. I ſhall

now

now take leave of this ſubject by obſerving, that, in moſt caſes, beginning with a fallow crop is to be preferred, and what here is propoſed is ſtill under the conviction of the ſuperiority of that mode, and is merely to be conſidered as an improvement of the old and injudicious management of this diſtrict, in which the permanent manures of lime and marle are ſo copiouſly uſed, that a proper application of their valuable qualities is of the greateſt conſequence.

SECT. 4. *Crops commonly cultivated; their ſeed, culture, produce, &c.*

THE crops commonly cultivated in this county are, wheat, rye, bere, barley, oats, peas, flax, potatoes.

WHEAT.

1ſt. *Preparation.*—The general preparation for wheat is a potatoe fallow; the manure, of courſe, dung: but a conſiderable quantity is ſown in other methods; it is often ſown after clover, which is ploughed up in June or July, and once or twice more before ſeed-time. If the ground is not thought ſufficiently rich, dung or aſhes are applied, ſometimes before the laſt ploughing, and ſometimes as a top-dreſſing; it is alſo ſown after flax, the proceſs the ſame; it has likewiſe been ſown with

with ſucceſſion lay, which practice is gaining ground, and after oats, which have been ſown on lay.

2d. *Sort.*—The ſort moſt in uſe is a kind of brown wheat, thin in the ſkin, which weighs well; beſides this the red lammas; but for light ſoils the white velvet is much approved of: this is a beautiful grain, and the bran is ſo white, I ſhould think it very advantageous to the miller. Colonel Ward imported ſome of this kind from York, in the year 1800; this he dibbled, and had a return of forty fold: I ſaw the field in June 1801, when in ear; nothing could exceed the beauty of it; a ſpecimen he ſent me is exceedingly fine. Cone wheat he tried in the ſame field, but it did not ripen ſo well; ſome of this latter ſpecies, ſown by a gentleman near Moira, ſucceeded remarkably well. I ſaw a ſheaf, tied by a ſtrap made of the double length of the ſtraw, that yielded eighteen pounds of wheat; the ſtraw was of courſe very long, and as ſtrong as a reed.

3d. *Steeping.*—This operation ſeems to be loſing ground, as it is now conſidered of little uſe, except in ſeparating the good from the bad grain, which may be as effectually performed by proper winnowing. It ſeems very extraordinary, that any ſubſtance, imbibed by the ſeed before ſowing, could prevent the ſmut, a diſorder that is entirely confined to the ear, and often to a few grains in the ear; it ſeems to proceed from want of impregnation, not from the root, and is more

frequently

frequently obſerved, when froſts or high winds prevail at the time of bloſſoming. The experience of the three laſt years has nearly convinced me, that there is little connexion between the quality of the ſeed, and the diſorder in queſtion. The ſeed wheat of the year 1799 was remarkably bad, and yet in this part of the county the produce of the following year, 1800, was quite free from ſmut, and good in every particular; but this being ſown produced the enſuing year, 1801, grain very much infected with that complaint.

4. *Seed, quantity ſown.*—About four buſhels to an Iriſh acre is the general allowance; this makes two and one-half buſhels to the Engliſh acre; Mr. Chriſty ſows five buſhels per Iriſh acre. I ſhall quote his own words: "I am in the practice of ſowing five buſhels on an Iriſh acre, which is conſiderably thicker than is uſually done in this neighbourhood. I have long been of the judgment, that one of the many cauſes, why the land in general is ſo extremely weedy, is that of thin ſowing, as I have never ſeen the ground ſo clean as after a thick crop, nor ever ſaw a thin one without abundance of weeds ſucceeding it." Mr. Gracey of Lecale ſows two and one-half hundred weight a barrel, which is about half a buſhel leſs. The opinions of theſe ſkilful cultivators coincide with my own experience; the queſtion is not to obtain the greateſt quantity in proportion to the ſeed, but the greateſt quantity upon a given piece of ground.

5th. *Time.*

5th. *Time of ſowing.*—The time of ſowing varies conſiderably, from the beginning of October to the beginning of March, through all the intermediate months. When fallowing was in faſhion, wheat was ſown early in October, but ſince wheat has ſo generally ſucceeded potatoes, the ſowing depends upon the time the potatoes are dug, which can ſeldom be accompliſhed until the latter end of that month, or the beginning of November; but, for ſome years paſt, conſiderable quantities have been ſown ſo late as the month of March, without diminution in produce. The Rev. Mr. Cochran, of the Ards, thus writes to me on this ſubject: "You enquire, Sir, whether wheat is ſown in ſpring; I have done it frequently; I have ſown it in October, and in the beginning of March following I ſowed wheat in the ſame field, on the immediately adjoining ridges, in the ſame ſtate of ſtrength. I had as great weight from my March ſowing as from the October; as it was not expoſed to the dangers of winter, I gave it leſs ſeed, and it was ripe fourteen days after the October ſowing. I would prefer ſowing in the latter end of February, or beginning of March, to ſowing in January, and have as good profitable crops from my ſpring as from my autumn ſowing." About Liſburn wheat is ſown in ſpring with great advantage, and in many other parts of this county; the ſpecies ſown is not ſpring wheat, but the ſame as is uſual for the autumnal ſowing.

6th. No

6th. No other culture is beſtowed on the growing wheat, than pulling out the larger weeds, and ſometimes rolling, and harrowing, which laſt is found very advantageous, except in one inſtance, where a gentleman covered a thin piece of wheat with freſh ſoil, which increaſed the ſize of the heads to an extraordinary degree. Top-dreſſing is ſo ſeldom uſed it need ſcarcely be regiſtered; but I have tried turf-aſhes with effect, both thoſe made in the houſe, and thoſe burned in the air for the purpoſe; the quantity conſiderable, from twenty to thirty car-loads per acre. Where it was laid, it could be diſtinguiſhed at the diſtance of half a mile.

7th. *Harveſt*—is not very regular; that, which is ſown in autumn, is generally earlier than oats or barley, that ſown in ſpring about a fortnight later. Wheat is bound in double ſtraps here, and immediately ſtooked, in which ſituation it remains until fit to bring in. Thoſe, who have a conſiderable quantity, ſtack it on hovels, to keep it ſafe from vermin. All grain in this country is ſtacked out of doors, as the climate will not admit of a large quantity being houſed at harveſt.

8th. *Threſhing*.—For ſeed wheat is generally laſhed, as in this way the grains are not bruiſed by the feet, nor by the flail. And for the market it is the better way, as the beſt grain is got out without the ſmall being mixed; after laſhing the ſheaves are tied up and threſhed,

threſhed, to obtain the ſmall grain. The threſhing machines ſeem peculiarly well adapted for wheat.

9th. *Produce.*—Various; differing according to the ſoil and culture, from fifteen hundred to five and twenty hundred per acre; medium produce, about a ton.

10th. *Manufacture of bread*—is moſtly confined to towns, which are ſupplied from the flour mills, where there is a conſtant market for wheat. Farmers, who grow wheat, generally make the ſmaller grain into a coarſer kind of bread for family uſe, baked in cakes on a griddle without barm. It would be much to the advantage of the country in general, if wheaten bread was more in uſe amongſt the farmers; for the produce of a middle crop of wheat is much greater, in point of food, than that of a good crop of oats; beſides, where thatching is ſo much in demand, from the number of cabins on the ſmall farms, wheat ſtraw would, from its ſuperior duration, be a matter of conſiderable economy both in the article of labour and manure.

Rye—is ſeldom ſown, except on bogs; white rye is generally the ſort. The quantity of ſeed not well aſcertained, I ſuppoſe about two buſhels; time of ſowing, the ſame as wheat; cut about the ſame period; produce much the ſame; moſtly made into bread; ſome ſold to diſtillers and tanners.

Bere, or winter barley.—Managed in every particular like wheat; but in general earlier ripe, by ten days or a fortnight.

a fortnight. Application; ſold for malting, or ſometimes made into meal, of which a great quantity was uſed in the dear ſeaſons of 1800 and 1801; the produce much the ſame as of wheat.

BARLEY.

1ſt. *Preparation.*—Barley is often prepared for by a potatoe fallow; when that is not the caſe, it has generally two or three ploughings; if the ground has not been richly manured with marle, lime, or ſand, dung is the uſual manure; the quantity varies from forty to ſixty car-loads per acre, which is ſometimes ploughed in, and ſometimes ſpread on the ground, the ſeed ſown, and both dung and ſeed covered from the furrows. From this method the produce is often great, but often weedy.

2d. *Sort.*—In the eaſtern part of the county the long-eared, or two-rowed barley, is always ſown; in the weſtern it is generally the four-rowed: the firſt is eſteemed the moſt profitable for the malſter; the latter I take to produce more to the farmer; but it is very troubleſome to dreſs for the market, as the awns adhere cloſely to the grain, and require a ſecond threſhing to get them off.

3d. *Seed;*—quantity about five buſhels; in Lecale much more, two and one-half hundred weight being

the uſual allowance, that is, nearly ſix buſhels. All broad caſt; except in one inſtance, when Mr. Crawford, of Crawford's-burn, made uſe of the drill plough; with this machine he ſowed three acres with four buſhels of ſeed, and found the crop ſufficiently thick, and the barley much better grain than uſual; he thinks it might be ſown with even a ſmaller quantity, for he tried a number of drills with a leſs proportion, and could not obſerve any difference in the produce. This machine ſows five drills at nine inches diſtance, or three at eighteen; a horſe, one man, and a boy, will ſow three or four acres a day; though the mold falls in behind the hollow coulter, Mr. Crawford always rolls the ground after ſowing, which he thinks an excellent practice, whatever may be the mode of ſowing. The drill plough requires ground very fine, and free from rocks and ſtones. An experiment made by the Rev. Mr. Moore, of Clough, deſerves to be mentioned; being ſtruck with the quantity of ſeed uſually ſown, particularly in the approaching famine of the ſpring of 1800, he dibbled an acre of ground with twenty-four quarts of barley, and although it was ſown late, and the dry weather which immediately followed was very unfavourable, the produce was nearly equal to that of the ſurrounding country; and, if to that was added the ſaving of more than five buſhels of ſeed, the experiment upon the whole was in favour of the dibbling.

4th.

4th. *Time of ſowing*—from the latter end of March until the beginning of May; ſo much depends upon the ſeaſon, it is very difficult to determine, what is the moſt proper time for ſowing; this year, 1801, for example, was favourable to early ſown barley, unfavourable to that, which was ſown late, and yet the ground in the beginning of May had a more promiſing appearance than in the beginning of April. Much depends upon judgment, in taking the ground in proper order; but, as much depends upon the circumſtances of the weather after ſowing, it is a moſt eligible thing to have ground properly dry for the ſeed; if, however, it is nearly devoid of moiſture at that period, and that rain does not ſpeedily follow, the grain does not equally vegetate, and that, which remains without growing for any time, never overtakes the reſt, but remains green at harveſt, whilſt the firſt ſprouted ſeed is ripe. Barley appears to me more liable to this misfortune than any other grain; the cauſe of which is probably the advanced ſeaſon, at which it is generally committed to the ground, and its conſequent dryneſs. I ſhould think it a good method, where a conſiderable quantity of this grain is to be ſown, to let the ſower in dry weather follow the plough as cloſe as poſſible, after the laſt ſtirring, before the moiſture evaporates, rolling the ground immediately; which tends not only to keep it from eſcaping, but from the fineneſs it gives the ſurface, permits any caſual ſhowers to penetrate

with more facility. Sowing under furrow has the advantage of imparting to the ſeed more moiſture than the uſual mode, and certainly protects it better from the depredations of birds, &c.

5th. *Steeping*—though not cuſtomary for barley, might probably be uſeful in dry ſeaſons. In a letter to the Bath ſociety this method of preparing the ſeed is mentioned with high encomiums; the ſteep, water taken from a dunghill; great care ought certainly to be taken after the ſteeping, to prevent any of the ſeed from lying on the ſurface, which would infallibly ſpoil it, after being brought nearly to a ſtate of vegetation by the ſteep.

6th. No culture is given whilſt growing, except taking out the larger weeds.

7th. *Harveſt*—ſometimes as early as the latter end of Auguſt, but generally through the month of September, and in backward years as late as the firſt week in October. The grain all ſtooked in the field; ten ſheaves ſtanding, and two to cover, compoſe a ſtook. Grain of every kind is brought home and ſtacked as ſoon as fit; for in this country it will not keep in barns, until it gets completely dry in that ſituation.

8th. *Threſhing*—except in two inſtances above-mentioned, is performed in the uſual way; when barley is threſhed by the bulk, eight buſhels are reckoned equal to ten of oats, and paid for accordingly. Four-rowed barley is not ſo eaſily ſeparated from the awns as the two-rowed;

two-rowed; after it has been threſhed it is neceſſary to beat it, either with flails or mallets, to make it ready for market.

9th. *Produce*—from ſixteen hundred weight to one and a half ton. The produce of Lecale is nearly a ton, ſometimes more, and often leſs; about Moira, Magheralin, and in the neighbourhood of the towns towards the weſtern part of the county, the produce is greater, from a ton to a ton and a half, that is, from ten to fifteen barrels; and in that part of the country it is the four-rowed ſort which is ſown. This, however, is more owing, I ſhould think, to the quality of the land, than to the ſuperiority of the ſpecies.

10th. Seldom made into bread except in times of ſcarcity.

OATS.

1ſt. *Preparation. Tillage.*—Oats being the principal grain cultivated in this county, are ſown after every preparation both of tillage and manure, and are often ſown upon ground in ſuch a ſtate, as to be unfit to be ſown with any grain. The beſt and cleaneſt crops are obtained after potatoes; the manure dung or aſhes. Very fine crops are alſo obtained after lime, or marle, or ſand, upon one ploughing; for, as has been mentioned in the beginning of this chapter, more than one

ploughing

ploughing is ſeldom given. The only perſon I know, who gives more than one ploughing, except Mr. Chriſty, is Mr. Gracey, of Lecale; their obſervations upon the ſecond ſtirring accord with my own experience, that it not only increaſes the quantity but the quality of the grain.

2d. *Sort.*—The ſpecies cultivated are the Poland, the Blanter, light-foot, and by ſome perſons the white Holland. The Poland oats are very white, early, and very prolific on rich ground; but where they are good, the ſtraw is in general coarſe. The Blanter has finer ſtraw, is of a more yellow colour, does not produce ſo much in general on the ſame quantity of ground, but from the thinneſs of the hull yields remarkably well in meal; this kind of oat is very hardy, does not eaſily ſhake in high winds, nor is it neceſſary to cut in whilſt greeniſh, to prevent its being loſt in handling, like the Poland. The light-foot is a ſmall grain with very fine ſtraw, the ear confined to the top of the ſtraw, which grows to a great length, and will ſucceed where the other ſorts will not; it is not profitable to the farmer, who has rich ground, but to the mealman very much ſo, from the fineneſs of the hull.—The white Holland reſembles the Poland in being early ripe, requiring to be cut before it is completely coloured, and in the greatneſs of its produce on rich ground, but excels it in weight of meal, from the ſuperior fineneſs of the hull.

3d. Never

3d. Never ſteeped.

4th. *Seed, quantity ſown.*—About ten Wincheſter buſhels to the Iriſh acre; Mr. Chriſty thinks he has better crops by ſowing eleven buſhels.

5th. *Time of ſowing.*—As early in ſpring as the ground will admit of; the earlier they are ſown, in general the better the crop.

6th. *Culture whilſt growing.*—Pulling out thiſtles, and other large weeds.

7th. *Harveſt.*—Generally a week or ten days after barley; treated in the field in all reſpects like barley, and ſtacked at home.

8th. *Produce.*—Moſt various; being every gradation from thirty to one hundred buſhels per acre. The latter, upon rich ground lately limed, not uncommon, or after a crop of potatoes, on land newly broken up; from ſixty to ſeventy buſhels the average upon good land, with the uſual preparation one ploughing.

9th. *Threſhing.*—The price of threſhing 1*s.* 1*d.* per bole of ten Wincheſter buſhels.

10th. *Manufacture into Bread.*—Baked into thin cakes on the griddle, with water and ſalt; I never have met with it baked with barm; ſometimes carraway-ſeeds are mixed with it, and ſometimes it is mixed with butter; however, it is moſtly uſed, and, I believe, preferred ſimply, as already mentioned. There is a variety of it, called a bonaught, which is a thick round cake, baked on the clear turf coal, and often uſed on

the

the firſt making of meal after harveſt; formerly oats, deſigned for meal, were dried on kilns, with wooden ribs, covered with ſtraw to prevent the grain from falling through them; at preſent, there are kilns at moſt of the mills, covered with tiles or thin iron plates, which do the buſineſs more ſpeedily: but the meal of oats, previouſly dried on the old wooden kilns, is reckoned ſweeter; being more gradually dried probably has that effect.

FLAX.

1ſt. *Preparation.*—Some years ago the prevalent idea reſpecting flax was, the impoſſibility of obtaining a good crop, without ſowing it after potatoes; in conſequence of which, a portion of ground, according to the extent of the farm, or the demands of the family, was always ſet apart on the potatoe ground, as it is termed, *for ſowing their lint upon;* amongſt many, eſpecially ſmall farmers, this is ſtill the practice; but others, who ſaw farther, found it was abſurd to dedicate their beſt prepared ground to a crop, that would be nearly as good upon land not ſo well conditioned for the production of grain; in conſequence of which, much flax is now raiſed upon ſtubbles, that have ſuffered much by repeated crops of grain; for an additional ploughing or two will, on ſuch land, ſecure at leaſt a tolerable produce; and when it is intended to refreſh it by a fallow

crop,

crop, or by graſs, for which flax is a good preparative, the idea, though not according to an approved rotation, is not ſo reprehenſible as many others. Fallowing, I underſtand, is a ſuperior preparation for flax, and I have ſeen very fine crops on rich and mellow lay. A ſoil approaching to clay is reckoned the beſt for it, as it gives a firmneſs of texture, which enables it to bear the many operations it is obliged to undergo.

2d ſort.—There are two kinds of flax-ſeed imported, Dutch ſeed and American; the Dutch is beſt adapted to heavy, the New England to light ſoils. The price of the former is generally higher than the latter, but the increaſed produce, on a ſoil fit for it, amply compenſates for the difference.

3d. *Seed, quantity ſown,* &c.—I ſhall here take the liberty of inſerting, in Mr. Chriſty's own words, his account of the manner, in which he cultivates this fundamental article of our ſtaple manufacture.—"Flax. This I ſow moſtly after wheat, giving the land one furrow before winter, with a crop and common ploughing in ſpring, when it is ready to be ſown. The land is finely harrowed before the ſeed is ſown, and then harrowed with a cloſe harrow with fifty-ſix teeth, which does not ſink the ſeed too deep; the furrows are neatly ſhovelled up, the ſtones gathered off and thrown into them, and the whole is rolled. I generally ſow three and one-half buſhels on an Iriſh acre, and find it ſufficiently thick. Laſt ſummer, 1800, proving favour-

able for saving the seed, I stacked up the flax, and, from the produce of what I have already beat out, I am disposed to think I shall have from twelve to fourteen hogsheads of good seed, and probably 240 stones of flax (16lb. to the stone), worth in the whole 180*l.* from eighteen bushels, sown on little more than five acres, which certainly is a very good return. I have, indeed, often heard it asserted, that flax is an exhausting crop in the extreme; to prove what truth there is in that assertion, I caused flax and barley to be sown on alternate ridges, in a field last year, which I design to sow with oats this season, expecting the crop will shew the difference if there is any, and satisfy me as to the propriety of persisting in the culture of flax." The result of this experiment was, that not the smallest difference could be perceived between the oats produced on the alternate ridges of barley and flax.

Mr. Gracey, of Lecale, informs me, that seven pecks, equal to three and one-half bushels, is the usual quantity sown in his neighbourhood. A curious circumstance, respecting flax-seed, occurred to Mr. Cowan in this parish of Annahilt: he observed, when the first breaking was giving to some flax of his, after it had been steeped and grassed, that the seed, which came from the boles, seemed quite fresh; in consequence of which he had it gathered and carefully laid by. This occurred in the harvest of 1800; in 1801 he sowed this seed, and had a crop equal to that produced by seed imported.

imported. This is a ſtrong fact, which proves two things, the hardineſs of flax-ſeed, and that our own ſeed is equal to that imported. Some perſons ſow much thicker, with the idea of making the flax finer.

4th. *Time of ſowing.*—As early as the ſeaſon will admit. It is an old ſaying, that March tow is as good as April flax; I need ſcarcely obſerve, that tow is the ſecond quality for ſpinning, after the hackle.

5th. *Culture whilſt growing.*—Very careful weeding, not only of the larger but of the ſmaller weeds; this is generally performed, when the flax is about three inches high, and after rain, as the weeds draw eaſier at that time, than when the ground is hard.

6th. *Harveſt.*—Flax is generally pulled, when the crop is only intended for ſpinning, as ſoon as the boles are grown to their full ſize, rather before they begin to aſſume a browniſh hue; but ſometimes it is neceſſary to pull it before that period, when it begins, as it is expreſſed, to fire, that is, when there are oblong blackiſh ſpots upon the ſkin, which cauſe the flax to break off in the dreſſing at the place where they appear; this is moſt frequent in wet ſeaſons, and ſeems to be the conſequence of the leaves of the plant falling upon the ſtem, to which they adhere, and which is rotted by this means. This accident is by moſt farmers attributed to lightning.

When the ſeed is intended to be ſaved, it is neceſſary to allow the flax to ſtand, until the boles are com-

pletely filled, and the ſeed aſſumes within a brown colour, which encreaſes until it has the ſame hue as the foreign; after this it ſtands in ſtooks, until it is ſufficiently dry to allow of its being ſtacked, which muſt be on hovels, to prevent the depredations of vermin, that are very fond of the ſeed. In this ſituation it remains, until it is neceſſary or convenient to free the ſeed from its covering, which is performed, firſt, by rippling or drawing the flax through a row of ſpikes, fixed in a plank cloſe enough to draw off the boles, which are then bruiſed, by which operation the ſeed is freed, and afterwards cleaned by winnowing. The flax produced from that, which ſtands until it is ripe, is reckoned more harſh and more coarſe than that, which is pulled green; but this, I ſhould fancy, was more owing to ignorance in handling it, than from any real defect; at leaſt, ſuch was the opinion of a very ſkilful hackler, with whom I converſed upon the ſubject. It is much to be wiſhed, that we could ſave our own ſeed, and preſerve the quality of our flax.

The next ſtep towards fitting the flax for ſpinning, after it is pulled, is watering. This is performed by ſinking it either in running or ſtagnant water, and keeping it in its poſition, either by the weight of ſods or ſtones, until the inner part of the plant is ſo rotted, that, in the future operations of breaking and ſcotching, the rind or outſide covering, which affords the material for ſpinning, may eaſily be ſeparated from it; in

the

the water it is kept, until by the feel it is judged to be fit for graſſing, that is, to be ſpread as thin and as regularly as poſſible upon a meadow or paſture field, until the proceſs begun in the water is completed by the ſun and rain; the advantage of a dry day is then taken, when it is lifted tied in bundles or beets, and ſo kept until it is ſent to the mill. Some perſons have the firſt operations (after it is houſed) of breaking and making it into handfuls performed at home, others have them performed at the mills; the firſt is reckoned the ſafeſt, the laſt the moſt expeditious. In all operations the flax muſt be dry, or it will work unkindly (the provincialiſm), and be attended with loſs; at the mill it is finally freed, by beetling and ſcotching, from the pith or inner part, which, being totally uſeleſs for any purpoſe of manufacture, or, I believe, of manure, is thrown away. Graſſing flax is a tedious proceſs, which often conſumes many weeks, and at a time when, the former year's crop being nearly exhauſted, the price is uſually high. The following ſpeedy and effectual method of preparing it for the mill was lately communicated to me by a gentleman of veracity, and ſkill in rural matters. Let the flax be watered the uſual time; then take it out, and ſpread it ſo as to dry it completely; then tie it into ſheaves as at firſt, and immerſe it in water a ſecond time for twenty-four hours, after which, when dried, it will be completely fit for the mill. This method, I underſtand, is much

practiſed

practiſed in different places, and is not more hazardous than the old way, though ſo much quicker.

Watering the flax is a critical proceſs; a day too much rots the rind as well as the pith; a day too little makes it harſh, but, as that may be corrected by the graſſing, it is the ſafer ſide to err on. When flax is early ripe, in the latter end of July, or beginning of Auguſt, or when the weather is warm, it requires a ſhorter time in the water, from ſix to nine days; a certain ſign of its taking with the water is, a frothy ſcum ariſing to the ſurface. More time is required in ſtagnant than in running water, which alſo makes it of a fairer colour, but that is a matter of no conſequence; the water of turf-bogs is very favourable, when it has been long expoſed to the air.

Produce—Is moſtly computed according to the quantity of ſeed ſown, not according to the ground; in the common mode of ſowing, a buſhel is uſually given to a rood of ground; from twelve to fifteen ſtones of ſixteen pounds each is reckoned a good crop, but eighteen and even twenty have been known; this, however, is uncommon; we may therefore take fifty ſtones to the acre as a fair average; Mr. Chriſty's is forty-eight; this, at 11*s.* 4½*d.* per ſtone, is a noble return. By the ſame gentleman's ſtatement, from two and one-half hogſheads to three of ſeed may be expected; this, added to the flax, makes it ſuperior to any other crop, but then it is attended with a trouble and

expenſe,

expenſe, which deduct very much from the profit, which, notwithſtanding, where the crop is tolerable, is conſiderable. The expences are rent, ſeed, ſowing, weeding, ſtoning, pulling, watering, taking out and graſſing, lifting, drying, ſcotching at the mills; theſe amount to from 8*l.* to 10*l.* per acre; fifty ſtones at 11*s.* 4½*d.* or ſay 10*s.* come to 25*l.* which leaves a profit of 15*l.*, and when to this is added the ſeed when ſaved, amounting to two and one-half hogſheads, few crops will be found to equal it; one objection, however, lies againſt it; it affords no return of manure. As to its exhauſting the ground more than grain, that, I believe, has no foundation, at leaſt I never could find it ſo, and Mr. Chriſty's experiment ſeems concluſive. I hope I ſhall be excuſed for having ſaid ſo much upon the ſubject of flax, but I thought it was due to the plant, from which we draw the ſupport of our ſtaple manufacture, and that it might form a matter of curioſity to ſtrangers, if into any ſuch hands this Report ſhould fall.

PEAS.

Peas are not ſo much ſown as formerly; even in Lecale, where this culture was a part of the general management; they are eſteemed, and juſtly, a great refreſhment, preparing the ground for a crop of grain, if the ſoil is light, in a ſuperior manner.

1ſt. *Preparation.*—One ploughing upon land, that has been hurt by repeated crops of grain, in conſequence of marling or liming; to which it proves a great reſtorative.

2d. *Sort.*—Both; white and grey.

3d. *Quantity.*—I found it very difficult to anſwer to this; I believe between two and three buſhels.

4th. *Time of ſowing.*—When firſt introduced, every endeavour was uſed to get them into the ground in February, but now March is reckoned as good, if not better.

5th. *Culture whilſt growing.*—As they are ſown broadcaſt, no other culture can be given than pulling out the larger weeds; the ſmaller, if the crop is good, being ſmothered.

6th. *Harveſt.*—About the ſame time as for other crops.

7th. *Threſhing.*—By the flail.

8th. *Produce.*—Various; from thirty to forty buſhels.

POTATOES.*

The different methods of cultivating this moſt valuable root are too well known, to require a particular deſcription;

* In a publication of the Agricultural board in England, it is inquired whether potatoes exhauſt the ground? in anſwer to this; I ſaw a piece of ground, in the rere of the town of Killough,

deſcription; at the ſame time it is of too much conſequence to mankind at large to be ſlightly paſſed over: I ſhall, therefore, make a few obſervations on the different modes employed here, and give a detailed account of the moſt approved practice.

1ſt. preparation.—For the old or lazy-bed way, the preparation is very ſimple; dung ſpread on graſs ground, or ground that has been under wood, or any kind of unprofitable production; as whins, heath, ruſhes, &c. &c. This, though not the claſſical mode of raiſing potatoes, has its uſe, in bringing land immediately into profit, that under any other culture would require a year or two; and, beſides, much land can be cultivated this way, which from its nature would not admit of tillage with the plough: that which is too wet, that which is encumbered with ſtones, or that which being lately covered with wood is full of roots, or that which is too ſteep for cattle to plough; in theſe and in ſimilar circumſtances the lazy-bed way is not only excuſable but advantageous; to which may be added, that potatoes, produced from freſh ſoil thus managed, are ſuperior in quality to thoſe of a more perfect cultivation. The leſſened produce, and increaſed expenſe, are weighty arguments however againſt the practice.

Killough, that had produced good crops of this root near forty years; the year I ſaw them, 1801, they were better than ever they had been.

Another mode of culture, which I may call the *mixed mode*, is an improvement upon the former; the ground is prepared as for drilled potatoes, by previous ploughings and harrowings; but the dung is ſpread, and the potatoes covered, as in the lazy-bed way, with ſpade and ſhovel; the produce is little if at all inferior to the drill culture; a neighbour of mine at my requeſt kept a regular account of the produce of one and a half acre of ground, cultivated in this and the drill-way; very little difference was found, but that difference was favourable to the beds or ridges.

I ſhall now give in Mr. Chriſty's own words the moſt approved method of cultivating potatoes in the horſe-hoeing way: "The land deſigned for this crop is ploughed before winter, and remains in that ſtate until the ſpring corn and flax are ſown; it is then harrowed well, croſs ploughed and harrowed again; and the root weeds, if any there are, carefully gathered off with a cloſe weeding harrow each time. When the land is thus made fine, it is laid out in ſhallow drills at three feet diſtance, by the double mold-board plough, which effects it at one furrow. I call the drills ſhallow, becauſe I make them much more ſo than any other perſon I know of, from a perſuaſion that the potatoe thrives better by being planted on the good ſoil, where it lies dry, and receives the benefit of the ſun and atmoſphere, than it does in a lower and conſequently colder ſituation. When the drilling plough

has

has made ready about half or three quarters of an acre, I ſet from four to ſix horſes, according to the diſtance I have, to draw out the manure; appointing as many men, generally four, to the dunghill, as will be ſufficient to keep the horſes employed. I next appoint two men to throw the manure off the carts into ſix drills, each taking three, and ſix men to ſpread it carefully after them, with the ſame number of women or girls to drop the ſets in the drills, at five or ſix inches diſtance; and as the drilling plough gets much faſter on than the planting, it turns behind them at proper intervals of time, and, with the wings or mold-boards extended, runs a furrow exactly in the middle between two drills and covers them, and, when it comes up with the planters, leaves them, and prepares more drills; having no other alteration to make, but changing the double trees; as it requires one of ſix feet for covering, to allow the horſes to walk on the ſpace between the drills, that they may not tread on the ſets, as would be the caſe with a common tree. By this mode one pair of horſes is able to drill and cover between two and three acres in a day; to employ twelve men, ſix horſes and drivers, and ſix women; the dung is not expoſed to the ſun and air, to exhauſt its ſalts, and the land is left in a drilled ſtate again, which prevents it from being injured by rain. If the weather is dry, and the ſoil looſe, at the time of planting, I paſs a roller up every two drills, which preſſes

the ſets into the dung, cloſes the earth over them, and breaks any lumps, that have been thrown up by the plough. In attending to the culture of potatoes, I have generally obſerved, that in a ſhowery ſeaſon a great many ſeed weeds make their appearance amongſt them, before they are up, and make a conſiderable progreſs, before they can be deſtroyed by the action of the ſtripping plough, which cannot be uſed until the potatoes are diſtinctly ſeen; to remedy this, I invented a ſmall hinge harrow, with handles like a plough, which is drawn by one horſe between the drills, and completely cleans both ſides at once; exterminating the weeds, and ameliorating the ſoil without injuring the plants, except a few perhaps either juſt up or near the ſurface. The next operation is, that of the ſtripping plough, which is conſtructed with a narrow ſole and mold-board, that in taking the ſoil from the potatoes it may go very near them, and leave the earth in a ridge exactly in the middle. If the ſeaſon is moiſt, I allow it to remain in that ſtate for a week, or perhaps more, but if very dry, they are covered up again in a few days; but previous to this I harrow this ridge of earth with a harrow of the deſcription above-mentioned, but narrower, which breaks the clod, and levels it for throwing up equally by the double mold-board plough. When the potatoes are pretty far advanced, and it is time to give them the laſt covering, I cauſe the ſtripping plough to paſs through them again, taking a furrow from

from the drills at a diſtance not likely to hurt their roots; deepening the furrow, and raiſing fine mold, which being harrowed is again thrown up as high as poſſible; and when ſuch weeds as ſpring up amongſt the ſtalks are pulled up, I ſend men with ſhovels to mend any ſpots, where the earth has not been laid up cloſe enough by the plough, and ſo the work is finiſhed."—For the ſake of connexion I ſhall quote the remainder of this ingenious gentleman's obſervations. "In taking out the potatoes at the end of the ſeaſon, I have tried various methods, but have never been able to do it ſo much to my ſatisfaction, as by uſing a plough of my own conſtruction, with two mold-boards, which I ſhift alternately from one ſide to the other, throwing the potatoes always one way, both going down one row and returning up another. With this plough, and a ſmall harrow, which accompanies it, I find I can take them out ſufficiently clean, and more expeditiouſly than by any other mode I have ſeen. I cannot ſay with certainty, what quantity of potatoes I uſe for the ſeed of an acre, having never paid much attention to it. The quantity muſt always depend on the ſize of the potatoes uſed, as large ones will not go ſo far as a ſmaller kind. A conſiderable part of the ſeed I uſed laſt year conſiſted of the eyes, ſcooped out inſtead of cutting, and having found them to anſwer, I deſign to plant no other ſets hereafter; for ſeven months paſt I have directed, that all the large potatoes,

that

that were uſed in the family, ſhould have the eyes taken out, and by that means I expect to have a large quantity of ſeed in ſpring of the beſt kind, as I eſteem thoſe taken from large roots preferable to ſmall ones." This account of the culture of potatoes differs from the general practice, in the ſuperior care beſtowed on them whilſt growing, in taking the earth twice from them, and harrowing the intervals, which certainly muſt very much conduce to their growth and the cleanlineſs of the ground.

Quantity of ſeed.—In the lazy-bed way, on old graſs ground, the quantity of ſeed is much more than either in the mixed mode, or in the drill method.

Sort.—There are an infinite variety of potatoes, and every day new varieties are produced from ſeed; I dare ſay I could reckon twenty or even thirty different kinds, all eſteemed good: the earlieſt I have met with are the Early dwarfs, called ſo not from the ſize of the potatoe, but from the ſhortneſs of the ſtalk, which only bears the rudiments of bloſſoms, and never any ſeed; beſides this kind the Long white is much approved of, being both early and good to eat. The Black potatoe ſtill keeps its ground, as it is prolific, and requires leſs manure than other kinds; and the Apple potatoe, by being the beſt for late uſe, though not very productive, is likely to keep its place. I muſt not here paſs by an obſervation of Dr. Darwin, in his Phytologia; who ſays, in ſection 17. 2, that potatoes

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are amongſt thoſe plants, which do not produce bloſſoms the firſt year from the ſeed. In anſwer to this I beg leave to ſay, that they not only bear bloſſoms, but ſeed, the firſt year, as perfect as at any period, and that I have now in my poſſeſſion ſeveral potatoe-apples gathered from ſtalks, produced from ſeed, which I ſowed and tranſplanted myſelf in the ſpring of 1801; the ſeed was ſown in boxes, and kept in the houſe until the plants were ſufficiently large to remove; nor are thoſe potatoes, which grow on the ſtalks, and which the Doctor calls *aerial*, peculiar to any kind, but are frequently met with in favourable ſeaſons, when the ſtalks are luxuriant, and in rich ſoil, like Major Trowel's.

Time of planting.—For early planting, February, March; for a full crop, the latter end of April, or the beginning of May; in boggy ground, any time in the month of May, or even the beginning of June. Planting potatoes, that have budded in the houſe, and have been hardened gradually by the admiſſion of air, is the moſt expeditious way of raiſing early potatoes, provided proper ſteps are taken to ſecure the buds from froſt.

The culture whilſt growing has been fully detailed in Mr. Chriſty's account.

Time of taking up.—Different, according to the time of planting, and the ſpecies of potatoes. They never ſhould be put together in large quantities, unleſs they are completely ripe, and tolerably dry; for they loſe their

their taſte and firmneſs, from ſweating too much in large heaps, when prematurely raiſed; many perſons attribute the diſorder called curl to this cauſe.

The method of keeping them.—In heaps in the fields, ſolidly covered with earth, ſufficient to keep out rain and froſt; from theſe heaps they are taken into the houſe in ſpring, and, by turning, and picking the buds as they appear, may be kept (except the early kinds) good and fit for uſe, until new potatoes are ready; the apple potatoe, with proper care, I believe, might be kept more than a year.

