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WAKEFIELD, EDWARD. 1774-
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AN ACCOUNT OF IRELAND.
STATISTICAL AND POLITICAL

AN
ACCOUNT
OF
IRELAND,
STATISTICAL AND POLITICAL.

BY EDWARD WAKEFIELD.

IN TWO VOLUMES.

VOL. I.

London:

PRINTED FOR LONGMAN, HURST, REES, ORME, AND BROWN,
PATERNOSTER-RROW.

1812.

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J. M. CREERY, Printer,
Black-Horse Court, London.

INTRODUCTORY REMARKS.

A KNOWLEDGE of the natural situation, the political institutions, and the local advantages, even of a foreign nation, is an object of considerable magnitude, and must, to an inquiring and enlightened mind, be a source of no small gratification; but to become acquainted with these relations, as they respect the great divisions of that empire, of which we are ourselves subjects, is of much higher importance. If we be ignorant of the true state of our country, its interests must be imperfectly understood; and it will be as difficult to discover a remedy for existing evils, as to prevent those from arising, which will otherwise necessarily occur during the progress of time. It is by the power of foreseeing political danger that we can guard against its consequences; for states, if their capabilities of improvement be overlooked or neglected, will inevitably sink into weakness, and lose that influence and that consequence among nations, which they might otherwise acquire and retain. Contemplating the present state of Europe, and the wonderful change which has taken place in the general system of continental politics; it becomes the imperious duty of every well-wisher of Great Britain, to point out her resources, and to recommend, to the best of his abilities, the manner in which they may be employed to the greatest public advantage. From recent events there is reason to conclude that our country, at least for some years, must depend for support chiefly on the natural vigour of her own people, and the internal means which they possess of calling it into activity. Her energies, I am happy to say, seem to increase in proportion to the difficulties which she has to encounter; and her resources, notwithstanding the pressure of the times, are still unquestionably great: but the most flattering prospects may be unexpectedly obscured; and prudence requires that we should be

INTRODUCTORY REMARKS.

vigilant, not only to avoid what may tend to depress the one, or to fetter and impede the other, but also to pursue such measures as may give additional strength and stability to both.

Those in the least acquainted with history know, that Ireland forms a very valuable portion of the British empire; whether considered in a commercial, agricultural, or political point of view, and that its importance calls for the utmost attention of a wise administration: Even in the time of the Romans, the possession of Ireland seems to have been considered as necessary towards securing the conquest of Britain;* and we are informed by a very acute and ingenious French writer,† that Louis XIV., when he endeavoured to re-instate James II. on the English throne, and sent troops to Ireland for that purpose, was guilty of a great political oversight, in not employing a force sufficient to secure to him that country; which, in his hands, and under the control of France, would have enabled him effectually to check the increasing power of his rival.

To point out the advantages which England might derive from Ireland, were its interests better understood, and its energies properly encouraged by sound and well digested laws, is the principal object of the facts and observations collected in the following sheets. They were sought after for the purpose of supplying, with authentic materials and documents, those who may be disposed hereafter to turn their thoughts to this subject; and, I hope, however defective this work may be in style, that the matter will be found important, if not interesting. It is, indeed, generally admitted, that the situation of Ireland, so far from being known and appreciated in Great Britain as it ought to be, and as it easily might be, is very imperfectly understood.

* *Agricola expulsum seditione domestica unum ex regulis gentis exceperat, ac specie amicitiae in occasionem retinebat. Sepe ex eo audivi, legione una et modicis auxiliis debellari obtinerique Hiberniam posse. Idque etiam adversus Britanniam profuturum, si Romana ubique arma, et velut è comppectu libertas tolleretur. Tacitus in Vita Agric. edit. Ebz. p. 673.*

† In his *Considerations sur les Causes de la Grandeur des Romains*, alluding to the maxim of constantly dividing, adopted by these people, this writer says: Si un grand Prince qui a régné de nos jours, avoit suivi ces maximes lorsqu'il vit un de ses voisins détrôné, il auroit employé de plus grandes forces pour le soutenir, et le borner dans l'isle qui lui resta fidele: en disant la seule puissance qui pût s'opposer à ses desseins, il auroit tiré d'immenses avantages du malheur même de son allié. *Œuvres de Montesquieu*, tom. vi. p. 72. Amst. 1785.

It may be thought decorous to assign some reason for appearing before the public as an author: the following statement will, I hope, be satisfactory on that head, and be considered as a sufficient apology for assuming, on the present occasion, a character so little in unison with my past habits and pursuits.

In the spring of the year 1808, a committee of the House of Commons was appointed to determine on the best mode of affording relief to the West India planters, men who have a strong claim to the protection and assistance of the mother country. In the course of the deliberations of this committee, it was suggested, as the most effectual means of relief, that sugar, the produce of the West Indies, should be substituted in the distilleries for corn, the production of Great Britain and Ireland. Being called upon by that committee to state my opinion, as to the effect of the proposed measure on the future cultivation of corn at home, I was induced to take a much more comprehensive view of the subject, than as it affected the landed interest. I conceived that the adoption of such a proceeding would be an encroachment on the resources for supplying the people of England with food; and that it would violate those principles of political economy, which formed the basis of that system on which the late Mr. Pitt* had acted a few years before, when the last corn act was introduced and carried by Mr. Western. The suggestion of this plan arrested my attention; and I carefully watched the evidence which was procured by the committee, in order that I might confirm or reject the opinion which I then entertained.

When it appeared, from unquestionable testimony, that Great Britain did not produce corn sufficient to supply her inhabitants, and that Ireland

* "When even the scarcity of the year, when that corn act passed, so severely pressed upon the country, the house, with reluctance, resorted to the measure of bounties; and they acted wisely, rather to let things go almost to extremity, than to encourage the people to look to any other resources than their own agriculture and industry; rather to try their patience and fortitude, to endure distress for a short season, in order to turn their attention to the means, and to urge their best exertions to prevent the recurrence of similar difficulties in future. The policy of our ancestors had been to encourage importation of corn by bounties; but ours was happily that, which by tending to increase our own resources, more effectually secured us against want; and he hoped the country would persevere in that system, for the less we were to depend on other nations for our supply, the less we had to apprehend." Extract from Mr. Pitt's speech, 4th December, 1802. *Woodfall's Debates*, vol. i. p. 338.

had a surplus, it was not difficult to perceive, that the only question for the determination of the committee was, whether it would be most advantageous to the empire, to cultivate the colonies taken from our enemies, or to encourage the increase and improvement of tillage in Ireland. The committee determined in favour of the colonies, and recommended to Parliament, that distillers should be obliged to draw their spirit from sugar instead of corn. In a budget, or, as it was termed, *exposé* of the French empire, the minister of that country boasted, that during the war, the culture of the captured islands would be improved by British capital and industry;* and that so far from their temporary loss being injurious to France, it would have a beneficial result, for at the period of peace they would be restored in a state much more valuable and productive. This measure, so gratifying to our enemies, however sanctioned by powerful recommendation, did not pass through the British Parliament without much opposition; and in the Commons, the Right Honourable John Foster, then Chancellor of the Irish Exchequer, voted in the minority.

In the course of these discussions, the West Indian planters and merchants produced such statistical information, as afforded apparently powerful arguments in favour of their interests. This information, was obtained from Sir William Young's West Indian Common Place Book; and it then occurred to me, that a similar work on Ireland might be highly acceptable to those interested in the prosperity and welfare of that country; especially as information respecting her resources and powers of improvement, moral as well as physical, could be gathered only from detached accounts, scattered throughout numerous volumes, which are seldom to be met with in England: even the representatives of that country in the British Parliament, seemed either unacquainted with her true interests as far as related to this great question, or unable, from want of sufficient information, to state and enforce it, so as to produce a beneficial effect.

The necessity of such a work was suggested in a conversation with Mr. Foster; and I considered his opinion as no mean sanction for con-

* I know that the French islands, surrendered by the treaty of Amiens, had their fortifications amended, extended, and improved, with British labour and British money.

INTRODUCTORY REMARKS.

v

cluding, that a compilation of this kind would be of great use, not only to Ireland, but to the empire at large. Mr. Foster was so obliging as to offer me all the assistance and information in his power; but I consider it necessary to observe, that although the idea of the work originated in this manner, the opinions are my own; they are the unbiassed result of a patient investigation of the state of the country, from actual observation. I stated to Mr. Foster, that if I undertook the work, it must be done unconnected with any party, and that I should consult the Duke of Bedford and the Earl of Darnley, noblemen, who did not accord with him in political opinion. Mr. Foster approved my intention; and both these noblemen were assiduous in introducing me to such of their friends as were likely to aid in the undertaking. To these noblemen, and to the Earl of Fingal, I am particularly indebted; they afforded me the means of procuring much valuable information; and I take the liberty here of mentioning their names, to shew, that it was my early determination not to collect materials merely from those who seemed desirous, only in one way of serving Ireland. After mixing so much with persons of all parties and all religious persuasions, in this my anxious pursuit, I have been surprised, and I may say, chagrined, to find an opinion prevailing, that this work is invariably to speak the sentiments of Mr. Foster. I should consider myself as acting disingenuously, if I did not endeavour to shield him from the imputation of holding many opinions which are to be found in the following pages, and which may be at variance with his own. Whatever reception, therefore, this work may meet with, its defects are to be placed to my own account; with me the whole responsibility must rest; and to prevent any part of it from being ascribed to that gentleman, I have generally mentioned my authority for every fact. The conclusions which I deduce from these facts are the result of my own judgment and conviction. It will be found that I differ from Mr. Foster on several points of no small moment, and particularly on two of the most important measures in which he has participated during the course of his long political career. For Mr. Foster, I entertain the warmest sentiments of friendship and respect; I am proud to acknowledge it; but I never, on that account, yielded up any of my own opinions when they happened to be contrary to his. On every occasion, when they accorded with those which he is known to entertain, I have felt gratified

and relieved; for by this coincidence my ideas on some points received additional authority; but although circumstances of this kind were to me very flattering, I am anxious to shew that the difference in our political sentiments is not evinced merely on unimportant subjects, but in great principles publicly and conscientiously expressed.