Potatoes are moſt advantageouſly applied to the following purpoſes; firſt, to making of flour and ſtarch, the proceſs in both caſes the ſame; reducing them raw to a paſte, which, being diluted in water, affords a quantity of either the one or the other, equal at leaſt to a ſeventh part of the groſs weight of potatoes. Excellent barm or yeaſt is made by boiling, peeling, and bruiſing them, and then adding a ſufficient quantity of barm to ſet them in a ſtate of fermentation, after which nothing more is required than to add more potatoes as they are wanted; this, mixed with flour, makes as light bread as that produced from malt.

On propagating Potatoes from Cuttings of the Stalks.—In the year 1801 ſome ſtalks of potatoes of a particular kind were cut off by a worm: theſe I ſet down; they produced potatoes at every joint, but more reſembling aerial potatoes than thoſe, which grow under ground:

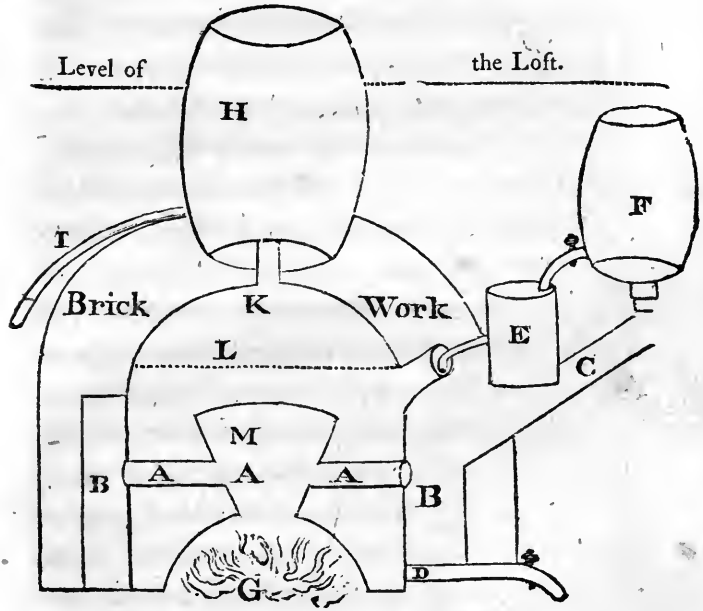
an

PLAN OF A BOILER

USED BY THE RIGHT HON. ROBERT WARD, AT BANGOR,

FOR STEAMING POTATOES,

By which a very ſmall quantity of fire prepares a pipe full of potatoes, put into it in baſkets, and taken out in the ſame manner, by means of a ſmall windlaſs fixed in the loft.



Section of the Boiler.

REFERENCES.

A. Openings into the flues, of which there are four.—B. Brick flue, that ſurrounds the boiler, and conveys the ſmoke into the chimney.—C. The flue that leads into the chimney.—D. Pipe for drawing off the water.—E. Tin veſſel, which being placed on the flue heats the water, before it goes into the boiler.—F. Ciſtern to ſupply water for the boiler.—G. The fire under the boiler, which is incloſed in the hollow ſpace and ſtrikes againſt M. and paſſes off through the four metal flues A. into the brick flues B.—H. Veſſel for holding the potatoes.—I. Small pipe for letting off the condenſed water.—K. Aperture for the ſteam to paſs from the boiler into the veſſel.—L. The height the water ſhould be kept at.

NOTE.—It takes two and a half hours to heat the boiler to the proper degree of heat for ſteam; and forty minutes for the potatoes, which are put into the boiler in baſkets, and when ſufficiently done, are lifted out without breaking. The openings of the metal flues ſhould be placed as far diſtant from the flue, which leads to the chimney, as poſſible, that the heat may be detained in the flue, which incircles the work.

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an accident happened to them, which prevented my cutting them this year, but I hope to have it in my power to repeat the experiment, with the result of which the Society shall be acquainted.*

Produce.—On old lea, not great, from two hundred to three hundred bushels, or, if the ground is rich and mellow, a greater quantity; on land properly prepared by tillage and manure, much greater; but potatoes, like all other vegetables, are in proportion to the goodness of the soil and culture. As to the soil most congenial to potatoes, a rich mellow loam, neither too wet nor too dry, seems to be that in which they flourish most; but, with care and attention, they are profitable on every soil, and in every situation. Turf-bogs and moory grounds seem to possess the quality of preserving potatoes from degenerating, as well as that of throwing out considerable crops; and in this county, when those soils are frequently applied to their culture, the curl is little known, and frequent applications of a change of seed are made from other parts where this advantage is not enjoyed. Of the cause of curled potatoes I have never yet heard a satisfactory account, but I think I can say, that frequent changes from boggy and moory soils, to those of a different quality, are found the best preventative; as such it is considered in England. In

* See *Experiments on planting cuttings of stalks of potatoes*, by the Rev. Mr. Moore, Transactions of the Dublin Society, Vol. II. part 2. p. 217.

Staffordſhire there is a conſtant intercourſe between the lowlands and the moors for change of ſeed, which they reckon to have the wiſhed for effect, in preventing the curl.

Manner of keeping Potatoes.—Generally in heaps in the fields, where they are covered ſufficiently deep to prevent froſt from penetrating to them; ſtraw is often put next the potatoes, to aſſiſt in keeping the moiſture from hurting them, but the beſt thing is a thin ſod, ſuch as houſes are covered with before the thatch is laid on. Turf-bog reſiſts both rain and froſt better than any other covering.

Sect. 5. *Crops not commonly cultivated.*

Although the culture of green crops is not much practiſed, the neceſſity of cultivating them ſeems to be generally underſtood amongſt the gentlemen of this county, who, by offering premiums for their encouragement to little farmers, and by ſhewing the example themſelves, bid fair for introducing this important branch of huſbandry, which, if it once becomes general, will tend, more than any other meaſure, to alter our general ſyſtem for the better. One great obſtacle to this improvement ariſes from the populouſneſs of the country, which renders it difficult to protect turnips, &c.

&c. from the depredations of thoſe who, without principle or induſtry, are continually on the alert to take advantage of their more diligent neighbours; but, if any thing like a general attention to this branch of huſbandry could be brought about, it would do more than divide the loſs; it would intereſt more perſons in their preſervation, and in the end put a total ſtop to the plunder.

Turnips have been partially cultivated for many years, but nothing like a general cultivation has yet taken place. It would be uſeleſs, then, to expatiate on the utility of a vegetable, the valuable qualities of which are ſo univerſally known; it is ſufficient to ſay, that they have anſwered the expectation of every perſon, who has tried them. The mode, in which they ſeem to ſucceed beſt, as we have not expert hoers in this country, is in drills of two feet aſunder, the dung juſt covered, the ſeed ſown by a drill barrow, and immediately rolled; the culture, whilſt growing, a complete horſe-hoeing, the weeds between the plants being pulled by hand, the ground, of courſe, made as fine before the ſowing as poſſible. In this method crops of turnips are every year raiſed in the park at Hillsborough, equal to any, I ſhall venture to ſay, in England. If the ground is not completely hoed by hand, or in the drills, the work is but half done. The tankard or Norfolk turnip is a very great producer, but

growing ſo much above the ground, it is more liable to injury from froſt, &c. than the red or large green, which grow more into the ſoil; the Swediſh is the moſt hardy of all, and as it ſucceeds better than any other by tranſplantation, it is very valuable on this account likewiſe, as, by having a nurſery of theſe, the drills, if any part of them miſs, may be made good; they ſhould be ſown in March, as they are of ſlower growth than the others.

Cabbages, as food for cattle, are even leſs in uſe than turnips, though ſuperior to them in produce and in quality, when properly given. The management of this vegetable is perfectly underſtood, being cultivated in every garden; all that is wanting is to extend it to the fields. Raiſing cabbage plants is in ſome parts of this county a very beneficial article of huſbandry; many acres of the ſeed of the different kinds, both for ſummer and winter uſe, for the ſupply of this and the neighbouring counties, being ſown every year. There are two ſeaſons for ſowing theſe ſeeds; for thoſe, which are to ſtand the winter, the time of ſowing is from the middle of July to the firſt week in Auguſt (ſometimes later, but the ſucceſs not ſo certain). The moſt approved mode of ſowing is on a fallow, the manure ſoil and lime, or dung, dung the better; the land is ploughed in ridges before ſeed-time, then harrowed, the ſeed ſown; another ſlight harrowing is then given, and the furrows

furrows nicely ſhovelled; the quantity of ſeed near twenty pounds to the Iriſh acre. Cabbage-ſeed is ſometimes ſown on ground, from which a crop of early potatoes has been taken; this is a very beneficial way, as three crops may be had from the ſame ground in two years, the plants being drawn in time to make room for ſpring corn. The other ſeaſon for ſowing theſe ſeeds is in ſpring, to anſwer for the ſummer planting. Farmers, who ſow any quantity of land in this way, often ſell their whole crop to perſons, whoſe occupation it is to carry the plants to the different markets, many of them at the diſtance of thirty or forty miles. The different kinds of plants are tied up in bundles of 120 each, which are ſold at various prices, from four-pence to one ſhilling per hundred, according to the demand; kail plants are much cheaper, the ſeed being generally ſaved here; the cabbage-ſeed imported from England, the price from *6s. 6d.* to *7s. 7d.* per lb. The kind moſt in demand are the early York or pompet, and the ſugar-loaf for ſummer; the Savoy, large Dutch cabbage, and kail of different kinds for winter. The price, at which an acre of cabbage-plants ſells, is often very great; ſo much as thirty guineas have been given; when there is a proſpect of ſcarcity the price is much enhanced, as the early cabbage is the firſt vegetable for uſe in ſpring.

Kail, as food for cattle, is amongſt the moſt beneficial vegetables; by planting it at different ſeaſons, a conſtant

conſtant ſupply may be kept up, from the time cattle are houſed, until graſs is ready for them in ſpring; that, which is planted in ſpring, will be ready for uſe in November or December; that, which is planted later, for the ſucceeding months, at which time the firſt cut will be ready to produce a crop of ſprouts: the hardieſt kinds ſeem to be the borecole, and the green and red curled; for milch cows they are a moſt ſuperior food, giving the butter a taſte and colour equal to the fineſt graſs. Rape is alſo of great conſequence, from the quantity of nutritious food it affords to cattle and ſheep, and from its thriving in ſoils where other plants of the braſſica tribe are not productive; beſides, it will anſwer when ſet out at a much later period of the year than any other, and might always ſucceed the early dug potatoes, and be cleared from the ground in time to ſow barley. However advantageous the cultivation of theſe vegetables may be to the real farmer, they would, if properly attended to, be ſtill more beneficial to the holder of a few acres; for, with a ſupply of green food for his one or two cows in winter, and a patch of clover to mow in ſummer, he might have a conſtant reſource in milk and butter for his family or the market, and an increaſing fund of manure afforded by his cattle kept in the ſtall with a ſufficiency of food, inſtead of turning them out to trample upon his land in the moſt improper ſeaſon, and to ſcatter at random about

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the fields the ſource of his future harveſts. The Agricultural Society of this county having taken up this matter ſo warmly, makes it unneceſſary for me to dwell any longer upon this ſubject; I ſhall therefore mention ſome other vegetables, which, in their proper ſoils, muſt prove advantageous to the farmer. Carrots, in ſandy or light loamy ſoils; at Eglantine Mr. Moore has fed his horſes on carrots this winter, 1801; they prefer them to any food, look well, and are in good ſpirits. Parſnips the ſame gentleman finds excellent; and I am informed by the Rev. William Moore, his brother, that ſome bullocks of his, which had been fed with potatoes, upon having parſnips given to them, immediately left the potatoes until the parſnips were finiſhed.

Beans; although patches of beans are to be ſeen in open fields, in ſeveral places, they are not cultivated to any effect, except by Mr. Chriſty, who has ſown them after wheat, and horſe-hoed them; but a conſiderable part of them having been ſtolen, he could not aſcertain the produce. Vetches, alſo, have been tried by Mr. Moore, both for green food and for winter feeding. This year he intends extending his crop, from the ſucceſs of laſt year's produce.

Hemp I underſtood had been cultivated in the neighbourhood of Hollywood, but after the moſt diligent inquiry made by a very intelligent gentleman, no ſatisfactory account could be obtained, relative to the quantity

tity of ſeed ſown. It was never ſteeped when pulled, but kept to be peeled in winter by hand, and the ſtalk burned for fuel; conſequently it was coarſe, and ſold lower than foreign hemp. It is now given up, and thoſe who cultivated it declare, that they find potatoes more profitable.

Having now taken notice of all the different objects of cultivation in this county, as far as I have been able to obtain information, I ſhall here inſert a few obſervations, that are connected with the foregoing ſubjects, which, probably, might have been with more propriety otherwiſe placed, but which did not occur before.

With ſome exceptions, tillage is performed by horſes, two in a plough; the quantity done in a day is various; the depth according to the ſoil; where the underſtratum is clay, there may be an advantage in turning it up; where till, or a ſharp gravel occur, to do ſo is reckoned hurtful; as it is in Norfolk to diſturb the pan, which, once touched, requires ſeven years to ſubdue. In old lea, or in hills that are ſteep, it will take five days to plough an Iriſh acre; in ſtubble from two to three days; ſo much depends upon the ground, ſo much upon the horſes, and ſo much upon the ſkill of the holder, it is not eaſy to determine the exact quantity, but I think it may be ſet down at the fifth of an acre of lea, and the third of an acre of ſtubble. Where farms are ſo ſmall as not to admit the keeping of more

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than one horſe, ploughing is done by two neighbours joining; each lends his horſe, and in whoſeſoever land the plough is, the owner of the land holds the plough. Each harrows his own ground, draws out his own manure, &c. Where no horſe is kept, ploughing is hired at 5*s.* 5*d.* per day, with meat for man and horſe, or for five days work of a man, at any time you chooſe to call him. Except in demeſnes bullocks are not uſed, horſes are thought more expeditious, and to be better calculated for drawing lime, taking grain to market, &c. I was once witneſs to a moſt decided ſuperiority in horſes, in Lord Downſhire's park; they were ploughing, without a driver, alternate ridges, with four bullocks and a driver; for a conſiderable time that I ſtaid, the horſes went three bouts for every two bouts of the bullocks. In this county, ploughing without a driver was introduced by Mathew Gaſoigne, when in the Biſhop of Dromore's ſervice: he is now farmer in the park of Hillſborough.

Harveſting.—The economy, with which grain is cut and handled in this county, deſerves praiſe and imitation; it is reaped quite cloſe to the ground, and not a head left; we have no ſuch perſons as gleaners, the farmer attends the reapers, ties and ſets up the ſheaves, carefully gathering the ears; if the grain is thick, it requires an attendant (provincially bandſter) to five reapers; if it is thin, he may attend one or two more.

It is accounted disgraceful to see heads of grain scattered about after cutting; and long stubble left on the ground to be ploughed in, is thought to be of no service; cutting all the straw with the grain, and carrying it home, makes more manure; besides it is very difficult, in turning a furrow, to cover a long and coarse stubble, so as to bury it completely.

On the proper depth, at which grain should be sown.—There are many opinions on this subject; but it appears to me that, howsoever depth of covering may contribute to the protection of the seed, in a more advanced state it has little to do with the goodness of the crop. In an early period the following advantages attend it: 1st. It prevents the seed from becoming a prey to birds, because the farina is exhausted before it gets above the surface, and, consequently, it ceases to be an object to them, which they very soon find out. 2dly. It prevents wheat from being thrown out of the ground by frost. 3dly. All grain grows more regularly from equal covering, which implies equal moisture. But as to depth of covering contributing in any other way to the goodness of a crop, I cannot think there is any foundation. My reasons for this opinion are founded on the nature of roots, and are as follow: every species of grain has a double root; the first, or seminal root, pushed out immediately on the germination or budding of the grain; this bud is nourished by

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the farina, until the firſt root is capable of giving it ſupport, which it does until the ſecond or coronal root is required; this, then, is at the period the plant begins to obtain the firſt joint or approach to culmination; as ſoon as this root has eſtabliſhed itſelf, the firſt root, being no longer neceſſary, dies; which may be perceived on pulling up a plant after that ſtage in its growth; and which plainly ſhews it can be of no further uſe. From this period, therefore, all the functions of ſupporting the plant devolve upon the coronal root; which eſtabliſhes itſelf, and ſeeks its food, nearly on the ſurface. It is for this reaſon that top-dreſſings operate to ſuch advantage upon all culmiferous plants, which draw their nouriſhment from the very place the manure is laid. Dr. Hunter, of York, who was well acquainted with this diſtinction in roots, does not mention the exact time of putting out the coronal or ſurface roots, which is exactly at the time the plant begins to ſpindle; in very early ſown wheat, in mild ſeaſons, this ſometimes happens before winter, but generally in ſpring; in ſpring corn it occurs at the time mentioned. There is a diſadvantage, however, attendant on deep covered ſeed, that never has been adverted to in writing by any perſon, ſo far as I have met with, except Dr. Darwin, in that moſt ingenious book, his Phytologia; it is this: the thread, or fine ſtem, which comes from the ſeminal root to the ſurface, the longer it is the greater chance it has of being cut, before the formation of the coronal,

which is certain deſtruction to the plant; this cutting being the operation of a worm, for I have ſeen it at work, the chance of being cut is in proportion to the length of the thread, or ſtem, which is exactly from the place the grain falls to the ſurface.

CHAPTER

CHAPTER VIII.

GRASS.

SECTION 1.

Natural Meadows and Graſſes.

FROM the great inequality of ſurface in this county, conſiderable tracts of flat meadow grounds lying together cannot be expected, yet on the ſides of the rivers, particularly of the Ban, the Lagan, &c. there are many excellent and extenſive meadows, which are annually enriched by the natural overflowing of the waters, and the vallies, which lie amongſt the hills, are generally very rich, and are capable, if not naturally good, of being made ſo by levelling and draining, for they contain the fineſt particles of mold waſhed from the ſurrounding hills for ages; and from the peculiar conformation of the grounds, few farms of any extent are without the benefit of ſome mowing ground. Nevertheleſs, little comparative advantage is taken of theſe favourable circumſtances; the meadows, generally ſpeaking,

ſpeaking, are left to nature, and thoſe, which lie on the ſides of rivers and ſmaller ſtreams, which are very numerous, often receive more injury than good from their ſituation; for they are fed ſo late in ſpring, that to obtain a quantity of graſs for hay, they are cut juſt at the period the waters begin to riſe, from which error the crop is often loſt by floods, or ſo much hurt by the earthy particles conveyed by them, as to be rendered uſeleſs for any other purpoſe than that of making dung.

Quantity in general ſeems ſo much to be preferred to quality, that in thoſe grounds, which from their nature and ſituation are liable to produce the coarſer graſſes, the time of cutting is generally ſo late, that all the juices are fled before that operation is performed, and a dry harſh food is provided for cattle, inſtead of that fine and balmy hay obtained by early cutting and favourable weather. Many of the fineſt and moſt productive meadows we have are thoſe, which lie on the ſkirts of turf-bogs, juſt where the junction is formed between the peaty earth and the loam; the fertility of this compound ſoil is very great indeed, the vegetation moſt rapid, and the natural graſſes of the very beſt kind; which plainly ſhews, that a judicious mixture of theſe ſoils is productive of very great benefit. Could we be prevailed on to try the Wiltſhire mode of managing meadow grounds, as given by Mr. Davies, our own miſmanagement would ſoon be exploded. In

Wiltſhire,

Wiltſhire, one of the moſt conſiderable dairy counties in England, the meadows are hained up and cut early, whether the crop is heavy or light; the conſequence of which practice is, that the hay is of ſo ſuperior a quality, as to keep the fineſt cow to her milk, or the largeſt ox to his fleſh; and they reckon, where the crop of hay is ſmall from cutting it early, that they obtain a quantity of after-graſs at leaſt equal to the deficiency in point of hay; beſides the advantage of long days and good weather in making it.

Improvements.

The principal improvements, which are required, ſeem to be the following: 1ſt. Draining of wet meadow grounds, rather by open than covered drains; the latter, if not more liable to be out of order than the former, are more difficult to repair; beſides, where the ſoil is tenacious, covered drains will not have the effect, as the water cannot penetrate to them. 2dly. By deſtroying the coarſe herbage, which may be done by digging it up and burning it, or breaking up the ſurface by a crop of potatoes, and afterwards laying it down with a judicious ſelection of graſs ſeeds, which with care may be obtained, and forming the ſurface ſo as to prevent water from lodging on it. 3dly. By watering, if poſſible. 4thly. By manuring. 5thly. By a proper degree of attention to the mode of ſtocking,

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by which poaching, that deſtruction to rich meadow ground, is avoided; and laſtly, by cutting in proper time. This is one principal object of attention, becauſe, as I have already obſerved, the hay is of ſuperior quality, the after-graſs can be fed without injury to the ground, whilſt it is dry, as it generally is at the beginning of autumn, and the ſeeds of the coarſer graſſes, which ripen late, are hereby deſtroyed.

Sect. 2. *Artificial Graſſes.*

The graſſes generally made uſe of, for laying down land for mowing or paſture, are the red clover (trifolium pratenſe), white clover (trifolium repens), trefoil (medicago lupulina), rye graſs (lolium perenne), white graſs (holcus mollis), likewiſe hay-ſeeds of different kinds, promiſcuouſly gathered from the towns, in the choice of which not much care is beſtowed. In the north part of the barony of Ards, and in the adjoining parts of the barony of Caſtlereagh, where the ſoil is clay, and where red clover has not yet ſucceeded, rye graſs and white graſs are ſown, and attended to with great care, both for meadow, paſture, and for ſoiling in the houſe; in the latter caſe, a mixture of the two is ſuppoſed to make the feed more plentiful, as well as more grateful to the cattle. Many perſons have an idea, that ſowing graſs ſeeds, although more

productive

productive than the mere ſpring of natural herbage for the firſt year, hurts the future produce and exhauſts the ground; but this effect I could never obſerve, and in the diſtricts above-mentioned, the ſowing of graſs ſeed is reckoned to prepare the ground moſt excellently for future crops of grain. In the ſame part of the country the farmers are particularly careful in ſaving their rye graſs, &c.

Hay; after mowing it is gathered, bound into ſheaves, and ſtooked like grain; in that ſituation it remains until it is thoroughly dry, and free from all danger of heating, as hay-ſeeds of every kind are eaſily hurt by being warmed in the ſtack. Hay-ſeed ſown in autumn ſucceeds remarkably well; one of the beſt crops of hay I ever ſaw was produced this year, 1801, from ſeed ſown in the month of September 1800, the ground effectually broken by large harrows before it was ſown, and afterwards lightly covered with ſmaller ones.

Clover.

Clover being of ſuch conſequence, not only as food for cattle, and, conſequently, as a means of raiſing manure, but likewiſe as a cleaner of the ground, and a preparative for raiſing ſuperior crops of grain, I ſhall here throw together ſeveral detached pieces of information I have collected.

The little farmers have a peculiar mode of ſowing clover in their gardens, which deſerves to be generally known, and to be practiſed by thoſe, who farm upon an extenſive ſcale, eſpecially when by any accident clover of the former year has failed; the ſeed is ſown in ſpring, as ſoon as the ſeaſon will admit, with a ſmall quantity of oats or barley (two or three buſhels to the acre), the green blade of which may be cut as ſoon as its length will afford; afterwards it will ſprout and give another crop; by this time the clover will have gained ſo great a degree of ſtrength, that in a favourable ſeaſon it will likewiſe be ſufficiently long to mow; as I have often ſeen it. The advantages attending this management are, 1ſt. the gaining a quantity of green food the year it is ſown; and 2dly, that the clover, by the cutting of the grain at two periods, is freed from the danger of being ſmothered, and is kept completely free from weeds. It is uſual with thoſe, who follow this mode, to manure with aſhes after the firſt or ſecond cutting; the effect is great. Aſhes are certainly the beſt manure for clover, as they ſpread when dry more even than any other manure; dung, when laid on clover, cannot be made ſo fine as to prevent ſome lumps from being unbroke, and a very ſmall piece is ſufficient to rot the plant it covers. Clover, ſown in September, ſucceeds remarkably well, and if on ſtubble, ploughed for the purpoſe, ſome of the grain that ſheds in reaping ſhould grow up with it, it will not only afford

afford protection to the young plant in winter, but it will increaſe the quantity of green food in ſpring. Should chickweed appear at that ſeaſon, a few cows turned upon it in dry weather will ſoon devour that weed, and free the clover from the incumbrance.

In ſome ſoils harrowing in clover over wheat in ſpring, is found to anſwer better than any other culture. The Rev. Mr. Fletcher, who has a ſandy ſoil near the race-courſe of the Maze, purſues this method upon wheat after potatoes, and finds the wheat much improved by the operation; in his ſoil it is abſolutely neceſſary, he thinks, to commit the clover to the mold of a potatoe fallow, which of courſe muſt be very fine, if the drilled method is followed; and he mentions a curious circumſtance in ſupport of his opinion. In a field of ſix acres, four of which were in drilled potatoes, and two in the lazy-bed way, but previouſly ploughed as if for drilling, he ſowed wheat: in ſpring, clover was ſown over the whole, and the ground lightly harrowed; the ſeed of the ſame quality; the clover was excellent after the drilled potatoes, but in the two acres ſet in the ridge way it failed completely. The only way he could account for it was, that the ſubſoil (a clay) thrown up by trenching in the potatoes rendered the ground an unfit nidus for the ſeed. Although this gentleman's farm is in the county of Antrim, I hope I ſhall be excuſed for ſtepping over the river, in conſideration of this piece of practical infor-

mation. Mr. Chriſty of Kircuſſock, in Lower Iveagh, near Waringſtown, finds that clover does not ſucceed well after flax, the ground binds too much; his ſoil a good loam on clay. Mr. Waring of Moira ſays, that clover ſown with barley or oats, after potatoes that have been dunged well, is often ſmothered by the luxuriancy of the grain; but when he ſets potatoes twice on the ſame ground, only manuring for the firſt crop, his clover is very fine, the ground not being ſo rank, and the weeds totally ſubdued; his ſoil a fine loam upon a limeſtone bottom, and reckoned the fineſt land in the county.

Trefoil.

Trefoil ſucceeds better than red clover, according to Mr. Gracey of Lecale, on ground inclined to clay, and I once ſaw a crop of it at Larkfield equal to any red clover. As there is a conſiderable difference in the price of the two ſeeds, amounting in ſome years to twenty ſhillings per acre, it is extraordinary that more of it is not ſown; it is as cheap as hay-ſeed, and much ſuperior for grazing or cutting green.

White Clover,

Is not much ſown, except by gentlemen for laying down lawns, or any favourite piece of ground, that is immediately

immediately required to be brought to a ſward, for which this graſs is peculiarly calculated, as it throws out roots from every joint, forming in one year a complete cover to the ſoil. It ſeems better calculated for grazing than for cutting, as it does not grow very long.

Sect. 3. *Hay Harveſt.*

The time for making hay extends from the beginning of July until the beginning of October; that is, from the time the meadows about the towns and gentlemens' places are cut, until thoſe in the mountainous and remote parts are made up. Saving (provincially, wenning) hay is thus performed. After the mowers the graſs is ſhaken out, and the day following, if the weather permits, it is turned in rows with rakes or forks, after which it is made into ſmall cocks, called lap-cocks. This operation is conducted in the following manner: one perſon goes before with a rake, and takes in as much ground as can be reached; a ſmall armful of the graſs, gathered from this ſpace into a ridge, is taken by another perſon, who cloſely follows, ſhakes it, and with the hands and knees neatly folds it into a ſmall round heap, with a hole paſſing through it like a muff, and lightly lays it on the ground; as many pairs may be employed in this way as are neceſſary to

lap

lap the whole of the field. In this ſituation the graſs is ſuffered to remain, until being ſufficiently withered, in the courſe of one day, by ſhaking and turning, it is in a proper ſtate to be put into tramp-cocks, which are made of different ſizes, according to the condition of the hay, and ſo it is ſuffered to remain until it is taken in. This mode of making hay ſeems adapted both to dry and moiſt climates, but particularly to the latter, as the lightneſs, with which it is put together, gives a free paſſage to the air, and the roundneſs of the external ſurface throws off the rain. Hay lapped judiciouſly, though not *perfectly* dry, will often come out, after many days rain, free from injury, as the upper ſurface forms a defence, the quantity put together is ſo ſmall, as to prevent its being injured by preſſure and want of air. In very wet ſeaſons it is not unuſual, during a fair moment, to ſhake and lap the hay over again, which tends very much to preſerve its colour, and if the weather changes for the better, it is much ſooner ready to be tramped. Even lifting the lap-cocks from one place to another gives them air, and allows the ground to dry, which is a great point. In a dry climate this mode of making hay is well calculated to wither the graſs, without expoſing too much of its ſurface to the air; but in a dry climate, or even in this climate, in favourable weather, it would be adviſeable, in many caſes, to lap the graſs immediately after the firſt ſhaking out, in which caſe it would preſerve its fragrance

fragrance and colour, inſtead of having both deſtroyed by too much expoſure; for the great defect in our mode is, the expoſing our graſs until the juices are totally gone, and looking upon the heating of our hay, even in a ſlight degree, as its deſtruction. A medium between the rapid manner, in which the hay is carried in England, and our tardy method, would probably be the fortunate one: the great degree of moiſture, which generally prevails in this country, muſt, I ſhould think, prevent us from implicitly following them; at the ſame time it muſt be allowed, that the dread of putting up our hay too ſoon often produces a greater evil, than would be the conſequence even of a conſiderable degree of heating, whereas a ſlight degree is found beneficial. Another error, towards which there is a general propenſity, is the length of time the hay in this county is ſuffered to remain in the meadows after it is made up; the effects of this are ſeen in the quantity waſted, both in the bottoms from the moiſture of the ground, and on the tops and outſides from the ſun and rain. This is ſo very unneceſſary a piece of bad huſbandry, ſo little can be ſaid in defence of it, it is ſurpriſing it has not ceaſed, with many other practices equally ſlovenly and waſteful.

After-graſs.

The management of after-graſs requires judgment; cattle ſhould not be turned into it until they can enjoy a full bite, nor ſhould they be kept out of it ſo long, as to let it be deſtroyed by their trampling. It has been a queſtion, whether after-graſs left upon the ground acts as a manure. I have ſeen it tried, but I could not perceive, that the ground was much benefited by it; provided the meadows were ſhut up in proper time, and the loſs of food is ſo very great, it ſhould not be given up for any thing leſs than certainty. A good ſtock of after-graſs is one of the beſt ſupplies to keep up cattle, that have been taken in good condition from the paſtures. The after-graſs this year, 1801, was ſo luxuriant, as to afford in many places a good crop, very much owing to the early cutting of the meadows. A method of ſaving it I ſaw, which anſwered perfectly, was to mix it in the ſtack with layers of oat-ſtraw; this kept the ſoft hay from clapping together, and, by communicating ſome of its juices to the ſtraw, it improved its quality, which was very perceivable from the eagerneſs of all kinds of cattle to eat it.

The following catalogue of graſſes, with their characters, was furniſhed to me by Mr. Templeton, of Orange-grove, near Belfaſt, with all the liberality of a man

man of ſcience. This gentleman's garden, although in the county of Antrim, is too remarkable to paſs unmentioned; it contains almoſt every plant, that will live in this country in the open air, provided as nearly as poſſible with their appropriate ſoils; rocks, limeſtone, moor and bog, ſand, clay, &c. all have been brought, in their ſeveral provinces, to aſſiſt in the ſupport of one of the moſt curious botanical collections in this kingdom.

Alopecurus pratenſis.—This is one of our earlieſt ſhooting graſſes, ſhooting in the beginning of May, and poſſeſſing the good quality of bearing leaves in plenty, high on the ſtem, and thoſe leaves not too rigid.

Cynoſurus criſtatus—A good leafy graſs.—Of this I have given a drawing, as from the ſeed which adheres, I look upon it as a moſt nutritive graſs. J. D.

Briza media.—Leafy, and liked by all ſorts of cattle.

Dactylis glomerata.—Cock's-foot graſs. Mr. Sole, in the Bath Tranſactions, ſays, this graſs is refuſed by cattle; I know that horſes ſeem to like it, and as it grows well in the ſhade, I think, where other graſſes will not grow, it might be worth cultivation. Mr. Templeton.—My obſervations on this graſs are, that both horſes and cows eat it greedily; that it forms one of the principal graſſes around Liſburn, famous for its meadows; and that, after being cut, it ſprings as quickly as clover, being the firſt viſible after raking the meadows. The ſeeds of this graſs are not difficult to gather. A drawing accompanies this. J. D.

Feſtuca ovina.—A good graſs on ſheep paſtures, but not an object of cultivation.

Feſtuca duriuſcula.—Mr. Sole, in the Bath Tranſactions, mentions this as a moſt excellent graſs, and well worth cultivation.

Feſtuca pratenſis.—Meadow feſcue graſs; one of our beſt graſſes both for paſture and hay.

Feſtuca elatior.—A ſtrong graſs, and might be well worth cultivating in moiſt clay ſoils.

Feſtuca loliacea.—Nearly allied to feſtuca pratenſis, a good graſs, requiring a moiſt ſoil.

Feſtuca fluitans, float feſcue.—An excellent graſs; but, to cultivate it, marſhy ground would alone bring it to perfection. A field of mine liable to be flooded by every heavy rain, and from which, by repeated cuttings, the buſhes which formerly covered it are nearly extirpated, is now covered with this graſs, which affords the fineſt paſture. Mr. Templeton.—This graſs grows with wonderful vigour in bogs, that are cut over, and in the drains, that flow from them. The ſeeds of this graſs are very nutritive, as may be known by their fattening ducks, that are within reach of thoſe places where they grow; they muſt likewiſe be very palatable to them, as, when they once find them out, there is the greateſt difficulty in getting them to remain at home. Horſes and cows are ſo fond of this graſs, they often riſk their lives in queſt of it. J. D.

Holcus

Holcus lanatus.—White graſs. This is the white hay ſo much prized in this country, but Mr. Sole agrees with me, Bath Tranſactions, p. 147, that it is neither good for meadows nor paſture. Mr. Templeton.—I muſt beg leave to diſſent both from Mr. Templeton and Mr. Sole; upon ſoils rich and well prepared this graſs throws up a great quantity both of leaves and ſtems, and ſeems peculiarly grateful to all kinds of cattle. On turf-bogs, that have been manured with aſhes or dung, this is one of the firſt graſſes, both as to quantity and quality. When cut merely for hay, it ought to be taken before the ears cloſe, juſt when it has attained its greateſt height; but when the ſeed is to be ſaved, they muſt be allowed to cloſe, otherwiſe, the proceſs of fructification not being completed, the ſeed will not grow. J. D.

Lolium perenne.—Rye-graſs; the moſt excellent early paſture graſs we have on dry grounds; I have obſerved it to be particularly fine on the ſtony loams of the county of Down; it appears to me better for paſture than hay.

Phleum pratenſe.—This is the far famed Timothy-graſs, but I think it does not deſerve the great name it has got, it is of too rigid a conſiſtence; as farmers ſay it does not bulk well, and as it is one of the lateſt graſſes, others much better growing with it will be ſpoiled, before it is fit for cutting. Mr. Templeton.—Notwithſtanding this reſpectable opinion, I have ſeen very fine crops, all of this graſs, or nearly ſo, in the neighbourhood of Caſtle-Dobbs, in the county of Antrim; and although

it may have a ſtem too rigid, there muſt be a conſiderable quantity of nutriment in its long and full ear. With reſpect to graſſes, there is one diſtinction, which I do not recollect to have met with; thoſe, which are cultivated for grazing, that is, merely for their leaves, ought to be of the moſt leafy kind; thoſe for hay ought, I think, to be of thoſe kinds, which produce tall ſtems and full ears; theſe partake more of the nature of grain, and are conſequently the moſt nutritious: this obſervation extends only to one or two years after the ground is laid to graſs; after that period, the graſs natural to the ſoil will extirpate all others. J. D.

Phleum nodoſum.—A variety of the former, grows in moiſt grounds, and is not ſo rigid, and more leafy.

Poa aquatica.—Could it bear to be cultivated out of water, it might be a valuable graſs.

Poa pratenſis.—This certainly poſſeſſes every quality requiſite for meadow and paſture; it grows on a great variety of ſoils, moiſt, dry, clay, loam, and ſand, and in all is one of the beſt graſſes.

Poa trivialis.—Perhaps only excelled by the former.

Agroſtis ſtolonifera—Joint graſs of our farmers, is the principal covering of our moiſt fields; in ſome ſituations we may reckon it one of our moſt valuable graſſes, but when it gets into our arable grounds, its long creeping ſhoots do conſiderable damage.—Of this graſs I have given a drawing; it is one of the moſt beautiful as well as the beſt of our graſſes, but when

allowed

allowed to ſtand long, from the weakneſs of its ſtem, and the numerous roots it throws out at its joints, it gets too cloſe, and loſes its colour. J. D.

The following graſſes I obſerved growing in different ſituations; Mr. Templeton was ſo good to name them for me.

Anthoxanthum odoratum.—Vernal graſs. This is a ſweet, fine, and early graſs; it is to be met with on moſt ſoils; I have obſerved, however, that it is more luxuriant in reclaimed turf-bog than in any other ſoil: indeed ground of this nature is particularly favourable to moſt kinds of graſſes. This is the graſs ſo much recommended by the Dublin Society, as giving the ſweet ſcent to hay; it is not very productive, but it is very early.

Avena elatior.—Tall oat graſs. This graſs is a troubleſome weed in arable land; as a graſs for hay it is amongſt the moſt productive, an inſtance of which I was witneſs to in a field, that was intended for tillage; but on the promiſing appearance the land ſhewed at the ſeaſon of ploughing, inſtead of being broken up, it was moderately dunged, in conſequence of which it produced a moſt luxuriant crop. The ground had been in tillage for ſome years, and every ſpecies of grain, that was ſown, was ſpoiled by the knotty roots of the graſs. As a weed it is very troubleſome, but it may be extirpated by repeated pickings; letting the ground reſt alſo deſtroys it.

Bromus,

Bromus, of all kinds.—The bromus mollis is an early and productive graſs, eſpecially for the firſt year; the ear abounds with mealy ſubſtance, which makes it very excellent food for horſes. The officers of the different Engliſh regiments of dragoons preferred the hay made of this graſs to any other, by ten ſhillings per ton.

Phalaris arundinacea; reed.—In the meadows along the ſides of the rivers it is very productive, both in ſtem and in leaves; when cut early it ſeems to be palatable to cattle. The beautiful ſtriped graſs is of this ſpecies.

Alopecurus geniculatus—I have obſerved in moiſt places, but never ſaw a ſufficient quantity together to form an idea how it would anſwer for cultivation; as a plant it is beautiful.

Poa annua.—Sweet and fine; more productive as graſs than as hay; it ſeeds ſeveral times in one year.

Agroſtis alba.—White bent graſs; abounds in all our meadows. It ſeems a moſt valuable plant; fine in the ſtem, with numerous leaves, and a conſiderable quantity of ſeed, which, though ſmall, muſt be very nutritious.

Aira flexuoſa—I found on Slieve Croob mountain, rearing its ſlender ſtalk and elegant head above the heath.

Aira cæſpitoſa.

Feſtuca Bromoides, or *Myurus*.—On thin and gravelly ſoils it has a fine leaf and ſtem; in the paſture where I gathered it, it was cropped ſo cloſe I never could get a complete

complete ear, until the cattle were turned into the after-graſs. If the ſeed could be gathered, it might anſwer well on ſuch ſoils.

Melica caerulea.—On turf-bogs; this ſeems a harſh graſs, both in leaf and ſtem.

Triticum repens.—Dog's couch, or ſquitch graſs; in ſome meadows and paſtures, but more common in hedges and gardens. This is a moſt troubleſome weed, overpowering every thing within its reach, and only to be overcome by conſtant care.

Lolium temulentum—Grows much in this county amongſt wheat and barley; it is very difficult to ſeparate it from wheat in particular, the ſeed being very heavy, according to its ſize; the beſt way to get quit of it is, to pick it out of the ſheaf before threſhing.

In our boggy meadows we have alſo the *Carex caeſpitoſa* and *recurva*, with the *Juncus articulatus*; by cutting theſe graſſes early they are tolerable food; and their ſeeds not being ripe prevents them from being propagated.

Beſides theſe, we have the *Trifolium pratenſe*, which I have heard is the celebrated cow-graſs. Whether it is ſo or not, it is an excellent plant either for graſs or hay.

The *Lotus corniculatus*, bird's-foot trefoil, grows in moſt ſoils and ſituations, and appears worthy of cultivation. I fear, however, it would be difficult to obtain a ſufficient quantity of the ſeed.

Rhinanthus.

Rhinanthus.—Yellow rattle; from the noiſe the ſeeds make when ripe. This plant, though ſweet and liked by cattle, ſeems to be a ſymptom of ground in bad condition.

Medicago,—although a cultivated plant, and the ſeed brought from England, has ſome ſpecies of it (if I can judge from the places in which I have found it) natural to this country.

I muſt not omit the daiſy (*bellis*) as a moſt valuable herb for paſture. Its conſtant ſucceſſion of flowers, and the avidity, with which they are devoured by ſtock of every kind, ſhews the value of this unaſpiring plant. When we cover our fields with lime, we ſow it at the ſame inſtant with daiſies.

Vetches (vicia) of different kinds abound in our dry meadows; they form at leaſt a good article in the compoſition of hay, and are moſtly to be found in grounds, that have been long in graſs. Some kinds of them delight particularly in the clayey bank of ditches, where they grow to a conſiderable length.

Plantago.—Narrow-leaved plantain, is another natural production, excellent as paſture, and, when not hurt by rain, good in hay. It is regularly ſold in the ſeed ſhops in England; here it is in every field.

In our low natural meadows are alſo many others, which ſerve to increaſe the quantity, though not the quality of the hay; ſuch as the meadow ſweet (ſpiraea), ladies ſmocks (cardamines), crow foot (ranunculus); which,

Holcus Lanatus
White Grass.

Dactylis Glomeratus.

Bromus . Mollis.

which, for want of proper management, take up the room of better plants.

Mr. Templeton concludes his obſervations by ſaying, that perhaps the natural fertility of Ireland has been the cauſe, that the cultivation of graſſes has hitherto been more neglected, than in many other countries more backward in agricultural knowledge, and that the introduction of the red clover (trifolium pratenſe) to cultivation has in a great meaſure ſuperſeded all other plants as green fodder. In this obſervation I perfectly agree with Mr. Templeton; for the propenſity of the ſoil in this country to graſs is ſo great, that any field left to itſelf in heart, from manure and judicious tillage, immediately produces graſſes of the beſt kind. I have heard it obſerved by a perſon of conſiderable experience in farming, that, although by ſowing hay-ſeeds the firſt year's produce will be greater, the ſubſequent year or two will ſuffer from it: this muſt be underſtood, certainly, of ground in high heart. But, while we are celebrating the fertility of our iſle, let us not ungratefully paſs by the white clover (trifolium repens), the never failing attendant on good farming, and which, in deſpite of the very worſt management, often clothes, in winter, our fields with green, or in ſummer enamels them with its fragrant flowers.

Sect. 4. *Feeding.*

The county of Down is not by any means a grazing country; nevertheleſs there are every year many beaſts fatted in it. Although the ſoil is, generally ſpeaking, better adapted for tillage, there are ſome parts of it not only capable of bringing on cattle of a large ſize, but remarkable for doing ſo: on the weſtern part of the county, where the ſoil is a deep loam or clay, cattle grow to a weight uncommon in the ſhallower ſoils. Some low grounds, that lie along the Lagan, and ſome on the banks of the Bann particularly, are reckoned peculiarly wholeſome in the early part of the year, both for horſes and cattle. The ſtock bought in for grazing moſtly conſiſts of cows and heifers, laid in at the different fairs in the months of May and June; the cows ſtrippers kept in the country, or brought by drovers from the breeding counties, when the prices are high, and a briſk demand for them; they often alſo bring heifers with them, of a ſuperior kind, both for fattening and for milking. Bullocks are not ſo much required, their weight being too much for the general ſoil of the county. Cows are eſteemed more profitable, as they are better adapted in point of ſize, and yield, it is thought, more tallow. Though there is no regular ſyſtem of keeping fat cattle, through the winter, upon green

green food, many more perſons, eſpecially gentlemen who farm, are getting into the method of ſtall-feeding than formerly; and this year, from the plenty of food, there are more in that way than ever were known. The advantage of this management once underſtood, will enſure the continuation of it, and likewiſe a ſupply of meat in the markets in ſpring, which has hitherto been rather ſcanty.

The beſt hay with oats in ſheaf, potatoes either boiled or raw, but previouſly ſliced, form the general food for keeping cattle to their fleſh, or for increaſing it. A variety of food, or at leaſt ſo adminiſtered as in the courſe of the day to make a variety, ſeems one of the beſt incentives to their eating the greateſt quantity of food in a given time; which is ſuppoſed very much to abridge the period of their fattening, and, conſequently, the expenſe. Dr. Anderſon ſays, a horſe, of the ſame weight as a bullock, will eat in the ſame ſpace of time one-third more food; but he will be as fat in one month as the bullock will be in three: on this datum, a horſe will be fattened exactly with one-half of the food it will take to fatten a bullock. He mentions, a Mr. Hope, who by procuring the moſt palatable food for his cattle, and by this means inducing them to eat the greateſt quantity in a given time, makes more money than any of his neighbours, who are not in the ſecret, and more niggardly in their outlayings than he is.

Whilſt the diſtilleries were at work at Moira, numbers of cattle were fattened at them; and by giving a proper quantity of dry food at intervals, their beef, though not ſo firm as on leſs watery food, was ſweet, and tolerably well coloured. In that neighbourhood there are ſeveral gentlemen, who upon turnips, potatoes, &c. feed many beaſts in winter. The farmer in the park at Hillſborough has a regular plan every year of feeding: his food, turnips, oats, and hay. This year's turnips (1801) are allowed to be the largeſt and cleaneſt ever ſeen in this county. He always ſows them in drills. At Mount Stewart two bullocks were ſold, in the ſpring of 1801, for 96*l.*; one of them was bred there, the other had been bought in; they were worked until eight or nine years old; the two weighed eighteen hundred weight, and were fattened on turnips; the tops given to milch cows. Lord Londonderry is entering very largely into the cultivation of green winter food. This year, potatoes are very much given to cattle: Mr. Moore, at Clogh, has fourteen bullocks, which each conſume a buſhel, or four ſtone, per day, beſides hay; they are doing remarkably well. The ſame gentleman tried theſe bullocks with parſnips: whilſt they laſted, every other food was ſcorned by them. Lord Anneſley every year ſtall-feeds ſome bullocks in one of the beſt houſes for the purpoſe, that can be conſtructed. Colonel Ward has erected, at Bangor, a boiler on Count Rumford's plan, in which

he

he ſteams potatoes for every animal about his houſe, except his horſes and ſheep, which get them raw: the plan of the boiler is moſt excellent; he favoured me with a drawing of it, which is at the ſervice of the Society. His cows, pigs, poultry, all are fed with ſteamed potatoes.

The ſheep ſyſtem in this county, except amongſt a very few gentlemen who have flocks, would make a perſon, uſed to a grazing country, ſmile, or rather wonder, how the towns in this part of the world are ſupplied with mutton: the ſheep, which produce it, being moſtly bought ſingly, or in pairs, by the butchers from the little farmers, who purchaſe them in the ſame way, when lambs, and keep them one or two years, as they find it profitable or convenient: of courſe the mutton cannot be aged, being in moſt caſes not more than one or two years old. The lambs are brought from the breeding countries, and are to be met with in all the ſummer fairs. Sheep thrive remarkably well on this dry ſoil: by the ſmall farmers they are fattened in the houſe on boiled potatoes, oats, and hay; the mutton remarkably ſweet. In the poſſeſſion of gentlemen they are fed as in other countries. They will do very well confined to the houſe, provided they have ſome ſoft food, and are put up in good order: whether they will fatten this way from the beginning, I do not know; I ſuppoſe the confinement would be too long.

Hogs

Hogs are fattened in conſiderable numbers; potatoes are the uſual food; thoſe, who are eſteemed the beſt feeders, add oatmeal, or meal ſeeds, both of which improve the quality of the pork, and haſten the fattening proceſs: the potatoes are given boiled and pounded, the meal being mixed with them; but to make the bacon excellent hard meat, ſuch as oats or peas ſhould be added ſome time before the creature is killed. This gives the meat a firmneſs, and makes it ſtand ſalting better. When proviſions are dear, fattening pigs is rather a loſing buſineſs; for I underſtand a buſhel of potatoes will not make a pound of pork: now potatoes are generally above eight pence per buſhel, and pork not above half that price per pound; ergo, the inference eaſily follows. This year is not a rule; pork is above, potatoes are below the average. Were pigs either bred by the fattener, or bought in young, and ſupported whilſt in a growing ſtate upon clover, then, upon the whole, it would certainly be an advantageous buſineſs; but where they are bought lean, and immediately put up, in general, I ſhould think, little is made by it.

On the ſubject of feeding cattle, I muſt not paſs by the great advantages of ſoiling in the houſe in ſummer; there are three points, in which to view it; the firſt point reſpects the economy in the conſumption of the produce; the ſecond, the condition and comfort of the cattle; the third, the quantity of manure. In the firſt

place,

place, experience clearly ſhews, that many plants are greedily eaten by cattle in the houſe, which would not be touched by them whilſt growing; thus fewer plants will be rejected by them. Beſides, many of the beſt kinds of graſſes, which when young are reliſhed by beaſts, when got into ear are rejected by them; but, if theſe are cut down in proper time, not one of them will be rejected; and add to this, when cattle go at large, much of the graſs is trod down, buried in the earth, or bruiſed with their feet. In the ſecond place, if the condition of the animal, and its conſequent advantage, eſpecially in milch cows, is conſidered, in this inſtance it will be found infinitely ſuperior. In the month of July, the beſt grazing grounds begin to loſe much of their ſucculence; the effect of this, though not ſo eaſily obſerved in cattle for beef, is very plainly perceived in cows falling from their milk; but, when they are fed regularly with clover, or mowed graſs of good quality, they will neither loſe their milk, nor their fleſh, at that period; and when the time of putting them to after-graſs arrives, ten days or a fortnight will not be conſumed in *reſtoring* them to their milk, from the previous good keeping they have got. If the comfort of the cattle is conſidered, they are much happier by being provided with a ſhelter from the great heats, and the perſecutions of inſects, in the ſummer months, and ſupplied in that ſituation with plenty of freſh and palatable food. In the third place, their manure is collected

lected together, ready to be applied to any purpose the farmer may wish, not scattered promiscuously about the land, where it does more harm in spoiling the grass, than service in enriching the ground; for, as Dr. Anderson observes, if land was enriched by the dung of cattle going upon it, it would every year be able to maintain a greater number than each preceding one; which is not the case. At the same time that I perfectly coincide with Dr. Anderson, from whom I have taken several of the above remarks, in the benefits of feeding cattle in the house, I should not wish entirely to confine them to it; but to give them probably half, or one-third of the ground to go on, that without feeding in the house would be required, and make out what would be wanting by mowed grass; thus uniting air and exercise with a constant supply of fresh food; and a proper shelter when required, either from the heat and insects, or the heavy rains and chilling blasts that often occur.

CHAPTER

CHAPTER IX.

GARDENS AND ORCHARDS.

GARDENING is not much attended to by the farmers of the county of Down; the only part of it, where a garden ſeems to be the neceſſary appendage to a farm or cottage, is from Moira towards Waring's-town, Lurgan, Moyallan, and that beautiful part of the country; yet even there potatoes ſeem to be gaining ground on the other roots and vegetables; and when it is conſidered how cheap and palatable a food they afford, how eaſily they are dreſſed and prepared, the progreſs they have made muſt be attributed to their intrinſic value. But, notwithſtanding, a few early cabbages, curled kail, peas, and beans, are pretty general in moſt farms; but not being cultivated with that care they require, the produce is ſmall, and not calculated to ſupplant their more fortunate rival, the potatoe. In the vicinity of Belfaſt, and other towns, there are

many gardens cultivated well, to ſupply the markets, where vegetables are both good and reaſonable in price.

By the gentlemen, however, gardening is much attended to, and carried to as great perfection as in any other country; every vegetable, that our climate will admit of, has found its way to their gardens; their ſtoves and green-houſes contain numerous exotics, remarkable for their rarity or beauty; and all the different kinds of fruits, which require heat and covering, are to be met with at their tables.

Orchards are rather loſing than gaining ground; many old trees have been ſtubbed up, few new ones planted, and of thoſe few the ſucceſs has not been great. Uncertainty in the produce of orchard grounds, the natural decay of the trees, and the great increaſe in the value of land, have contributed to their deſtruction, whilſt want of ſkill, and probably want of care, have given riſe to the idea, that loſs of labour and loſs of land would be the only conſequence of new plantations. The very great population of this country muſt, from the difficulty of preſerving the fruit, form, I fear, another bar to the cultivation of apples and other orchard fruits; for unleſs they are watched, from the firſt formation of the fruit, until their being finally gathered, the proprietor has no proſpect of enjoying the produce. It is difficult to ſay, whether the art of

planting

planting orchards with ſucceſs was better underſtood at the beginning of the laſt century, than it is at preſent; yet the orchards, which were planted at that time, were much more productive, according to the generally received opinion, than thoſe which have been cultivated within the laſt forty or fifty years; probably this may be owing to the natural decay of the ſpecies of fruit, and the want of new kinds to replace them; this I ſhall not take upon me to determine; but certainly, except in the lands of gentlemen, the culture of fruit-trees is not in this county a growing culture. An obſervation, which is often made, may have very much contributed to their decline, that a crop of apples is now obtained with much leſs certainty than it was forty or fifty years ago; about that period many orchards were planted, in compliance with clauſes in leaſes, but they have been neglected, and are now gone to decay. This year, 1801, forms an exception, for the quantity of apples produced has been as great as at any period, in conſequence of which a conſiderable exportation to Scotland has taken place: likewiſe in the year 1799 there was a conſiderable crop, but, owing to the wetneſs of the ſummer, the fruit was ſmall: in the year 1800 there was ſcarcely an apple to be ſeen. The alternate fertility and unproductiveneſs of the apple-tree is a circumſtance extraordinary in its hiſtory, and, I believe, hitherto unaccounted for: every year almoſt,

the ſhew of bloſſoms is equal, and although a certain number of bloſſoms is abſolutely neceſſary to a crop, there ſeems to be very little connexion between their number, and the quantity of fruit brought to perfection.

CHAPTER

CHAPTER X.

TIMBER, PLANTATIONS, AND WOODLANDS.

THAT the county of Down is not a well wooded country, muſt be confeſſed by every perſon, who has traverſed it; and that ſome of the beſt cultivated diſtricts moſt deſerve the reproach of nakedneſs, cannot be denied, but it is a reproach common to the reſt of the kingdom, with few exceptions. At a particular period in the hiſtory of this country, one of the great objects of the government was to get the land cleared of timber, as a neceſſary ſtep towards the civilization of the inhabitants, and the improvement of the ground; this, like many other expedients, has been attended with a laſting diſadvantage, and has left a ſoil, by nature, particularly adapted to the growth of trees, bare almoſt to a proverb. After a country, once overrun with wood, has by great exertions been cleared, it is not an eaſy matter to perſuade the inhabitants of the neceſſity of that production, to get free from which ſo much

much pains have been employed. The return from planting being ſlower than from any other ſpecies of cultivation, and the perſon who ſets being ſeldom the ſame, that derives any conſiderable profit from it, it is not ſurpriſing, that it ſhould be the leaſt rapid of any improvement in its advances, and ſhould only be undertaken, when works of more preſſing neceſſity are accompliſhed. By the man, who plants, trees are generally conſidered as an embelliſhment, and embelliſhments are ſeldom thought of, until there is a comparative degree of eaſe; when that is once obtained by induſtrious and ſucceſsful cultivation, we may expect to ſee ornament attended to, and wood, the principal feature in rural ornament, flouriſh. Accordingly thoſe farmers, whoſe circumſtances are the beſt, in every part of the country are beginning to put down a few trees, and, where the farms are ſmall, a few trees on each would very ſoon give a total change to the face of the land. Of planting a great deal has been done by the gentlemen of this county ſince the middle of the laſt century, but much more towards the latter end of it, and this rational and truly uſeful purſuit is daily gaining ground; how ſtrong an incitement to this purſuit ſhould the reflection be, that, whilſt a proprietor is thus employed, he is improving his health, and adding to his fortune, inſtead of injuring the one, or waſting the other, by indolence or by extravagance, and that for every ſhilling laid out he is encreaſing twenty fold

the

the public ſtock, and, in the ſame ratio, improving his private property.

Notwithſtanding the ſpirit of planting has gone forth amongſt the gentlemen of this land, unleſs it alſo pervades, in a certain degree, the immediate occupiers, the country never can have that aſpect of cultivation, that richneſs of tint, which trees alone can give. To contribute to this, landlords ſhould hold out encouragement to their tenants, by ſupplying them with trees, and rewarding them for their preſervation. The expenſe of this would not be very great, and would ultimately centre in the encreaſed value of the eſtate. At the ſame time that I mention this meaſure, I am well aware of the difficulty of carrying it into execution, and know that it can only be practiſed under limitations, and with thoſe, who ſhew a ſpirit of improvement: as for thoſe tenants, whoſe ſole object is an exiſtence, it cannot be ſuppoſed, that any minor conſideration would operate upon them, nor that they could be induced to make and keep up fences for the preſervation of trees, which they ſcarcely can be prevailed on to do for the protection of their own crops. Every encouragement, therefore, muſt be ſuggeſted by that ſagacity, and directed by that prudence, without which neither public nor private meaſures can ſucceed.

The natural wood of this country conſiſts of oak, aſh, alder, hazel, mountain-aſh, birch, holly, white-thorn, and a ſpecies of willow called the grey; the foſ-

ſil-

ſil-wood from the bogs ſhews, that in former times we had two ſpecies, that are not now found growing naturally, at leaſt in any part of this county, namely, the fir and yew. Of the firſt, conſiderable quantities are every year dug up; in ſome places only the roots are to be met with, in others both roots and ſtem; the yew is not ſo frequent, but ſufficiently ſo to prove, that it was once naturalized as well as the fir. The other foſſil trees are the ſame as mentioned above; the fir, the oak, and the yew, the only kinds that are in ſufficient preſervation for uſe.

It would be of no ſervice to dwell upon all the different kinds of trees, that have been introduced from other countries, merely for ornament; but I think it neceſſary to be particular in thoſe, which are moſt likely to produce the beſt return, and the moſt likely to anſwer the purpoſes of the planter, whether for profit or for embelliſhment; mentioning the ſoils, in which they ſeem beſt to thrive.

Oak; *quercus*.—Large in proportion to the depth of the ſoil: about Moira, where the under-ſtratum is clay, and at Waringſtown, it grows to a great ſize.

Aſh; *fraxinus*.—More univerſally cultivated than any other tree in this country, being uſed for all farming implements; like the oak, it is large in proportion to the depth of ſoil, but the quality is much in favour of that on gravelly or rocky ground.

Alder;

Alder; *betula.*—In moiſt grounds; a very valuable tree for ſuch ſituations; nearly as uſeful as aſh, and more laſting. Birch, in the ſame ſoil, a beautiful growing tree, but little uſed.

Mountain-aſh; *ſorbus.*—Timber light and ſtrong, though not much uſed.

Hazel; *corylus.*—Seldom planted; it delights in a ſtrong ſoil; it is uſeful for many purpoſes, hoops, &c.

Holly; *ilex.*—In moſt ſoils where woods have been, or ſtill exiſt; it is much planted in ſhrubberies, &c. for which it is well calculated, as it preſerves its verdure the whole year. There are many varieties of this tree beautifully variegated; ſome of them in the gardens at Hillſborough above thirty feet high. This wood, being white, is much uſed for inlaying.

White-thorn; *cratægus.*—In every ſoil and ſituation; it grows, however, largeſt in the deepeſt ground. The growth of hedges, formed of this plant, is a good criterion to judge of the quality of the ſoil. The wood of this tree is very hard and cloſe, and, when old, is much uſed for cogs in mill-work.

Beech; *fagus*—Delights in a dry or gravelly ground, in which it grows very faſt, with a ſmooth and clear bark, and yet ſome of the largeſt beech in this county are at Waringſtown, which is not a dry ſoil. This timber is of great uſe to turners, &c. but when of a certain ſize, is doubly valuable for beams to beetle white linen, or before it is made up for market, and alſo for making the beetles.

Hornbeam; *carpinus*—Is much uſed for hedges, for which it is very good; when ſuffered to grow to any ſize it is uſed for the ſame purpoſes as beech. I have heard from a perſon, on whoſe information I have the ſtrongeſt dependance, that this tree grows much larger in this county than in any part of England; it will grow on almoſt any ſoil and expoſure.

Sycamore; *acer*.—One of the hardieſt trees we have; yet a very curious fact concerning it is, that it does not thrive at Waringſtown, where moſt trees grow better than in moſt parts of the county.

Cheſtnut; *fagus*.—This is a moſt valuable tree, the wood of uncommon duration, reckoned in England ſuperior to oak for poſts and rails, the moſt trying uſe any timber can be put to; when of a proper ſize it is excellent for furniture, taking a very good poliſh. It is a hardy tree, growing on moſt ſoils; the largeſt I have ſeen are thoſe at Orange-Grove in the county of Antrim, the ſoil a deep ſandy loam.

Horſe-cheſtnut; *aeſculus*.—Grows in moſt ſoils and ſituations, beſt in a ſandy loam. This tree does not require much culture, and being quick of growth, is proper to plant where cover is ſpeedily required. I have not heard of this tree being tried as timber.

Poplar; *populus*.—Of this tree there are many varieties, all quick growers; though they agree with wet and boggy ſoils, they will do well almoſt in any ſituation. The abele, or large-leaved white poplar, is a

moſt

moſt beautiful tree, of wonderful quick growth; I meaſured ſhoots of it laſt year, and not in wet ſoil, of more than ſix feet; the white poplar, with ſmaller leaves, is little inferior to it. There is a variety of the abele, with dark-coloured leaves, but not equal to it in beauty. The black poplar is very frequent, and alſo the aſpen-tree, both valuable for their growing in ſoils where other trees do not thrive. Beſides, there are numbers of the tacamahacca, or balſam poplar, propagated for the beauty of their leaves, and the quickneſs with which they riſe. All theſe trees grow freely from cuttings, the laſt in particular; but there ſeem to be two kinds of the laſt, one of which is a ſlow grower, and only to be diſtinguiſhed from the other by that circumſtance. Doctor Anderſon mentions the tacamahacca, as making a moſt impenetrable hedge in a very ſhort time, by twiſting the branches together at the top, the ſecond year after planting. The wood of all the former kinds, particularly the abele, is uſeful for many purpoſes, eſpecially for flooring, being whiter than any other timber; it is alſo uſeful for turners; in England it is uſed by bellows-makers in preference to any other, and alſo for heels for ſhoes.

Platanus orientalis—I have not ſeen any where in this county, except at Moira; it is a tree of curious foliage, each leaf being regularly palmated; it is a well-ſized tree, much branched.

Platanus occidentalis.—Called ſo becauſe it came from America, as the former came from Aſia. This is a quick growing and very beautiful tree, eaſily propagated by cuttings, but what ſize it would grow to I do not know, never having ſeen any old trees of this kind; it likes a moiſt ſoil: one in ſuch a ſituation, near the bridge at Tullamore park, is a well ſized tree.

Elm tree; *ulmus.*—Of this tree there are many varieties; all are good timber, but from their roots running ſo much upon the ſurface, they are liable to be blown down; which defect has been in ſome degree remedied, by engrafting the different kinds of Engliſh elms, moſt ſubject to this misfortune, upon Scotch ſtocks; one circumſtance, however, muſt be mentioned, that the graft is very ſubject to die after tranſplantation. But, notwithſtanding the above-mentioned diſadvantage, upon a deep ſoil there is no tree more worthy of cultivation, both for beauty and uſe, than the Engliſh elm; for flooring it is very fine; for the purpoſes of conveying water under ground it is unrivalled in duration, and, by the ſtraitneſs of its ſtem, excellently adapted for that purpoſe.

Lime tree; *tilia.*—This is one of our moſt ornamental trees; it grows rapidly in ſoils congenial to it, deep and moiſt loams. It is not very uſeful for timber, being moſtly applied to light and nice work; ſuch as carving, making models for buildings, bowls, diſhes, &c. being too ſoft for any ſtrong work.

Fir

Fir tree; *pinus*.—Of this tree there are many kinds cultivated in this county; the Scotch fir is the moſt general; being ſo hardy, and affording at an early age ſo much ſhelter, has given it a preference to every other kind, as a nurſe to more tender trees; being merely planted for that purpoſe, great care ſhould be taken, leſt it ſhould ſmother what it is meant to preſerve; which it often does, by being planted too thick, and allowed to ſtand too long. How valuable a tree it is in itſelf, when planted in good ſoil, and allowed to ſtand until of a proper age, may be ſeen in many parts of this county, but no where to greater advantage than along the river ſide at Redemon. Both the ſilver and ſpruce firs have grown, in proper ſoils, to a very conſiderable ſize; whilſt young they are moſt ornamental, but as they advance they loſe much of their beauty, by loſing their under-branches, eſpecially when planted thick. In ſtrong ſoils, they grow to a conſiderable ſize, and are excellent timber. The Balm of Gilead fir, though beautiful when young, ſeldom ſurvives above twenty years; and the Weymouth, though a quick grower, has not generally ſucceeded; the largeſt I have ſeen are at Hillſborough, but they are ſurpaſſed in the ſame ſoil both by the ſpruce and ſilver firs. The firſt Weymouth pine was planted in England, at Longleat in Wiltſhire, by the firſt Lord Weymouth, in 1696, the old ſtump ſtill remains. The Pinaſter has ſucceeded remarkably well at Tullamore park, where

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it forms a pleaſing variety, and promiſes to be a great acquiſition to the planter; there are a few of them in other places; they have ſomewhat of the appearance of the Scotch fir, but the leaves are much larger, and their branches more ſpreading. In the plantations at Montalto are two of the black ſpruce of America; they are about twenty years old, rich in colour, and thickly clothed to the bottom.

Amongſt the many kinds of trees, which have been introduced here within the laſt ſixty, or probably ſeventy years, the larch ſeems to be the greateſt acquiſition; whether it is conſidered, as an ornamental tree, as a nurſe to others, or as a valuable improvement in point of timber: viewed in the firſt light, it is one of the moſt picturesque trees, either ſingle or as a ſkirting to a lawn, for which the elegance of its pendent branches ſeem peculiarly adapted: in the ſecond inſtance, its extreme hardineſs qualifies it to aſſiſt more tender plants, until they are once completely eſtabliſhed; and in the laſt, it is ſuperior almoſt to any tree, in duration and ſtrength. In Switzerland, where theſe trees abound, they are converted to every uſe; the houſes are built, furniſhed, and covered with them; the roſin, which flows from them, ſtops every joint, and makes them impervious to the weather. As this tree has ſcarcely been long enough naturalized here, to judge of its durability, we muſt and may be ſatisfied with the various teſtimonies from the countries, in

which

which it is better known; as to its ſtrength, that I have ſeen tried in many inſtances, from extreme youth to forty or fifty years of age: in the firſt caſe, it is as tight as an oak ſapling; in the ſecond, it is fit for ladders, cars, &c. having all the toughneſs of aſh, without its heavineſs. Dr. Anderſon, who is indefatigable in his reſearches, where the good of mankind is concerned, has collected a number of facts reſpecting the advantages attendant on the cultivation of this tree, which I ſhould recommend to the peruſal of every perſon, who is a planter, or likely to become one, either on a great or a ſmall ſcale. He there ſhews the different uſes the wood of it may be applied to, from the ſhaft of a broom to the building of a ſhip, and how completely qualified it is, in every gradation, to fulfil the expectations of the planter; and alſo with what certainty it grows on every ſoil, from the moſt fertile loam to the moſt ſtony mountain. For this latter information, we need not go out of our own county, where it is cultivated, though not in the degree it deſerves, from the deep clay about Moira, to the rocky mountains of Mourne. The late Lord Clanbraſſil planted a vaſt number of them, at Tullamore park, as nurſes for his oaks, pruning them to prevent their hurting, by the quickneſs of their growth, what they were intended to protect. The neceſſary thinnings of theſe trees, I underſtand, has produced a conſiderable profit to the owner, and advantage to the country;

and

and from the quality of the timber at every age will, it is to be hoped, be a means of extending its culture. By planting this tree thick, and by regular weedings, a conſtant ſupply of wood may be had, for a number of the purpoſes of agriculture, where groſs timber is not required, as for hafts for different kinds of tools, for ruſtic gates and paling, but particularly for poſts, as it bears the trying viciſſitudes from wet to dry, better than any wood we know.

Sallow; *ſalix.*—All the varieties of this tree are uſeful in their way; ſome of them are of a ſlow growth, and do not arrive at any great ſize; ſome of them, on the contrary, grow quickly, arrive at a conſiderable height and thickneſs, and afford for many purpoſes excellent timber. The kinds, which are moſt frequently planted in this country, are 1ſt. the common baſket-maker's willow; this has the two perfections, of tough branches at an early age, and, when allowed to ſtand, that of growing to a large tree, and of affording good timber: the ſecond is, the ſweet, or bay-leaved willow, from the broadneſs and poliſh of its leaves; this grows not ſo quickly as the firſt, but is much ſuperior in beauty: the third ſort is diſtinguiſhed in this county by the name of *gaugamel* (a name given to it by a drunken gardener); this is beyond all the other kinds, for the rapid progreſs it makes in every ſoil; its branches, when young, are tender, and not fit for baſkets or hoops; but, when grown to a tree, its timber is light

light and firm, fit for many purpoſes, both to the cabinet-maker and the farmer: one of the handieſt ploughs I ever ſaw, was made of this tree, and, at the ſame time, the ſtrongeſt. There is another, a very low growing tree, of this ſpecies, with long and ſlender ſhoots of a reddiſh colour, with almond-ſhaped leaves, which I underſtand is of French origin; the young branches are remarkably tough, and are uſed by the gardeners about London, for tying up parcels: this, if cultivated, would be a great acquiſition to baſket-makers, as, beſides its toughneſs, the ſhoots are of an equal thickneſs, which is a great object. Although this tree does not grow large, it throws out numerous ſhoots, ſuch as are deſcribed. Upon the whole, the ſallow is well worth attention, from its quick growth, its eaſy cultivation, and its many uſeful properties, and, in many ſituations, for its ornamental ones, particularly the weeping and the golden willows.

Walnut; *juglans*.—The general uſe of mahogany has much diſcouraged the propagation of this tree, which was more cultivated for its timber than for its fruit, in this country, where it ripens but ſeldom: the high price of the former ſhould again introduce it, as it is a beautiful wood, and very durable. This tree delights in a firm rich ſoil, in which it grows to great dimenſions. The trees of this kind, which grew in the village of Lambeg, on the verge of this county, ſufficiently

prove this aſſertion; as likewiſe that noble tree in the yard adjoining Waringſtown houſe.

The Cherry tree; *prunus*,—grows to a great ſize—not ſo much uſed for cabinet work as formerly; it is liable to worm-eat, unleſs conſtantly rubbed with linſeed-oil.

Evergreen oak; *quercus*.—The oldeſt in this county is at Bangor; it is mentioned in the Hiſtory of the county of Down, written fifty years ago. There are ſome good trees of this kind alſo at Hillſborough, but the moſt beautiful is at Larchfield; it puts out ſomething like bloſſoms, but never bears acorns.

Laburnum; *cytiſus*.—One of the firſt woods, this or any other country produces, for cabinet work: it bears fineering remarkably well. A circumſtance reſpecting this tree deſerves notice: hares, I underſtand, will not attack the bark of any young timber, amongſt which laburnum is planted; they prefer it to all others.

The following are mentioned more as curious and ornamental, than as uſeful plants.

Tulip tree; *liriodendron*.—In many improvements; it is remarkable for the ſhape of its leaves; I have not heard of its flowering.

Laurel; *prunus*,—grows in ſome ſoils, eſpecially about Moira. Portugal laurel likewiſe grows to a conſiderable height and thickneſs. I have heard from undoubted authority, that in England they do not grow with

with the ſame vigour, owing, probably, to ſeverer winters.

Evergreens of all kinds ſucceed remarkably well, but eſpecially along the ſea ſhore, where myrtles grow to a conſiderable ſize, without covering of any kind during the winter months. Upon the whole, this country is very favourable to planting; the deep lands produce, of courſe, larger timber than ſhallow ſoils, but the wood of the latter, though longer coming to its growth, is of ſuperior hardneſs and durability; though not ſo large at a given period of its growth, it is much ſooner fit for uſe.

I ſhall here inſert, as a matter both of utility and of curioſity, the dimenſions of a number of different kinds of trees, growing nearly upon the ſame ſoil within the compaſs of a few acres; the ſoil, ſuch as a great part of this county affords, a kindly loam, with rock or gravel at no great depth from the ſurface in any part.

CIRCUMFERENCE OF THE FOLLOWING TREES,

Between fifty and ſixty years of age, upon the ſoil above-mentioned, taken ſix feet from the ground.

	F.	I.	
Aſh,	3	6	The aſh remarkably tall and clean, with the bark white.
Beech,	5	9	to ſix feet, on a gravelly ſwell.
Firs: Silver,	5	0	
Firs: Spruce,	5	10	
Firs: Scotch,	4	3	The Riga fir is ſaid to be of this ſpecies.
Firs: Larch,	4	9	From its ſuperior height, and preſerving its thickneſs, ſuppoſed to contain equal to the ſilver fir.
Oak,	3	6	Nearly as tall as the larch, and very clean.
Black poplar,	4	3	
Elms: Engliſh narrow leaved,	4	3	
Elms: Scotch,	4	6	Remarkably ſtraight and clean.
Alder,	3	3	Clean and good; the ground not ſufficiently moiſt.
Birch,	3	0	Bark as white as ſnow, wood very hard.
Evergreen oak,	8	0	It branches out at five feet high.
Horſe cheſtnut,	4	0	
Sycamore,	4	3	to ſix feet; very valuable for beams, and beetles for bleach mills, and for turner's uſe.
Lime,	6	0	In deeper ground than any of the reſt.