My opinion on the momentous legislative act which united Ireland to Great Britain, and formed the two countries into one empire—an act which I yet hope to see confirmed, and still farther strengthened by the admission of the Roman Catholics to a full participation of the benefits of the British Constitution, was not founded on interested motives, nor formed from a partial view of the subject, but adopted after a mature and most attentive consideration of all its bearings and probable effects.* These sentiments are now so firmly established, that nothing but strong facts, facts sufficient to outweigh those from which I have drawn my conclusions, can make me in the least swerve from my present opinions. I am aware that it is popular in Ireland to decry the act of union.† It is common also to ascribe to Great Britain every evil under which that country is now suffering; but being no great man's parasite, and having no desire to hunt after that

* "It removed that most objectionable of all political principles, the separate existence of two co-ordinate and independent legislatures in the same state, which constantly exposed the tranquillity of the empire to dangers, arising from discord and mutual strife, which ambitious or designing men might promote by the agitation of irritating questions."—Extract from Mr. Whithed Keene's Speech, April 2d, 1804. *Cobbett's Parliamentary Register*, vol. ii. p. 78.

† Some persons in that country may, perhaps, have adopted the idea of Dr. Johnson; but that celebrated man, notwithstanding his great genius and extraordinary powers of mind, had his prejudices, and this seems to have been one of them. Conversing with an Irish gentleman on the subject of an union, Johnson said: "Do not make an union with us, Sir; we should unite with you only to rob you. We should have robbed the Scotch, if they had had any thing of which we could have robbed them." *Boswell's Life of Johnson*, vol. iii. p. 440.

De Foe, however, thought very differently, and justly observes: There is no question but, in time, the just reflection on these things will prevail upon men of honesty in all parts of your Majesty's dominions, to acknowledge the happiness and advantages of the UNION; though at present, the artifice of their enemies, rather than any real mischiefs felt by it, have filled their mouths with complaint.—*History of the Union between England and Scotland, dedicated to the Queen*, p. xxvi.

most unstable of all earthly possessions, popular favour, I must dissent from such doctrines; and shall leave to those writers, who do not hesitate to gratify their spleen at the expense of public tranquillity, to destroy, if they be so disposed, the rising germs of the future happiness of her inhabitants. Connexion with Great Britain—union—inseparable union—the being one and the same empire—one and the same people—to have the same interests—throwing the broad parental shield of the British monarchy over the farthest parts of Ireland, and over the meanest of her inhabitants, can alone promote the general and individual welfare of both countries. Great Britain, by her situation, seems destined to be the friend and protectress of Ireland; the latter, notwithstanding the bravery and martial spirit of her inhabitants, is too weak to defend herself against the attacks of a foreign enemy; but uniting her efforts with those of Great Britain, fighting under the same banners, and directing her views to the same objects, the general good, she may bid a proud defiance to the rest of the world.*

In the agricultural, one important part of this undertaking, I felt from the beginning some degree of confidence in my own strength; my attention having, for many years, been directed to the value and management of land, of which I have seen and examined much in many of the counties of England. Mr. Young has remarked, that to prosecute a work of this kind with effect, requires a combination of agricultural and political knowledge, sufficient to discover the best means of employing the productions of the earth, and of applying them in such a manner as to promote the happiness of the people.† These are the acquirements which far surpass the information possessed by the mere farmer, or those of the politician, whose only purpose is the accumulation of the taxes and the resources of the country. Properly to execute such a task requires greater talents and knowledge, than is commonly to be found in the same individual. England, however, in Mr. Young, may boast of such a person; his labours will shed a lustre on her fame through future

* The following passage in Livy is very applicable to this subject: *Itaque societas et unio illis omnino servanda est, si modo salvi esse velint. Aphor. Polit. et Milit. per L. Danaum, p. 304.*

† The Edinburgh Reviewer drew the same character of M. Talleyrand, when he called that genius "a scientific political traveller." *Edinburgh Review*, No. 11. p. 77.

ages; but truth compels me to declare, although the assertion may reproach my country, that he has been ill requited for his exertions in her service, and that during the best days of his life, she seems to have been coldly insensible to the value of his indefatigable and important labours.*

I am not so weak as to imagine that I possess such a combination of talents and acquirements; yet I am impelled to the attempt of giving an account of Ireland, from a conviction of the importance of the subject,

* Perhaps, it may not be quite relevant to my present subject to enlarge farther on this topic, but having just read Dr. Clark's attack upon Russia for her ungrateful conduct towards Professor Pallas, it has roused my feelings in recollecting the situation of Mr. Young. In early life he produced his *Political Arithmetic*, a work which, in the opinion of many very able persons, is to be classed with the profound researches of Sir James Stewart, and the eloquent disquisitions of Dr. Adam Smith. Previously to his writing this book, he had made England much better known by the publication of his *Three Tours*, and in 1779 he began his Irish work, in which he pointed out the folly of the bounty on the inland carriage of corn. His recommendation on this subject was adopted; and, from that hour, may be dated the commencement of extended tillage in Ireland.—See *Annals of Agriculture*, vol. xxix. p. 167. His masterly observations on the penal code of laws against the Roman Catholics, in which he proved that they were not laws against the religion, but the industry of the country, have been frequently quoted, both by writers and public speakers, as authority for the repeal of those obnoxious statutes; and his advice, to a considerable extent, has been followed. He foresaw the benefits of an union, and that union has taken place. Had the many minor details which he recommended, been acted upon, Ireland at this time, would, no doubt, have been in a very different situation. His tour in that country was a labour of some years. Mr. Young wrote much in, and edited the *Annals of Agriculture*, a work of forty-five volumes, and of so much importance, that the great Bentham has said, that whilst he possessed a guinea, he would not be without it.—See *Mr. Bentham's Letter*, *ibid.* vol. xxix. p. 393. Mr. Young's *Farmer's Calendar* now goes through an annual edition; a striking proof of its merit and very great utility. His French tour stands unrivalled by any work of its kind in any language. His *Essay on Manures*, for which the Bath Society awarded him the Bedfordian prize, exhibits his intimate acquaintance with chemistry; and his reports of Essex, Suffolk, Norfolk, Lincolnshire, Oxfordshire, Hertfordshire, &c. afford the most evident marks of his talents and industry. Elected a member of many learned societies, some of them beyond the Atlantic; the friend and associate of the greatest men of the age in which he has lived, generously imparting to all persons the result of his accumulated store of knowledge, Mr. Young has spent a long life in cultivating and promoting the arts of peace. Contemning all private emolument, and serving the public without any view of adding to his private fortune, he has received, I believe, from his country, no other reward than that of being appointed to the office of Secretary to the Board of Agriculture, with the small salary of £400. per annum. Such, reader, is the extent of the boon conferred upon this benefactor of mankind! It is posterity now which must do him justice; and some future biographer, in speaking of his services, may, perhaps, be inclined to remark, that his country behaved to him as Frederic boasted he had done towards Voltaire—"he treated him like a lemon: squeezed out the juice, and then flung away the rind."

and the benefit that must result from even an ordinary execution of the work. But I flatter myself that it will be more valuable than a dry statistical account, consisting only of figures and tables, unaccompanied with reasoning and observation. To such a mode of proceeding I had one strong objection. I should have been confined to a statement of the present resources of the country, passing over the future means of improvement, or the best methods of applying those which Ireland now possesses for the strength and security of the empire.

Had my work been so confined in its object, the quantity of waste land not being yet ascertained, nor any census of the people taken, my labours would have been nearly useless. Such statistical information as I have been able to procure, collected chiefly from papers annually laid before parliament, has been incorporated in different parts of the following sheets; and, however scanty, will, I trust, be found in general to be correct.