Walnut,

	F.	I.	
Walnut, - - -	4	0	
Gaugamel ſallow,	3	6	Not growing in favourable ſoil; a cutting of one of theſe ſallows, planted in a favourable ſituation eighteen years ago, is now four feet in circumference, and near thirty in height.
Sweet cheſtnut,	4	6	

From this ſtatement it appears, that upon ſoils ſuch as I have deſcribed this to be, and that the prices of all kinds of timber were the ſame, ſuppoſing the timber to be proportioned to the meaſurement given, that the moſt profitable would be the beech, lime, and ſycamore, next the firs, and that the oak ranks among the loweſt; but we muſt conſider, that at fifty years old the oak is only beginning to grow, whilſt ſome of the others are verging to decay. The elms rank high; and the larch, being free from knots, is timber to the top. The evergreen oak is a ſingle tree, therefore nothing can be ſaid poſitively reſpecting it, and it is not above five feet until the ſtem divides.

The growth of timber here given is not mentioned as particularly large for the time of planting, but as a general view of the progreſs of different trees, upon a ſoil ſuch as I have deſcribed, and which, with ſome variation, is the general ſoil of the county. Many places might be fixed on, where the growth is much greater;

greater; but the quality of the wood makes up, in a great degree, for its want of ſize; which yet is not, upon the whole, very low. In the weſtern parts of the county, where the ſoil is deeper, the growth of trees is much more rapid; but I underſtand the wood is not near ſo hard nor ſo durable. In making plantations, the nature of the ſoil ought always to be attended to, in the trees that are to be permanent; theſe might be planted at ſuch diſtances as they are intended to remain, the intervals filled with ſuch others, as are likely to afford them ſhelter, which from time to time may be taken away, (as neceſſity requires) to give room to the favoured kinds.

Planting in clumps has been much in faſhion, not only in this county, but in other parts: this does not ſeem very well adapted to an unequal ſurface. In a hilly country, ſkirtings or belts round the hills have a much better effect, by tending to take off from the too great inequality of the general outline; an extenſive hill all under planting, is, without doubt, a noble object, and gives ſome ſcope to the imagination, but a clump on the top of a hill has not, in general, ſo pleaſing an effect; beſides, trees are much ſlower in making a progreſs in that ſituation; and I believe it is very well known, in expoſed countries, that the only way to make trees thrive on the top of a high ground is by beginning to plant at the bottom. The natural ſhelter afforded them, when ſo placed, and the general

ſuperiority

ſuperiority of earth, give a freedom to their growth, which gradually ſupplies thoſe above them with protection, until the whole is covered.

Notwithſtanding what has been ſaid of the general nakedneſs of this county, there are ſome parts of it, which do not by any means deſerve the imputation; all the weſtern parts of it, from Belfaſt, along the banks of the Lagan, to Hillſborough, and from thence to the weſt of the great road to Dublin, through the whole extent of that county, afford in that direction an exception; and around the gentlemen's ſeats, there are many wooded ſcenes, which ſhew what the hills, and vales, and rivers of the county of Down, when ornamented by the hand of taſte, are capable of becoming.

Price of timber.—The quantity of timber ſold in this county is ſo ſmall, moſt heavy works being carried on with foreign timber, that there is no regular price fixed for it, except when it is cut up for particular purpoſes; all that can be mentioned with any degree of certainty, are the component parts of a car, which ſell according to their ſuppoſed qualities, or the ſcarcity of the materials.

Car ſhafts ſell from 6*s.* 6*d.* to 8*s.* 8*d.* per pair.
Wheel timber, about 8*s.* 8*d.* the pair.
An axletree, about 2*s.* 8½*d.* or 3*s.*
Outward ſlats, when of aſh, 1*s.* 7½*d.*

The bottom of the car is generally done with deal.

The

	s.	d.
The price of making a car is - - -	8	8
Of a plough, ſuch as we uſe, - - -	2	8½
Of harrows, from 1s. 7½d. to - -	2	8½
Of a crib, or cart, for drawing turf, -	3	3

Where whole trees are ſold, they are valued according to the quantity of the above-mentioned ſcantlings they will afford. Aſh is the kind moſtly uſed for farming purpoſes; alder is at leaſt as good, though it ſeldom ſells ſo high.

CHAPTER

CHAPTER XI.

WASTES.

THE only part of the county, which can in any degree be referred to the above title, is contained in the mountains of Mourne, and of Upper Iveagh; and even theſe afford, in moſt places, ſupport to a hardy race of cattle and ſheep, bred by the farmers in their neighbourhood, and likewiſe to a number of others, brought from the lowlands for the ſummer's run; on theſe mountains they thrive well, and often are taken away fat at the latter end of September; but a later ſtay is reckoned hurtful.

Theſe mountains are computed to contain about 30,000 acres, and are in many parts interſperſed with vallies, that afford graſs to cattle, and alſo with turf-bog, which, from the ſcarcity of that article in Lecale, is likely to turn out very advantageous to the owners of thoſe parts, which lie within the reach of that barony. A road lately run into one of thoſe bogs has

made ground, that a year or two paſt would not have produced one ſhilling per acre, now worth four guineas; but the greater portion of theſe mountains is compoſed of rocky ſteeps and precipices, ſo as to preclude any poſſibility of improving them, but by planting, which has been performed on one part to the extent, I have heard, of three hundred acres by the late Lord Clanbraſſil, who for many years planted from thirty to ſixty thouſand trees annually, with which he completely covered one of the lower mountains, cloſe to which his moſt uncommon improvement is ſituated, in which every variety of wood, water, mountain, combine with frequent views of the ſea, to form a ſucceſſion of the moſt romantic ſcenery. In another part, Mr. Needham incloſed and planted a conſiderable tract on the Mourne ſide, where he reſided ſeveral ſummers; of late I have heard nothing has been added to this improvement, which, from the growth of the trees, and the beauty of the ſtreams which flow through it, promiſed to be little inferior to Tullamore park.

Where planting has been attempted on theſe mountains, every tree almoſt has given way to the larch, which ſeems here to flouriſh as in its native ſoil.

Bogs.

Bogs.

The bogs of this county can be no objects of agricultural improvement, as bogs; in many places there is not a sufficient quantity for the supply of the inhabitants, who, from their attachment to turf as fuel, bring it from the distance of eight or ten miles. In other places, where it is in greater plenty, it will be attacked with increasing rapidity, as the little detached pieces in their neighbourhood are worn out; and the prices, at which bog sets in many situations, are such, as no other land, let its fertility or state of cultivation be what it may, could produce.

Where bogs are cut to the sand or clay, the usual method of improving them is by setting potatoes, to which this kind of ground seems particularly propitious, especially if some of the boggy parts remain to mix with the under-stratum, which thus becomes a fine loam, sandy or clayey according to the nature of the bottom. These grounds, from their low situation, are particularly favourable for the production of grass, and, from the same circumstance, often admit of irrigation, to which this compound soil seems remarkably well adapted; besides, there is generally some rill near at hand, which, with care, may be conducted over

the ſurface, to which aſhes may likewiſe be applied, obtained with little expenſe on the ſpot, as the clay and bog intermixed burn with great facility, and produce a conſiderable quantity of excellent manure.

CHAPTER

CHAPTER XII.

IMPROVEMENTS.

SECTION 1.

Draining.

NOTWITHSTANDING the general appearance of the ſoil, and the ſhape of the grounds in this county, which might ſeem to preclude the neceſſity of draining, a great deal has been done in that way, and much is ſtill required. The hills abound with ſprings; ſome ſhew themſelves on the tops, ſome on the declivities, but moſt towards the bottoms, and in the ſtrongeſt and beſt part of the ſoil. Under-ground draining is very well underſtood, and, where rocks do not interfere, it is not difficult to execute, from the abundance of ſtone in moſt places to be found on the ſurface. The drains are ſunk until the ſpring is come at, then they are filled with ſtones, as near the ſurface as can be done without fearing interruption from the plough or ſpade; ſome perſons throw the ſtones promiſcuouſly in, but the

the moſt approved mode is to lay them neatly at the bottom, and then to throw the remainder as level as can be done, covering them with whins or ſtraw, to prevent the earth from falling between the ſtones. When ſtones are not to be had, ſod-drains are in uſe, a ſpade and ſhovel of a particular kind being the implements to take out the undermoſt ſpit, ſo as to leave a ſhoulder for an inverted ſod to reſt on. Theſe drains are moſt liable to get out of order, from the ſod rotting and giving way, but where ſtones are not to be obtained, there is no alternative. The nearer the ſurface the drains are filled, they are the more effectual, as, in that caſe, they alſo intercept, on ſteep hills more eſpecially, ſome of the ſurface water. I have not yet learned whether draining, in Dr. Anderſon's method by tapping, has here been practiſed, but I ſhould imagine in this country it might anſwer; I ſhall mention an inſtance in which, without intention, it perfectly ſucceeded. In the middle, or rather towards the latter end of the dry weather in the year 1800, it was found neceſſary to clean a well in this neighbourhood, about half way towards the ſummit of a hill, ſuch as this country abounds with; after the well was cleared, very little water made its way; it was then reſolved upon to ſink the well, formerly about two feet, to four feet; this was done, and ſtill very little water came, upon which a large iron crow was forced into the ground; this, after a few ſtrokes, ſunk into a looſe gravel about

two

two feet; on pulling out the inſtrument, the water inſtantly followed, and has continued to run until this day; the conſequence of which, beſides a regular ſtream of excellent water, was, that the back-yard belonging to the houſe where this operation was performed, and which, having been cut out of the hill, was ten feet lower than the well, and, previous to the well being ſunk, never could be kept dry, has from that day loſt every appearance of damp, except when it falls from the ſky. A very neat method of making open drains I have ſeen in different places, by ſloping the edges of the drains, and ſowing graſs-ſeed; but when this is done, the good earth ought always to be kept to cover the under-ſtratum, laid bare in forming the declivity.

Sect. 2. *Paring and Burning.*

The regular ſyſtem of paring and burning land is only practiſed in the mountainous parts, and in ſome few places where moory ſoil abounds; it is generally performed by putting a fin or feather upon the ſock, that the graſſy part may alone be cut; when this is done, by ploughing lengthways the furrows are cut acroſs, and put into heaps, which, when ſufficiently dry, are burned, ſpread, and ploughed into the ground. Excellent crops of grain are procured by this management,

ment, and of late potatoes have been tried, and have ſucceeded beyond expectation; for them the ground ſhould be burned juſt before the time of ſetting, and the aſhes ſpread hot; if a little coarſe litter is added, it is reckoned an advantage, as it keeps the potatoes from being in immediate contact with the aſhes. In the ſpring of 1801 I tried a fair experiment on a boggy piece of ground, between dung and aſhes on alternate ridges, and could not perceive any difference, the produce being equal. Aſhes made on the ſkirts of bogs are much uſed, both for crops of grain and of graſs; in both ways they are excellent; the quantity uſed depends on the ſtate of the ground; the effect viſible for two or three years: when clay is mixed with the ſtuff to be burned, it increaſes the quantity, as well as extends the duration. In many parts of this county it is cuſtomary to burn the low and deep parts of the hills, which, from being partly bog and partly clay, burn well, and afford much aſhes. Clay alone, when burned, which may be done by conſtructing a kiln for the purpoſe, with flues like a brick-kiln, forms a ſtrong and laſting manure; the ſame quantity uſed as of dung: when the clay is once properly ſet on fire, it will burn any ſubſtance thrown on it, how wet ſoever it may be. The difficulty is to get the kiln completely fired at firſt; for this purpoſe the clay muſt be dry for the firſt day, and a proper quantity of fuel allowed; on the firſt day's management much of the ſucceſs depends.

SECT.

Sect. 3. *Manuring.*

Dung is principally applied towards raiſing potatoes, in ſome inſtances for grain of all the different ſorts; but to raiſe potatoes, every effort is uſed by the beſt farmers to increaſe its quantity, and even the little farmers are very induſtrious in this particular, increaſing its quantity by many additional ſubſtances, earth, bog, clay, &c. according to their ſoils, and the opportunities they may have of obtaining them. For bog or moor a mixture of clay is excellent, although it ſhould contain ſome ſtones, which aſſiſt in compreſſing and dividing the boggy ſoils. For clay or gravel a mixture of bog is very well adapted, to correct the cloſeneſs of the one, or the ſharpneſs of the other; but the great error in the management of dunghills ſeems to be their improvident ſituation, by which the rich water that flows from them is loſt. The mode adopted by a farmer in this county deſerves to be noticed and followed; his dunghill being placed on a riſing ground, he made a cut from it, with two or three ſtops, to ſave the water in its deſcent; above theſe ſtops he always threw in a quantity of earth, which being ſaturated with the moiſture from the dung, he removed it, and again filled the trench. This man's attention to every branch of huſbandry was directed by equal ſagacity, and, from being

a labourer, he took a farm, not twenty acres, and died lately worth 500*l.*; his ſituation, within two miles of Liſburn, was advantageous for diſpoſing of his produce, particularly potatoes, which he cultivated in a firſt-rate manner. In forming a dunghill, particular attention ſhould be paid to its ſituation; too much moiſture, as well as too little, equally prevent its rotting as it ought to do. Dung, except for a garden, ſhould not be kept longer than the ſtraws, of which it is partly compoſed, can be ſeen in cutting it; when theſe are no longer to be perceived, it has loſt much of its improving qualities, as the putrefactive proceſs is completed.

Lime, from its being more portable than any other manure, is the moſt general, dung excepted. I might here, according to the example of Ellis (who thus often introduces any improvement he recommends), mention nine good ways of uſing this general fertilizer, which ſeldom fails of anſwering the expectation of the farmer. The quantity uſed depends a good deal upon the nature of the ſoil, and the ſituation of the land: upon ſtrong ſoils, an hundred barrels, of three Wincheſter buſhels each, are not found too much, whilſt, upon thoſe of a lighter nature, half the quantity is often thought ſufficient. The method moſt in uſe is, to ſpread it on lea in the latter end of ſummer, with the intention of ſuffering it to remain on the land for one or more years, according to the convenience of the owner; the older the lea, the more lime is uſually applied;

plied; on heavy ground, in this ſtate, one hundred barrels are about the quantity, but on lighter, from ſixty to eighty. When lime is laid on ſtubble ground, it is reckoned to take effect ſooner, and a leſſer quantity is uſed in proportion to each ſoil. This is not a bad mode, provided the ground is left to graſs, but if for immediate tillage, it ſeldom anſwers a good purpoſe, in the uſual mode of culture this country affords; but when a piece of ground lies in ſuch a ſituation, that it is deſirable to have it in graſs and in good heart (as all ground ought to be), it may be expected, that lime ſpread on the ſtubble, and ploughed lightly in before winter, then nicely ſtirred again in ſpring, and ſown with oats and graſs-ſeed, will have ſucceſs in both points. As for thoſe, who plough but once for ſpring crops, they will be generally diſappointed by liming on ſtubble. Another way of laying on lime is under dung, for potatoes; this many perſons will ſuppoſe to be a work of ſupererogation, and ſo it is in ſome degree, as it is twice manuring the ſame ground for one object; but of all the methods I have ſeen put in execution to enable the ground (after the unſcientific practice of this country) to bear a long courſe of exhauſting crops, this is the ſureſt; for I have known nine crops of grain in ſucceſſion taken from ground thus brought in, namely, two of barley, two of wheat, and five of oats, all good, and except for the laſt, when graſs-ſeed was ſown, not more than one ploughing was given for a

crop. Before this trial the field was not thought remarkably good, and the owner was encouraged to go on year after year, by the excellence of the preceding crop. I muſt obſerve, the field had been long in graſs, and wheat was harrowed in after digging out the potatoes. Had this field been put into a regular courſe of tillage, by taking an ameliorating crop, ſuch as clover, peas or beans, between the wheat or barley, I think it might have been in a ſtate of progreſſive improvement for any number of years. Lime is alſo applied after potatoes; in this method it laſts a conſiderable time, if it is laid on immediately after they are dug. Sometimes lea ground, having been ploughed in winter, is dreſſed with this manure, by ſpreading on the ridges before harrowing, which operation is performed when the grain, generally oats, is ſowed; the furrows are then dug and ſhovelled, by which both ſeed and manure are completely covered. In the firſt crop the effect is not great, for lime does not act ſo rapidly as many other manures of leſs duration. Lime is often mixed with earth, and laid both on graſs grounds and on grounds already ploughed; the ſucceſs of this mode greatly depends on the proportion of lime with earth. Many perſons are now of opinion that, when lime and earth are to be applied to the improvement of land, they come much more quickly to their purpoſe of enriching it, by firſt ſpreading the lime on the graſs, and then covering it with earth: there are ſtrong arguments in favour

favour of doing it thus; the earth has but once to be carried, and the expenſe of turning the compoſt heaps is entirely ſaved; the lime, alſo, when well covered, penetrates immediately into the ground; when laid on by itſelf it requires a year at leaſt. As lime is the principal manure of this county, I have been very particular in deſcribing the different modes of application, and their ſucceſs. Great exertions are made to procure this valuable article, but the idea of making it merely ſubſervient to the production of ſucceſſive crops of grain, without any reſt, has prevented it from being as highly beneficial as it might have been under a better ſyſtem; under the preſent one land is often left in a worſe ſtate than it came from the hands of nature, for there is no way ſo effectual to deſtroy the valuable properties of the ſoil, as high liming and imperfect culture; and, although in ſome inſtances, one of which I have mentioned, the miſchief has not been done, the miſerable appearance of the fields, after ſix or ſeven ſucceſſive crops, plainly proves the truth of my aſſertion. We muſt allow, that to have five or ſix crops of grain, without any other labour than an annual ploughing and harrowing, is a great temptation; but a farmer of all profeſſions ought to look forward and conſider, that, let his land produce or not, he muſt pay his rent; that, if he ruins it in the beginning, in the end it will ruin him, or at leaſt leave him in a ſituation much worſe than with more judicious management he might have been.

been. The expenſe of lime depends on the diſtance it is drawn; in many places it is conveyed fourteen miles by land-carriage from the kilns; in others limeſtone is drawn and burned upon the farm; in this way, when fuel is near, much is ſaved, as the expenſe of drawing is the moſt material, the ſtone being purchaſed at the quarries at not more than ſixteen pence per ton; when it is brought by water, either by means of the canal, or from Carlingford to the eaſt coaſt, the price is from 3*s.* 6*d.* to 5*s.* per ton. In the neighbourhood of Ballynahinch, the moſt central part of the county, limeſtone of three kinds are often ſeen at a ſmall diſtance from each other, the blue from Carlingford, the red from Caſtle Eſpie, not far diſtant from Comber, and the white from Moira, fourteen miles; of theſe the white is reckoned to produce the greateſt quantity of lime from a given weight of ſtone. The price of lime at the quarries, where it is burned, is from 1*s.* 1*d.* to 1*s.* 2*d.* per barrel. I have been lately informed by ſeveral perſons of experience, that nothing conduces ſo much to reſtore land that has been over-cropped in conſequence of being limed, and to fit it for another liming, as covering the ground with freſh ſoil, and ſuffering it to continue for ſome years in graſs; but whilſt I propoſe this method as a remedy for an exiſting evil, I muſt caution the farmer once more againſt the pernicious practice of repeated crops of grain, without the intervention of graſs or fallow. The uſe of lime as a

manure

manure, is ſaid to have been firſt introduced by Mr. Watſon, of Brookhill, in the county of Antrim, about ſeventy years ago.

Limeſtone gravel; or a mixture of detached pieces of limeſtone with the calcareous earth, which ſurrounds it, in greater or ſmaller proportions as it riſes, is uſed in the neighbourhoods of Moira and Magheralin; it is a moſt potent and laſting manure; but, from the great quantity required, it will not bear carriage to any conſiderable diſtance.

Marling was introduced into the barony of Lecale, about eighty years ago, by the Hon. Michael Ward, one of the juſtices of the king's-bench; the pit, from whence it was firſt raiſed, is to be ſeen on the ſide of the road between Caſtle-ward and Downpatrick. The immediate advance in the value of lands, on its introduction, was above four-fold, and a corn trade was opened from Strangford in conſequence; but from the imprudent uſe of this manure, the land became exhauſted in ſome years, and fell off in its produce very much; of late years, however, from more judicious management, it has reſumed its former fertility. Marle has the ſame effect as lime, only in a higher degree, of enriching land, and, like it, the effect of calling out its productive qualities to its deſtruction; and every thing, that has been ſaid of the ill conſequences of ſtrong liming and improper cropping, is equally applicable to it: the quantity uſed, about a car-load to a ſquare perch.

perch. A conſiderable time muſt intervene, before ground will admit of a ſecond marling with advantage, the period longer in proportion to the quantity laid on at firſt: Mr. Gracey, from whom I received much valuable information, mentioned that ſorrel appearing is a ſign, that marling may be repeated with advantage. The marle found in this county is generally of a white or grey coloured kind, from the bottom of bogs, and ſmall lakes, and ſome of it immediately under the ſurface. Shelly ſand, and gravel, are alſo uſed with advantage, along the different ſhores; they are laid very thick upon ſtiff clay ſoils, and the beſt crops obtained from them; as fallowing is now ſeldom practiſed, theſe manures are laid on graſs, which they wonderfully improve. Wreck is alſo much uſed along the coaſt; often in blowing winds all hands are at work in drawing it up and ſecuring it; it is uſed both for potatoes, and, in ſome caſes, for grain; its duration is but ſhort.

Of moſs or turf-bog as a manure.—This ſubſtance is uſeful in the above-mentioned quality, both in itſelf, and when compounded with other materials; upon thin and ſharp ſoils, mixed with lime or dung, it is excellent, not only as a manure, but as adding to the depth of the land; for this purpoſe, however, it ſhould not be taken at random, but at ſome diſtance from the ſurface, and, if ſo deep that ſome mixture of clay ſhould appear along with it, the effect

upon

upon the above-mentioned ſoil will be the greater; upon clay, a quantity of a lighter and more friable nature will be found to anſwer, in opening and rendering it more tractable in the operations of huſbandry. There are two favourite modes of applying this ſubſtance; the firſt, by drawing it on graſs land in ſummer, and when nearly dry ſetting it on fire, and ſpreading it half burned and hot upon the ground, where it remains until the ſeaſon for ploughing arrives. Oats are ſown on ground thus prepared, the crops clean and luxuriant; an hundred or an hundred and fifty car-loads are laid on an acre, according to the quality of the ſoil: heavy land requires the greater quantity. The ſecond method is, to lay it on graſs ground before or in winter, to ſpread it as ſoon as convenient, and in ſpring to add a ſmall portion of dung, on which potatoes are ſet in the lazy-bed way; and if a modern farmer can excuſe the lazy-bed way, he may pardon it in this inſtance, both on account of the greatneſs of the crop and quality of the root, as well as the mellow ſtate, in which it leaves the ground, and its conſequent fitneſs for production. Therefore, whether we conſider turf-bog as an improver in itſelf, as mixed with other enriching ſubſtances to extend their effects, or when reduced to aſhes, we ſhall find it an article of conſiderable magnitude in the ſcale of manures. Nor need we fear the uſe of it, as likely to encroach on the fuel of the country; for that ſpecies, which is good for manure,

is uſeleſs as fuel, no operation being enabled to give it the neceſſary adheſion.

In the neighbourhood of towns many manures are uſed, that do not come within the reach of farmers in general, but which are very advantageous. Coal-aſhes are very good for heavy land; for coarſe meadows they are ſuperior correctives of the harſh herbage they naturally produce. Soot is a very powerful manure alſo, and, as a top-dreſſing for wheat, very ſucceſsful; but it is not eaſy to collect any conſiderable quantity. In the neighbourhood of bleach-greens, the aſhes, after being boiled, improve meadows and paſtures very much; ſoaper's waſte, being of the ſame nature, is alſo uſed for the ſame purpoſe, where it can be procured. There are many other ſubſtances, which farmers in the vicinity of large towns might with a little care and induſtry procure, that are not very much attended to, and are yet very valuable.

Before I quit the ſubject of manures, I muſt take notice of an obſervation I lately met with in a book of agriculture, the name of which I do not recollect; ground, naturally fertile, has a great advantage over ground made rich by manures; in the former, the ſtraw is of a much firmer texture, and able to ſupport a much greater weight of grain, than that of the latter, whoſe ſtraw wanting ſtrength is apt to fall before the grain is properly ripe, which prevents its filling, as in that ſituation it is deprived both of air and ſun.

Sect. 4. *Weeding.*

Potatoes are carefully weeded, whether in the drill or lazy-bed method, by the hand; the beſt time ſeems to be when the tops are beginning to ſhew ſymptoms of bloſſoming; very often a ſecond weeding is required and given, which the crop gratefully repays. Flax is alſo carefully weeded, as mentioned under that article, and large weeds are generally pulled from all crops of grain; but ſcarcely any perſon thinks of weeding paſture, although keeping it clean is the beſt preventative for weeds in the ſucceeding crops of grain. It is ſhameful to ſee the quantity of large root weeds, that over-run the fields of clover, in grazing in Lecale and other parts of the county where it is applied in that way; it gives a ſlovenly appearance to well cultivated farms.

Sect. 5. *Irrigation. Watering.*

Although the art of watering meadows is ſtill in its infancy in the county of Down, yet the advantages of it are known, and in ſeveral parts of it it is practiſed, but on a ſmall ſcale. The benefit of water to

graſs land is, in many inſtances, ſo great and ſo evident, that to perſons of obſervation, who are converſant in rural affairs, the means of procuring and conducting it over ground muſt be a deſirable object; but the idea, that water enriched by depoſition alone, for a conſiderable time prevented the true practice from being followed, that of conveying it over lands from their natural ſituation not liable to be flooded; conſequently, no other grounds were allowed to enjoy the fertilizing powers of water, until of late years, except ſuch as from their low ſituation admitted the water without difficulty, and where it was ſuffered to ſtagnate upon them; now, however, that the ſuperior effects of running water are diſcovered and confeſſed, many meadows have the ſtreams from above, which are conſtantly kept in motion; and in other ſituations they are conducted, at no great expenſe indeed, along the ſides of the hills, which in this county, from their kindly ſoil and ſubſtratum, ſeem particularly adapted to this operation. Obſervation alone could have taught the ſuperior advantage of running water, in the production of graſs; that water impregnated, or ſuppoſed to be impregnated with fertilizing ſubſtances, ſuch as are carried down by floods, might act as a manure, in depoſiting thoſe ſubſtances when ſtagnated, would be a very obvious conjecture, and ſuch as might occur to a reaſoner of no extraordinary powers; but a courſe of obſervation muſt have been neceſſary, to aſcertain the

benefit

benefit of clear running water, and the almoſt incredible effect it has upon proper ſoils. So much has already been written upon this ſubject, that to enter minutely into the advantage of this branch of agriculture, would merely be a repetition of what has been ſaid by writers much more converſant in the buſineſs than I have had an opportunity of being; I ſhall therefore merely confine myſelf to thoſe obſervations, which I have had an opportunity of making.

Of the Soils adapted for Irrigation.

So far as I have been able to judge, water acts as a fertilizer upon every ſoil, when under proper management, from gravelly loam to clay; turf-bog, when brought into culture, is benefited by it in a moſt extraordinary manner, as I have had an opportunity of knowing from my own experience, by conducting the ſtream, which comes from the higher parts of a bog, over a piece, which has been cut over, not half its depth, and afterwards brought into cultivation; by throwing the water over it this year (1801) a greater quantity of graſs, and to all appearance of a better quality, was gained than in any two years ſince it was firſt improved, although it had been manured every ſecond year, either with dung or aſhes. My reaſon for mentioning this ſo particularly is, firſt, to ſhew how congenial the water ariſing from a bog is to the

ſame

ſame ſoil; and ſecondly, as cut-out turf-bogs from their ſituation have more capability of having the water turned upon them, than almoſt any other ſoil, it is neceſſary to be known how much they are, when laid down to graſs, benefited by water. Gravelly ſoils are affected by irrigation, with a quickneſs only to be credited by thoſe who have ſeen it, and clay alſo, though ſlower in ſhewing the advantage of it, acknowledges its fertilizing qualities. In fact there are hardly any waters, except thoſe impregnated with ſome mineral deſtructive to vegetation, that may not be profitably employed, upon almoſt every variety of ground, unleſs from groſs miſmanagement; an inſtance of which lately occurred in this county, where a perſon being employed at a conſiderable expenſe to water a piece of ground, to facilitate the levelling, and to baniſh the ruſhes, gave the ground a complete burning, which I ſuppoſe ſo reduced the quantity of vegetable mold, as to render it unfit for the purpoſes of agriculture: the ſoil was a ſandy loam upon a clay. My reaſon for ſuppoſing, that the operation of burning ſpoiled it, is this; I ſaw the ground before it was broken up, but after the water was partially thrown over it; at that time there was a moſt luxuriant growth upon every place where the water reached, even amongſt the ruſhes, which certainly ſhewed that the ground agreed with irrigation, and muſt have been diſqualified by the burning, previous to the ſecond watering. The only

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likely means of reſtoring this land to its former ſtate, will be by covering it with earth, and thus returning what it has loſt.

On every ſoil the beneficial effects of irrigation are in proportion to the ſupply of water, for where you have a conſtant ſupply, you can uſe it in the moſt critical times, in dry and in warm weather; but ſtill where this point cannot be obtained, where water can only be had for a few months or weeks, it is not to be neglected, as even in this imperfect ſtate it is equal to the beſt manures in the production of graſs. To water meadows with effect, they ſhould be levelled, drained, and cleared from aquatic weeds; levelled, to ſpread the water with equality; drained, becauſe on dry ground it has more power, and the ground can be laid dry when required; and cleared of weeds, becauſe they occupy the place of a more valuable production; but even, without any of theſe improvements, water, merely turned over the ſoil, in moſt caſes will be of ſervice, and, where nothing more has been done, I have ſeen graſs as long as the ruſhes, where formerly nothing but ruſhes grew. Every ſtream, therefore, that can be commanded, ought to be converted to this uſe, and there are few ſtreams, that may not be in ſome degree commanded. Even back-flooding, by means of dams, ought not to be neglected, although the moſt critical and leaſt beneficial branch of this art; in this way, particular attention muſt be paid to the time allowed

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the water to cover the ground, and, if it can be done, to prevent its being covered to too great a depth. The land ſhould, at particular times, be laid dry, to give the graſs air, and to prevent its roots from being deſtroyed by the water, which muſt in ſome degree ſtagnate upon it. The only objection I ever heard to this mode of improving land, aroſe from the idea of its making the produce of inferior quality; but this is a point not decided, and depends greatly on the time you cut the hay of watered meadows; for the crop being ſo much greater than on any other ground, it will, if ſuffered to remain long unmown, ſpoil at the bottom, from its weight and cloſeneſs, whereas, if taken earlier, being more full of ſap, it will of courſe make more nutritious food. But the benefits are numerous; for when the land is once put into a courſe for irrigation, it is the cheapeſt, as well as the moſt certain mode of improving it; it is the mode, in which graſs will be produced at a period in ſpring when it is particularly valuable, at which time it may be fed without injuring the crop of hay; it has this peculiar advantage, that its manure is acquired, and brought to it at thoſe times the land is totally unfit for conveying manure of any other kind; and to ſum up all, ſo far from robbing any other land for its ſupport, it is a continual and increaſing fund of richneſs, from the ſupply it affords to cattle of all kinds, that convert it into manure, with which other lands may be improved; thus not only rejecting

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every aſſiſtance itſelf, but affording it to other lands, which require it. And I do not think it would be too much to ſtate, that for every acre of watered meadow half an acre of other ground might be kept in heart; which, if this practice was as general as it ſhould be, would in the whole amount to an advantage not eaſily calculated.

CHAPTER XIII.

LIVE STOCK.

SECTION I.

Horned Cattle.

IN a country, where cattle are kept as merely ſubſervient to the purpoſes of the dairy, it cannot be expected, that any general attention ſhould be paid to the breed; and acordingly we find them more valued for their qualifications as good milkers, than as deriving their pedigree from any particular ſtock, and the uſual tokens of excelling in that way are better recommendations to the purchaſer, than either length or ſhortneſs of horn. The truth is, the cattle of this county are a mixture of every kind; the bull, that is neareſt the place where his interference is neceſſary, being, in ninety-nine inſtances out of an hundred, that which is preferred; and even thoſe farmers, whoſe ſtock requires one of their own, and who in buying cows are attentive in chooſing the beſt, in the purchaſe of a bull often

prefer

prefer the cheapeſt to the beſt ſhaped. Notwithſtanding this indifference to breed, the long-horned are the moſt frequent, a very diſtinct variety, however, from the Engliſh breed of that denomination; their horns grow downwards, and are *thin*, ours grow upwards, and are *thick*; the Engliſh cattle have ſmall bellies, and broad thighs and rumps; our cattle have large bellies and thin hips, and, upon the whole, form a complete contraſt with that celebrated breed; but they are good milkers when well fed, and, from their ſize, which is between three and four hundred weight, probably better adapted for the paſture of this country than a heavier or nicer kind, which would demand a greater quantity of food, and more care than their owners are diſpoſed to beſtow on them. As I have already mentioned, the object of cattle in the county of Down is milk; in this the farmers are tolerably ſucceſsful, the uſual quantity of milk for two months after calving being from twelve to twenty quarts per day; the latter quantity is only to be obtained from the beſt cows, fed in the beſt manner, and even that has been ſurpaſſed, but not in many inſtances. What I have ſaid is meant to apply to the general ſtock of the country; in the hands of gentlemen ſome cattle are to be met with of a ſuperior kind. In the neighbourhood of Waring's-town was formerly a very fine breed, brought there by the late Mr. Waring, from the late Lord Maſſerene's, at Antrim, who more than fifty years ago obtained

them from England; they were of the long-horned kind, remarkable for their beauty and their milk, but they are nearly loſt from the want of proper attention in keeping good bulls; a few of this breed are ſtill in exiſtence at Orange-field, in the hands of Mr. Beatſon, who for ſome time paid conſiderable attention to his ſtock, and had many cows of great beauty. At Montalto there was an uncommon fine breed of cattle; the heifers came from Dean Harman's ſtock in Longford, and the original bull from Headfort, of the Craven breed: many of the farmers croſſed their ſtock with theſe, and the improvement was obſerved to a conſiderable extent around. The beſt cattle I have ſeen in other parts of the county are as follow. Lord Anneſley has a very fine dairy of long-horned cows of the old breed, and a remarkable and beautifully formed bull of Sir John Parnell's breed, and likewiſe a heifer he brought from the Queen's county a few years ago. Mr. Ward's cattle at Bangor, for figure and ſize taken together, are, I believe, the firſt in the county; they are of the late Lord De Montalt's breed, and were obtained at a very high price. Mr. Reilly, of Scarva, has alſo been very attentive in procuring cattle from the weſt of Ireland. At Mr. Waring's, of Moira, are likewiſe a few very nice cows; all theſe are of the long-horned breed, as are Mr. Douglaſs's, who has a number of fine cows of the ſame kind, and a bull of Lord Anneſley's breed, a very fine one. Mr. Ford, of

Seaford,

Seaford, bought lately at Mr. Jacob's ſale, in the county of Tipperary, a cow and heifer of the very beſt breed, as appears by their pedigree; they are both beautiful; judges are divided in their opinions concerning the ſuperiority; the ſize not too great for this country, about four cwt.; their bones very ſmall; their heads and necks as fine as thorough bred horſes; the price above one hundred pounds. The only ſtock of any other breed, at leaſt that I have ſeen, which are deſerving of notice, are Mr. Hamilton's of Killileagh, who imported a bull and cow of the ſhort-horned kind from Lincolnſhire; two of their progeny are now at Killileagh, a bull and cow, are very fine, the bull eſpecially, who is ſixteen hands high, nine feet from head to tail, and proportionably made; he is of a fine cream colour, with a few black ſpots; the cow entirely white, and very handſome alſo. The Marquis of Downſhire five or ſix years years ago imported from Galloway twelve heifers and a bull, of the true polled breed; they were very ſmall when imported, but have grown wonderfully, and their deſcendants promiſe to be well ſized; one of them, which was fatted laſt winter, a ſpayed heifer, weighed upward of four cwt.; they are remarkably well over the back, and over the tail tolerable; their necks long and fine, their heads ſmall, but their thighs are not well let down; their colour black or brindled, with white backs in ſome inſtances; the farmer reckons them very hardy, not nice in their food, and in yoke remarkably

markably quick ſteppers; ſome of the bullocks will, he thinks, come to five or ſix hundred weight; the cows he does not reckon remarkable good milkers, although ſome of them have turned out very well: upon the whole he thinks them profitable ſtock upon ground not of the firſt quality, but when it is ſo, he prefers the cattle from the weſt of Ireland.—In chooſing a breed of cattle, conſideration ſhould certainly be paid to the quality of the ground, on which they are to be fed, and it certainly would be an abſurdity to bring the Lincolnſhire ox to ſtarve upon a barren or unſheltered hill; at the ſame time it ſeems both rational, and indeed becoming the ſpirit of an enterprizing improver, to obtain a ſuperior kind, and by every means to provide for them, and to keep them as near the original ſtock as he can; at leaſt this advantage will attend it, though the ſize may decreaſe, the ſhape will ſtill be preſerved, and probably the other valuable qualities, and handſome cattle are an inducement to the owner to pay more regard to them, and, conſequently, to thoſe, who have the immediate care of them. But when the point is ſo far given up, that land is only capable of maintaining cattle of an inferior claſs, the proprietor grows comparatively careleſs of them, and whatever kind he pitches upon are likely to degenerate. I will not go ſo far as to ſay, that the fineſt or largeſt cattle are the moſt eaſy to keep in condition, but ſo far I can venture

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to aſſert, that the niceſt ſhaped beaſt in a farm, with few exceptions, is the fatteſt.