I was aware, that to be of service, it would be necessary to lay before the public, more enlarged accounts of the produce, resources, and advantages, of Ireland, than those which were to be obtained from the dry returns of exports and imports, revenue, expenditure, and public debt. Although to such information might be added what could be gleaned from the County Surveys of that country, it did not appear to me sufficient either for the information of the statesman, or of readers in general. I considered that a mere collection of undigested facts, however numerous and important in their own application, would not be of general utility, but that they should be intermixed with reasoning, founded upon principles of political economy. If the ideas, which have directed my views respecting Ireland, be correct, the discussions into which I have entered, will render the work more valuable; for, without recourse to this sure test of general political knowledge, the traveller in Ireland will be frequently deceived. There are, I am sorry to remark, persons in that country, who, in order that they may enjoy the pleasure of misleading, purposely give erroneous information to the inquirer: even at this day, I have heard Mr. Young ridiculed for repeating the account which was

communicated to him of "claret being given to ewes at a certain season." Mr. Young may have been imposed upon once in his life, but the persons who laid such a plan were deceiving themselves, and injuring the public. The circumstance, however, ought to be a warning to collectors of facts, not to give implicit credit to all that is told them. When such snares are laid in the way of those who are engaged in works of this description, they must weigh the information which they acquire against probability, and their own judgment must then decide. Among the numerous difficulties which attend such an undertaking, this is not the least; but I have, in many cases, exonerated myself from responsibility by giving the names, where I could do it with propriety, of those gentlemen, who were so kind as to assist me by answers to my queries. Perhaps, I may here be allowed to say, without arrogating too much, that I have been actuated by an honourable zeal to promote the interests of a country, for which, in consequence of its being the native soil of some of my nearest connexions, I had formed an early predilection—a predilection, which by more intimate acquaintance with its inhabitants, has increased to a most ardent attachment.

Under these impressions, all personal considerations vanished; my reluctance to appear before the public, as an author, decreased; and I determined to undertake the task, endeavouring to execute it to the best of my abilities. It is not material how my labours may be dressed, whether in the garment of the court or the cottage. Literary fame, however gratifying, has not been my particular object; yet I am not insensible to its value, and should have been happy to have possessed the genius that would have ensured it to me. I must, in this particular, throw myself on the indulgence of the public, being more desirous to be useful than ornamental.

In describing the scenery of Ireland, I found myself more at a loss than in most other parts of my work, which is principally a detail of dry, though important, facts. But I could not, in many instances, and for many reasons, refrain from giving way to my feelings, when contemplating the sublime scenes which presented themselves to my view in various situations in this country; and I have endeavoured, with a feeble hand I fear, to give a

general idea of its picturesque beauties, under that portion which is entitled, Face of the Country.

Its geological description appeared to me to be of little moment, when compared with a knowledge of the state of its people, their habits, their inducements to labour, and the manner in which the produce of their industry is afterwards applied. These were my great objects, and to such subjects I have always directed my most diligent inquiries: yet, in pursuing them, collateral information has never been overlooked or neglected.

In Lord Selkirk's work on Highland Emigration, many quotations from other authors are printed in an Appendix, for the purpose of establishing or corroborating his opinions and statements; perhaps, such a method would have been more judicious than that which I have adopted; but when I found it necessary to have recourse to the labours of others, I have either inserted what I borrowed in the text, or given my authority, or the passage itself, in a note immediately under the part to which it relates; conceiving that references, by being so placed, may be more easily consulted, and occasion less distraction to the reader. In some instances, where the length of the passages precluded the possibility of inserting them entire, I have taken the liberty of abridging them, and have referred the reader to the work.

Although I have been studiously careful to avoid whatever might subject me to the charge of intentional plagiarism, I think it necessary to observe, that I may unconsciously, in some instances, have adopted the sentiments of others. In reading remarks and observations that strike forcibly, they often become so strongly imprinted on the mind, as, after a considerable lapse of time, to establish themselves as original ideas, although they may be nothing more than the undetected productions of memory. If I have ever fallen into this error, and if I have employed borrowed thoughts without due acknowledgment, I can assure their authors I have not transgressed intentionally.

Being resolved to render this work as comprehensive as possible, I have

evaded no question through prejudice, or the fear of giving offence. The friends, with whose assistance I have been honoured, are, I trust too high-minded to be displeas'd at that use of their names, which is necessary to the public welfare. My only claim to confidence rests, indeed, on my determination to speak the truth without reserve or disguise. If unfortunately I should offend individuals, it is my judgment and not my intention that will have erred; and on discovering that any thing in this work may have such an effect, I shall feel great regret. Through motives of delicacy, I have suppressed many facts which came to my knowledge, because I found, that were I to give them to the public, the private concerns of many individuals would be expos'd. It was, indeed, once my intention not to introduce the name of any person; but I subsequently thought that the adoption of this rule would diminish the authority which a work of this kind should possess; and as it contains information derived from many still living, they will have an opportunity of correcting any mistakes into which I may have fallen.

My motive being the public good, I have thought it necessary to censure various practices and habits, to which, if similarly situated, I might myself from the fallibility of human nature, have become addicted, and many foibles, which, if educated under the like circumstances, might have attached themselves to my own character. I am ready, therefore, to make every allowance for that infirmity, which is so often derived from the society into which we are thrown; and which, notwithstanding all the pains that may be taken by moral precepts and wise regulations, will have a sensible effect upon our manners and conduct. But those are the best friends to mankind who are bold enough to point out errors wherever they may be found; and who are not afraid to expose faults, especially when there is a possibility of their being removed. Reproof, convey'd in temperate language, can be ungrateful only to the incorrigible; and I hope that the observations I have made on this subject may be of use. They will be felt, no doubt, in a proper manner by those to whom they are applicable; and if they be felt, they may contribute to produce amendment. One kind of indulgence, which is the cause of much irregularity, is more prevalent in Ireland than in any other part of the empire. This indulgence, added to passions naturally ardent, gives birth on many occasions, to scenes

of disorder and confusion. To endeavour to check such evils is certainly laudable; and, without aspiring to the rank of authors of high estimation, may I be allowed to ask, Have not Mr. Young's Description of an Irish *Buckeen*, and Miss Edgeworth's *Castle Rack-Rent*, contributed to the improvement of national morals and manners in Ireland? The publication of the *Spectator* in England effected a striking alteration on English society; and it cannot be doubted, that every representation of national vice and folly will have, in some degree, a similar effect. It would be a base return for all my obligations to the Irish nation, were I to compromise her interest, by flattering the vanity of individuals, or throwing a veil over the weak parts of her national character. Wherever I conceived that they could be amended by being known, I have mentioned them boldly; but I am conscious that I have done it with the open sincerity of friendship, and I earnestly hope that it may have the effect I intended. Numerous are the traits of national virtue and of correct high-minded conduct which I have observed; and never have I noticed them without exulting in such symptoms of real superiority of character.

To those partial friends who have expressed an anxious desire for the earlier appearance of this work, it may be necessary to offer some apology. They will find by its magnitude, that I have not been idle; and so far from feeling confident of its being even now fit for the public eye, I wished, to have profited by the hint of the Roman poet,* and to have allowed more time for correction and revision; but had I so indulged myself, some of my observations might have been out of date; and much rendered unnecessary by a change of circumstances.

The history of Ireland has been written with various degrees of ability; but no one, perhaps, has executed his task in such a manner as to give general satisfaction. Such a work is still a desideratum in English literature. The political events of the last forty years have been detailed with such ability by Mr. Hardy, in his *life of Lord Charlemont*, that, probably, a history of Ireland from his pen would add much to the literary character of our country, and form a valuable addition to what has been already published on the subject.

* ————— nonumque prematur in annum.—HORAT. ARS POETICA.

The antiquities of Ireland may be found in the works of Ledwich and Grose. The object of the late tour of Sir Richard Hoare, Bart. appears to have been a research of this kind; and had he confined his remarks entirely to this subject, his volume might have been more useful.

I have not entered, at length, into any historical or antiquarian disquisitions. These subjects of themselves would require as much space as I have allotted to this work; in treatises on Ireland there are no such helps to be met with as those which England possesses in Camden's *Britannia*, Chalmer's *Caledonia*, &c.; and for County Topography, nothing to compare with Bloomfield's *Norfolk*, or Sir Richard Hoare's *Wiltshire*.

To English works also, we must look for all state papers; for although there are important documents both in the Castle of Dublin, in Trinity College, and some, perhaps, belonging to the Earl of Ormonde, at his castle in Kilkenny, there has yet been no printed works similar to Rymer's *Fœdera*, the Clarendon papers, and Lord Somers's *Tracts*; unless Lord Stafford's works, and Primate Boulter's *Letters* should be considered as an exception.

Notwithstanding I resided in Ireland nearly two years, for the purpose of collecting materials, in which pursuit I passed over the greatest part of the island, I think it proper to remark, that I have attended less to Antrim, Leitrim, Louth, and Longford, than to any of the other counties. It is necessary, therefore, that I should state my reasons to the reader for this omission. The Rev. Mr. Dubourdieu will soon publish an historical report of Antrim; Mr. Edgeworth is engaged on one of Longford, and Dr. Beaufort has for some time been preparing a description of Louth. Being aware that an account of these counties would be laid before the public, by those who are more able than myself; I thought it would be presumptive to anticipate these gentlemen in any thing that they might have to produce, further than might be necessary to afford data for my last chapter of general results. Leitrim is a small mountainous county, and as I had no acquaintance with any one there, I had not an opportunity of increasing my knowledge respecting it, other than what I was myself able to obtain, by crossing it twice in different directions.

When I was in Ireland, I applied for information to people of every rank, from the nobleman to the peasant. To give a list of the persons to whom I am under obligations, would appear ostentatious. Those to whom I am indebted for hospitality, great kindness, and material assistance in the prosecution of my labours, will, I hope, be contented with the only return for their generosity and disinterestedness which I have it in my power to make—my warmest thanks, and lively remembrance of their favours. It will be perceived that I am indebted to the Right Honourable Wellesley Pole for many official documents, without any stipulation respecting the principles of my work; a proof of his liberality, and of his willingness that facts should be laid before the public from incontrovertible documents.

To many of my friends in England my acknowledgments are due for the assistance which they have afforded me by the loan of their books; and, I trust, that none of them will consider themselves as slighted by my particular mention of the extraordinary obligation I am under, in this particular, to Sir Joseph Banks.

Most of the works to which I have referred I have had the advantage of consulting in my own library.

But before I proceed to the principal object of this undertaking, it may be necessary to make some remarks on the labours of those authors who have preceded me; and who have given either general sketches of the state of Ireland, or detached accounts of some of its counties or divisions.

And, first, as meriting particular attention, I shall mention the Tour of the celebrated Arthur Young, in the year 1779; which, were it a recent publication, might render my work in some degree useless.

The Rev. Dr. Beaufort's Memoir of a Map of Ireland, published in 1792, is also a valuable production; which, added to the foregoing Book, must form the basis of every future statistical Survey of Ireland.

The following counties have been surveyed, and the reports published by the Dublin Society:

Armagh	-	by Sir Charles Coote, Bart.
Cavan	-	— Ditto
Clare	-	— Mr. Hely Dutton
Cork	-	— Rev. Horace Townsend
Donegal	-	— Dr. M'Parlan
Down	-	— Rev. John Dubourdieu
Dublin	-	— Mr. John Archer
Observations on it		— Mr. Hely Dutton
Kildare	-	— Mr. James Rawson
Kilkenny	-	— William Tighe, Esq. M. P.
King's County		— Sir Charles Coote, Bart.
Leitrim	-	— Dr. M'Parlan
Londonderry	-	— Rev. G. V. Sampson
Mayo	-	— Dr. M'Parlan
Meath	-	— Mr. Robert Thompson
Monaghan	-	— Sir Charles Coote, Bart.
Queen's County		— Ditto
Sligo	-	— Dr. M'Parlan
Tyrone	-	— Mr. M'Evoy
Wexford	-	— Mr. Robert Fraser
Wicklow	-	— Ditto.

These works are seldom to be met with in England; and even were they found in every library, much of the information contained in them is enveloped in theoretical schemes of farming, from which it is difficult to extract other valuable information. On this account, and that of their being the production of Irish gentlemen, a prejudice has been raised against them in Ireland, which prevents their being often consulted, and which, of course, renders them of much less utility.

From my own experience I am led to consider books like men. I have met with few from which I could not select something that was valuable; * and from the authors I have just enumerated, it will readily be conceived

* *Dicere etiam solebat: Nullum esse librum tam malum quod non aliqua parte prodesset.*

Plin. Epist. lib. iii. 5.

that much valuable information was to be procured. Some of these works may be imperfect in many respects, but there are others in the above list which are distinguished by peculiar merit; the unworthy and too general jealousy of Irishmen, against the productions of their countrymen, is the great obstacle to their extended circulation. Mr. Tighe's Account of Kilkenny is a perfect work of its kind; and may be considered as a model for the survey of every other county in the empire.

Mr. Townsend's work would do credit to any country, the only drawback is the want of an index. The Dublin Society profess not to be accountable for the statements or opinions contained in any of these reports; but as they are printed at the instigation and expense of the society, and by it their authors are engaged, the character of this body is pledged to the country for the ability and veracity of the gentlemen employed. These reports furnish materials upon many subjects which I should have found it impossible to collect, unless I had employed as much time upon each county as I was able to afford to the whole country. I have, therefore, availed myself of their assistance, being desirous to lay the facts which they establish before the reader, who, I have no doubt, will join with me in lamenting, that the other counties have not yet experienced the same fortunate attention.

Kerry, Cork, and Waterford, were surveyed more than fifty years ago by Dr. Smith, whose literary reputation has been fully established; Down, by a Mr. Harris, and by an anonymous author; and Dublin, by this latter writer, and also by Mr. Ferrar, who has written a History of Limerick.

In 1772, the learned Dr. Ruty gave the world a Natural History of the County of Dublin, which is a work of great merit. Of the more recent publications, which contain topographical accounts of Ireland, I shall mention the following:

Cooper's Letters on the Irish Nation. London, 1800. 2d edit.

Campbell's Philosophical Survey of the South of Ireland. Dublin, 1787.

The Rev. W. Hamilton's Letters on the Coast of Antrim.

Duhig's Kings Inn. Dublin, 1806.

Newenham's Inquiry into the Population of Ireland. London, 1805.

Newenham's View of Ireland. London, 1809.

The two last works are the production of a member of the late Irish Parliament. In the Appendix to the last-mentioned volume are some important Tables of Reference. I have not the honour of being personally acquainted with this gentleman, yet I am indebted to him for some important communications which I have acknowledged where they are inserted.

Weld's Killarney, the elegant production of the well known American Traveller, deserves to be particularly noticed.

The Rev. James Whitelaw's Essay on the Population of Dublin, printed in 1805, is a work of great labour and uncommon ability. It gives an accurate enumeration of the inhabitants of that city; and exhibits such a faithful picture of local misery, as deserves the serious attention of every legislator and political economist.

The late Dr. Crump, of Limerick, and Mr. Wallace, published each an Essay; both of which were first submitted to the inspection of the Royal Irish Academy. The prize from the Society was adjudged to Dr. Crump for his learned and philanthropic labours. The subject is the "Employment of the People." I have found this Essay full of good sense and acute observation.

Mr. Wallace chose a similar subject, under a different title, namely, "What Manufacture is best adapted to Ireland?" This work did not obtain the prize; but it must be considered as a valuable addition to an Irish library.

Of Coin, Money, and Circulating Medium, the well-known work of Simon, holds a most distinguished rank. Mr. Henry Parnell and Mr. John Leslie Foster have each published on the same subject in 1804.

Mr. Arrowsmith has favoured me with the data upon which he has constructed his Map of Ireland, by which excellent authority I have been guided throughout my first chapter. The map, which is placed before this work, must be considered as little more than an itinerary, to guide the reader—for more accurate information reference must be made to that lately published by Mr. Arrowsmith.

Mr. Carlisle's Topographical Dictionary is an important and useful production.

In the spelling of proper names, I have endeavoured to follow Dr. Beaufort; but having detained the work to the latest period, in order to allow time for the receipt of information from Ireland, I am fearful that some typographical errors may have escaped, owing to the rapidity with which these volumes have been printed.

It will appear that I have referred to many works, the productions of the northern countries of Europe, which have not yet been translated into our language; in such cases, I have rendered the passages that elucidated my subject with as much faithfulness as was in my power, for the accommodation of those who might not have a knowledge of the original.

Having given a conscientious and full explanation of my reasons for attempting so important a work, I have little more to add; yet I hope I shall be excused for again hinting at the great importance of an undisguised development of the truth, on a subject of such magnitude as the peace and prosperity of a whole empire. Impelled by this sentiment, I never have felt weary in the prosecution of my undertaking; this stimulant has forced me over many difficulties, and has upheld me to the end.

Should these volumes, when they are before the public, satisfy in any manner the expectations of those kind friends who have encouraged and assisted me, and should my labours be of service in giving information to the statesman, the politician, or the philanthropist, I shall have a greater reward than any other circumstance can bestow. If some passages be found exceptionable, either in the opinions or the matter, I hope the reader will bear in mind the variety of the subjects, and consider that human judgment has its imperfections, and human exertions their limits.

TABLE OF CONTENTS.

VOL. I.

CHAP.		PAGE
I.	NAME, SITUATION, EXTENT AND DIVISIONS	1
	Extent	4
	Political Division	4
	Ecclesiastical Division	4
	Fiscal Division	5
II.	FACE OF THE COUNTRY	8
	Of the Province of Ulster	12
	Of the Province of Connaught	32
	Of the Province of Leinster	39
	Of the Province of Munster	57
III.	SOIL	79
IV.	BOGS	82
V.	MINERALS, &c.	112
	Earths	112
	Clay	113
	Sand	114
	Stones	115
	Gold	130
	Silver	131
	Copper	131
	Lead	134
	Iron	135
VI.	CLIMATE	140
VII.	LANDED PROPERTY, RENTAL, AND TENURES	237
	Tenures	285
	Rental	306

TABLE OF CONTENTS.

xxi

CHAP.		PAGE
VIII.	RURAL ECONOMY	308
	Grazing	308
	Dairies	322
	Cattle	334
	Sheep Grazing	341
	Sheep	343
	Horses	350
	Goats	352
	Hogs	353
	Rabbits	354
	Hares and Bees	356
	Poultry	358
	Tillage	360
	Agricultural Capital	426
	Fallows	429
	Draining Rivers, Lakes, and Moors	471
	Mountain Improvement	473
	Irrigation	482
	Manures	489
	Implements	501
	Labour	507
	Trees and Planting	522
	General Observations on Rural Economy	579
IX.	FUEL	608
X.	HARBOURS	625
XI.	LIGHT HOUSES	632
XII.	INTERNAL COMMUNICATION	635
	Rivers	636
	Canals	637
	Roads	656
	Posts	662
	Mails, Stage Coaches, and Inns	665
	Post Office	672
XIII.	MANUFACTURES, AND NATIONAL INDUSTRY	678
	Linen Manufacture	680
	Cotton Manufacture	703
	Woollen Manufacture	708
	Tanneries	721

TABLE OF CONTENTS.