Rearing Cattle.

Rearing cattle is here moſtly confined to the keeping up the ſtock upon the land, yet there are ſome perſons, whoſe farms are larger than the general ſize, that rear all their calves; the heifers are either taken into the dairy, to replace ſuch cows as they chooſe to part with or fatten, or they are ſold in calf; the bullocks diſpoſed of as may ſuit their conveniency. Calves are with very few exceptions reared by the pail; generally new-milk for a month or ſix weeks, afterwards ſkim-milk for the ſame period, and then they are left to ſhift for themſelves; the quantity varies according to the attention paid by the owner to the goodneſs of his calves, from two to four quarts at a meal. As the cows generally come into milk in the ſummer months, the calves have not ſufficient time, in this way, to gain proper ſtrength before winter, and many of them die of conſequence. Were the cows to calve in winter, the calves would have double the ſtrength; as they would be ready to turn to graſs in ſpring, and would have the whole ſummer to acquire that vigour of conſtitution, which would enable them to get through the firſt winter, which is the moſt trying to them. I know it is objected to this idea, that there is a conſiderable loſs by having

having cows to calve in winter; this I might allow, if the dairy was the only object; but where the two objects of dairying and rearing are united, I am convinced the moſt beneficial mode is, to have the calves dropped in winter, or early in the ſpring: in the firſt place, as I mentioned already, your calves are infinitely ſuperior; and ſecondly, inſtead of having the beſt part of the month of May ſpent before the calving time, as is uſual, the cows being already in milk are in a ſituation to take advantage of the firſt ſpring of graſs, at which time, although they will not give quite ſo much milk, there will be as much butter as if they were newly calved; and if it is taken into conſideration, that the calves are now reared, the quantity of diſpoſeable milk will be full as much; beſides, winter calves begin to feed much ſooner than ſummer calves; and if a little attention is paid to put ſome cabbage in the bottom of their pail, or a ſmall quantity of turnips cut neatly, they will in a ſhort time learn to eat either the one or the other, and at the age of ſix or ſeven weeks they will not require much milk: when turnips or cabbages are not to be got, potatoes, boiled or raw, will anſwer the purpoſe full as well. This mode of rearing is practiſed with the greateſt ſucceſs in Norfolk, where it is entirely confined to winter; and in Leiceſterſhire the time extends from the beginning of December until March. I find from experience, that calves treated in this manner, and dropped at this ſeaſon, are fully equal at the beginning

beginning of winter to thoſe, which being calved in the preceding month of May are ſix months older: to make uſe of the breeder's expreſſion, it makes them long in bone; if this is not accompliſhed at an early age, it can never be done by ſubſequent care. Another advantage of cows calving in winter, eſpecially in a gentleman's family, is plenty of milk, and the pleaſing conſequence, a ſupply of freſh butter and cream, no ſmall conſideration in any ſeaſon, but eſpecially at that time, when neither the one nor the other of good quality are to be procured, even for money. Some gentlemen allow their calves to ſuck, which, being the moſt natural, is aſſuredly the beſt mode; and when two calves are put to one cow, I ſhould think it a profitable way of employing the milk, which thus without trouble turns to very good account, whether the calves are reared for ſtock or for the butcher.

Dairying.

Butter is the great object of the dairy; conſiderable quantities are made here and ſold, ſome freſh in the towns, but moſtly ſalted and packed for exportation; the markets Belfaſt and Newry. It is not eaſy to aſcertain exactly the produce of a cow, ſo much depends upon adventitious circumſtances, upon the goodneſs of the cow, and the quality of the paſture, and a great deal upon the ſkill of the dairy-woman: the ge-

neral produce is from ſixty to ninety pounds, with tolerable food and care; with ſuperior attention it ſometimes riſes to two caſks, or firkins, of ſixty pounds each per cow, but in this caſe no allowance is made for butter in the family; the firſt, therefore, is the faireſt average. Beſides this, ſome ſkimmed-milk-cheeſe is made, ſome butter-milk ſold, and probably a calf to every two cows. Farms might be picked out, on which the greateſt produce here mentioned would not be too great, but in a general view of the county it would, ſtating it in that way, be liable to give wrong ideas upon the ſubject.

I ſhall here give the Norfolk method of rearing calves, which I have followed with ſucceſs theſe five years; it is taken from Marſhal's Rural Economy of that county.

Time of rearing.—From October to March; ſometimes, but not often, later.

Manner of rearing.—Nothing but milk, until the calves ſhew an inclination to eat; as ſoon as they do, give a few ſmall pieces of turnips in the bottom of the pail, in which the calf is fed; in a ſhort time it will learn to eat the turnips, which muſt be increaſed as the appetite increaſes; when they come to eat heartily of turnips, they may be conſidered as nearly reared, and the milk gradually diminiſhed until they can ſupport themſelves upon turnips alone. A little oats added to the turnips have a great effect, and calves are remarkably

ably fond of them. Marſhal ſays the Norfolk farmers ſpeak in raptures of oats and turnips for calves; I have found them good, but inſtead of turnips I give cut kail, or cabbage, which they can manage more eaſily at the beginning: raw potatoes are alſo very good.

SECT. 2. *Horſes.*

THE number of horſes bred in the county of Down, is not by any means ſufficient to ſupply its own conſumption; beſides thoſe employed in the neceſſary operations of huſbandry, numbers are required for the purpoſes of trade, in conveying the different imports, in diſperſing them through the country, and in mounting thoſe perſons, who are engaged in the principal manufactures. The breeding counties to the weſt afford what are ſufficient; they are either brought by dealers to the fairs, or thoſe who have occaſion go themſelves to the markets, in the neighbourhood of which they are foaled; they are bought of every age, from one to ſix years old, according to the inclination or the purſe of the purchaſer. The ſmall farmers, who only keep a horſe for a few months during the ploughing ſeaſon, buy young ones, which they ſell generally at ſome advance of price to thoſe, who can keep them through the ſummer and enſuing year, when, if of a ſufficient age and in good order, they are re-ſold to

Dublin dealers, who attend the principal fairs: high-priced horſes are ſeldom expoſed at them for ſale; from ten to twenty guineas the uſual purchaſe; for this latter ſum a very excellent kind of horſe is often obtained, fit either for road or draft. Every horſe in reality, let his duration be what it will, ought to be a good mover; otherwiſe all his operations muſt be attended with difficulty. The colour moſt frequently to be met with is black, next to them bays, of which there is a greater number than formerly. Little occurs to me at preſent upon the ſubject of breeding, except to notice, that ſome of the beſt racers in Ireland of their day have been bred in this county, and that many are coming on likely to ſupport their claim to excellence. In whatſoever point racing may be viewed by the ſturdy moraliſt, the blood introduced in conſequence of this purſuit, and the knowledge attendant on it, have certainly improved, in a great degree, the powers of this noble animal.

Sect. 3. *Sheep.*

The only native breed of ſheep this county produces is confined to the mountains; they are a ſmall and hardy race, moſtly horned, but ſome individuals are without them. They are for the moſt part bred by the farmers, who live about the ſkirts of the mountains,

tains, on which they are lambed, but where they do not continue for the firſt winter, as the climate is too ſevere for them at that early period; accordingly, their owners take graſs for them, or rather running, in the low grounds, where they are ſent on the approach of winter, and from whence they return about the fourth week in March. The uſual price of their winter run is one ſhilling each. Whatever is the origin of this breed, there are many of them very well made in all points, and finely woolled; and when brought down to the lower grounds, and ſufficiently tamed, they take fat very well, eſpecially during the ſummer and autumn; but from their native wildneſs it is difficult to make them feed, except on graſs; yet by care they will become manageable; and the beſt way to accompliſh this is, by having a few tame ſheep mixed with them, either of another kind, or ſome of the ſame ſpecies that have been domeſticated. This breed is much prized for the delicacy of its mutton, and is to be had at all the fairs of Caſtlewellan, Dundrum, Roſstrevor, &c. in the neighbourhood of the mountains. The wethers, three and four years old, weigh from ten to fourteen pounds per quarter; the ewes ſomewhat leſs: their fleeces, from two and a half pound to near double that weight. Many of them are even leſs than the weight I mention, not exceeding ſeven or eight pounds per quarter. A judge of ſheep might pick up amongſt theſe mountaineers both males and females of uncom-

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mon ſymmetry of form, with wool of the fineſt texture: and it has often occurred to me, that by doing ſo, and bringing them to a better paſture and milder climate, the foundation of a ſuperior breed might be laid. Except on the mountains, or near them, there are not, I believe, ſix numerous flocks of ſheep in this county. The only breeding flocks I am acquainted with are in the park at Hillſborough, at Scarva, and Seaford; I underſtand that at Terala Mr. Hamilton has lately got a ram and ſome ewes of the Leiceſter breed. To any gentleman, who wiſhes to be in the breeding line, the firſt coſt, though high, is ſoon made up by the advantage of a ſuperior ſtock. The ſheep ſyſtem in this county (if it may be called a ſyſtem) is, with few exceptions, the buying-in from one to two lambs, or where the farms are larger than common, ſometimes to the number of ten or twelve, and keeping them for a year, or a year and a half, and ſelling them fat to the butchers: ſome farmers keep a few breeding ewes, in the ſame proportion.

Sect. 4. *Hogs.*

A vast number of hogs are bred in this county annually; the breeders ſell them from the ſow, at ſix or eight years old, in all the markets and fairs; the price greatly depends upon the crop of potatoes; when

when they are dear, ſucking pigs are cheap, and vice verſa. Beſides theſe, numbers are brought every ſpring from the weſt of Ireland, to be fattened here: the breed of ſwine in that part of the kingdom is much ſuperior to ours, having the advantage both in ſize and ſhape. Our breed, however, is improving, and the long-legged, curvilinear-backed, flat-ſided, tottering animal is now giving place to a more compact and robuſt creature, that not only takes fleſh faſter, but is alſo able to carry its fleſh. The ſhort-legged Dutch breed is in high faſhion at preſent, and very deſervedly ſo; for they certainly have a ſuperior *talent* of turning the ſmalleſt quantity of food into the greateſt quantity of pork in a given time. I muſt here do juſtice to the exertions of two gentlemen, who have lately imported from England, at a conſiderable expenſe, a boar and ſow each of the true Berkſhire breed; they are very fine animals, in every thing a complete contraſt to the old tottering breed above mentioned, which is the higheſt encomium, that can be paſſed on them.

Sect. 5. *Rabbits.*

Rabbits, as ſtock, are moſtly confined to the neighbourhood of Dundrum; the ground there being ſandy is well adapted to them; in Murtogh they are ſo intermingled with the other ſtock, it would be difficult

to

to aſcertain their exact value; but Mr. Hamilton of Terala is ſo well perſuaded of the ſuperiority of the ſoil, though ſandy, for agricultural purpoſes, that he has broken up a conſiderable part of his warren, and intends improving the whole, which probably would anſwer, even though it was to be returned to its former ſtate; for rabbits, like all other animals, are profitable in proportion to the goodneſs of their food. The rabbits on the Maze-courſe are very fine, from the acceſs they have to the well cultivated fields within their reach; and the few ſtragglers, that are to be met with in other places, are ſo much larger than the warren rabbits, that they ſeem to be almoſt a different ſpecies.

Sect. 6. *Poultry.*

Poultry of all kinds are reared; of the common fowl every cottage has a brood or two; for this facility we are indebted, amongſt many other obligations, to the potatoe, which, with the addition of a ſmall quantity of other food, forms an excellent ſupport for them. The earlieſt chickens are generally met with at the cottages, in which the fowl uſually rooſt at night; the warmth imparted to them by this means renders the hens ſooner prolific in the ſpring, than when they rooſt in colder ſituations, ſuch as hen-houſes uſually are. Turkeys are alſo bred, but being at an early age

ſo

ſo much more tender, and, when they grow large, requiring ſo much greater range than the former, they are not ſo common. A conſiderable number of geeſe, as well as ducks, are alſo reared; of the firſt large flocks are kept about the ſkirts of the mountains; of the ſecond almoſt every houſe has ſome; they are much valued from the quantity of eggs they lay. The price of poultry of all kinds has very much increaſed within theſe few years, and the two years of ſcarcity, by diminiſhing the number uſually reared, has more than doubled their value.

Sect. 7. *Pigeons,*

Are very general, but more as pets than as forming an article of profit. Moſt gentlemen have them about their houſes; I underſtand that in Lecale there are ſome regular pigeon-houſes.

Sect. 8. *Bees,*

Are reckoned to thrive remarkably well in the county of Down, notwithſtanding which there are not by any means ſo many hives as formerly; the reaſon of this decreaſe I have not been able to account for. On this ſubject there is little information to be gathered,

except from the ſuperior management of two gentlemen, who conduct this branch of rural economy with as much ſkill as humanity; by the favour of one of thoſe gentlemen, I made drawings of the hives and glaſſes uſed by them, and which they find to anſwer perfectly. By inſpecting thoſe drawings with the following references, I ſhould hope the mode would be intelligible.

No. 1. is a hive, made without a top, inſtead of which it is covered with No. 2., having a grate in it for the bees to paſs through. In this hive the bees are placed at ſwarming, inſtead of the uſual conical hive. The grate is covered with paper until the evening, when the hive is ſet on the ſtand, at which time No. 4. is put over the grate. Nos. 3. and 4. form the hive ſet up with its glaſs over the grate of No. 2.; No. 5. a common hive to cover No. 4., which, when filled, may be removed; and No. 6. another glaſs, which may be put in its place; this, being open at top, may be covered with No. 7., in which are holes, that may have over each of them a glaſs, Nos. 8., and which the bees will fill; theſe No. 8. glaſſes may be taken away at pleaſure, putting on freſh ones as they are taken away. By this method the neceſſity of killing the bees (unleſs from accident) to obtain their honey is totally done away; for the firſt glaſs or hive, that is put over the grating, is of ſuch a ſize as to allow them, after it is filled, ſufficient time to fill another for their own ſupport,

port, and it is obſerved that, by changing the hive, they work with increaſed vigour. In taking off the firſt glaſs or hive, the combs, which are connected with the flat hive in which they were put after ſwarming, muſt be cut through with a long knife; any honey that falls is ſpeedily gathered by the bees. Some perſons uſe a ſlider for this purpoſe, but it is liable to be out of order. Wooden hives are the beſt covering for the whole. Upwards of ninety pounds of honey were taken laſt autumn out of one of theſe wooden hives, into which the bees had penetrated by ſome aperture in their uſual abode; the honey of the firſt quality. The gentleman above mentioned keeps his bees in a houſe for the purpoſe, the aſpect, I think, ſouth-eaſt; he finds mice very troubleſome, both eating the combs, and killing the bees. In the glaſs hives a hole at top is neceſſary, to admit a ſtick to ſupport the combs. The above method has been followed for many years, and is as ſimple, when underſtood, as poſſible; its humanity is apparent, for, inſtead of robbers and murderers, it renders us protectors and ſharers.*

* The beſt cure for the ſting of a bee is ink, applied immediately.

CHAPTER XIV.

RURAL ECONOMY.

SECTION I.

Farms,

In this county are ſeldom of ſuch extent, as to admit of ſervants and labourers in all the different departments of huſbandry, that are required in thoſe countries, where the ſyſtem is more extenſive, and where it requires more regularity. A farming ſervant here is ſcarcely ever ſo completely occupied by any particular branch, as not to be under the neceſſity of putting his hand to any buſineſs, that may call for his aſſiſtance; accordingly we have not the different degrees of wages paid to a carter, under-carter, &c. In the neighbourhood of towns the wages of labourers are much higher than in the country parts, becauſe proviſions, houſe-rent, fuel, &c. are dearer in thoſe ſituations, where few labourers are kept by the year, their employment moſtly depending on incidental calls; where they are under

under theſe circumſtances hired by the day or the week, their wages are from one to two ſhillings per day, according to the ſeaſon and to the work. In the country moſt of the farmers have ſervants, who live in their houſes, or, if married, in cottages on their farms. In the former caſe they are uſually paid by the half-year, there being a diſtinction between the ſummer half-year from May till November, and the winter half-year from November till May; the wages for the firſt about three guineas, for the latter about three pounds, and their diet, &c. Boys are often hired for the ſame periods; their wages vary, from a guinea the half-year throughout all the gradations, until they arrive at the wages of a man. The cottagers are paid partly in money and their diet, and partly by their holdings, which are valued according to the ſize of their gardens, and the quantity of ground allowed for ſetting potatoes and ſowing flax; when a cow is grazed, that is ſeparately agreed for. A holding of this kind is valued from a guinea to two guineas per annum, beſides paying for the cow if one is kept, and maintaining her in winter. The labourer is paid about $6\frac{1}{2}d.$ per day and his meat, firſt working up his rent; farmers likewiſe engage ſome of their work by ploughing for the leſſer farmers, who have no horſes; the uſual rate is five days work of a man for one day's ploughing. Women are alſo engaged to reap, by ſowing flax-ſeed for them, the ſeed

their

their own; ſo many days work given for a certain quantity of ready prepared ground.

The uſual wages in this county, for occaſional labourers in winter, are ſixpence-halfpenny per day and diet; in ſummer eight pence and ditto. Gentlemen pay from eight pence to nine pence per day through the year, beſides giving a houſe at a reaſonable rate often into the bargain. There is not much work done by the great; ditches are more frequently contracted for in this way than any other kind of labour; a ditch of five feet by four, from fifteen pence to eighteen pence; of five feet by ſix, from eighteen pence to two ſhillings; where the ground is rocky, it is difficult to ſay what it may coſt per perch of ſeven yards, which is the uſual running meaſure for making a ditch of either of thoſe dimenſions; where rock intervenes, the employer muſt agree by the day.

DAILY WAGES ARE,

	s.	*d.*		*s.*	*d.*	
For turf-cutting,	1	1	and diet;	1	7½	without it.
Baking turf; baker,	2	2	attendant	1	7½	without diet.
Boys wheeling,	0	6½	to	0	8	
Reaping, from	0	6½	to	0	8	with diet; 1*s.* 1*d.* without it.
Mowing, from	1	7½	to	2	8½	about towns.
Ditto, by the acre,	3	6	to	4	0	
Threſhing oats,	1	1	per bole of 10 buſhels Wincheſ.			
Ditto barley,	1	1	per eight buſhels.			

Reaping

Reaping ſeldom done by the acre, but ſometimes by the ſtook of twelve ſheaves, at one penny per ſtook; in this way the farmer may be certain of ſmall ſheaves, and cloſe cutting, to increaſe the number; a good reaper in this way will earn from fourteen pence to eighteen pence per day.

Hours of labour are, in ſummer, from ſix to ſix, an hour allowed at breakfaſt, the ſame at dinner; in harveſt, from the time the grain is dry in the morning, until it is dark. It is accounted very bad huſbandry to reap while the ſtraw is wet, unleſs it is ſuffered to remain untied, to allow the moiſture to evaporate. In harveſt a very ſhort time is taken up at meals, eſpecially if the ſeaſon is late. In winter the hours of labour are from ſun-riſe to ſun-ſet; breakfaſt is the only meal at this ſeaſon, taken in the courſe of the day; dinner after it is dark. In harveſt moſt of the weavers of linen turn out to reaping, &c. and moſt of the young women; this gives a great command of hands at this neceſſary work, which, when the grain is completely ripe, goes on with very great rapidity; the conſequence of the great population of this county, and of the manufacturers being ſpread over the land, inſtead of living together in towns.

The price of labour has much increaſed in and around the towns, but not conſiderably in the country, within theſe laſt twenty years, except in two or three articles, as turf-cutting, mowing, and thatching.

Proviſions

Provisions—Are potatoes, oatmeal boiled and baked, with milk and butter in summer, and some bacon; in winter hung beef. All the farmers have some of both kinds, and most of the manufacturers, until the last two years, when the scarcity, and high price of meat, deprived many of their usual supply. A very great defect in the household management of this county, both in gentlemen and farmers, is the little care taken to have a supply of milk and butter during the winter season; all this arises from the mistaken idea, that it is more profitable to have cows to calve in the spring, or rather summer; yet in the dairy countries of England, their cows come in in winter. To this system, as the more advantageous one, they steadily adhere, both on account of their dairy and their calves; but this has already been mentioned and recommended in the chapter on live stock.

Fuel.—So much attached are the inhabitants of this county to turf as fuel, that even on the sea coasts, where coals are to be had at a reasonable price, they prefer going ten miles for the former; as those, who burn turf in many parts of Lecale, are obliged to do. The colly arising from the coal smoke is so disgusting to the females, who have been used to turf, that nothing can reconcile them to it, and the men kindly give way to their feelings; but the time must come, when to gratify them in this particular will no longer remain in their power; as the increased population of the country

makes

makes an increaſed demand upon an article already grown ſcarce in many diſtricts, and in others totally gone. In the ſea-port towns coals are much uſed, but wherever turf is within reach it is uſed alſo.

CHAPTER XV.

POLITICAL ECONOMY, AS CONNECTED WITH, AND AFFECTING AGRICULTURE.

SECTION I.

Roads.

THE roads of this county are in general allowed to be excellent; the ſoil is dry, the country neither flat, nor ſhaded with hedge-rows, the materials for making them good, and the gentlemen very careful in keeping them in repair, and anxious to have the money granted for them honeſtly accounted for. But notwithſtanding theſe advantages, many improvements may yet be admitted of and introduced; the ſurface of this county is ſo various, that to avoid every inequality would be impoſſible, and in every caſe not to be wiſhed for; but many of the old roads having been laid out, before it was adverted to, that going round a hill was often not deſcribing a greater ſpace than going over it, the traveller is not ſeldom obliged to climb a ſteep aſcent, and

to

to go down a declivity equal to it, when a moſt inviting valley appears to the right or to the left, which he very naturally thinks would have made as ſhort a line of road, and would have ſaved him and his panting beaſt the fatigues of aſcending and horrors of deſcending, without coſting the county one ſhilling more than that, which has produced ſo much pain and ſo many alarms. This changing of the line of roads, to avoid ſteep hills, muſt nevertheleſs be gradually accompliſhed, upon account of the attendant expenſe; yet one of the baronies, in which it is moſt neceſſary, would admit of ſome increaſe, as it is lower taxed than any other in the county. In laying out new roads, care is generally taken, as far as circumſtances will allow, to avoid the evil complained of, and the mail coach road now carrying on, upon the plan of avoiding the hills rather than taking the ſtraiteſt line, will aſſuredly prove a comfort and ſecurity to travellers, and a credit to the county. Great ſervice has been done in ſeveral parts of the county, from levying and laying out with diſcretion the penny an acre for the repair of pariſh roads. The act, which not only allowed, but in ſome meaſure enforced the raiſing of this tax, expired a few years ago, but has been revived the laſt ſeſſion, or that before. It is to be lamented, that any ſuſpenſion ſhould been given to ſo uſeful a law, as when people are once out of the habit of paying a tax, they do not ſo willingly return to it; but of all taxes, thoſe for roads are

leaſt grievous, and the moſt beneficial; the money ariſing from them is laid out upon the ſpot, amongſt the poorer claſs, even before it is levied, and the benefit is felt by every individual; but this is now ſo univerſally underſtood, that to ſay more on the ſubject would be ſuperfluous. Upon the proper formation of roads ſo much of their real intention (the eaſe of communication) depends, that I hope I ſhall be pardoned for throwing together a few ideas upon this ſubject; partly my own, and partly extracted from Marſhall's Rural Economy of the Midland Counties. The firſt ſtep, towards making a road with effect, is to throw it up and level it, ſome time before the gravel is laid on, that thoſe parts, which are to be raiſed to a level with the general ſurface, may have time to ſubſide, and, in caſe they ſhould ſink too low, that they may be filled previous to the covering; when this is laid on, great care ſhould be taken to keep the coarſer parts underneath, otherwiſe they never bind, but continually ſhifting under the feet of man or horſe equally impede the progreſs of each. When the materials are of a ſubſtance difficult to reduce, they ought to be bound together with ſome ſofter ſtuff; for the moſt perfect ſtate of a road, that in which it is ſafeſt and moſt pleaſant to the traveller, and in which it wears the leaſt, is that, in which the intervals or openings of the hard materials are filled up with looſe matter, as ſmall gravel, ſand, and where the firſt coat is very hard, even with fine

earth

earth or till; giving a ſmooth even ſurface, elaſtic to the hoof, yet firm enough to reſiſt the wheels, without being cut into ruts, and ſufficiently covered to prevent the hard materials from being expoſed to their immediate preſſure. After the ſurface of a road is thus arranged, great attention ſhould be paid from time to time, to fill up any ruts that may be made, and by replacing the lower ſtratum of covering, that may have been diſplaced by the obſtinate adherence of carriages to one tract, where by the grinding of wheels in a furrow filled with water the hardeſt gravel, or ſtone, is quickly cut through, as a block of marble is divided by the ſame kind of proceſs. Keeping the ſurface dry, by having proper courſes for the water, is another neceſſary conſideration; and in roads, that lie low and are much frequented, ſhovelling off the liquid mud ſeems a judicious operation, which allows the road to dry in a much ſhorter ſpace of time than it would otherwiſe do. I have no faith in the idea, that this ſtuff when dried can be of any ſervice in protecting the ſurface; for having been thus ground, by the ſun and air it is turned into duſt, but never reſtored as gravel. The ſhape or form of a road is another ſubject of very material conſideration. The moſt perfect ſtate of a road, as to form, that in which its utility is the greateſt, and its wear the leaſt, is beyond all doubt the perfect ſtate of flatneſs, provided the ſurface could be kept in a ſtate of perfection under that form; but it being in practice impoſſible

impoſſible to unite permanence of ſurface with perfect flatneſs, a more practical form muſt be ſought. All, therefore, that can be done, is to endeavour to hit the happy medium; to raiſe the ſurface, until a degree of roundneſs be gained, ſo as to render the ſhape, though not perfect, yet ſufficiently convenient to anſwer fully the general intention. The requiſite degree of roundneſs varies with circumſtances, depends on the given ſituation, the given materials, and the width and publicneſs of the road; the ſteeps and levels more particularly ought to be kept as round as perfect conveniency will permit; for the quicker the rain water eſcapes off the former, the leſs miſchief it occaſions, and the quicker it eſcapes off the latter, the more good. Wherever a road is obſerved to keep itſelf free from ſtanding water, and inequalities of ſurface, in a wet ſeaſon, and this where the form is not too round for convenience, every part of it being travelled over, the happy medium has been hit and preſerved. Roads, bearing this teſt, are proper ſubjects of ſtudy for road-makers, rather than any theoretic rule that could be offered; except that a degree of roundneſs is requiſite in all ſeaſons, and in all ſituations. By giving this ſhape to roads, and by preſerving it with due attention, ſo as to keep them free from water, and, in a continuance of wet weather, from a ſuperfluity of reduced materials, which form the mud; and by cloſing the ruts, and filling the breaches as ſoon as they appear, a conſide-

rable

rable proportion of the money now expended on the roads of this kingdom might be ſaved.

Sect. 2. *Canals.*

On this ſubject nothing offers ſince writing the ſection on the rivers of the county.

Sect. 3. *Fairs.*

Fairs are eſtabliſhed in every town in this county; the general object of theſe fairs is the ſale of cattle, horſes, and ſheep, and ſome hogs. In ſeveral towns linen is ſold on fair days, and a conſiderable quantity of yarn; the yarn market is the firſt, at an early hour, afterwards the linen market; as many of the buyers of yarn are alſo ſellers of linen. The principal fairs for horſes are held at Banbridge, to which buyers reſort from conſiderable diſtances. Dealers from Dublin and from Scotland attend at moſt of our fairs, as well as at Banbridge; Dromore, Saintfield, Ballynahinch, are all fairs very much frequented by dealers in cattle as well as horſes; Caſtlewellan and Rathfryland, beſides theſe, have the mountain ſheep, which alſo may be had at Roſtrevor, Dundrum, and Clogh.

Sect.

Sect. 4. *Weekly Markets.*

Weekly markets are held in moſt of the towns where fairs are eſtabliſhed; yarn is ſold in all the markets, linen in many of them; add to theſe, butcher's meat, butter, fowl, eggs, &c. beſides oatmeal by wholeſale and retail, and potatoes. Pedlars attend upon theſe days, who diſpoſe of a variety of articles of apparel and hardware, in tents erected for the day: theſe itinerant merchants convey their wares from one town to another on little carts conſtructed for the purpoſe, in which their boxes are ſtowed; ſome of theſe carts are kept in partnerſhip, others belong to an individual, according to their circumſtances: it is extraordinary how many of theſe dealers ſubſiſt by ſelling, or rather by perſuading people to think they ſell cheaper than the keepers of ſhops. A conſiderable quantity of woollen-yarn ſtockings, from the weſt of Ireland, are expoſed to ſale on market days; ready made ſhoes, wool hats, and a number of other articles. Wool is alſo retailed by perſons, who buy it in the ſheep countries for that purpoſe; this wool is ſpun at home by thoſe, who wiſh to manufacture, for their own uſe, either cloths of a coarſe kind, all of wool, or for warping, a kind of ſtuff compoſed of woollen and linen yarn, and much uſed for domeſtic wear.

Sect.

SECT. 5. *Commerce.*

THE exports of the county of Down are few in number, but very valuable. They conſiſt of linen in all its branches, from the fineſt cambrics to the coarſe Hillſborough *ſix hundreds*, which are ſent away without any improvement, as they come from the weaver's hand. A conſiderable number of pieces of muſlin were ſent, before the check that trade met with, to Dublin; but theſe, I believe, were moſtly for the conſumption of the kingdom. Butter alſo forms one of our principal exports; this is carried in caſks to Newry and Belfaſt, and ſold to the exporting merchants. The quantity of this is very great; the quality of late much improved, ſo as to be able to meet that from other countries with credit. Pork alſo is another regular article of commerce, ſold at and exported from the ſame places. There is alſo in plentiful ſeaſons a market for grain likewiſe for exportation; and a regular coaſting trade for wheat, barley, and malt is carried on from Strangford, Downpatrick, and Killough. At Bangor and Killileagh, wheat and barley are bought up for the merchants of Belfaſt and other ports; raw hides, and dried calves ſkins, beſides a number of other articles of leſs importance.

The imports conſiſt of all the commodities neceſſary to an opulent and manufacturing county, and are daily increaſing. The conſtant reſidence of the numerous landed proprietors, and the demands of a large body of wealthy perſons in trade, cauſe a regular import of the luxuries and elegancies of life; add to theſe the conſtant ſupplies of the more neceſſary articles required by the manufacturers, and the great body of the people, and we ſhall not be ſupriſed at the rapid progreſs made by Newry in one part of the county, and by Belfaſt on the other, which, though not in the precincts, may be conſidered, in a commercial view, as forming part of its ſyſtem. Portaferry likewiſe has a conſiderable trade; but the ſhutting up of all the ports on this part of the coaſt, except Belfaſt and Newry, from importing certain articles of commerce, has curtailed the trade of the ſmaller ports very much.

Sect. 6. *Manufactures.*

The linen manufacture, from its extent and conſequent importance, deſerves the firſt place. What was the exact time of its eſtabliſhment in this county I ſhall not take upon me to determine, but that it has conſiderable claims to antiquity cannot be diſputed, as from an act againſt foreſtalling, in the 33d of Henry VIII. linen and yarn are particularly enumerated as objects

objects of that law; and in the 11th of Elizabeth another act was passed, against laying flax, hemp, &c. in rivers to steep. In the 13th of the same reign, the exportation of linen is confined to corporate towns, and to free merchants, or in exchange for imports. These acts shew that it must, at the time of making them, have been of such extent as to call for the interference of the legislature; particularly that act, in which the growers of flax, &c. are restrained from watering those productions in rivers, proves that their culture must have been general, to require such restraints. We find no further notice of the linen manufacture in the statute book, until the 18th of Charles II.; the distracted state of Ireland between those two periods, and of England during a great part of the time, will sufficiently account for the silence of the legislature upon this subject. This last act was not, as some persons have supposed, for the introduction of this manufacture into Ireland; it was for the advancement of it.

In the 7th of William III. a duty was laid on Scotch and other linens, to be applied to the encouragement of the linen manufacture; and it was in the same and the following reign that the settlement of the French refugees, by introducing a finer fabric, more improved looms, and the manufacture of reeds of a superior kind, and also spinning-wheels of a better construction, brought the manufacture to a degree of perfection, that rivalled the linens imported from the Continent. In

the reign of William III. a Mr. Crommelin traverſed a conſiderable part of Ireland, to make his report concerning the fitneſs of different parts of this kingdom for carrying on this branch of buſineſs; he imported a thouſand looms from Holland, the improved ſpinning-wheels, &c. Before his day no web finer than a fourteen hundred was manufactured in Ireland; he ſettled at Liſburn, where he died, after ſeeing his exertions for this trade crowned with ſucceſs; and yet, ſtrange to ſay, linen was not allowed to be exported, free of duty, until the 4th of Queen Anne. From this time government ſeems to have been ſenſible of its importance, by the many regulations brought forward in its ſupport. About this time the Lord Lieutenant was empowered to appoint truſtees for each province; and in the 8th of George I. 1,500*l.* was granted the truſtees to build a linen-hall in Dublin, for the more regular ſale of white linen; and, in the 10th of the ſame reign, 2,000*l.* was likewiſe granted to them, for the encouragement of the growth of flax and hemp. Since that period the manufacture of linen has moſt rapidly increaſed, and is now not only become the ſtaple of all the counties in Ulſter, but is rapidly ſpreading itſelf to the weſt; and let the deſign of England have been what it might in foſtering (for ſhe did not introduce it), the event has been fortunate for both countries. It would be foreign to this Report to enter into a detail of every regulation adopted by the Linen Board, and of every encouragement

ment held out by parliament, before this manufacture arrived at its preſent ſtate of perfection. But one regulation I cannot paſs by, as it is ſo glaring an inſtance of the manner, in which a body of uninformed men may be led by deſigning perſons, to take a part totally oppoſite to their own intereſts. Previous to the year 1760 all linen ſold in the markets was meaſured by the buyers, before it was paid for; the conſequence of this was loſs of time, conſtant diſputes between the draper and the weaver, and often loſs on the part of the latter, who was not ſeldom obliged to ſubmit to fraudulent meaſurement rather than take back his web, as the buyer could better do without the linen than the ſeller without his money. The iniquity, as well as the inconvenience of this practice, was ſeen by a gentleman in the buſineſs, eminent for his talents, and for underſtanding the true intereſts of the trade. In conſequence an act was obtained, appointing perſons called ſeal-maſters to meaſure and inſpect each web before it was expoſed to ſale, ſealing it, if properly made, with a ſeal given by the Board, ſetting on it at the ſame time the exact length. Theſe ſeal-maſters gave ſecurity for the proper diſcharge of their office, and were anſwerable to the drapers for any fault in the webs; they were paid by the weavers for their trouble. A certain day was fixed for the operation of this act, previous to which a number of the lower buyers of linen had the art to perſuade the weavers, that it was againſt their intereſt,

intereſt, in conſequence of which they aſſembled in a tumultuous manner in the town of Liſburn on a market day, and would have deſtroyed the promoter of this act, had he not fortunately made his eſcape; and the firſt Marquis of Downſhire, then Earl of Hillſborough, who was that day in Liſburn, going out to appeaſe the mob, had nearly loſt his life. For the credit of the linen-weavers of the north of Ireland, this was the firſt and the laſt riotous meeting they were ever as a body concerned in; they were immediately ſenſible of their error, and returned peaceably to their looms. A manufacture ſo extenſive as that of linen in this kingdom, and conſequently of ſo much importance, muſt require continual attention and ſuperintendence to keep up its credit, by guarding againſt thoſe abuſes, which creep into every branch, and which, when got to a certain height, prove deſtructive to it; but although this ſuperintendence, when well directed, is uſeful, nothing is more dangerous than frequently tampering with a flouriſhing and well eſtabliſhed trade; nor ſhould any material change ever be introduced or attempted without conſultation with thoſe, who have practical knowledge in the buſineſs.

Improvements in the art of bleaching have kept pace with the improvements in the arts of weaving and ſpinning; and it is now found, that with an additional quantity of bleaching ſtuff, and more handling, linen may be got ready for the white market in one-

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half of the time it formerly was, and, when properly managed, with equal safety. The profits of a bleach-green are very considerable; in justice they ought to be so, for the owner is liable to all losses from thieves, which are often very great, as well as those which arise from accidental damage, which are not unfrequent; that they are not more frequent is surprising, where such potent materials, as bleaching stuffs, are applied to such delicate fabrics as linen and cambric by the most unscientific hands. For how honest soever a foreman bleacher may be, and howsoever considerable his experience, having no other method of judging of the strength of his bleaching materials than by weight and measure, he must often be mistaken, to the great detriment of his employer; and by one unfortunate blunder, having no principle upon which to proceed, he may occasion more loss than his services for seven years could compensate for. Some mode of instruction might probably be struck out, by which the old guess-work way of proceeding might be exploded, and something more certain substituted in its stead. It may be said, certainly, that this is not a proper place for an investigation on the subject of manufactures, nor is it meant as such; but when *fas est et ab hoste doceri*, why not sometimes take a hint from a friend?