CHAP. XIII. CONTINUED.	PAGE
Iron Manufacture	727
Distillation	727
Breweries	748
Flour Mills	747
Salted Provisions	748
Making Kelp	758
Salt	756
General View of Manufactures	758

CONTENTS.

VOL. II.

CHAP.	PAGE
XIV. COMMERCE	1
Commercial Tables of Imports	32
_____ of Exports	46
_____ of Exports Foreign and Colonial	57
XV. FISHERIES	71
Inland	83
White Fishery	92
Herring Fishery	100
Shell Fish	122
Whale Fishery	125
General Observations on the Fisheries	128
XVI. MONEY AND CIRCULATING MEDIUM	137
The past State of Money and Circulating Medium	137
The present State of Money and Circulating Medium	137
Bank of Ireland	165
Private Banks	166
Silver Notes	173
Bills of Exchange and Tally Payments	174
Guineas	174

TABLE OF CONTENTS.

xxiii

CHAP.	PAGE
XVII. WEIGHTS AND MEASURES	195
XVIII. PRICES	203
XIX. REVENUE AND FINANCE	235
Comparative View of Annual Receipts in Great Britain and Ireland	272
Comparative View of Annual Expenditure in Great Britain and Ireland	273
Comparative View of National Debt of Great Britain and Ireland	274
Comparative View of Imports and Exports of Great Britain and Ireland	275
Detail of Public Receipts of Ireland, from 1800 to 1811	275
Detail of Expenditure of Ireland from 1800 to 1811	277
Funded Debt of Ireland from 1800 to 1811	278
Comparative Expense of collecting the Revenue in Great Britain and Ireland	280
XX. REPRESENTATION	281
Peerage	286
Commons	300
XXI. GOVERNMENT	322
Lord Lieutenant	322
Chancellor	325
Commander in Chief	325
Public Boards	327
Secretary	328
Administration of Law	332
Sheriff	346
Grand Jury	347
Police	351
Prisons	354
Oaths	355
XXII. REBELLION IN 1798	358
French Invasion in 1798	358
XXIII. PARTIES	383
Beresford Family	383
Ponsonby Family	384
Foster Family	386

TABLE OF CONTENTS.

CHAP.	PAGE
XXIV. EDUCATION	395
Schools of Royal Foundation	406
Private Establishment	409
Charter Schools	410
Diocesan Schools	419
Blue-Coat Hospital and Hibernian Schools	422
Foundling Hospital	423
Hibernian Marine School	441
Regimental Schools	443
College of Maynooth	446
XXV. CHURCH ESTABLISHMENT	453
XXVI. TITHE	479
XXVII. RELIGIOUS SECTS AND PARTIES	497
Protestant Dissenters	497
Catholic Claims	499
Catholic Aristocracy	542
Catholic Clergy	548
Catholic Population	567
Religious Sects and Parties in each County	592
General Observations on Religious Sects and Parties	632
XXVIII. POPULATION	664
General Observations on Population	712
XXIX. CUSTOMS, MANNERS, AND HABITS—GENERAL STATE OF THE PEOPLE	726
General Observations on Customs, Manners, and Habits	794
XXX. DEFENCE	813
XXXI. CONCLUDING REMARKS	835

PRESENT STATE OF IRELAND:

CHAPTER I.

NAME, SITUATION, EXTENT, AND DIVISIONS.

WHETHER Ireland was known to the Phœnicians who frequented the coasts of Cornwall for the purpose of procuring tin, is uncertain; because no authentic information on that subject has been preserved.* The earliest notice, perhaps, to be depended on, which we have of it, is that of Eratosthenes, librarian to Ptolemy Philadelphus, king of Egypt, who flourished about two centuries and a half before the Christian æra. The works of this eminent mathematician and geographer have been lost; but Strabo, who frequently refers to them, and who seems to have been indebted to him for many observations, praises his private collection of books,† and remarks, that he was so well acquainted with the western parts of Europe, that he determined the distance of Ireland from Celtica.‡

The first Roman author who speaks of it is Cæsar; he calls it Hibernia, a name said to be given to it by the Romans on account of its supposed coldness; and he

* Had the Phœnicians been acquainted with Ireland, it is probable they would have concealed their knowledge of it, because they were exceedingly jealous of their commerce, and unwilling to let other nations know the sources from which they derived their riches. The story of the Phœnician ship-master, who, on a voyage to Britain, observing a Roman vessel following him in order to watch his course, voluntarily run his own vessel on a shoal for the purpose of misleading the Roman, is well known. The wily Phœnician, who was a better seaman, found means to escape; but the Roman, less skilful, was lost. The former, on account of his ingenuity, received an indemnification for his goods from the public treasury. *Strab. Geog. edit. Almeloveen, Amst. 1707, vol. i. p. 265.*—Postell, a reviver of oriental literature in the sixteenth century, derives *Irin* from *Jurin*, the land of the Jews. *Worai Antiq.* cap. 1. and Bochart endeavours to trace Hibernia to the Phœnician *Iber-nae*, or the farther habitation. *Geo. Sac. ed. Leusden, lib. i. cap. 60.*

† *Strab. Geog. vol. i. p. 120.*

‡ *Ibid. ib. p. 124.* This author gives to Ireland the name of *Ierne*; mention of it occurs also p. 111, 127, 175.

states it to be half the size of Britain, and to lie at the same distance from it that Britain does from Gaul.* It is mentioned also by Tacitus, in his *Life of Agricola*, under the same name; and various writers who lived at later periods describe it under those of Ierna,† Ierne,‡ Iuverna,§ and Ivernia.||

Diodorus Siculus, who travelled over a great part of Europe and Asia to collect materials for his history, gives to Ireland the name of Iris; a word which is to be found in no other Greek or Roman author.¶ Some, therefore, have considered it as a mistake; but a learned antiquary seems to think that this was the genuine name of the island; and indeed the proofs which he adduces in support of his opinion appear to me to deserve particular attention. “Iri, or as now written, Eri, in the Irish, is the great isle. In Teutonic Er-aii, contracted into Eri, is the farther isle. It received this appellation from the Teutonic tribes, who formerly possessed Europe, and has been invariably used by them in every age.”

A. D.

“540, Gildas left the school of Iltutus in Wales and went to Iris.**

870, In Islands Landnamaboc, one of the oldest Icelandic Sagas, Ireland is named Ir-land. In King Alfred’s Anglo-Saxon translation of Orosius, Ireland is styled Ireland.††

891, Three Irishmen, says the Anglo-Saxon Chronicle, came in a boat from Yr-land.

981, In the same record under this year Ireland has the same name.

1048, In the same chronicle Harold flies to Yr-land.

1076, Adam of Bremen has the same name.

1105, Ælnoth in his *Life of St. Canute* calls the Irish Iros.

1401, Odericus Vitalis styles the Irish Irenses, and their country Ire-land.‡‡

* Cæsaris Comment. de Bello Gallico, lib. v. cap. 13. edit. Oxon. 1800, 8vo, p. 93. Tacit. Opera, edit. Eliz. Lugd. Bat. 1640, vol. ii. p. 673. It is mentioned under the same name by Solinus, cap. 25, in Pomp. Mela, C. Jul. Solini. Polyhist. Æthici Cosmograp. Lugd. Bat. 1646, p. 125, and in Æthicus, ibid. p. 508.

† Sed in altera parte orbis jacent insularum aggeres maximarum: Britanniz duo, Albion et Ierna.

Apuleius de Mundo. Apul. Op. Paris, 1601, p. 8.

‡ Scotorum cumulos flevit glacialis Ierne. Claudiani Op. de iv. Cons. Honor. Lubeca. 1701, p. 96.

§ Pomp. Mela, lib. iii. cap. 6. Lugd. Bat. 1646, p. 125.

|| Agathemer. in Geog. Vet. Script. Min. vol. ii. p. 39, 46. Marcianus Heracleota, ibid. vol. i. p. 9, 57.

¶ Ἰσθμῶν δὲ ὄντων τῶν ἐπὶ τὰς ἄρκτας κατοικούντων καὶ τῶν τῇ Σκυθία πλησιοχώρων, φασὶ τινὰς ἀνθρώπων ἰσθμῶν, ὡσπὶρ καὶ τῶν Βρεττανῶν τὰς κατοικούντας τῆν ὀνομαζομένην Ἰρι.

Diod. Sic. edit. Wesseling, vol. i. p. 355.

** Valedicens pio magistro venerandisque condiscipulis Iren perrexit. Usser Primor, p. 907.

†† Johnstone’s Antiq. Celto-Scand. p. 14.

‡‡ Usser ut sup. p. 734.