The different branches of linen manufacture carried on in this county are first, linen and cambrics; secondly, table linen, consisting of damask, damask diaper,

diaper, and plain diaper; thirdly, checquer. I wiſhed very much to have had it in my power to give an account, as near the truth as could be obtained, of the number of pieces of the firſt kind manufactured, or rather ſold, in a given period; but that, after ſome conſideration, I found impracticable, becauſe a conſiderable part of them are ſold in markets not within the county, and are intermixed with thoſe from other parts; for example, the linens of the weſtern parts of the county are carried to Belfaſt, Liſburn, and Lurgan, the two firſt in Antrim, the laſt in Armagh; and our towns of Hillſborough, Banbridge, and Newry, lying near thoſe counties, are in part ſupplied by them; ſo that enquiring at the houſes where the weavers are paid, the only method of coming at the number of webs, I could aſcertain nothing; and what is ſold in the eaſtern markets is often reſold in the weſtern. Could the number of webs made in this county, in the courſe of a year, have been found with any degree of accuracy, it would have given very nearly the number of linen weavers; for each kind of cloth being known, and the time requiſite to weave it, the number of weavers would follow of courſe.

The linens being one yard wide are diſtinguiſhed by the number of threads contained in that breadth; thus an eight hundred web is one, whoſe warp contains that number of threads of yarn, &c.

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The following list of markets, with the different kinds of linen sold at them, may be acceptable to some readers.

Newry, from	8 to 14	hundreds, a few up to 16 ditto.
Rathfryland,	8 to 14	ditto.
Kirkeele, - -	8 to 10	ditto.
Down, - - -	8 to 16	ditto.
Castlewellan, -	8 to 9	ditto.
Ballynahinch,	8 to 18	ditto.
Banbridge, -	8 to 15	ditto.
Dromore, - -	10 to 20	ditto.
Hillsborough,	6 to 20	ditto; a number of the coarser kinds are made up in packs, and exported without any further improvement.
Portaferry and Kirkubbin,	10 to 14	ditto.

The earnings of the manufacturers in the different linen fabrics depend first, as in every other trade, on their skill, and secondly, on the fineness of the linen; a weaver of fine linen will earn, if a good hand, from 1*s.* 4*d.* to 1*s.* 6*d.* per day; of coarse, from 1*s.* to 1*s.* 3*d.*; but where a weaver finds his own yarn, his profits are greater; sometimes, when the demand is great, amounting to as much upon the yarn as the price of the weaving; sometimes, however, in a falling market, instead

of making he loſes by the yarn. Manufacturers, who keep a number of looms, and acquire a quantity of yarn before hand, are often great ſufferers, and as often gainers, by the fluctuation of the markets. Spinners can earn from three pence to four pence per day, according to the price of flax and yarn; when they ſpin for others they are paid ſo much per hank, according to the fineneſs of the thread; in this caſe their gains are not ſo much, as when they lay in the flax themſelves. Cambric is manufactured from the coarſeſt to the fineſt kinds; ſome of the latter have been ſold ſo high as fifteen guineas the piece of twenty-five yards green. The profit upon theſe muſt be very high, as the fabric, from its delicate texture, is liable in a great degree of damage: to the ſpinner and weaver of theſe fine cambrics there are alſo better wages; of the lower priced, the earnings to the weaver are nearly the ſame as from the weaving of linen.

Near Belfaſt there is, I underſtand, a manufactory of checquer, but to what extent I have not heard.

The damaſk manufactory at Liſburn, being on the verge of this county, muſt not be paſſed by unnoticed: it was eſtabliſhed by Mr. Coulſon, and brought by him to ſuch perfection, that moſt families of any conſequence in the United kingdoms have been furniſhed with table linen from it. The beauty of the patterns, and excellence of the fabric, are too well known to require any further mention, than its being carried on by

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his ſon and ſucceſſor with increaſing ſpirit and attention. At Newry there have been lately ſet up a few damaſk looms; whether they are likely to make a progreſs has not yet been aſcertained. In the neighbourhood of Waringſtown there is a manufacture, called damaſk diaper, which is ſaid nearly to equal the real damaſk in beauty and wear, and is much cheaper. In the ſame neighbourhood a conſiderable quantity of diaper is made. Beſides theſe, a number of articles are made for home conſumption, ſuch as ſheets, ſacks, and a long &c. in which every part of that uſeful vegetable, the flax plant, is in the end worked up.

Muſlin is the next manufacture of importance after linen; the rapid progreſs it has made in this county, during the laſt twenty years, previous to which it was ſcarcely known, has ſomething truly inſtructive to political economiſts, by pointing out to them, in the introduction of new manufactures, to find ſuch as eaſily aſſimilate with thoſe already eſtabliſhed. Thus every weaver of linen in this country, upon the expectation of ſuperior profit, was ready to turn his attention towards the weaving of muſlin, which, though ſomewhat different in the execution, militated very little with his ancient habits. Very ſoon, therefore, on its appearance it detached a number of workmen from the linen trade; and a great many others, who would have applied to the latter, finding it much more eaſy to acquire a knowledge of weaving muſlin, and better wages,

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gave themſelves up entirely to that trade. Thoſe, however, who were mere muſlin weavers, ſuffered very ſeverely in the late ſtagnation of that trade; for never having learned to weave linen, when that circumſtance occurred they were thrown entirely out of employment, whilſt thoſe, who were regularly bred to the linen manufacture, returned to their former occupation, which, even in the worſt times, afforded them a maintenance. Beſides muſlins of every degree of fineneſs and every requiſite breadth, many other branches of the cotton trade are carried on; calicoes and wrapperings, thickſets, corduroys, and velveteens, are made in various parts: the weavers attend at the ware-houſes, where the neceſſary quantity of warp and weft are ſerved out to them, which they carry home, and return manufactured. Some houſes carry on this buſineſs to a very great extent, and a good deal is done by perſons of ſmaller capitals, who employ only a few looms; and whilſt this trade was very flouriſhing, many ſingle looms were at work upon their own account: moſt of theſe laſt, however, and many of the ſecond claſs were unable to ſtand the ſhock of the laſt bad years. The earnings of a good weaver of muſlin, with conſtant employment, that is, when not kept waiting for his yarn, either to put in or to carry on his web, is from eighteen ſhillings to a guinea per week, more than double the wages of a linen weaver: ſome time ago it was more; and when to this is added the price of winding the yarn, it muſt be allowed, that the introduction

duction of a muſlin loom into a family muſt be an object of conſiderable importance: indeed the change of dreſs and deportment in this claſs of perſons was very obvious to every one, and a ſmart young cotton weaver became no ſlight attraction in the eyes of a country belle. Notwithſtanding the ſums of money, that have been retained in this kingdom by manufacturing our own cottons, many perſons think, that ultimately it may be attended with a loſs to our linen trade; for, if any complete overthrow was to take place in the former, a number of weavers would be let looſe upon the latter, who, from the light work they have been habituated to, would prove injurious, by introducing the ſame kind of texture in the fabrication of linen; but this, I ſhould think, is a groundleſs apprehenſion; the drapers would not buy ſuch goods, and the weavers would be obliged to accommodate themſelves to the markets.

The quick return in the muſlin trade (when it is proſperous), from the ſhort time it requires in bleaching, makes it peculiarly fit for ſmall capitals; but whether it will be able to keep its ground on the expiration of the protecting duties, is one of thoſe queſtions which time alone can anſwer; many perſons are of opinion that it will, and that it may admit of conſiderable diminution in profit, and ſtill remain a good trade.

The woollen manufacture would ſcarcely deſerve mention, being confined to a coarſe cloth, made entirely for home

home conſumption, was it not for the blanket-making buſineſs, which has been eſtabliſhed in the vicinity of the village of Lambeg for upwards of a century; every article in this branch is made with a lightneſs and warmth equal to the beſt Engliſh goods in the ſame line. A ſufficient number of wool hats are made in different parts of the county for its own conſumption, in the neighbourhood of which this buſineſs is carried on to a conſiderable extent; they are carried for ſale to the different fairs and markets in this and the neighbouring counties.

The weaving of ſtockings is another branch of induſtry pretty generally diffuſed; none are however exported. This manufacture takes in worſted, thread, and cotton; the quality, though not of the fineſt, is good.

Leather—both for ſoles and upper leathers for ſhoes is tanned in conſiderable quantities. Shoes have alſo been made at different times and places for exportation.

At Lambeg there is an extenſive manufactory of papers of different kinds. At the ſame place is an ancient pottery, carried on by a family of Engliſh ſettlers, who have been eſtabliſhed there for upwards of a century; this branch does not extend to the finer kinds, only taking in ſuch as are uſed for milk, the purpoſes of gardening, &c. At the county of Down ſide of Belfaſt bridge there is one of a ſuperior kind, of

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the black glazed ware; at the ſame place there is alſo a manufacture of ſtarch, and ſome attempts were made alſo to introduce a ſimilar fabric to that of Wedgwood; this has been given up for ſome time. Very near this is a glaſs-houſe, where all kinds of flint-glaſs are made, and cut, equal to any imported; this is carried on by Meſſrs. Edwards, who likewiſe have an extenſive foundery, and who are, I underſtand, about eſtabliſhing one at Newry. There is another foundery lately ſet up by a company, at no great diſtance from this. At theſe different manufactories machinery of every deſcription is made, upon the moſt approved plans, with all the ſubordinate articles of boilers, pots, pans, griddles, &c. A manufacture of bottle-glaſs was ſome years ago ſet up, but, for what reaſon I know not, has been ſtopped.

At Newry there is a conſiderable eſtabliſhment for making ſpades, ſhovels, ſcythes, and all kinds of pots and covers of hammered iron. Nails are made in all the towns, and in the village of Newtown-Breda, within three miles of Belfaſt, there are many hands kept in conſtant employment to ſupply the demands of that town in this article. At Dromaragh, near Hillsborough, there lives a celebrated maker of hackles; whether there is any other perſon in the county of that trade I do not know; and at Kilwarlin, in the vicinity of the ſame town, is a celebrated maker of baſkets; every thing in this line, from the ſtrongeſt clothes-baſket to the moſt elegant ſervices for deſerts, is made

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there; his fruit-baſkets, in lightneſs and fancy, are equal to thoſe imported from France. In the neighbourhood of Comber, in the barony of Caſtlereagh, there is an ingenious maker of winnowing machines, both for barns, and for mills; theſe machines he makes on the moſt approved conſtruction, with either ſingle or double blaſts, as it ſuits the wiſh or the purſe of the buyer. The manufacturing of tobacco is confined to thoſe towns, which either are the reſidence, or give the name to a collector's diſtrict; in thoſe places it is both ſpun and made into ſnuff. Of the former kind an aſtoniſhing quantity is uſed in this county, as few perſons deprive themſelves of the luxury either of chewing or of ſmoaking that faſcinating weed; taking of ſnuff is not by any means ſo general as the firſt and ſecond modes of uſing it; and although we have ſome tolerable imitations of *Foot*, there are none ſo nearly approaching it, that to a diſcriminating noſe could not be perceived at the diſtance of a *yard*. A conſiderable quantity of kelp is made every ſummer along the coaſts, but particularly on the lough of Strangford; the whole quantity manufactured there, as I am informed by a gentleman, from whom I have received a moſt accurate account of the manner of preparing it from ſea-weed, amounts to between four and five hundred tons, whilſt that made on the eaſtern coaſt does not amount to more than one hundred tons per annum; that on the ſhores of the lake is much ſuperior in quality to that on the

the open ſhore, but neither the one nor the other are of ſo good a quality as formerly, owing to the avarice of the labourers employed in making it, who, to increaſe the weight, mix more than the proper proportion of gravel with the aſhes, after they are reduced to a fluid ſtate; the proper proportion is as one to twenty, but, by putting more than that quantity, the kelp is not ſo much in demand as it formerly was. If I recollect aright, there is a law againſt the adulteration of kelp, which directs it to be broken in pieces, and thrown upon the fields, excepting, however, the fields of the perſon ſo adulterating it. Beſides theſe manufactures above mentioned, there are others immediately depending upon the linen trade. The firſt of theſe is the making of oil of vitriol; the earlieſt, and, I believe, the moſt extenſive work is that near Liſburn in this county, where oxygenated muriatic acid is alſo made, and is now under trial as a bleaching material; if it anſwers it will be a great ſaving, as it is ſo much cheaper than vitriol. There is likewiſe a manufacture of vitriol at Moyallan, and another on this ſide the bridge of Belfaſt, but, notwithſtanding, vitriol is ſtill imported from Scotland.

The other branches, which are particularly connected with our ſtaple commodity, are ſhuttles and reeds, of various fineneſs; to the French refugees we are indebted for our knowledge in this art; to them we are indebted for the introduction of wheels, looms, &c.

upon improved conſtructions. The name of the firſt fine reed-maker, who ſettled in Liſburn, was *Mark Duprè*. Salt is alſo manufactured in different places, but not by any means equal to the conſumption.

I have thus gone through, as far as I could collect, the different manufactures of this county, in ſome of which, or in the neceſſary operations of huſbandry, every perſon, whilſt health permits, may find employment and maintenance. The peculiar advantage of the linen buſineſs is, the opportunities of earning it affords not only to weavers, but to every woman and every child; and although individually that earning may be ſmall, in the aggregate it forms a conſiderable object, and probably has done more than any mere political regulations could do to keep off the neceſſity of entering into meaſures for the permanent ſupport of the poor. Of theſe the number is not known, nor have I ever heard of any mode, whereby it could be aſcertained, without having recourſe to the different congregations in each pariſh; that it is ſmall in compariſon with the population I am certain, from the ſlender proviſion made for them, and from the few itinerant poor that are to be met with.

SECT.

Sect. 8. *Population.*

By an account taken of the population of this county in 1751, it appears at that time to have contained 19,270 houſes; by the returns made to government in 1791, it appears to have contained 38,351 houſes, ſo near twice the former number, that they may be ſaid to have doubled within the period of forty years; this gives an increaſe of 4,817 houſes for every ten years, ſo that if there is added to the laſt return, made in 1791, of 38,351 houſes, the increaſe of the laſt ten years, it will make the number at preſent 43,168, which, taking the inhabitants at five and one-fourth, or twenty-one for every four houſes, the total population at preſent will be 226,632, nearly one perſon for an acre and a half throughout the county. The number of men liable to ſerve in the militia, from eighteen to forty-five, will alſo form a foundation, from which the number of inhabitants may be calculated; for, if we obtain the number of men liable to ſerve in the militia in any pariſh, and the exact number of the inhabitants thereof, and that we likewiſe obtain the total liable to ſerve in the county, the proportion between the militia and inhabitants of the pariſh given will be the ſame, as between the total liable to ſerve in the county, and the total inhabitants of it. Thus, for ex-

ample, the parish of Annahilt produces 318 men liable to serve in the militia, from a population of about 2,100; therefore, by the rule of proportion, if 318 give 2,100, what will 33,382 give, which is the total liable to serve in the county? The answer is 220,447, which is within 6,185 of the number produced by the houses, taking them as above at twenty-one persons to every four houses; if again we add these two numbers, and divide them by two, the total average will be 223,539. This I do not pretend to give as perfectly exact in point of numbers, but I should think, from the coincidence of the two products, it cannot be very far wrong; one thing I am pretty certain of, that five and one-fourth to a house is near the truth, from my own experience, as I counted both the persons and houses in the parish of Annahilt.

CHAPTER

CHAPTER XVI.

OBSTACLES TO IMPROVEMENT; INCLUDING OBSERVATIONS ON AGRICULTURAL LEGISLATION AND POLICE.

IN the courſe of this Report the writer has touched upon thoſe ſubjects, which ſtruck him as obſtacles to improvement, as they fell in his way; the principal of theſe were the ſmallneſs of farms, and exhauſting the land by repeated crops of grain. There is no occaſion to repeat what has already been ſaid; the only additional obſervation, that offers at preſent, is the extreme difficulty, if not impoſſibility, of obtaining any effectual alteration in the firſt; but the ſecond is certainly to be remedied, and is the more to be attended to, as a corrective for the firſt, to which the ſtrong objection is, that, from an eager deſire to raiſe crops of grain upon a ſmall portion of ground every year, and from the want of ſkill in doing ſo, the produce of the land is diminiſhed. Another obſtacle is the want of proper capital; without this all buſineſs muſt languiſh, and why ſhould agriculture be thought exempt from the inconveniencies that reſult from this want more than

any

any other buſineſs? In ſmall farms it is more perceivable than in large ones; ſmall farms are moſtly occupied by tradeſmen, who depend upon their profit in that line to pay their rents, more than on their land, and therefore are ſeldom poſſeſſed of money ſufficient to meet the neceſſary demands, and as ſeldom of the proper ſtock and implements required. From a deficiency in capital ariſes almoſt every other deficiency, deficiency in ditching, in draining, in manuring, in cropping, in exertion, and even in induſtry; for every faculty is dulled in every purſuit by the difficulties ariſing from that eſſential want, the want of capital. Want of induſtry is not general in this country, but what is induſtry, without the means of employing it to advantage? Is it not a perpetual waſte of one of the moſt uſeful qualities to ſociety? But how to extricate it from this ſituation, and to give it its proper direction, that is the difficulty. Another obſtacle to improvement, and a very ſerious one, ariſes from the great number of thatched houſes, which, requiring continual repairs, conſume the ſtraw neceſſary for the ſupport of cattle, and deprives the land of the manure, that otherwiſe might be made. In this county it is particularly inexcuſable, as ſlate quarries have been opened in many parts, and in all have been found to anſwer. The numerous ditches, alſo, by which the ſmall farms are divided, occaſion great loſs of ground.

Upon

Upon the ſubject of agricultural legiſlation I have only one obſervation to offer, that the ſyſtem of bounties upon the exportation of grain, when under a certain price; of allowing it to be exported, when at a certain price; and a prohibition of export, with a bounty on import, when above a certain price, ſeems to have been one of the beſt directed meaſures ever brought forward; being equally calculated to ſecure a regular price to the farmer, and a conſtant ſupply to the conſumer. The ſuſpenſion of this act in the year 1796, under the apprehenſion of ſtarving ourſelves, by ſupplying England in that year of ſcarcity to them, and of plenty to us, gave a ſhock to the farmers, that was felt by every individual in the kingdom; it prevented us from taking the money of England, which we wanted, in exchange for our grain, of which we had more than enough, and obliged her to ſeek in foreign countries for what ſhe could have had at home. Surely the corn laws were in themſelves ſufficient to prevent any artificial ſcarcity; for had the ports been open as uſual, the competition would in a ſhort time have raiſed grain above the exporting price, and would have ſecured us a market for what we could ſpare. All new laws of regulation are experiments; where they ſucceed let them remain; let them have the force of axioms in the political code, until they are found from change of circumſtances to be wrong; then let them not be ſuſpended but repealed.

Agricultural

Agricultural police is entirely confined to the ſelling the different articles brought to market by the farmers, at the public cranes appointed in the different towns. In Belfaſt, where is the general vent for every thing of that kind in the northern parts of the county, there are ſeparate places for the diſpoſal of grain, &c. and for the ſale of pork and butter; theſe laſt are inſpected by perſons appointed for the purpoſe, eſpecially the latter, which is always tried, and marked according to its quality. Complaints are often made by the farmers of injuſtice, which may ſometimes be done them, but upon the whole it has improved the butter.

CHAPTER

CHAPTER XVII.

GENERAL OBSERVATIONS ON SEVERAL SUBJECTS, THAT HAVE NOT BEEN PARTICULARLY ADVERTED TO IN THE FOREGOING CHAPTERS.

SECTION 1.

Agricultural Society.

AN agricultural ſociety has been inſtituted within this laſt year, by ſome public ſpirited gentlemen; at the head of this ſociety was to have been the much lamented Marquis of Downſhire, a man, from his own diſpoſition inclined in every way to promote the public good, and ever ready, both to plan and adopt any plan likely to further that end. This ſociety being ſtill in its infancy, all that can as yet be ſaid of it is, that it promiſes well, and as its ſupporters are warm, and its objects judicious, little doubt can be had of its utility and ſucceſs.

Sect. 2. *Weights and Meaſures.*

The weights and meaſures of this county are tolerably uniform, though not entirely ſo. Grain of all kinds, when ſold by weight, is weighed by the hundred or ton; the hundred weight is eight ſtones, of fourteen pounds each; the ton, twenty of thoſe hundred weights. Oatmeal is ſold by the hundred weight of 120 pounds, or ſix ſcore: potatoes by the ſtone of fourteen pounds: undreſſed flax by the ſtone of ſixteen pounds: hackled flax ſold by the ſame: beef and pork, when ſold by the hundred weight, have 120 pounds; when in leſſer quantities, by the ſingle pound of ſixteen ounces: tallow is ſold by the ſtone of ſixteen pounds: hides by the hundred weight of 120 pounds.

Meaſures.—All meaſures here are regulated by the Wincheſter buſhel of thirty-two quarts, which of courſe contains eight gallons. Grain is taxed at the mills by the peck, containing ſixteen quarts, or one-half of a Wincheſter buſhel. Oats are now the only grain ſold in any part of this county by meaſure. The different meaſures are, in the eaſtern parts, an hogſhead, containing twelve Wincheſter buſhels; in the other parts, a bole, containing ten buſhels of the ſame meaſure. A great change has taken place within theſe laſt twenty-

twenty-five years in the mode of ſelling grain, which previous to that was ſold by meaſure; now, except in ſome inſtances, it is by weight, and the ſame of potatoes.

Sect. 3. *Fiſheries.*

The fiſheries on our coaſts would be extremely valuable, were they properly attended to; boats from Ruſh (and formerly from Liverpool) come to trawl in Dundrum bay, and carry off great quantities of turbot, ſole, plaice, cod, and haddock, whilſt the inhabitants of the ſhore, from want of proper apparatus, get comparatively few. At Bangor there is a conſiderable fiſhery of ſole, plaice, bret, a few turbot, and in winter of cod and excellent oyſters. "Herrings have been frequently taken in large quantities in Strangford lake, where it is ſaid they are to be had the whole year, but with reſpect to fatneſs or flavour they are much inferior to thoſe taken on the coaſt of the main ſea: from what cauſe this degeneracy proceeds, whether they go into the lake to ſpawn, or whether their food there is of a worſe kind, I cannot take upon me to determine; but the fact is, we would rather give five ſhillings an hundred for thoſe taken in the open ſea, than three ſhillings for thoſe caught in the lake." Sometimes herrings come cloſe to our ſhores, but in general they keep

farther to the eaſt, towards the Iſle of Man; the boats from Newcaſtle generally purſue them there; they are brought to this county for ſale, and are diſperſed through it by fiſh-carriers, who attend upon the beach, and purchaſe them from the boats as they arrive. The Iſle of Man herrings are generally very large, flat, and well flavoured. Smelts are taken off Portaferry, and mullet below the Quoile bridge near Down: ſalmon alſo is caught in the ſame river: before the canal was made on the Lagan, numbers of ſalmon frequented that river, but they were ſtopped by the locks, and have now deſerted it. Beſides theſe fiſh our coaſts produce whiting, gurnard, ſea trouts, mackarel, ſkate, lobſters, crabs, ſhrimps, prawns, and about the Copland iſlands, and on the northern and eaſtern coaſts, a ſmall red codlin, much better taſted than the cod, but which is ſaid not to take ſalt ſo well: nor muſt we forget the Ringhaddy oyſters, nor the more excellent ones of Carlingford, which in ſome degree may be ſaid to belong to this county; nor thoſe taken near Bangor, equally remarkable for ſize and flavour.

SECT. 4. *Landed Proprietors.*

MOST of the proprietors in this county are reſident; and almoſt all the proprietors are improvers, as muſt be viſible to every perſon, who traverſes the country; nor

nor is there, I may venture to ſay, any county where the gentlemen are more alive to every thing, in which its welfare is concerned; the good effects of this are perceivable, in their attention to improvements of all kinds, within their more immediate ſphere; in planting, in attending to the ſtate of agriculture, and in promoting its intereſts; and in general in their care of the roads and bridges, in the adminiſtration of juſtice, and in providing as far as it is in their power for the good order, comfort, and happineſs of the people. The clergy, with ſome exceptions, are alſo reſident, and by their example, and moderation in their demands, contribute their ſhare to the ſpiritual as well as temporal advantage of their reſpective neighbourhoods. The churches are in general neat and well built, though not very large; and almoſt all the pariſhes in the dioceſs of Dromore have glebes and glebe-houſes; thoſe in the dioceſs of Down are not ſo well provided with glebes, the number being comparatively ſmall; thoſe that are built are commodious dwellings. One reaſon of this difference is, the number of lay impropriators in this latter dioceſs.

Sect. 5. *State of Education.*

A very particular report was made from this county, on the ſtate of education, ſome time ago. I muſt refer the

the reader to what has been publiſhed by the Society, at whoſe requeſt that report was made.

SECT. 6. *When and by whom this County was ſurveyed.*

THIS county was ſurveyed in 1653 by Doctor, afterwards Sir William Petty. The following account of it is given by Gorges Edward Howard, in his Treatiſe of the Exchequer and Revenue of Ireland, Vol. II. Appendix, No. 4.—The Down ſurvey, taken in 1653, by Doctor, afterwards Sir William Petty, being laid down by chain and ſcale, was ſo called to diſtinguiſh it from the *Civil Eſtimate Surveys*, being ſurveys made by the civil power by commiſſion, dated 1642, and made by eſtimate or repute of the country. The volume of the Down Survey, which contained the barony of Upper Iveagh, was unfortunately burned in 1712, at the time the Council-office and other offices in Eſſex-ſtreet were burned, but ſome fragments of the maps of it were preſerved, and ſome of the ſurveys, but the latter may be ſupplied by the rough book of diſtributions. Since that time, I believe, no general ſurvey of the county has been made; but a map was publiſhed in 1767, by Doctor Kennedy, from ſurveys of the different eſtates, furniſhed that ingenious gentleman by the proprietors: the plates of this map are ſtill in being; the map is very much eſteemed, but it would require

require to be ſupplied with the new roads, made ſince its publication.

N. B. A copy of the Down Survey, belonging to Sir W. Petty, was, in its paſſage to England, taken by a French privateer, and is now in the Library de Richelieu at Paris; it has been copied by General Vallancey by order of government; the copy is in the Surveyor-general's office, and often referred to.

Sect. 7. *Mills.*

Water-mills are moſt in uſe, but there are alſo ſeveral wind-mills in this county, for grinding all ſorts of grain. In general tenants are bound to make their meal at their landlord's mill; and in ſome caſes the rights of the miller extend over lands, that are not in the poſſeſſion of the owner of the mill. The uſual toll paid is the ſixteenth, beſides the expence of drying; likewiſe ſome little matter to the man, who works the mill, as well as to the perſon, who dries the grain. Conſiderable improvements have been made in the mode of drying grain, by ſubſtituting tiled or plated iron kilns, inſtead of thoſe made with wooden ribs, and covered with ſtraw, which take more time and more fuel; many perſons, however, are of opinion, that the oatmeal made after the old manner on ſtraw is ſweeter, than when the grain is dried on tiles or iron, which certainly demand

mand conſtant turning to prevent ſcorching. Winnowing machines are now frequently introduced into mills, which prevents the troubleſome operation of carrying the grain, when ſhelled, or freed from its outſide covering, to be cleaned out of the houſe. Very extenſive flour-mills have been erected in different places in this county, the machinery of the beſt kind, where every neceſſary operation is performed, in extracting the ſeveral ſorts of flour. The regular market theſe mills afford has very much encouraged the growth of wheat in their reſpective neighbourhoods. Flax-mills are to be met with in every pariſh; the firſt was erected in this county about the year 1757, by Mr. Maxwell; the ſecond by Mr. Johnſton of Redemon, a ſhort time after, who got a premium for it from the Dublin Society. Theſe mills perform all the proceſs neceſſary towards preparing the flax for the hackler, after it is taken from the graſs; they are thought to be more ſevere on the material than the former method of handling it, but they are more expeditious, and cheaper, the price for all ſixteen pence per ſtone of ſixteen pounds. In this country I need ſcarcely ſpecify the bleach-mills; they, of courſe, follow the linen manufacture. There are alſo one or two fulling-mills, moſtly employed by thoſe, who make coarſe woollens and blankets for domeſtic uſe.

With reſpect to the tolls paid at mills, it ſeems to me that landlord, as well as tenant, might be gainers, by commuting

commuting this tax for money, at the expiration of the leaſes of their reſpective mills; the landlord, by laying on as much per acre as the rent of the mill produces, would be a gainer of as much as he could let the mill for in addition, whilſt the tenant, being at liberty, would get his grain ground as much cheaper, at leaſt, as would pay the acreable tax, beſides the pleaſure of going where he liked; the miller, too, being entirely on his good conduct, would be much more attentive to his cuſtomers. In one inſtance this was tried, and anſwered perfectly to my own knowledge.

SECT. 8. *Taxes or Ceſſes paid by Tenants.*

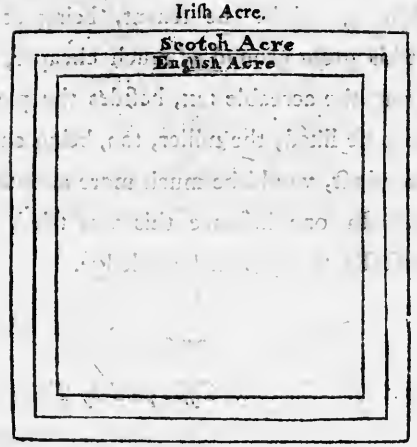
THE taxes paid by tenants are, county and pariſh ceſſes, window tax, and hearth-money; the pariſh ceſs is only for the repairs of the church, clerk, ſexton, &c. No poor tax exiſts.

SECT. 9. *Different Acres by which Land is let.*

THE different acres by which land is let, are the Iriſh, Scotch or Cunningham acre, and the Engliſh.

The neareſt proportions between the three different meaſures are, as near as can be come at in round numbers, as follow:

3 Iriſh acres make
4 Scotch, or
5 Engliſh.



To make the difference as perceivable as poſſible, I have laid them down according to proportion; the difference ariſes from the difference of perches or poles in each meaſure.

SECT. 10. *Effects of Premiums offered by the Dublin Society.*

The premiums offered by the Dublin Society, for the encouragement of planting, have been very little attended to in this county; in general the premiums are

are better calculated for a country, where farms are of a greater ſize than they are here. We have very few nurſeries, and thoſe of no great extent; our thornquicks are moſtly brought from diſtant counties; ſo are foreſt-trees, and both are expoſed for ſale in the markets in the ſpring; this ſhews that a ſpirit of improvement exiſts, or there would be no demand. The act for regiſtering trees planted by the tenant may have operated, where large farms are held by wealthy people, but on the ſmall farms it has had little effect.

SECT. 11. *Clauſes in Leaſes.*

I KNOW not of any clauſes peculiar to the leaſes of this county; ſome landlords have introduced a clauſe to prevent alienation, but without effect; clauſes to prevent farms from being ſubdivided would be much better: one lately adopted by a gentleman in this county ſeems likely to anſwer the end. Suppoſe the rent agreed upon is a guinea per acre, inſtead of making out the leaſe on thoſe terms, it is made out at two guineas per acre, with the proviſo, that as long as it is held by one perſon, the firſt mentioned ſum ſhall be taken; but as ſoon as it is divided, the double rent takes place.

Sect. 12. *Language of the Inhabitants.*

The Engliſh language is ſo general, that every perſon ſpeaks it; but, notwithſtanding, the Iriſh language is much uſed in the mountainous parts, which in this, as well as in moſt other countries, ſeem to have been the retreat of the ancient inhabitants.

Sect. 13. *Uſe of Spirits or Beer.*

It ſeems to be the received opinion, that the inhabitants are growing daily more ſober, and return from the fairs and markets at earlier hours than formerly. The high price of ſpirits, as well as the increaſed civilization of the country, have contributed to this happy circumſtance, and for two years the dearneſs of proviſions has concurred not a little; it is to be hoped the fall in the price of both will not bring on again ſo pernicious a habit. Drinking malt liquors is rather gaining ground.

Sect.

SECT. 14. *Prices of ſome Articles of landed produce.*

THE price of cattle has been gradually riſing for half a century, as I am well informed by perſons, who have been converſant in the buſineſs for the greateſt part of that time; but the moſt rapid riſe in their price has been within the laſt ten years; ſometimes, previous to that period, a cow, that when fat would weigh from three to four hundred pounds weight, was bought in when lean at from three guineas and a half to five guineas, according to her ſhape and condition; a cow of that ſize would now coſt double that ſum. Many cauſes have combined to produce this effect; the principal ſeem to be, the great demand for beef to ſupply the navy and army, and the conſtant exportation of live cattle to ſupply the Engliſh markets; the conſequence of this has been a greater anxiety to rear as many calves as poſſible, and more attention paid to the breed; another reaſon may be added alſo, the increaſed prices of hides and tallow; the former were ſold this year from forty-five ſhillings to fifty ſhillings per cwt.; the latter from eight to nine ſhillings per ſtone of ſixteen pounds. The riſe on butter has alſo contributed to the price of cattle, being doubled within the laſt fifteen years.

The

The price of ſheep has alſo increaſed in proportion; the ſmall mountain ſheep, from ten to fourteen pounds per quarter, which were ſold from eight to ten pounds per ſcore lean, are now near double that price. Lean hogs are a more fluctuating ſtock, their price depending upon the price of proviſions, from the nature of their food. This year, 1801, they are remarkably dear, from two cauſes, firſt, the ſcarcity of the animals, the two ſcarce years having operated againſt rearing them; and ſecondly, the cheapneſs of food having cauſed an unprecedented demand, as well as the high rate of pork for exportation.

The riſe and fall in the price of grain, from the year 1798 until the preſent year, has been, I believe, for ſo ſhort a ſpace of time, unprecedented; oats and barley in that year ſold from five to ſix ſhillings per hundred weight of eight ſtone; in 1799 and 1800 they ſold for four times that ſum; and this year they are nearly as low, eſpecially oats, as they were in 1798. Wheat roſe in proportion to other grain, but it has not as yet fallen ſo low. In no article of proviſion has the fluctuation of price been ſo great as in potatoes; they are and have been at one ſeventh part of the price, at which they were ſold ſix months ago. There is one advantage attending a good crop of potatoes, they muſt be ſold within the year, as the art of keeping them longer has not yet been found out; when they are in plenty,

the

the poor may bid defiance to the wealthy farmer, or more wealthy monopoliſt; for the one muſt ſell, and the other dares not purchaſe what he could not hoard; and it is to be feared that, if the benevolent intentions of the London Society were fulfilled, in diſcovering a method of preſerving potatoes fit for uſe for ſome years, it might be productive of more harm than good, by enabling the perſons above mentioned alſo to get poſſeſſion of this ſupply.

Sect. 15. *Harneſſing Oxen.*

This is done in the uſual manner, by buckling a collar on the neck. The uſe of oxen is not general; nor do I believe any accurate trial of their comparative value in tillage has ever been made in this county; they are certainly much ſlower than horſes, and not ſo well fitted for long journeys on hard roads; they, however, undoubtedly have this advantage, that, whilſt they are worked and fed, they are growing more valuable; horſes, on the contrary, are declining. But the length of way our principal manure is drawn, ſeems an inſuperable objection to the general introduction of oxen, the limeſtone quarries lying at fourteen miles diſtance from many parts of the county, where it is the only manure, except the dunghill. This journey, which is

uſually

uſually performed by horſes within the twenty-four hours, would require double the time in oxen, even if their feet could ſtand our roads, which, though good, are hard.

CONCLUSION.

CONCLUSION.

In making this Report I have paid every attention, to collect and give a faithful relation of the agriculture of the county of Down, and of the other ſubjects pointed out by the Dublin Society as connected with it, and with the general proſperity of the kingdom. I have alſo pointed out what ſeemed the principal obſtacles to improvement; but, as I have obſerved before, to point out defects is a much eaſier taſk, than to find out remedies for them; and our defects in moſt inſtances are ſo cloſely interwoven with other circumſtances, beſides the mere want of a proper ſyſtem, that I muſt confeſs my inability to preſcribe the means of effectually removing them. For what can be done in the caſe of ſmall farmers, manufacturers, who are deficient in capital, who occupy ſo conſiderable a portion of the county, and whoſe attention is divided between their trade and their holdings, often to the detriment of both? Nothing leſs than a change in the mode of occupation can effect a remedy in this caſe. To bring about this change, an idea was many years ago thrown

out by a Mr. Mc. Culley, of collecting the manufacturing farmers into towns or villages, and letting their lands to real farmers; but when the length of time required to bring about this change is considered, the number of persons that must co-operate in bringing it about, and the hardships that must be the consequence to many, I see little hope of effecting a reform upon this principle. But, in reality, small farms are no otherwise improper than as they are improperly managed, from not being the sole dependence of the occupier; if then a proper management could be obtained, the evil would cease, and to this object every attention should be paid by the proprietors of the county, and the Agricultural Society, in holding out every inducement towards a more improved culture, particularly in holdings below a certain number of acres; and, when this fails, for the proprietors to keep it steadily in view, that the farms of those, who are negligent and slothful, should, at the expiration of the leases, be added to those of their more skilful and attentive neighbours.

To particularize each gentleman, from whom I have received information, would be to mention every one I have spoken to on the subject of this Report, in the course of which I have taken the liberty to mention many of their names, as authorities for what is here advanced.

To

To General Vallancey I beg leave to return my particular thanks, for his attention in furthering this undertaking by every attention; had it not been of a public nature, I ſhould have ſcrupled to treſpaſs upon his time, which is ſo beneficially devoted to the encouragement of every national object.

APPENDIX.

ANTIQUITIES.

THE ſtudy of antiquities being both difficult and delicate, an elaborate diſcuſſion of that ſubject cannot be expected in an undertaking of this kind; but the Dublin Society having expreſſed their wiſh, that mention ſhould be made of ſuch ancient monuments as ſtill exiſt in this kingdom, in compliance with their deſire I ſhall take notice of the moſt remarkable now in being, which may ſerve as a guide to thoſe, who having more knowledge in this line than I profeſs may be deſirous of puſhing their enquiries to a greater extent. When I conſider how many perſons of eminence in the literary world have made this purſuit their particular object, I might juſtly be accuſed of preſumption, in attempting to fathom a ſubject in a great degree new to me, which has often unſucceſsfully conſumed the labours of a long life. But to the moſt ſuperficial obſerver it muſt be evident, that this country has been

poſſeſſed

poſſeſſed by inhabitants, at different periods, of very different degrees of civilization. Conſidering things in this light, the antiquities of this county may be divided into three general heads; firſt, thoſe compoſed of ſtone, of Pagan origin, and which are accounted the moſt ancient; ſecondly, thoſe which are to appearance formed of earth, and have at leaſt the ſemblance of ſuperior civilization; thirdly, thoſe which were effected by the labours of a people acquainted with the art of building, and which may be divided into monaſtic and military.

SECT. 1. *Thoſe compoſed of Stone, of Pagan origin, and which are ſuppoſed to be the moſt ancient.*

OF the firſt, or Pagan antiquities, there are three diſtinct kinds; the cairn, the circle of rude ſtone pillars, and the cromlech, or altar ſtone. Two very remarkable cairns, or heaps of rude ſtones, exiſt in this county; one on the ſummit of Slieve Croob mountain, being near eighty yards in circumference at the bottom, and about fifty in circumference at the top; on this platform a number of ſmaller cairns are raiſed, of different heights and dimenſions; the ſtones, of which theſe are formed, are of various ſizes, but moſtly portable, and of the gritty kind. This is the largeſt cairn in the county; but the other, near the little village of

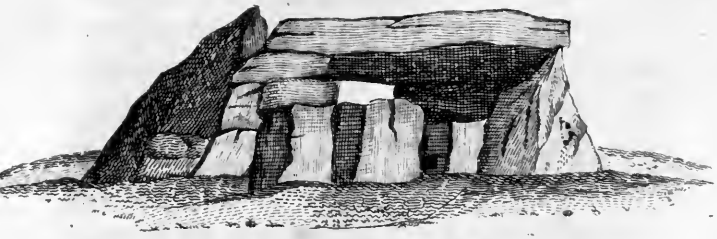
Annadorn,

Annadown, is more curious, from its having been diſcovered, nearly thirty years ago, to contain within its circumference, which is about ſixty yards, and towards the bottom, a large ſmooth ſtone, of a ſquare figure, from ſeven to eight feet over, and ſupported by ſeveral other ſtones above three feet and a half high, forming underneath a kind of chamber, in which were found aſhes, and a number of bones to appearance human; upon the ſurface of this large ſtone, when the ſmaller ſtones which were pyramidically arranged were removed, a quantity of black aſhes were found. The entrance to this chamber was towards the north, and under ſeveral flat ſtones regularly diſpoſed in front of each other, and extending to the outſide of the cairn: theſe ſtones were ſome years ago taken away for building.—Of the pillar ſtones the moſt remarkable are thoſe near Sliddery ford, to the ſouth of Dundrum; they conſiſt of ten or twelve ſtanding in a circle, the diameter of which is about eight or ten yards, and are about three or four feet in height: without digging and clearing the earth away nothing accurate could be determined concerning this piece of antiquity, as the ſoil about it has been often diſturbed, and many of the ſtones ſeem to have been diſplaced. Another very remarkable ſtone ſtands on the ſummit of a hill near Saintfield; it is about ſix feet above the ſurface, and from its dimenſions muſt have required conſiderable exertions to place it there.

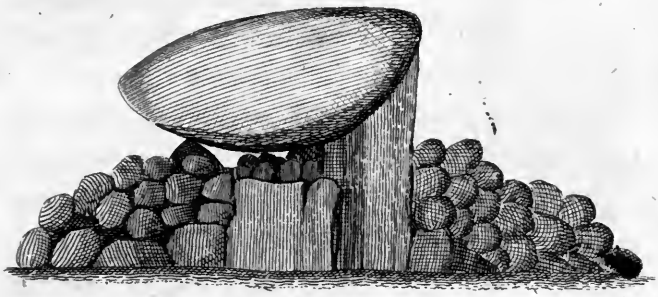
Of

Of the ſtone altars, or cromlech, there are ſeveral; one on the hill called Slieve-na-Grideal, in the barony of Lecale, eleven feet long, eight feet broad, and from a foot to eighteen inches in depth; it ſtands upon two ſupporters. Another of theſe monuments is at Sliddery ford above mentioned, and not many yards diſtant from the circle of pillar ſtones; of this I have given a drawing, as being amongſt the moſt curious; it is nearly circular, the diameter from ſeven to nine feet, the face ſeven feet in length, and three in thickneſs, but the ſtone bellying underneath is much deeper; it is ſupported by three ſtones, one of which has a cavity, that juſt receives the protuberance of the incumbent ſtone; on the other two it has not above a few inches dependence. This ſtone is granite, waterworn; the great ſupporter, of the ſame; the ſmaller are ſhiſt: the weight of it is immenſe; the ſupporters in the rere three feet, the front ſupporter is three feet ſix inches in the loweſt, ſix feet in the higheſt part. I have alſo given a drawing of another cromlech, which ſtands in the townland of Laganeney and pariſh of Drumgoolan, in the boſom of a mountain towards the ſouth; this is a very curious monument, of one granite flag twelve feet long, ſhaped like a coffin, and ſupported by three pillars of the ſame; two at one end, the ſouth-eaſt, ſeven feet ſix inches in length by two in thickneſs, a third to the north-weſt, four feet ſix inches high, tapering to a point, on which reſts the ſmaller end of the

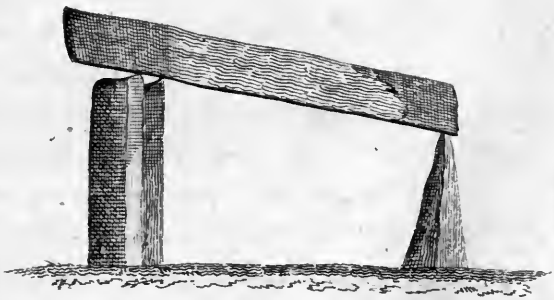
covering



Stone Altar in the Giants Ring,
in the Parish of Drumbo.



Cromlich at Sliddery ford.
Dundrum.



Stone Altar in the Townland of Legarany. Parish of Drumgoolan. 12 Feet long. 2 Feet thick. 5 Feet in breadth in the middle, decreasing at both ends. front Supporters. 7 Feet 6 Inches high by 2 Feet each side. The single Supporter in the rere. 4 Feet 6 Inches high.

covering ſtone: in the broadeſt part this ſtone is five feet, and nearly ends in a joint at both extremities. It is difficult to deſcribe the effect produced by this great maſs, that from the manner in which it is ſupported, and from the ſhape of the pillars, has an appearance of lightneſs at once ſurpriſing and pleaſing. There are other remains of the ſame deſcription in other places, particularly one near Rathfryland, and another between Caſtlereagh and Comber; but it would be unneceſſary to dwell upon theſe, as they afford nothing very materially differing from thoſe already mentioned; but the cromlech in the Giant's ring, near the church of Drumboe, on the ſummit of a hill between Liſburn and Belfaſt, deſerves particular notice, from the circumſtance of its being placed in the centre of one of the moſt ſtupendous works of antiquity this country can boaſt of. This altar, of which I have alſo given a drawing, differs very much from the reſt, conſiſting of a rude incumbent ſtone of ſeven feet by ſix feet and a half, and ſupported by ranges of rude pillars, and cloſe to it ſome fixed ſtones ſtill remaining of conſiderable ſize; the ſupporters are from two to three and a half feet high, the covering ſtone formerly an inclined plane. The incloſure, in the centre of which ſtands this altar, is circular, one third of a mile in circumference, the rampart which ſurrounds it, ſloping on each ſide, inſtead of ending in a point is ſufficiently wide for two to ride a-breaſt; the whole is ſo proportioned, that a

perſon ſtanding near the altar can only ſee the incloſure and the ſky; in that ſituation, and alone, he cannot but feel a degree of awe from the idea of total ſecluſion, which ſtrikes upon his mind, and he muſt be perſuaded, that at whatſoever period, or by whatſoever denomination of men this work was performed, ſuperior judgment has been ſhewn in the planning of an object, which, ſituated as it is, affects by its ſimple greatneſs; and he muſt feel a high idea of the influence neceſſary in times ſo remote, to unite a body of men ſufficient to execute it.

SECT. 2. *Thoſe Antiquities, which are to appearance formed of Earth, and have at leaſt the ſemblance of ſuperior civilization; as Mounts, &c.*

OF that claſs of antiquities compoſed, or to appearance compoſed of earth, there is every variety to be found in this county, from the ſmalleſt rath, not many yards in diameter, to the mount encompaſſed by its ramparts and ditches, and accompanied by outworks and a covered way; and in a few inſtances theſe mounts have the remains of a caſtle on their ſummit. The forts or raths are to be found on every range of hills, and are generally within ſight of each other; they are flat in the middle and ſurrounded by a ſimple ditch; but of the mounts there are three diſtinct kinds; firſt,

thoſe

thoſe encompaſſed with one rampart and foſſe, 2. thoſe with more than one, and 3. thoſe with outworks. The firſt claſs like that near Saintfield, and of which I have given a drawing, is the leaſt frequent; the outſide of the rampart is in circumference near two hundred yards, ſeven in breadth, and the ditch five; the height in a ſloping direction near forty feet. The ſecond with more than one incloſure, of which that near Downpatrick is a juſt repreſentation; this mount takes up a conſiderable extent, not leſs than three quarters of an Engliſh mile in circumference; three artificial ramparts ſurround it, the greateſt of which is thirty feet broad. The third kind has generally a ſquare fort or redoubt adjoining to the main trench, and ſometimes other works, which render them very defenſible, ſuch as the mount at Dromore: this mount is ſituated at the north-eaſt extremity of the town, above the river Lagan, its circumference nearly ſix hundred feet, the perpendicular height near ſixty feet, the diameter at the ſummit fifty-five feet; the whole ſurrounded by a rampart and battlement; the trench, which terminates on a precipice, has two branches embracing a ſquare fort of an hundred feet in diameter. From the Lagan to this ancient fortification is a covered way upon the deſcent of the precipice, two hundred and ſixty feet in length, ſeven feet wide, and nine feet deep. All this will more plainly appear by inſpecting the annexed plan, as alſo the remains of a walk towards the ſouth, in which direction are the ruins of a caſtle at a ſmall diſtance.

Added to thoſe mounts already mentioned, are many others of conſiderable extent; that at Donaghadee is a very fine one, another alſo at Dundonald, and the Fort near Crownbridge, to the eaſtward of Newry, the outworks of which very much reſemble thoſe at the mount of Dromore. There are likewiſe three mounts with the remains of caſtles ſtill exiſting on them, namely Caſtlereagh, Caſtleſcreen, and the mount at Clogh. Whether theſe were formed for the purpoſe of building on, or whether the ſituation already found invited the building, I ſhall not take upon me to determine; but upon looking over King's *Munimenta Antiqua* I find, that ſome of the moſt ancient caſtles in England are ſituated on ſimilar mounts. The fort at Liſnagead, near Scarva, deſerves to be particularly mentioned, on account of a very curious outwork, or rather, as it appeared, covered way, of great breadth and depth, which runs from it through the garden and demeſne of Mr. Reilly to a conſiderable diſtance, and ſeems to have been intended as a line of communication between two diſtant poſts, probably of the Danes, who are ſaid to have penetrated as far to the weſt as the city of Armagh.

The works of this ſpecies, which I have mentioned, form but a very ſmall proportion of the number ſcattered through every part of this county, although they are amongſt the moſt remarkable for beauty and ſize. In ſeveral of them caves have been found, particularly in a rath, or what is commonly called a Daniſh fort,

near

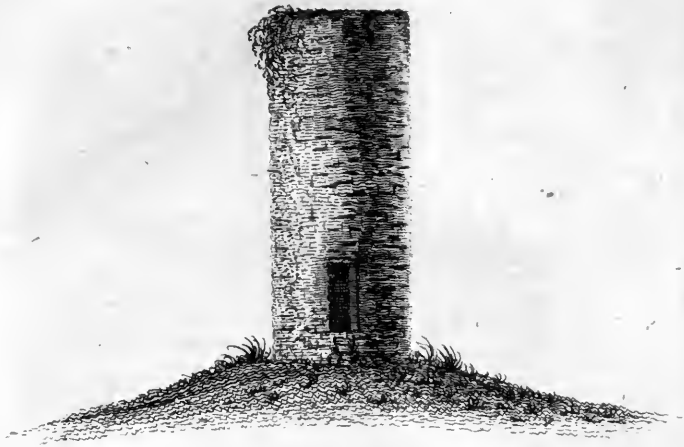
near the church of Seaford. The cave was about thirty yards long, with a circular apartment on one ſide towards the extremity, and a ſquare apartment on the other a little nearer the entrance, both covered with roofs of ſtone. The cave having been deſtroyed before I ſaw it, I could not get the exact dimenſions; I heard it was about three or four feet in width, and about four in height. On a ſtone at the further end was the following inſcription, but in what character I could not diſcover, as it has been uſed for a trough to pound furze, and is thereby much defaced. A gentleman, to whom I ſhewed the inſcription, and who had been uſed to look at the Daniſh manifeſts, brought by the maſters of ſhips, thought it was in that character; but on taking a copy he let me know that the interpreter could not read it. The fort, in which it is ſituated, is within ſight of the old Daniſh caſtle of Clogh.

Inſcription

Inscription on a Stone, in a Rath near the Church of Seaford.

Here the letters are defaced.

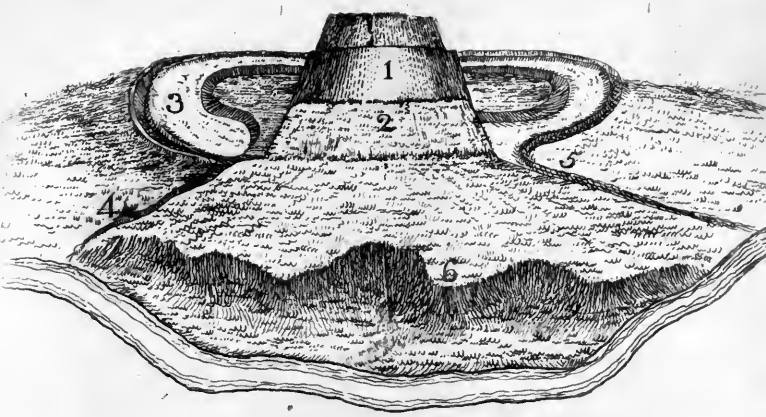
The



Tower of Drumbo.

Mount of Lisdargan.

Mount near Downpatrick.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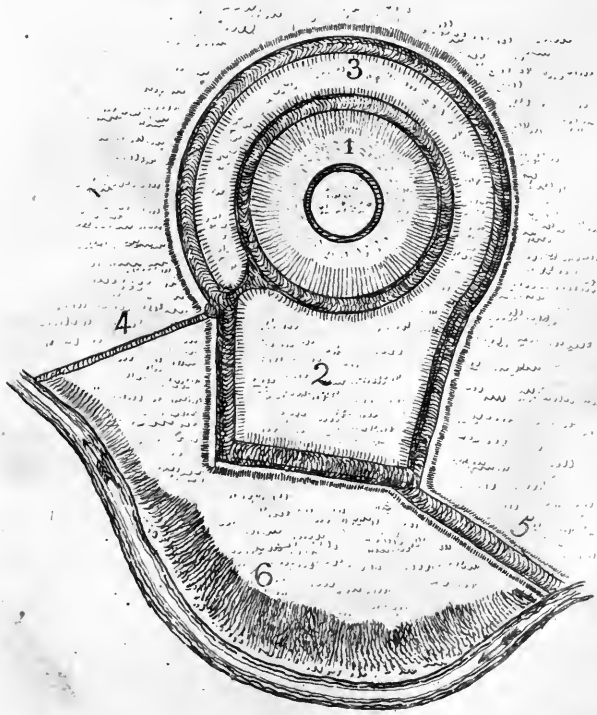
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The ſtone, on which this inſcription is, being of the ſlaty kind, part of the ſurface has peeled off, and with it ſome of the letters; it is about two and a half feet in length by nearly one and a half in breadth; the letters appear as if ſcraped with a ſharp point, not cut with a chiſel.

The people, who were employed in throwing up theſe works, muſt have been very reſpectable in point of numbers, and thoſe who directed them not deficient in ingenuity, and in all probability very much exceeded the fabricators of the pillar ſtones, and the cromlech, in both theſe particulars; in three inſtances we find the caſtle and the mount in conjunction; in one only the rude monument of ſtone encompaſſed with works of earth. That the general intention of theſe works was for the purpoſe of defence, I think cannot be doubted; the ſmaller probably for collecting the cattle of a confined diſtrict, in caſe of alarm; the larger, with the ſecond rampart and outwork, for a more regular ſyſtem of operations; but beſides this, in ſome inſtances they ſerved as *places of burial*, from the caves, which have been opened in them, being found to contain human bones, particularly one at Waringſtown, which was opened many years ago, and found to contain an urn filled with bones and aſhes; another was opened about forty years ago, on Mr. Muſſenden's eſtate, about two miles from Liſburn; a perſon, who ſaw the bones taken out of a kind of ſtone coffin or trough, told me that

part

part of them had all the appearance of human bones, and ſome of them ſo ſmall that they muſt have belonged to an animal not larger than a middle ſized dog. The mount, in which theſe bones were found is very curious, being ſurrounded by a ditch and rampart, with an advanced work to the eaſt like that at Dromore, and a regular glacis in the front, containing near an acre of ground: to the ſouth there is a ſmall river, with a communication from the rere of the mount, which in this place can only be aſcended by a winding path, by no means difficult to defend; the whole work muſt have been conſtructed by perſons, who were no mean proficients in the ſcience of defence, previous to the invention of cannon.

Sect. 3. *Monaſtic Antiquities.*

That the county of Down poſſeſſed conſiderable monaſtic eſtabliſhments, the numerous ruins of religious buildings ſufficiently ſhew. Mr. Archdall, in his Monaſticon Hibernicum, enumerates thirty-ſix places where diſtinct foundations of the different orders exiſted, beſides the abbies, priories, &c. dependant on the greater eſtabliſhments, of which the moſt ancient is Downpatrick, it having been founded by the tutelar ſaint of this kingdom in the fifth century, who was buried there it is ſuppoſed in the year 493. Some idea

may

may be formed of the wealth of this foundation, from its poſſeſſing in the twelfth century forty-ſeven townlands, and with them ſeven churches or pariſhes. The ferry of Strangford lough, towards Dufferin, the ferry of Carlingford, of the Bann, and all the different ferries of his conqueſts, were granted to this abbey in the ſame century by Sir John de Courcey, the ferry between Lecale and the Ards alone excepted; the ſame Sir John granted alſo every tenth cow, and every tenth animal on all his farms, except thoſe in the Ards. In the year 1185 the bodies of St. Patrick, St. Columb, and St. Brigid were diſcovered in this abbey, with the following epitaph written over them:

> Hi tres in Duno, tumulo tumulantur in uno
> Brigida, Patricius, atque Columba pius.

Thus tranſlated by the author of the Hiſtory of the County of Down,

> One tomb three ſaints contains, one vault below
> Does Patrick, Brigid, and Columba ſhew.

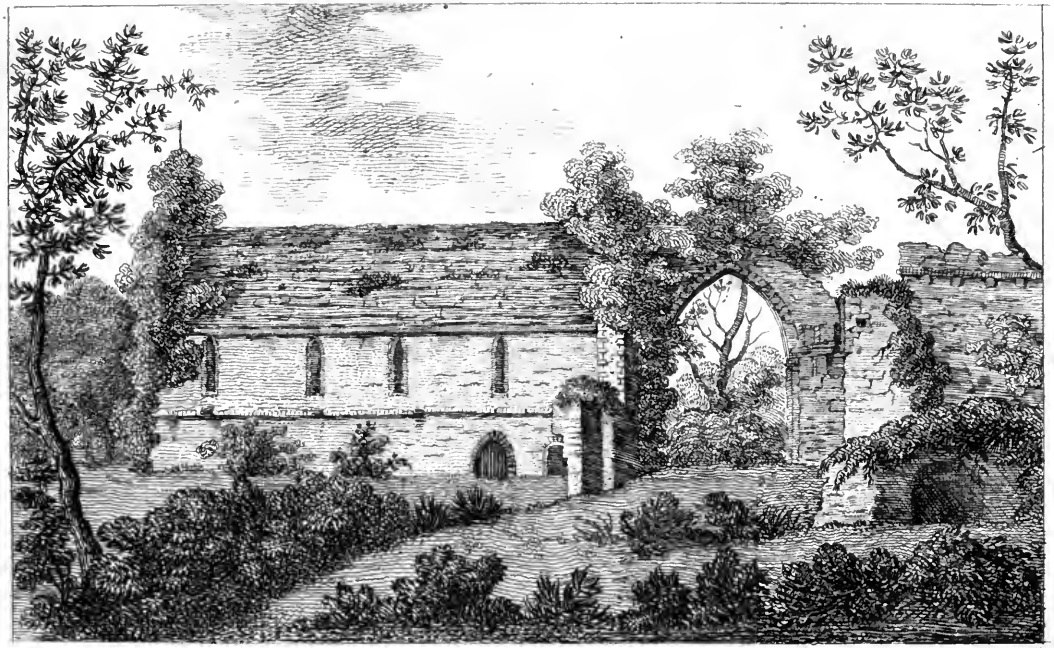
Many remains of antiquity have been found amongſt the ruins of the abbey; an Agnus Dei, painted glaſs, lead, &c. and ſeveral cells, one floored with painted tiles, and lately, in repairing the old cathedral, an image of St. Patrick in baſſo relievo was dug up, about two feet and a half in length, his mitre on his head, and croſier in his hand; the work rudely but not unſkil-

fully done. St. Patrick likewiſe founded the abbey of Saul, where he is ſaid to have died in his 120th year; of this monaſtery conſiderable ruins are ſtill to be ſeen. St. Patrick alſo founded an abbey at Drumboe. Saint Colman was the founder of an abbey at Dromore, in the ſixth century, of regular canons; Doctor Burke alſo mentions a monaſtery of Franciſcans.

The moſt reſpectable foundation after Down, in point of wealth, was Bangor, an abbey of canons regular, founded in the year 555, by St. Congall, who was born in Ulſter of noble parentage. This abbey nearly if not fully equalled that of Down; for, in an inquiſition held in the reign of James I. it was found that the laſt abbot, William O'Dorman, in the 32d of Henry VIII. poſſeſſed thirty-one townlands in the Ards and upper Clanebois, alſo the Grange of Earbeg in the county of Antrim, the two Copland iſlands, three rectories in Antrim, and three in Down, and what ſeems very curious, the tithes of the iſland of Raghlin or Raghery, likewiſe a townland in the Iſle of Man. The number of monks belonging to this houſe are ſaid to have been two or three thouſand; nine hundred are ſaid to have been deſtroyed by pirates in one day. Part of the ruins ſtill exiſt, and the traces of the foundations ſhew it to have been of great extent; the windows were of the ancient Gothic kind.

Moville, a monaſtery of Auguſtin canons, was alſo remarkable for the antiquity of its foundation, as well

as



GREY ABBEY

as the richneſs of its endowments; it was founded in the year 550, by a St. Finian, ſon of Ultach, king of Ulſter, and at the diſſolution of religious houſes, in the reign of Henry VIII. it appears to have been poſſeſſed of ſeven townlands, and the ſpiritualities of ſixteen and a half beſides; theſe were granted by King James I. to Viſcount Claneboys, in fee-farm, for 3*l.* 3*s.* 4*d.* Iriſh money. This abbey lay about a mile from Newtown, on the road to Donaghadee; part of the ruins ſtill remain, and the veſtiges of conſiderable foundations.

Gray abbey, on the lough of Strangford, in the barony of Ards, was founded by Africa, daughter of the king of Man, in the year 1192; ſhe was the wife of John De Courcey; it was peopled by her with Ciſtertian monks from Cumberland, and here ſhe took up her laſt reſidence. In an inquiſition taken in the reign of James I. it was found that the laſt abbot, in the 32d of Henry VIII. was poſſeſſed of ſeven townlands in the vicinity, and three in Lecale. Part of the lands belonging to this abbey were granted to the Earl of Kildare; the ſtatue of the foundreſs, much defaced, is ſtill to be ſeen on one ſide of the altar; from what remains, we may ſuppoſe this was a large and ſumptuous building; the eaſt window is a fine ſpecimen of Gothic architecture; on each ſide of the altar is a handſome window of freeſtone, neatly carved; they are now grown over with ivy. All the offices of the monaſtery are now in ruins; only ſo much remains of them as ſerve to point

out their extent, amidſt the trees, ſhrubs, &c. with which they are overgrown; part of the eaſt end of the great building is fitted up for a church. In the gardens of this abbey is a large well, covered with an arch ornamented with ſculpture; this well never fails.

Inch, or Iniſcourcey, oppoſite Downpatrick, was founded by Sir John De Courcey, to make his peace with heaven for having deſtroyed the abbey of Erynagh in his wars; he gave it to the monks of the Ciſtertian order, and dedicated to the Virgin Mary, on the third of June 1180, and endowed it with all the poſſeſſions of the abbey of Erynagh. Part of the church ſtill remains; at the eaſt end are large windows with Gothic arches, in the north and ſouth walls two windows, each of two arches, not much inferior to thoſe at the eaſt.

At Newry there was a Ciſtertian abbey, founded in honour of the Virgin Mary and St. Patrick by Maurice Mc. Laughlin, king of all Ireland, about the middle or latter end of the twelfth century. There was a college alſo, conſiſting of a warden and vicars choral. Henry VIII. granted them a confirmation of all their poſſeſſions in his thirtieth year; the rent four marcs. The epiſcopal juriſdiction, exerciſed by the abbot over the lordſhips of Newry and Mourne, is ſtill enjoyed by Mr. Needham, deſcended from Sir Nicholas Bagnal, to whom this abbey was granted by King Edward VI.; the ſeal of his court is a mitred abbot in his albe, ſitting in a chair ſupported by two yew-trees, with this inſcription;

tion; *Sigillum exemptæ juriſdictionis de viridi ligno*, alias Newry and Mourne. It was a tradition of the natives, that two large yew-trees formerly grew within the precincts of the abbey, from whence it was called in the Latin of that age, *Monaſterium de viridi ligno*, and in Iriſh *Na jur*, of the yew trees; and in ancient writings the appellation is for the moſt part plurally, viz. the Newries. It is ſaid that ſome Engliſh ſoldiers, digging a grave in the year 1688, diſcovered the ſtumps of ſome trees of very fine wood, of a red colour, which took a fine poliſh, in the ſouth-eaſt part of this abbey.

Black abbey, near Ballyhalbert in the Ards, was founded by Sir John De Courcey, for Benedictine monks; he died A. D. 1210. This abbey poſſeſſed three townlands, beſides tithes, &c. The priory and its appurtenances were ſeized by the O'Neils; on their rebellion they were veſted in the crown, and by King James I. granted to James Viſcount Claneboys, who aſſigned them to the Lord Ardes, but in 1639 they were awarded to the ſee of Armagh.

At Caſtle-buy, or John's-town in the Ards, three miles north of Portaferry, near Strangford lough, was founded by Hugh De Lacy, in the twelfth century, a commandery of St. John the Baptiſt. Nothing now remains of the building but ruins; the family of Echlin poſſeſs ſeveral townlands and a manor court, formerly belonging to this commandery.—At Comber there was an abbey of Ciſtertian monks, founded in the latter end

of

of the twelfth century; but a more ancient one, of regular canons, was the work of St. Patrick.—Newtown alſo had a monaſtery of Dominican friars, founded by Walter De Burgh in 1244. The laſt prior voluntarily ſurrendered three townlands in his poſſeſſion to Henry VIII.; theſe were granted by James I. to James Viſcount Claneboys, at the rent of 13*s.* 4*d.* Iriſh money.

Beſides thoſe religious houſes above mentioned, there were many others of leſs note; of ſome the ſituation is unknown, but moſt of them are now replaced by pariſh churches. I ſhall give an alphabetical liſt of them, as ſet down in the Monaſticon Hibernicum.

Achadhcaoil, near Dundrum, in the barony of Lecale, founded in the fifth century.

Ardicniſe, a Franciſcan friary; unknown.

Breatain, in Lecale; founded in the ſixth century.

Cluaindaimh, in Iveagh.

Domnachmaghin; founded by St. Patrick, in Mugdorna, or barony of Mourne.

Eanachelte, Annahilt, now a pariſh church; founded in the territory of Hibbetach (Lower Iveagh), by St. Molibba, in the eighth century. Archdall's returning this as unknown muſt have proceeded from the ſpelling of the name.

Erynagh, in Lecale, about a mile and a half ſouth of Downpatrick. This was deſtroyed by Sir John De Courcey, who built an abbey at Inis, or Inch, in atonement, though it had been fortified againſt him.

Eynes;

Eynes; ſuppoſed to have ſtood near Abbacy, in the barony of Ards.

Hollywood; on the bay of Carrickfergus, three miles north-eaſt of Belfaſt; the origin unknown. In the 1ſt of James I. Connogher O'Hamle, the laſt prior, ſurrendered this priory of St. Francis, and five townlands; theſe were granted to James Viſcount Claneboys, for 1*l.* 3*s.* 4*d.* rent.

Kilcholpa, near Down; an abbey founded by St. Patrick, now unknown.

Kilclief, at the entrance of Strangford lough; an abbey of regular canons, and the ancient reſidence of the biſhops of Down. An hoſpital for lepers was founded here, dedicated to St. Peter.

Kilmbiain; founded by St. Fergus, biſhop of Down; now unknown.

Kiltonga; north of Newtown, barony of Ards.

Magheralin. St. Colman founded the monaſtery of Lin in the eaſt of Ulſter. Ruins of conſiderable extent have been lately traced there.

Neddrum. No iſland of that name; probably the Copeland iſle.

Noendrum; unknown.

Slieve Donard. St. Domangart, a diſciple of St. Patrick, founded a noble monaſtery at the foot of this mountain; his feſtival is on the fourth of March, yet the patron day is the twenty-fifth of July, when the Roman Catholics climb the mountain to perform their penance;

penance; probably it was changed to that ſeaſon, which is more favourable for aſcending the mountain.

Tamlachta Umhail; near Lough Bliſklau (probably Longhbrickland), in Iveagh; now unknown. See the account of a golden relique found near Loughbrickland, p. 302.

Teghdagobha. This abbey, now unknown, is ſaid to have been in the barony of Iveagh, on the Bann.

Toberglory; founded by Sir John De Courcey, in honour of St. Thomas; he gave it to the regular canons of the Virgin Mary at Carliſle; he endowed it with lands adjoining to it, and a burghage within the town of Down, likewiſe with all the tithes of his houſe, and houſe expences and demeſnes.

Struel Wells, or St. Patrick's, deſerve a place amongſt the eccleſiaſtical antiquities of this county; they are four in number, and lie to the eaſt of Downpatrick; each well is covered with a vault of ſtone, and the water is conveyed from one to the other by ſubterraneous aqueducts. The largeſt and moſt celebrated of theſe vaults is ſixteen feet by eleven, and is more particularly ſaid to have received St. Patrick's benediction; in this the people bathe; there is a chamber for undreſſing: the other wells are for waſhing different parts of the body, the eyes, head, limbs, &c. Theſe vaults ſeem to be ancient, and near one of them are the ruins of a chapel, dedicated to St. Patrick. Vaſt numbers reſort here on midſummer's eve, and on the Friday before

before Lammas; ſome to obtain health, and others to perform their enjoined penances. We muſt not omit St. Finian's well, near the race-courſe, nor St. Scordin's, in the vicinity of Killough; this laſt guſhes out of a rock on the ſea-ſhore, and is never obſerved to diminiſh in the drieſt ſeaſons.

As the round towers, which are ſo frequent in Ireland, are generally found at no great diſtance from the ruins of eccleſiaſtical buildings, their place in the antiquities of this county ſeems to follow the former ſubject of courſe. Until of late, two buildings of this kind were in exiſtence, that of Drumboe, and that of Downpatrick; the firſt is yet ſtanding; the latter was pulled down in the year 1790, to make room for the rebuilding of that part of the old cathedral, next which it ſtood, and from which it was diſtant about forty feet; the height was ſixty-ſix feet, the thickneſs of the walls three feet, and the diameter eight feet. When the tower was thrown down, and cleared away to the foundation, another foundation was diſcovered under it, and running directly acroſs the ſite of the tower, which appeared to be a continuation of the church wall, which, at ſome period prior to the building of the tower, ſeemed to have extended conſiderably beyond it. This curious circumſtance was obſerved by ſeveral gentlemen at the ſpring aſſizes in the above mentioned year. The round tower at Drumboe ſtands about twenty-four feet north-weſt of the ruins of the church; it is nearly

thirty-six feet in height, forty-seven in circumference, and nine feet in the clear; the entrance is on the east side, five feet from the ground; the stones around the door are parts of a circle, and were taken from a quarry in the neighbourhood, where I saw stones newly raised exactly of the same form. At some former time very *strong fires have been burned within this building*, and the inside surface, towards the bottom, has the appearance of vitrification.* It is supposed there was formerly a small fortified town at Drumboe, and that the foundation of the wall was still to be traced; of late, in labouring the fields in the environs, many hearth-stones and other remains have been dug up.

* From Mr. Pennant's View of Hindoostan it is evident, that the original pagodas were single *towers*, like those in Ireland. Vol. II. p. 123.—speaking of the circars granted to the French, he says, "All the people of this part of India "are Hindoos, and retain the *old religion*, with all its superstition: this makes the pagodas here much more numerous "than in any other part of the peninsula; their form too is "*different*, being chiefly buildings of a *cylindrical* or *round* "*tower* shape, with their tops either pointed or truncated at "the summit, and ornamented with something eccentrical, "but frequently with a round ball, stuck on a spike: this "ball seems intended to represent the SUN, an emblem of "the deity of the place." And at p. 27, speaking of the great pagoda of *Chilambaram*, the most celebrated for its sanctity of any in *India*, he says,—"According to Mr. Ives, it "has three precincts, and the *towers* are in the inner."

The tower of *Ardmore*, in the county of Waterford, still preserves its pointed top. See a view of it in Smith's history of that county. I have caused the ground floor of many to be opened, and ashes of burnt wood have been found, the remains of the perpetual fire kept burning in the bottom, in honor of the deity, the SUN.—C. V.

SECT.