“ And in Wormius's Runic Literature, the Irish alphabet is called *Ira-letur*. The identity of Diodorus's *Iris* with the *Iris*, *Ira*, *Iros*, *Irenses*, *Ire*, and *Ir*, of the Gothic and Teutonic people, and that traced for above six hundred years, clearly evinces that this Greek author has preserved the genuine and original name of the island.”*

This island, which next to Britain is the largest in Europe, lies at no great distance from the western shores of England, and is still nearer to the coast of Scotland. It is separated from Britain by the Irish Sea, which varies in breadth from fourteen to forty leagues; but between Scotland and the county of Down it is contracted into a channel only six leagues wide, and farther north, to a still narrower strait of less than four, between the north-east point of the coast of Antrim and the Mull of Kintyre.†

Ireland has not yet been surveyed with sufficient care to determine exactly either its size‡ or its situation. General Vallancey constructed a map of it, which is commonly called the “Ordnance Map.” This map is supposed to be laid down from actual observation, and it has furnished the data for the recent one of Mr. Arrowsmith, which, notwithstanding its many errors and deficiencies, must be considered as by far the most accurate yet published. I shall, however, point out a few of its errors: it makes the Grand Canal complete no farther westward than Tullamore; and the Royal Canal is marked out only in some places beyond Kilcock. It exhibits a canal from Kilkenny to the Barrow, which is a work in contemplation, but not yet begun. It is deficient in the orthography of places; for instance, Tanderagee, one of the first linen market-towns, appears under the name of Tanagerage. Laurentinum, a place of less note in the vale of Doneraile, is named Labantiman. Castle-Mountgarret becomes Castle Margaret. The Twelve Pins Mountains are the Xiipins. Even Lambay has not been suffered to retain its proper name, and numberless instances of the same kind might be produced. The town-lands are marked as villages, though they have no title whatever to that appellation. In Ireland the places of this kind amount to several thousands; to insert them in a map would be impossible, and if practicable it would be useless.

Mr. Arrowsmith, I believe, received many assurances of being furnished with several of the county maps constructed for the use of the grand juries of Ireland, but he complains that, except in the case of a very young nobleman, the Earl of Desart, the performance of most of these offers has been forgotten.

* Ledwich's *Antiquities of Ireland*, Dublin, 1804, 4to, p. 19, 20.

† Beaufort's *Memoir of a Map of Ireland*, p. 8.

‡ The Romans seem to have had a map or topography of Ireland, which is alluded to by Pliny, *lib. iv. cap. 16*, *Lug. Bat. 1669*, vol. i. p. 234. Sir William Petty constructed a map of Ireland, which was edited by Vischer and Homan. See Hauber's *Versuch einer Historie der Land-Chartens*, Ulm, 1724, p. 97.

A tonnage duty is collected in England upon all shipping for the purpose of erecting light-houses. This fund is intrusted to the management of the Elder Brethren of the Trinity House. I do not know the extent of their powers; but did the nature of that institution admit of it, I cannot imagine a better application of part of their income than in sending men of science to ascertain the precise position of the capes, headlands, &c. of Ireland, which would enable ingenious artists like Mr. Arrowsmith, to lay down correctly the true situation of the coasts of that country, the boundaries of which have hitherto been but vaguely defined.

I have not furnished this work with a map, because I found it impossible to give any thing like a correct one; I might have copied that to which I have alluded, but it would have been unfair to ask permission for that purpose of its publisher, who ought alone to reap the benefit of his ingenuity and labour. To it, therefore, I must refer the reader who may be desirous of becoming acquainted with the situation of those places which I shall hereafter have occasion to mention.

I have measured upon it with some care the area of Ireland, and make the superficial content of it, including the inland lakes, to be as follows:—

English Square Miles*	Irish Acres	English Acres
32,201	12,722,615	20,437,974

The divisions of this extent of country may be comprehended under three general heads.

I. A *Political* Division into four *Provinces*; **ULSTER**, **LEINSTER**, **CONNAUGHT**, and **MUNSTER**, which are again divided into thirty-two counties. These counties are sub-divided into two hundred and fifty-two baronies; the baronies into 2436 parishes; and the parishes into town-lands, ploughlands, gneeves,† cantrons, &c.

II. An *Ecclesiastical* Division into *Provinces* and *Dioceses*, which are distributed in the following manner—

The Province of ARMAGH contains ten <i>Dioceses</i> .‡	
Abpk. of Armagh.	Bpk. of Raphoe.
Bpk. of Dromore.	of Clogher.
of Down } united.	of Kilmore.
of Connor } united.	of Ardagh.‡
of Derry.	of Meath.

The Province of DUBLIN contains five <i>Dioceses</i> .	
Abpk. of Dublin.	Bpk. of Ferns } united.
Bpk. of Kildare.	of Leighlin } united.
of Ossory.	

* Of 69.15 to a degree.

† In the county of Cork, "a gneeve is the twelfth part of a ploughland." *Townsend's Statistical Survey of Cork*, p. 320.

‡ The dioceses are placed here according to contiguity, and not according to rank.

§ *Ardagh*, though in this province, is at present annexed to the Archbishoprick of *Tuan*.

The Province of CASHELL contains eleven *Dioceses*.

Abpk. of Cashell	} united.	Bpk. of Cloyne.	} united.
Bpk. of Emly		Bpk. of Limerick	
of Waterford	} united.	of Ardfert	} united.
of Lismore		& Aghadoc	
of Cork	} united.	of Killaloe	} united
of Ross		of Kilfenora	

The Province of TUAM contains six *Dioceses*.

Abpk. of Tuam.	} united.	Bpk. of Elphin.
of Clonfert		of Killala.
of Kilmacduagh		of Achonry.

III. A *Fiscal* Division, comprehending the following Collections:—

Armagh	Dublin City	Lisburn	Strangford
Athlone	Dublin County	Londonderry	Tralee
Baltimore	Dundalk	Loughrea	Trim
Cavan	Ennis	Mallow	Waterford
Clonmell	Foxford	Maryborough	Wexford
Coleraine	Galway	Naas	Wicklow
Cork	Kilkenny	Newry	and
Dingle	Kinsale	Sligo	Youghal.
Drogheda	Limerick	Strabane	

A late melancholy event on the coast of Ireland * induces me, before I conclude this chapter, to say a few words in regard to the errors of former maps, which have been constructed chiefly from the observations of Mackenzie, published in a thin quarto volume. This gentleman lays down the river Shannon in a wrong position, and in this he has been followed by the surveyors appointed to construct a chart of it, and draw up a report for the use of the Irish parliament; a task which they evidently performed, by copying the blunders of their blundering precursor, without giving themselves the trouble to make a single observation. These, and similar mistakes, have caused many fatal accidents at sea, as will appear from the following paper; a copy of which is furnished by the Admiralty to every commander of His Majesty's ships.

“ HYDROGRAPHICAL-OFFICE, ADMIRALTY,

November 30, 1801.

“ Remarks on the south-west and north-west coasts of Ireland, by Thomas George Shortland, lieutenant in His Majesty's ship *Melpomene*, communicated by Sir Thomas Troubridge, Bart.

“ On making Dursey Island, off Bantry Bay, I observed with one of Ramsden's

* The loss of the *Saldanha* frigate.

best sextants, and found the latitude of the south-east end of it $51^{\circ} 37' N.$; and being off there for three successive days, I found it the same; and every quadrant in the ship agreed within a mile or two of my observation.

“ Sailing still on, past the Skelligs and Blasquets; next day I observed, off the mouth of the Shannon, and found Loop Head to be in $52^{\circ} 37'$, Kerry Head $52^{\circ} 30'$, and Brandon Head $52^{\circ} 22'$. I was off there five or six days, and had excellent observations.

“ From the Shannon we had not any opportunity of seeing the land, until we were off Urris Head, the latitude of which I made to be $54^{\circ} 28' N.$ From between Dursey Island and Urris Head, is laid down from $10'$ to $12'$ to the southward of the truth.

“ The danger from this is, that should a ship, proceeding to the Shannon, get a good observation, and run in the parallel of $52^{\circ} 24'$, or $52^{\circ} 26'$; if thick weather afterwards came on, she would, instead of making the entrance of the Shannon, or Loop Head, run into Brandon or Tralee Bay; and should it blow hard to the west-north-west, or west, that she could not weather round Kerry Head, the consequence would be dreadful, from the heavy sea and foul ground in both these places.

“ From the observations I made, the same would hold good in running either for Bantry, or any other place on the south-west and west coast of Ireland. I find that the York Indiaman was wrecked in Tralee Bay, Oct. 29, 1758. ‘ At seven A. M. Oct. 29, 1758, it blowing hard, bore away for the Shannon. At noon latitude, by a good observation, $52^{\circ} 28'$, which is by my chart and books the latitude of Loop Head. Stood on till two o'clock, and then discovered that the entrance must be wrong laid down; as by the form of the land in sight, it must be Tralee Bay. It still blowing hard, and running in for the land, the ship struck and was wrecked.’ The captain observes, ‘ That had the entrance of the river Shannon been laid down in $52^{\circ} 36'$, which is the truth, and not $52^{\circ} 24'$, the York Indiaman would not have been lost.’

“ I have every reason to believe that the latitude of Cape Clear is right, and that the error begins at Mizen Head. Cape Tiellen, the northern point of Donegal Bay, is right laid down; but Urris Head, the southern point, is $10'$ to the southward of the truth. Donegal Bay, therefore, is not so wide by ten miles, as it is laid down in the charts.

A. DALRYMPLE,

“ *Hydrographer to the Admiralty.*”

The late Admiral Drury made a survey of the coasts and harbours of Ireland, but it has never been published. It is said to have been carried away by some lord-lieutenant on his leaving the country.

As the following glossary, or explanation of some of those words which most

frequently occur in composition, with the names of places in Ireland, may render these names more intelligible to an English reader, I have taken the liberty of copying it from Dr. Beaufort's Memoir.*

<i>Agh</i> , a field.	<i>Don</i> , a height or fastness, a fortress.
<i>Anagh</i> , or <i>Ana</i> , a river.	<i>Donagh</i> , a church. .
<i>Ard</i> , a high place or rising ground.	<i>Drom</i> , a high narrow ridge of hills.
<i>Ath</i> , a ford.	<i>Inch</i> , <i>Inis</i> , an island. .
<i>Awin</i> , a river.	<i>Ken</i> , a head.
<i>Bally</i> , or <i>Ballin</i> , a town or inclosed place of habitation.	<i>Kill</i> , a church or cemetery.
<i>Ban</i> , or <i>Bane</i> , white or fair.	<i>Knock</i> , a single hill or a hillock.
<i>Beg</i> , little.	<i>Lick</i> , a flat stone.
<i>Ben</i> , the summit of a mountain, generally an abrupt head.	<i>Lough</i> , a lake or a pool.
<i>Bun</i> , a bottom, a foundation or root.	<i>Magh</i> , a plain.
<i>Car</i> , or <i>Cahir</i> , a city.	<i>Main</i> , a collection of hillocks.
<i>Carrick</i> , <i>Carrig</i> , <i>Carrow</i> , a rock or stony place.	<i>More</i> , large or great. .
<i>Cork</i> , <i>Corragh</i> , a marsh or swampy ground.	<i>Rath</i> , a mount or entrenchment, a barrow.
<i>Clara</i> , a plain.	<i>Ross</i> , a point of land projecting into waters.
<i>Croagh-Croghan</i> , a sharp pointed hill resembling a rick.	<i>Shan</i> , old.
<i>Clogh</i> , <i>Clough</i> , a great stone.	<i>Stiebh</i> , a range of mountain, a hill covered with heath.
<i>Curragh</i> , a marshy or fenny plain.	<i>Tack</i> , a house.
<i>Clon</i> , a glade or level pasture ground.	<i>Temple</i> , a church.
<i>Col</i> , <i>Cul</i> , a corner.	<i>Tom</i> , <i>Toom</i> , a bush.
<i>Derry</i> , a clear dry spot in the midst of a woody swamp.	<i>Tra</i> , a strand.
	<i>Tobar</i> , <i>Tubber</i> , a well or spring.
	<i>Tullagh</i> , a gentle hill, a common.
	<i>Tully</i> , a place subject to floods.

* Memoir of a Map of Ireland, p. 146.

CHAPTER II.

FACE OF THE COUNTRY.

THE promontory of the Fair Head, in Antrim, is by many considered as the most northerly part of Ireland; though the extreme point in that direction is evidently Malin Head, in Donegal. The Fair Head, of which I shall have occasion to speak more particularly hereafter, consists of high land, as does also the greater part of the shore of Antrim. Pursuing the country southwards, the mountains of Mourne, which divide the county of Down, appear of considerable height; but to the south of these, and of the Fews in Armagh, the country sinks into a flat, which stretches out to a great length across the counties of Louth, Meath, Dublin, Kildare, and Carlow.

The county of Wicklow is an assemblage of granite mountains, extending to Mount Leinster, and the range of hills called the Blackstairs, which, dividing Wexford from Wicklow and Carlow, continue to the Brandon Hills in Kilkenny; and crossing the barony of Idagh in that county, may be traced to the Knockmeleádn ridge, which stand on that side of the Suir next to the county of Waterford, and thence to the Galtees, which divide Cork from the county of Limerick. They may be afterwards traced in a south-westerly direction, till they spread out towards Cape Clear, and are found in the chain of mountains projecting into the sea between Bantry Bay and Kenmare River; and, on the banks of that large arm of the sea in the barony of Iveragh, and in M'Gillycuddy's Reeks in Kerry, which is the highest land in Ireland. The general direction of these heights is from east to west, but without forming a continued ridge. Turning the eye once more north, and pursuing the western coast, the shore of Donegal presents a mountainous appearance, with an internal ridge running across the county from Tiellen Head.

To the south of Lough Erne, there is a continued line of high mountains, which runs in a direction parallel to that inland sea.

Leitrim is exceedingly mountainous, and in Mayo, Nephin, and Crow Patrick, rear their lofty summits to a very great elevation. It is asserted by some, that Crow Patrick is the highest ground in the island.

In the interior, the Sliehbloom mountains divide the King's and Queen's counties from each other, and form a great chain, which deserves particular notice; nor ought the heights between Carlow and Castle Connel to be omitted.

Monaghan, Cavan, Tyrone, the northern shore of Lough Erne and Westmeath, are all rugged and uneven, but contain no heights that deserve the name of mountains, with the exception of Knock Ton; or, at any rate, none that would be

considered as such by an Englishman ; for the Irish sometimes apply that appellation to flat land, if it be naked and barren.*

A great part of Tipperary and Limerick consists of rich calcareous flats ; and, from the north of them, may be traced the great bog of Allen, which stretching through the King's and Queen's Counties, and also Kildare, extends almost to Dublin.

There is no county in Ireland without some vales of luxuriant soil ; and the northern part of Limerick, Clare, and a large portion of Galway and Roscommon, exhibit one continued bed of lime-stone.

One of the natural marks which divide Ireland, is the Shannon ; it separates Connaught and the county of Clare from the rest of the kingdom ; and in two places at Lough Derg above Limerick, and Lough Reagh above Athlone, this noble stream expands into vast sheets of water.

Lough Neagh in the north-east, lying between the counties of Antrim, Down, Armagh, Tyrone, and Londonderry, occupies an extent of 173 English square miles.† Lough Erne, which intersects Fermanagh, 85 ; and Lough Carrig, in Galway, 73. Numerous other lakes are to be found in Ireland, but they are inferior to these in magnitude. The Nore, the Barrow, and the Suir, all have their efflux at the same place in the south.

Could Dr. Johnson have been prevailed on to make the tour of Ireland,‡ it would, no doubt, have drawn from him the same sarcastic remark as that which he made in regard to Scotland. The whole island is remarkably bare of trees, and exhibits a naked appearance ; which is more striking to a traveller, whose eye has been familiarised to the woody counties of England. Yet the varied aspect arising from the frequency of sea-views, combined with the rude but grand scenery of the mountains, and the different tints they assume according to their distance, produce a number of beautiful and diversified prospects, some of which I shall hereafter describe.

* Boate, in his Natural History of Ireland, speaking of the distinction between mountains and hills, says, p. 80, Lond. edit. 1652 : " The English language useth one and the same word for both, calling hills, as well the one as the other, without any other distinction ; but sometimes the word *small* or *great* is added. Now because this word so indifferently used, would cause some confusion in the matter we treat of, this hath made us restrain it to one of the sorts, and to call hills only the lesser sort, called in Latin *collis*, in French *colline*, in Dutch *heuvel*, and in Irish *knock*. As for the other and bigger sort, whose name, in the aforesaid four languages, is *mons*, *berg*, and *slew*, we call them mountains ; which word mountains, although it be good English, yet in common speech it is seldom made use of in that sense whereunto we apply it, but only to signify a country wholly consisting of more great hills, especially where the soil thereof is lean and unfruitful."

† According to Arrowsmith's map.

‡ " He, I know not why, shewed, upon all occasions, an aversion to go to Ireland, where I proposed to him that we should make a tour." *Beswell's Life of Johnson*, vol. iii. p. 440.

As the height of mountains, in considering the general face of a country, deserves to be particularly noticed, I have here inserted the following comparative table of the elevation, above the level of the sea, of some remarkable eminences in England, Scotland, and Ireland. The authorities for the heights of the Irish mountains, were communicated to me by Mr. Herbert, of Carnicene, near Killarney.

		Feet.	Measured by
ENGLAND.	Wherside, Yorkshire	5340	Jefferys
	Ingleborough, ditto	5280	ditto
	Penny Guest, ditto	5220	ditto
	Snowdon, Wales	3568	Pennant
	Pendlehill, ditto	3411	Waddington
	Crossfellin, Cumberland	3390	Donald
	Hellvellyn, ditto	3324	ditto
	Skiddaw, ditto	3270	ditto
SCOTLAND.	Benlomond	3240	Pennant
	Benewick	4350	ditto
	Benybord	Still higher	
IRELAND.	Curranea, Toohill, or } M'Gilleycuddy's Reeks } Kerry .	3695	Kirwan
	Mangerton, ditto	2693	ditto
	Sliebh-Donard, Down	2809	ditto
	Nephin, Mayo	2630	ditto
	Crow or Croagh Patrick, ditto	2660	ditto

Mr. Weld, speaking of the mountains near Killarney, says,* "M'Gilleycuddy's Reeks are generally supposed to be the most lofty mountains in Ireland, though their exact height does not appear to have been ascertained. The celebrated Mr. Kirwan made several barometrical observations, both on them and on other mountains in the vicinity of Killarney, from which he concluded, as he informed me, that the Reeks were at least 3000 feet in height; but, at the same time, he added, that his experiments were not sufficiently numerous, fully to satisfy his own mind on the subject. A gentleman resident near Killarney, gave me, from memory, a computation of their height, derived from a different source; according to which, their most elevated point was only 150 feet lower than Snowdon. The latter mountain is somewhat less, according to the most generally received calculation, than 600 fathoms high, or 3568 feet. This measurement, therefore, would leave the height of the Reeks at 3418 feet, which rather exceeds what Mr. Kirwan supposed it to be.