Sect. 4. *Military Antiquities.*

Unless we include in this claſs the different ſtrengths, which are compoſed of earth thrown up in various forms, and a few warlike inſtruments of ancient faſhion, that have been found at ſeveral times and places, we ſhall find that there is nothing, which can with propriety be referred to the above-mentioned denomination, that is not of undoubted Engliſh origin; and that all the caſtles, erected at different periods, were conſtructed by Engliſh artiſts, ſo that they are in nothing different from thoſe, which were built at the ſame times in England. The continual change of habitation, and the unſettled ſtate of property amongſt the Iriſh, the conſequence of their laws and regulations reſpecting inheritance, prevented that attention to places of permanent reſidence, which we find to have been paid by other nations not in a higher degree of civilization; for nothing could be more natural than their negligence in the article of improvements, which muſt have been attended with trouble and expenſe, when they had almoſt a certainty that they ſhould not deſcend to their heirs. But after Ireland was conquered by the Engliſh, and the lands were reſtored to any of the original proprietors to hold from them, they were granted under

the condition of inheritance in the direct line; in conſequence of which ſome of them began to provide for their deſcendants, by erecting caſtles and fortified houſes, and by attending to ſuch improvements as were moſt in faſhion at the time they lived. Yet how ſlowly this idea operated, may be collected from the ſmall number of buildings of ſtrength erected by the old Iriſh, in compariſon with the Engliſh. A ſlight ſketch of the hiſtory of thoſe ancient buildings, which are to be found in many parts of this county, will add ſtrength to this obſervation; and will ſhew, that the three great families of the O'Neil's, Mc. Cartanes, and Mc. Genniſes, who poſſeſſed nearly the whole of this county, ſo far from portioning out their territories like the Engliſh, and having places of ſtrength erected upon them, ſcarcely poſſeſſed a ſtrong hold for their own reſidence. Con O'Neil, who held ſo great a portion of Caſtlereagh and the Ards, ſeems to have had no other fortified place than his ſeat at Caſtlereagh, which was ſituated on the ſummit of a hill of the ſame name, in a fort encompaſſed three fourths by a deep ditch. Mc. Cartane, whoſe lands extended into the barony of Kinelearty, and the ſouth part of Caſtlereagh, reſided at Annadom, nor do I find mention made of any other place immediately belonging to him. The Magenniſes indeed are ſaid to have had Newcaſtle, built by Felix (according to the Hiſtory of the County of Down) in 1588; a houſe alſo at Caſtlewellan, and a caſtle on the

hill

hill at Rathfryland. Another and a very ſatisfactory reaſon might be adduced for the frequency of the Engliſh caſtles, when compared with the Iriſh; the former came in as invaders, and conſequently were obliged to ſecure themſelves againſt the inhabitants; whilſt the latter relying on the fidelity of their countrymen thought they had a ſufficient ſecurity in their numbers and attachment, and probably looked forward to the time they ſhould expel them, and take poſſeſſion of their labours.

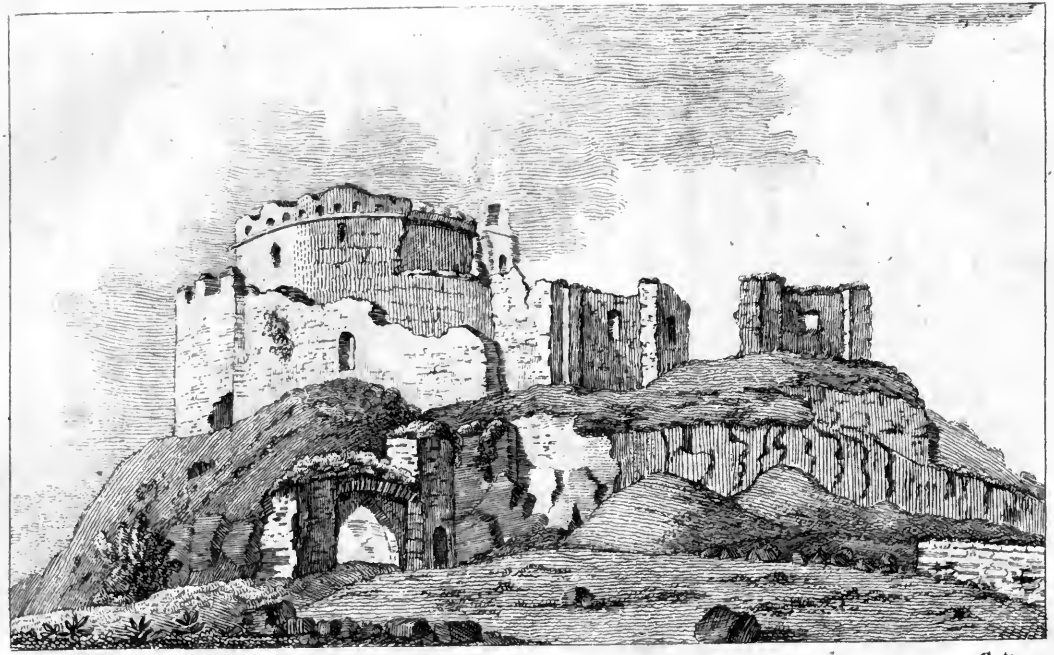
A note upon the following paſſage from page 279 of Lyttleton's Hiſtory of Henry II. book V. will in ſome degree account for the few buildings erected by the Iriſh chiefs, after the invaſions of the Engliſh: "The cauſe of this was a fixed opinion in the Iriſh, that walled towns and forts were dangerous to their freedom, and that to them it would always be more advantageous to deſtroy than to poſſeſs them." The note ſays, this opinion prevailed ſo long among them, that Con O'Neil, whom king Henry VIII. created Earl of Tyrone, curſed all his poſterity, who ſhould build any houſes, ſaying "that by building they would but do as the crow doth make her neſt to be beaten out by the hawks." The word *houſes* here meant houſes of brick or ſtone, ſuch as the Engliſh built in Ireland, which were generally caſtles or edifices in walled towns; whereas the Iriſh dwelt in huts, readily raiſed or pulled down, like the ancient Britons and Germans.

The

The firſt military antiquity we meet with to the ſouth of this county, is Green caſtle, in the barony of Mourne, ſtanding upon an inlet of the ſea. This is ſaid to have been a ſtrong caſtle, fortified by the Burghs, earls of Ulſter, and was remarkable for two marriages celebrated here in 1312, one between Maurice Fitzthomas and Catherine, daughter of the Earl of Ulſter, on the fifth of Auguſt, and the other between Thomas Fitzjohn and another daughter of the ſame earl, on the ſixteenth of the ſame month. It was deſtroyed by the Iriſh in 1343, but afterwards repaired and better fortified. It appears by a record in Bermingham tower, of the firſt of Henry IV. that Green caſtle and Carlingford caſtle were governed by one conſtable, to ſecure a communication between the Engliſh pale in the county of Louth, and the Engliſh ſettlements in Lecale and the northern parts; and that Stephen Gernon was that year conſtable of both caſtles, with a ſalary of twenty pounds for Green Caſtle and of five pounds for Carlingford. In 1495 it was thought to be a place of ſuch importance to the crown, that no perſon but of Engliſh birth was declared capable of being conſtable of it. This caſtle was a garriſon in the rebellion of 1641, and helped to reſtrain the Iriſh in thoſe uncultivated parts.

The caſtle of Narrow-water, built on a rock in the channel of Newry river, is of modern date, having been erected by the Duke of Ormond after the Reſtoration.

Newry



C.C

DUNDRUM CASTLE.

Newry was fortified by Sir Nicholas Bagnal, about the year 1578, as appears from a ſtone on the outſide of the ſteeple of the church, which he built. Shane O'Neil at this time lived at Fedom, about a mile from Newry, ſuffering no ſubject to travel from Dundalk northward; but after the fortifying of the former the paſſages of the country were opened.

Dundrum caſtle is finely ſituated on a rock, commanding a view of the whole bay of that name, the ſea to the ſouth, a great part of Lecale to the eaſt, and of the mountains of Mourne to the ſouth and ſouth-weſt. There are ſtill conſiderable remains of this caſtle, particularly a circular tower, and near it, a little lower, the ruins of an ancient manſion. This caſtle is ſaid to have been built by Sir John de Courcey for the Knights templars, who poſſeſſed it till the year 1313, when that order was aboliſhed. It was afterwards granted to the Prior of Down, who held the ſame, with a ſmall manor adjoining, till the firſt ſuppreſſion of religious houſes: the reverſion of this houſe and manor, with the yearly rent of 6*l.* 13*s.* 4*d.* reſerved out of it, was granted to Gerald earl of Kildare. This caſtle, with ſeven townlands, was granted to the family of Magennis; on their forfeiture it became the property of the Earl of Ardglaſs, and afterwards came into the poſſeſſion of the Lord Viſcount Blundell, in whoſe repreſentative, the Marchioneſs of Downſhire, it now remains. When this caſtle was in repair, it often proved a good guard to the

paſs,

paſs, and as often an offenſive neighbour to the Engliſh planted in Lecale, according to the hands that poſſeſſed it. In 1517, the Earl of Kildare, then lord-deputy, marched into Lecale and took it by ſtorm; it being garriſoned at that time by the Iriſh, who had driven out the Engliſh ſome time before. It was again poſſeſſed and repaired by the Magenniſes, and retaken by Lord-deputy Gray, with ſeven caſtles more in Lecale, in 1538. It afterwards got into the hands of Phelim Mc. Ever Magennis, who was obliged to yield it to Lord Mountjoy, the ſixteenth of June, 1601. It met with another fate during the progreſs of the war in 1641, when it was demoliſhed by order of Cromwell, though garriſoned by Proteſtants, and has ever ſince been ſuffered to run entirely to ruins.

Newcaſtle, in a village of that name in Upper Iveagh, was built by Felix Magennis, in the memorable year 1588; it was very ſtrong, and is now converted into a commodious dwelling houſe, ſituated on the verge of the ſea, which waſhes the foundation of ſome of the offices.

Ardglaſs, though now a ſmall village, has the remains of conſiderable fortifications. King's caſtle, Horn caſtle, and Coud caſtle, are ſtill in part remaining; beſides Jordan's caſtle, memorable for the defence made there by the valiant owner, Simon Jordan, who held it out three years till he was relieved by Lord Mountjoy, the ſeventeenth of June, 1601. It is uncertain by whom theſe caſtles were erected, yet it is probable

bable that Jordan's caſtle was erected by one of that family, whoſe arms, a croſs and three horſe ſhoes, are fixed in a ſtone near the top. St. Patrick founded a church at Ardglaſs.

Another conſiderable building, extending on a platform near 234 feet, including a flanker at each end, with a battlement breaſt high towards the ſea, and which the author of the Hiſtory of the County of Down thinks was anciently a place where wares were ſold, as well as a fortification for ſtrength, has been converted by Lord Lecale into a moſt elegant habitation, who has with great judgment and taſte preſerved the antique caſtellated appearance. The above mentioned author thinks, that this building was formerly erected to preſerve the merchants from the inſults of the Iriſh.

Kilclief caſtle is ſituated on the entrance of the bay of Strangford. This was once the ſee-houſe of the biſhops of Down; it was here that John Celey, biſhop of that ſee, publicly lived with Lettice Thombe, a married woman; for which ſcandal, Swain, archbiſhop of Armagh, in 1441 ſerved him with a monitory proceſs in his caſtle at Kilclief; and there was a chamber in the caſtle called the hawk's chamber, where it was ſaid the biſhop kept his falconer and his hawks. This tradition might have been taken from the figure of a bird reſembling a hawk, carved on a ſtone chimney-piece in a room on the ſecond floor, on which is alſo cut, in

bas relief, a croſs patee. This caſtle was a large building, the firſt floor vaulted, with two front wings, in one of which was the ſtaircaſe, in the other a ſet of cloſets.

On the weſt ſide of the road from Killough to Downpatrick are the caſtles of Bright and Screen; the latter remarkable for having been built in a Daniſh rath; the caſtle of Clough is alſo built in a ſimilar one: they are now both in ruins.

Near Strangford, farther up the ſtrait, are two old caſtles, one called Walſh's caſtle, the other Caſtle Audley. This latter, from its bold ſituation, commands a view of the lake as far as Newtown. The name of this caſtle ſhews, that it was built by one of the Audleys, who ſettled here under John de Courcey in the infancy of the Engliſh government.

Portaferry caſtle was the ancient ſeat of the Savages. Conſiderable additions were made to this caſtle, and finiſhed in 1636.

At Arquin was likewiſe a caſtle and dwelling-houſe of another branch of this ancient family, incloſed within a rampart, and ſtanding boldly over the lake, on a pretty high hill. As this part of the Ards was often the ſeat of war between the Iriſh and this family, whoſe eſtate it formerly was, and a conſiderable part of it ſtill is, we ſhall find ſeveral other caſtles in it, of which, beſides thoſe mentioned, there are three yet remaining; Quintin Bay caſtle, two miles ſouth of Portaferry; Newcaſtle, three miles eaſt of the ſame place; and

and Kirkiſtown, four miles north-eaſt of it. This and Ballygalgot caſtle were built after the acceſſion of James I. by Rowland Savage of Arquin.

In the barony of Caſtlereagh are the ruins of that old caſtle mentioned above, from whence that barony takes its name; they are ſituated on the top of a ridge of hills, in one of theſe forts uſually attributed to the Danes: this fort has a foſſe, which encompaſſes three-fourths of it; in the midſt of the fort ſtood the caſtle, formerly the ſeat of Con O'Neill. Beſides this caſtle, there is Kill Hall, near Drumbo, a ſquare fortification, four flankers; both belonging to the Marquis of Downſhire.

In the barony of Dufferin ſtands the caſtle of Killileagh, at the weſtern end of the town of the ſame name. The family of Hamiltons, created firſt Lords Claneboys, and ſince earls of Clanbraſſil, but whoſe titles are now extinct, had their reſidence in this caſtle, which is now the reſidence of Gawen Hamilton, Eſq. who with Sir James Stephenſon Blackwood, are the heirs, by the female line, of that noble family.

In the barony of Kinalearty, near the village of Annadom, ſtood the caſtle or ſeat of the Mc. Artanes, on an eminence now called Caſtle-Hill: the neighbouring church of Loughen-iſland, ſituated in a peninſula of a moſt romantic lake, is thought to have been their burial-place.

The caſtle of Clough, ſituated in a Daniſh fort, and which I have ſpoken of already on that account, has a more antique appearance than any other I have ſeen; it has ſtill part of a winding ſtaircaſe exiſting, and muſt have been ſolely built for defence, as it was too ſmall for the reſidence of a family of note; the building of it is attributed to the Danes; the outworks which ſurround it are very extenſive, extending behind the town to the eaſt as far as the gardens of Mr. Moore's houſe; the ſituation is excellent for defence, the ground ſloping from it on all ſides, and no hill ſufficiently near to command it.

In Upper Iveagh, on the ſummit of a hill near Rathfryland, are the ruins of an old caſtle, one of the ſeats of the Magennises, lords of Iveagh. This caſtle was formerly very large, but moſt of it was pulled down by Mr. Hawkins, the firſt proteſtant proprietor of it, after the rebellion in 1641.—Newcaſtle has already been mentioned; to this may be added thoſe built by Colonel Monk, afterwards General, and Duke of Albemarle, on the paſſes, which ſeparate this county from Armagh, namely, Scarvagh, Pointz, and Tuſcan paſſes; there are ſtill ſome remains of theſe fortifications.

At Hillſborough, in Lower Iveagh, is a ſmall caſtle, formerly the gateway to a more extenſive fortification; the room over this is elegantly fitted up in the ancient ſtile; within the walls of a ſquare fort, with baſtions, is a beautiful green, and a walk round the rampart, which

which overlooks a fine cultivated country, and from whence there is a view of the noble plantations in the park, which are ſeen over a fine piece of water, which lies to the eaſt of the walk. The family of Downſhire are hereditary conſtables of this caſtle.

SECT. 5. *Detached pieces of Antiquity, that have been found in different Places.*

BESIDES the antiquities, which are enumerated under the different heads at the beginning of this article, there are many others, which have been accidentally met with in different parts of this county. Some years ago one of thoſe beautiful plates of gold, ſhaped like a half-moon, was dug up from a bog in the barony of Caſtlereagh, which is now in the poſſeſſion of the Downſhire family, it having been found on their eſtate; it is very thin, the gold remarkably fine, without any other ornament than a narrow waving line cut along the edge; part of it was broken off in taking up; the colour of the metal is uncommonly fine, and the workmanſhip neat.

To the Biſhop of Dromore, who has devoted a great deal of his attention to the ancient hiſtory of Ireland, I owe, amongſt many other favours, the following information, reſpecting a curious golden relique of the ancient monaſtic eſtabliſhment of this county, found in the

the pariſh of Ahaderig, near Loughbrickland, in the barony of Upper Iveagh, within the manor of Dromore (which has many great and uncommon privileges; for the Biſhop appoints a coroner to his own manor, and may require the King's writs to be executed, not by the ſheriff, but by his own officer). This piece of gold appears to have been part of the branch of a golden candleſtick, being three very thick gold wires or plates, twiſted into a triple cord, ſo ſtrong as to be able to ſupport the nozzle of a ſconce for a candle, with a ſolid gold cone at the end to go into a ſocket, &c.; but the part now found is imperfect, and another perhaps larger piece has been left behind, or has been carried off before. Mr. Neilſon, the watchmaker, who firſt bought the gold, told Mr. Bruſh, his Lordſhip's agent, that a great deal of treaſure has from time to time been found there, as gold cups, diſhes, &c. probably chalices and patens, and other monaſtic or church furniture, of which this piece of a ſconce or chandelier was apparently a part. The ſame perſon bought ſome years before from thence a great quantity of ancient gold, which he afterwards ſold in Dublin. This piece was found by a woman, as ſhe was paſſing through the townland of Drumſallagh, in ſome rubbiſh, thrown up for the purpoſe of making room for an addition to a cabbin; on her return home ſhe gave it to her huſband, who ſold

it

it to a watchmaker in Banbridge for ſix guineas; from this perſon the Biſhop of Dromore might have eaſily recovered it as treaſure trove within his manor; but, to encourage the people in future to bring to him whatſoever they ſo found, he was content to purchaſe it from the watchmaker at double the price he paid for it.

In conſequence of this diſcovery, an enquiry was ſet on foot by the Biſhop's deſire; from which Dr. Shiel, then vicar-general of Dromore, found, that in the townland of Drumſallagh there had formerly been a monaſtery of the order of St. Francis; that after the diſſolution of the religious houſes in Ireland there remained ſeveral mendicant friars, who ſtill houſed round the ruins of their monaſtery, which was ſituated about two hundred yards from the old church of Ahaderig, in the ſame townland; the ruins of the church remain until this day, but moſt of the ruins of the monaſtery, with its choiceſt ſtones, were removed about an Engliſh mile, to the place where the church now ſtands. Dr. Shiel found, upon further enquiry from an old man, whoſe name was Fegan, and above ninety years of age, that he remembered the walls of this building ſtanding, to the height of three or four feet, and about ninety feet in length, but that above forty years ago they had been removed to make room for a bleach-green. From this enquiry the ſituation of the monaſtery of Tamlach Umhail, mentioned by Archdall as unknown, is fully aſcertained.

aſcertained. In his Monaſticon Hibernicum he ſays, the monaſtery of Tamlach Umhail was near Lough Bliſklau, in the barony of Iveagh; his words are; "There was an ancient abbey there, wherein the feaſts of the three ſaints, Naſſad, Beoan, and Mellan, who flouriſhed about the middle of the ſeventh century, were obſerved on the 26th of October;" he adds, "it is now unknown;" but in a note he ſays, "the lough in ancient times was called Lough Bricreann, or Bricirne." From Extracts, ex Acta Sanctorum, per R. P. I. Johan. Colganum, page 271, in notis, the ſituation of this religious houſe is pointed out, as appears from part of note 1. "Saint Mellanus de Tamlachta, who is worſhipped, with the Saints Beoan and Naſſad, in the church of Tamlachta Umhail, near the lake Bricreann in Ulſter (Ultonia), 26th October;" and in note 19, p. 90, this Tamlachta Umhail is ſaid to be in the country of Iveagh in Ulſter (Ivechia in Ultonia), near the lake Bricreann (juxta lacum Bricreanum): now the name of Loughbrickland is properly Lough breac lan,* or of the ſpeckled trouts, and it lies in Iveagh in Ulſter. Beſides, Dr. Shiel found the old name of this abbey to be Tamlachta Umhail; and it alſo appeared, that an annual feſtival of the three ſaints had kept up the tradition

* *Breac*, in the Iriſh language, ſignifies both a trout, and ſpeckled; it is the participle of the verb *breacam*, to checquer; and *lan* ſignifies either the ſcale of a fiſh, or fulneſs. *Shaw's Celtic Dictionary.*

dition to the preſent times; all which proves, that the Tamlachta Umhail, mentioned by Archdall as unknown, muſt have been the abbey, in the precincts of which this golden branch was found. A number of detached pieces of antiquity are likewiſe in the Biſhop of Dromore's poſſeſſion; amongſt theſe is a boat, or canoe, found in a bog not far from the ſee-houſe of Dromore; this canoe is of an oak tree, the length about thirteen feet, the breadth in the middle near three feet, with a ledge around, of the ſame plank, which ſerves as a gunwale. His Lordſhip has alſo two ſtone hatchets, ſuch as were uſed before metals were found out; likewiſe ſeveral heads of ſpears of braſs, of different ſizes and forms.

Urns of various kinds have been found, ſome of them neatly worked and ornamented, others of ruder formation. Two of the former kind, found in the pariſh of Garvaghy about two years ago, are thus deſcribed by the Rev. Thomas Beatty, who ſaw them; they were diſcovered on removing the ſtones of a cairn in the townland of Balliely: "Theſe urns were made of a yellowiſh clay, handſomely finiſhed, and ornamented with feſtoons wrought in the clay around the centre; they were in a perfect ſtate of preſervation, one about twelve inches in diameter, and the other about half that ſize; they were each nearly half full of the aſhes of the dead; they were found placed on ſmooth flags, defended on all ſides by perpendicular

ſtones, and a large one on the top. As the workmen wrought but a ſmall way into the cairn, it is probable there are many urns contained in it yet." And I am informed by Mr. James Black of Dromaragh, that on the removal of two very large upright ſtones, which lay in the line of a road, the workmen, who were employed, broke an urn with their pickaxes before they were aware. Theſe ſtones were ſo large, and ſo difficult to break, the idea was at firſt to go round them: we may therefore judge of the difficulty there was in placing them above the urns.

An earthen lamp of curious form was ſome years ago dug up near Moira, at a conſiderable depth; the figures upon it were more remarkable for their indecency than their elegance.

At Dundonald very conſiderable ruins have been found, 120 feet by forty; and alſo at Seafin, in the pariſh of Drumgooland; probably ſome of the monaſteries mentioned as unknown. Many other curious remains are met with in different places, but it would be foreign to the purpoſe of this Report to enlarge on the ſubject, however intereſting it might be to purſue it farther.

SECT. 6. *Some particulars of the State of the County of Down in the Years* 1635 *and* 1657.

SOME particulars reſpecting the ſtate of this country in 1635, extracted from a manuſcript journal of an Engliſh gentleman, who travelled from his own houſe at Handford in Cheſhire, June 12, 1635, and made a circuit through Yorkſhire, Durham, Northumberland, into Scotland, through Edinburgh, Glaſgow, Air, Port Patrick, thence to Ireland through Carrickfergus, Belfaſt, Liſburn, Dromore, Newry, Dundalk, &c. to Dublin. The writer ſeems to have been a gentleman of the Egerton family, rather leaning to puritaniſm, but very attentive to the ſtate of agriculture in the countries he paſſed through, and to other ſimilar objects. This manuſcript belongs to General Vallancey, the antiquarian, who bought it at an auction, January 1791. This extract I owe to the attention of the Biſhop of Dromore.

On July the fifth he landed at Carrickfergus, which he deſcribes, and particularly Lord Chicheſter's very ſtately houſe there, or rather like a *princeſs pallace;* from Carrickfergus to Belfaſt you ride all upon the *lock* (lough) ſide, *itt* is a moſt bare way, and deep in winter and wet weather, though *itt* is hard and *drie*. This

town of Carrickfergus is governed by a *maior, ſheriffe,* and aldermen, endowed with great *priviledges,* and is the ſhire town. At Belfaſt my Lord Chicheſter hath another dainty ſtately *pallace,* which is indeed the *glorye* and beauty of that town alſo, where he is moſt reſident, and is now building another brick wall before his gates; this is not ſo vaſt and large as the other, but more convenient and commodious; the very end of the *lock* toucheth upon his garden and backſide; there are alſo *daintie* orchards, gardens, and walks planted.

Neere hereunto Mr. Arthur Hill (ſon and heir of Sir Moyſes Hill) hath a brave plantation,* which he holds by leaſe, and which has ſtill forty years to come; the land is my Lord Chicheſter's, and the leaſe was made for ſixty years to Sir Moyſes Hill by the old Lord Chicheſter. This plantation, it is ſaid, doth yield him 1000*l.* per annum. Many Lancaſhire and Cheſhire men are here planted; they ſit upon a rack rent, and pay five or ſix ſhillings an acre for good ploughing land, which now is clothed with excellent good *corne.*

From Belfaſt to Linſley (Liſna) Garvin, is about ſeven miles, and is a paradiſe in compariſon of every part of Scotland. Linſley Garvin is well ſeated, but neither the town or country thereabouts well planted, being almoſt all woods and mooriſh, until you come to *Drommoare;* this town belongs to my Lord *Conoway,* who

* Plantation means an eſtate planted with people.

hath

hath there a good *hainſome* houſe, but far ſhort of both my Lord Chicheſter's houſes; and this houſe is ſeated upon a hill, upon the ſide whereof is planted a garden and orchard, and at the bottom of the hill runneth a pleaſant river (the Lagan), which abounds with ſalmon; though the land hereabouts be the pooreſt and barreneſt I have yet ſeen, yet may it be made good land with labour and *chardge*. From Linſley Garvin to Drommoare is about ſeven miles; here we lodged at Mr. Haven's houſe, which is directly oppoſite to the Biſhop of Drommoare his houſe, which is a little timber houſe of no great ſtate nor receipt (reception). His chaplain's name is Leigh, born in Mancheſter. This is a very dear houſe; 8*d*. ordinary for ourſelves, 6*d*. for our ſervants, and we were overcharged in *beere*. This town as *itt* is the *ſeate* of the biſhop of this *ſea*, ſo he is lord of *itt*, and *itt* doth wholly belong unto him. In this dioceſs, as Mr. Leigh his chaplain reported, is the worſt part of the kingdome, and the pooreſt land and ground, yet the beſt church livings *bee:* there are no impropriations.

July 7th. *Wee* left Dromoare and went to *the Newrie*, which is ſixteen miles; this is a moſt difficult way for a ſtranger to find out; herein *wee* wandered, and being loſt fell amongſt the Iriſh *townes*. The Iriſh houſes are the pooreſt cabins I have ſeen; erected in the middle of the fields and grounds, which they farm and rent. This is a wild *countrie*, *nott* inhabited, planted, nor incloſed,

incloſed, *yett itt* would *bee corne* if *itt* was huſbanded. I gave an Iriſhman to bring us into the way *a groate*, who led us like a villain directly out of the way, and *ſoe* left us; *ſoe* as by this deviation it was 3 *houre* before we came to *the Newrie*. Much land there is about this *towne*, belonging to Mr. Bagnall, nothing well planted. *Hee* hath a caſtle in this *towne*, but is for the moſt part reſident *att* Green caſtle; a great part of this *towne* is his, and *itt* is reported he hath 1000*l.* or 1500*l.* per annum in this *countrie*. This is but a poor *towne*, and is much Iriſh; and is navigable for *boates* to come up unto with the tide. Here *wee* bailed at a good inn, the *ſigne* of the *Princeſs* arms; hence to Dundalke is eight mile; ſtonye, craggye, hilly, and uneven, but a way *itt* is nothing difficult to find.

The following extracts from the Down ſurvey, made in the year 1657, and likewiſe furniſhed to me by the Biſhop of Dromore, will ſhew from the ſtate of ſome of the beſt parts of this county, that in the twenty-two years ſubſequent to the writing of the above journal, things had changed for the worſe; bad as they are repreſented to have been by the writer of it.

Magharally.

There are no obſervable buildings in this pariſh, only an old ruined church at Magharally.

Magheralin.

Magheralin.

The quality of the *ſoile* thereof is generally arable, meadow, and paſture, intermixt with unprofitable moſſes and boggy grounds, whereon *growe* many large timber trees, but moſt of them are decaying with age. There are no buildings thereon, only moveable creaghts.*

Dromore.

There's *noe* buildings in this pariſh; only Dromore, it being a market town, hath ſome old thatched houſes and a ruined church ſtanding in it; what other buildings there are in this pariſh are nothing but removeable creaghts.

SECT. 7. *The Antiquity of the Linen Manufacture.*

DR. LELAND, in his preliminary obſervations to the hiſtory of Ireland, affords a ſtriking proof of the anti-

* Creaghts were houſes framed with ſtrong wattles, which were removed from one place to another, as ſuited the conveniency of the owner. The wattles were ſet up and covered with mud and ſtraw, or ruſhes.

quity

quity of the linen manufacture in this kingdom; his words are, "Iriſh writers minutely deſcribe the ancient dreſs of their country, the veſt, the trowſe, the mantle, the enormous *linen* ſlieves dyed with ſaffron," &c. And in a picture of the famous Earl of Tyrone, drawn in Spain after his baniſhment, which picture is in the poſſeſſion of the Earl of Leiceſter, one of his galloglaſſes is repreſented as attending on him, exactly in the dreſs above mentioned.

SECT. 8. *Some Notice reſpecting the natural Hiſtory, ancient as well as modern, of this County.*

Foſſil Horns.—The author of the Hiſtory of the County of Down, who has furniſhed ſo much valuable information, has wholly omitted thoſe gigantic horns and bones of the deer kind, which are found in this as well as in other counties of Ireland, generally in marle pits. It has been the opinion of many naturaliſts, that no ſpecies of animal is ſo utterly extinct as to be entirely loſt to the world; yet I believe it may be aſſerted, that there is an example in Ireland, which forms an exception to this opinion; for there is not in any part of the known world a ſpecies of the deer kind, capable of ſupporting horns equal in magnitude to thoſe ſo frequently met with in many parts of this iſland; nor is there amongſt us the leaſt record, nor any

any manner of tradition, that even makes mention of the name; therefore whatſoever diſcoveries are made of this creature, can only be from the parts of it dug up by accident, and preſerved in the earth ſo many ages from corruption, by lying deep and cloſe under ground; whilſt ſo many bodies of a nature more durable moulder away and periſh, by being expoſed to the various changes of the air and injuries of the weather. Theſe quadrupeds muſt have been numerous; as their remains are found in every part of the kingdom, and in ſome places ſeveral of their heads cloſe together. What an idea does this ſuggeſt of the fertility of a country equal to the ſupport of a gramenivorous animal of ſo ſtupendous a ſize? Amongſt the many exuviæ of this kind, that have been found in this county, the moſt remarkable are thoſe horns and bones dug up in a marle pit near Dromore, in Auguſt 1783; they are now in the Biſhop's poſſeſſion: the dimenſions are, of the head and horns meaſured from tip to tip, following the curve, fourteen feet ſix inches, from tip to tip in a right line, ten feet three inches, the entire horn ſeven feet three inches, the other, of which the point was broken, ſix feet nine inches, round the root of the horn ſixteen inches: the bones of this ſtately creature were of ſuitable magnitude; the head in length, beginning at the vertebræ, twenty-three inches in breadth, at the eyes eleven inches; moſt of the vertebræ were found along with the horns, alſo the thigh bones, the ſhoulder

blades, and many other parts. The bones of a horſe ſixteen hands high, which lie beſide them, are well calculated to impreſs the beholder with aſtoniſhment at the comparative inferiority of the latter. The palmated brow antlers of theſe foſſil horns, I am informed, diſtinguiſh them from the horns of every kind of deer now known, except from the rein-deer of the North of Europe.

The fir-trees, that are ſo often found under the turf-bogs, form another curious article in the ancient department (if I may uſe the expreſſion) of the natural hiſtory of this kingdom, as there is not any ſpecies of that tree now indigenous; from the texture of the bark, which is coarſe and rough, the kind ſeems to have been the Scotch fir, the boletus ignarius. Agaric, or touch-wood, is found in many bogs in this county, and in conſiderable quantities, but growing I have never met with it; pieces of the bark of the trees, on which they have grown, are ſometimes found adhering to them, by which it can be aſcertained that oak and birch afforded their ſupport.

The pearls found in the rivers Lagan, and in the Bann, muſt not eſcape our obſervation; they are obtained from muſcles bred in theſe rivers, in ſhape and colour like ſea muſcles, but of a larger ſize. The fiſh of this muſcle cuts like an oyſter, is of a dark green colour, and ſoon corrupts; being inſipid, it is ſeldom eaten The ſhells are faſtened by two cartilages near the ends, differing in this particular from the oyſter,

&c.

&c. which have only one in the middle. The common method of fiſhing for theſe muſcles, was by wading into the water in ſummer, and thruſting ſticks into the opening of the ſhells to take them up; this, however, could only be done in ſhallow water, whereas the largeſt fiſh, and the greateſt number, were found in deep ſmooth water. This buſineſs now is nearly given up, nor are the pearls found of ſufficient value to tempt people, for the chance of finding them, from their more regular and more profitable occupations. The pearls found were generally of a muddy colour, and ſometimes full of ſpecks, which very much diminiſhed their value. Pearls have been found in the county of Tyrone, of conſiderable price, ſo early as the latter end of the ſeventeenth century, as appears by a letter of Sir Robert Reading to the Royal Society in October 1688. One of theſe, bought from a miller for four pounds ten ſhillings, was afterwards ſold for forty pounds to Lady Glerawly, who refuſed eighty pounds for it from the old Dutcheſs of Ormond.

The introduction of frogs into this county, from whence they have ſpread in ſuch numbers through the reſt of the kingdom, though in itſelf a ſubject of no importance, muſt form a curious and intereſting object in the eyes of a naturaliſt. That they are not indigenous, and that they firſt made their appearance near Moira, in the weſtern parts of this county, can be proved beyond contradiction; but by whom they were

firſt imported is not ſo certain. I was aſſured by an old gentleman of the greateſt veracity, who died ſome years ago above the age of eighty, that the firſt frogs he ever ſaw were in a well near the above mentioned town, from whence he brought ſome of them to Waring's-town, where, until that time, they had never been ſeen; the quickneſs, with which they multiplied, and the rapidity, with which they ſpread, are ſurpriſing, eſpecially the latter, in a creature not very well adapted, at leaſt in appearance, either to move with celerity or with perſeverance; and there are many ſtories ſtill current of the terror and ſurpriſe excited by the view of this diſguſting though innocent animal, which ſeems formed to be the prey of every voracious creature, either by land or water, within whoſe reach it comes.

Amongſt the rare birds, which ſometimes make their appearance in this country, is the Corniſh chough, which has been met with on the ſhore near Killough; likewiſe that beautiful, moſt ſolitary, and ſhy bird, the kingfiſher: its feathers are of the moſt lively colours; the head of a dark green, intermixed with azure ſpots; the back, wings, and rump of a more vivid green; the breaſt, belly, ſides, and feathers under the wings are red, or inclining to red in the laſt mentioned parts. Their habits lead them to retired glens, through which flows generally ſome limpid ſtream, from whence they draw their ſupport; their food being fiſh of the ſmalleſt kinds.

The

The bittern, ardea ſtellaris, is ſometimes met with in the marſhes on the ſea-coaſt. Ouzels of different ſpecies (merula), are ſeen on the mountains of Mourne; eagles alſo are frequent there. The croſs-bill (loxia) has often been obſerved at Waring's-town, where one of theſe birds was ſhot a few winters ago. The birds of paſſage, which make their appearance in ſpring, are the ſwallow, the cuckoo, the rail or corncrake, the quail, beſides ſome others not ſo generally noticed. Thoſe, which appear at the commencement of winter, are the woodcock, the fieldfare, barnacles, and widgeon; theſe two come in aſtoniſhing numbers, and take up their winter abode in the lough of Strangford, and in Carrickfergus bay, where they ſtay until they are invited by the change of ſeaſon to return to the northern climes, from whence they came; theſe birds are much more regular in their time of coming than in their leaving this country, ſeldom being later in coming than the latter end of Auguſt, but often remaining until May, though they ſometimes depart ſo early as April.

Of quadrupeds the only one, I have ſeen deſerving to be mentioned for its rarity, was the marten, of the weaſel kind, as high as a fox, but much longer; it was killed ſeveral years ago at Moira; the ſkin was ſtuffed, and kept a conſiderable time at Montalto; it was of a browniſh colour, with the under part of its neck and belly

belly white, reſembling the common weaſel in every thing, except in the ſuperiority of its ſize.

Since writing the ſection on foſſils, I am informed that the quarries, opened near Moira, of dark blue ſtone in contact with the limeſtone, are baſalt; and that a quarry, opened in the demeſne of Dromore houſe, being inſpected by a gentleman of great ingenuity and experience in natural hiſtory, has been declared to be of the ſame ſpecies; and that on taking away ſand at Bangor for manure, turf-bog was found under it, on the ſhore near the bridge; and on boring near Belfaſt, a bed of muſcles was found, nearly an hundred feet under the ſurface.

SECT. 9. *Of raiſing White-thorn Hedges from Cuttings, both of Branches and Roots.*

MR. HERON, watchmaker in Liſburn, ſhewed me a hedge of ſome years growth, one part of which, conſiſting of ſeveral perches in length, was planted with cuttings of white-thorn, when the other was planted with quicks; the part planted with cuttings was in every way equal to that planted with quicks; the cuttings a part of the ſhoots of two years. Mr. Heron practiſed this mode in the Ards ſeveral years ago. Another way of raiſing quicks is by ſcattering the roots, cut from quicks about to be planted, on a bed

of

of freſh dug earth, and covering them out of a ſlight trench on each ſide; in this ſituation they will throw out ſtems, equal to thoſe raiſed from haws; one precaution, however, is neceſſary in taking them up, to looſen the ground leſt they break, as the ſtem is at an angle with the root. This information I owe to the Rev. Holt Waring.