* Illustrations of the Scenery of Killarney, p. 147.

I suspect, however, that that gentleman did not direct his observations to the most lofty point. He told me it was his practice to remain below, on one of the islands in the lake, whilst his assistant ascended the mountain, and that they corresponded from time to time by the means of signals and telescopes. Now, on Glauraun Tuel, the highest peak, this would have been impracticable, as no part of it is visible from the lake. 'I should suppose that this mountain rises at least 200 feet above the other peaks; but its superior height is not generally known to the people around Killarney.'

In giving the above heights, I have thought it right to quote the authorities; but the public may soon expect a more accurate account of the Irish mountains, as Dr. Berger, a member of the Geological Society of London, is now on a tour through Ireland, for the purpose of examining them.

It may be proper here also to remark, that my account of the face of the country, must not be considered as a formal description of the scenery of Ireland. That subject would require volumes, and to do it justice, a talent for composition which I do not pretend to possess. A summary view of the most prominent features of the country is all that I shall attempt. Many parts of it, indeed, are worthy the pen of a Gilpin. Of this kind is the scenery around the lakes of Killarney, in the county of Kerry, the most picturesque spot in the island. Lough Erne, also, in the county of Fermanagh, exhibits abundance of prospects, which are so striking, that they must be long remembered by those who have seen them.

The sea-coast of the county of Wicklow presents a variety of the most beautiful scenery, which would afford delightful occupation to the painter, the poet, or the tourist, fond of delineating nature as it appears, unassisted by the artificial aid of man.

The estuaries of the Slaney, the Barrow, the Nore, the Suir, the Blackwater, the river from Passage to Cork, Kenmare river, all deserve the attention of the lovers of rural prospects.

The coast of Antrim, the Lough of Belfast, and the Bay of Carlingford, exhibit excellent views and beautiful scenery.

PROVINCE OF ULSTER.

ULSTER, the most northerly province of Ireland, is bounded on the north by the Deucaliedonian Sea, on the west by the Atlantic Ocean; on the east by St. George's Channel and the Irish Sea; and on the south and south-west by the provinces of Leinster and Connaught. It forms an area of 8375 English square miles, and contains nine counties, viz. Antrim, Armagh, Cavan, Fermanagh, Donegal, Down, Londonderry, Monaghan, and Tyrone.

ANTRIM.

This maritime county contains 1018 English square miles. On the northern shore of it is to be seen that astonishing natural curiosity known by the name of the Giant's Causeway. The formation of which has given rise to many and various opinions. It is situated under high cliffs, and consists of rocks composed of pentagonal basaltic pillars, standing in a perpendicular direction, which extend a great way into the ocean. It is seen to most advantage at low water. For a minute account of it I must refer to the work of the late Rev. William Hamilton, whose description is interesting and accurate. His book is in every body's hands, and it is my wish to call the reader's attention to objects which have not hitherto been pointed out by others. Near the Giant's Causeway, a small village, with an inn, called Bush Mills, has been built for the accommodation of travellers.*

The country as you proceed hence to Fair Head, is highly interesting. Beyond Bally Castle I ascended a mountain which conducted me to the Head. It consists of an immense rocky promontory, rising higher and higher from the inland country till it terminates abruptly in a perpendicular cliff of gigantic height. According to the account of Mr. Staples, jun. of Lisson, by whom it has been measured, it is forty fathoms, or 240 feet above the rough ground which stretches out into the sea. This statement is confirmed by the following account extracted from the Belfast Newspaper, an authority to which I should not have referred, were it not supported by the above testimony of Mr. Staples. "A gentleman distinguished in the literary world, now on a tour through Ireland, has sent to his correspondent in Belfast the measurement of the Fair Head, east of Bally Castle, county of Antrim, as follows:—"Per-

* Dr. Johnson said, that the Giant's-Causeway "might be worth seeing, but not worth going to see;" I believe, however, that few philosophers possessed of any curiosity will be of his opinion.

See *Boswell's Life of Johnson*, vol. iii. 440.

pendicular face, 283 feet, total altitude from the level of the sea, 631 feet. One of the columns is a quadrangular prism, thirty-three feet by thirty-six on the sides, and about 200 feet perpendicular height. This column is perhaps the largest in the world. The specific gravity of the basaltes, of which this stone is composed, is about 2·8 from which the weight of the prism may be readily estimated. It is so situated, that a vessel or raft of any kind could be brought within 200 yards of it. Did we live in the times of Roman or Grecian splendour, it would be formed into an obelisk or placed in some great public building. This basaltic prism is greater than the pedestal which supports the statue of Peter the Great at Petersburg, and much greater than the shaft of Pompey's pillar at Alexandria. The column of grey granite which stood before the Temple of Venus Genetrix at Rome, was also composed of one piece. It was transported to England, and is now erected before the seat of Lord Pembroke, at Wilton, near Salisbury."

From Fair Head to Glenarm, the scenery is exceedingly beautiful, a few miles of bog in the neighbourhood of that promontory excepted. This bog, however, is very different in its situation from those low flat ones which are seen in various parts of Ireland, for it lies on a height, and hence it might be drained without much labour, and made to produce corn instead of heath. Descending the hill to Cushendall, a small village standing close to a bay of the same name, I beheld on the one hand a cultivated mountain, and on the other a vale of rich land in a high state of tillage. Upon the whole, a more extended and more delightful prospect of hill and dale intermixed in charming variety, is not often to be seen. From Cushendall to Glenarm, passing Red Bay, and coasting along the ocean the whole way, the road exhibits the most romantic and beautiful scenery. On the one hand, magnificent and widely-extended views of the ocean, which on this coast rolls its swelling waves towards the shore with a peculiar and dangerous rapidity; and on the other, rocky mountains of considerable height, whose hanging cliffs, as the road extends partly up their sides, seem to threaten the traveller with destruction, and which, in some places, are thickly clothed with woods, through the openings between which, the eye is sometimes surprised by the sight of a village. As the road winds round a great many spacious bays which abound on this part of the coast, few rides can be more agreeable.

From Glenarm you soon reach Larne and Carrickfergus. The whole northern shore of Belfast Lough is elevated to some height above the ocean, and appears studded with neat white-washed houses belonging to opulent manufacturers and merchants of Belfast. This district indeed exhibits every appearance of an abundant population and the most active industry. The people all seem cheerful and happy.

The interior of the country on the eastern side is mountainous to a great degree, destitute of plantations, and without that variety which gives so much life and ani-

mation to rural scenery. Between Lough Neagh and Belfast is an immense mountain, and the shores of that large lake are flat, dull, and uninteresting. In many places they are boggy, and the water of the lake has a petrifying quality. On the bank of it, near Randlestown, stands an ancient seat belonging to Lord O'Neil; it is called Shanes Castle; but it is badly placed, in an extensive demesne of 1500 acres, abounding with situations well adapted for a mansion suited to such a landed property. A river, called the Mainwater, from its having previously received the tributary water of several other streams, runs through the middle of it. The demesne is highly wooded, and the banks of the river exhibit the appearance of forest scenery.

The Bann does not afford any picturesque views till it reaches the neighbourhood of Colerain, where there is a salmon-fishery, and where the elevated grounds on both sides the river, which at that place form part of the county of Derry, are highly romantic and curious.

From Lisburn to Belfast, along the edges of the counties of Antrim and Down, the scenery is grand and striking; the whole county being broken and uneven, and affording distant views of the lough, and of the high mountain behind Belfast. The land for the most part is cultivated and interspersed with plantations and villas, reared by the wealth of that commercial city, which, overflowing into the adjacent districts, gives to the inhabitants an air of ease and independence, which strikes the eye of the most careless observer.

To the westward of the mountain above-mentioned there is a glen belonging to Colonel Heyland, which I regret that I had not an opportunity of seeing, as it is celebrated for its beauty.

ARMAGH.

This inland county contains 451 English square miles. In the southern part of it there is a chain of black, and partly uncultivated mountains, called the Fews, but thinly inhabited; without plantations or tillage to enliven the scene, and not possessing lime-stone to ameliorate the soil, they present a dreary and melancholy aspect. In the neighbourhood of the city, however, numerous inclosures, cultivated fields, and other signs of an abundant population, strike the eye, and excite more lively and pleasing ideas. In some places the inclosures are fenced with hedges, in others they are surrounded merely by mounds of earth. In this vicinity there are also some orchards, but they are not numerous. To the north of it, near Lough Neagh, there are very extensive bogs, the soil of which is remarkably black and extends to a great depth. This country affords very little scenery worthy of notice.

• CAVAN.

Cavan is an inland county, and contains 758 English square miles. The waters which proceed from the lakes in Westmeath flow through this county till they discharge themselves into Lough Erne. In some places they constitute small lakes, in others they retain the form of rivers, and in many cases they contribute, of course, to the formation of beautiful and picturesque scenery. On the borders of the county of Monaghan, Mr. Coote, of Bellamont Forest, Mr. Dawson of Dawson's Grove, and Mr. Corry, have seats, which are contiguous to each other. Their demesnes are abundantly clothed with wood, and are separated only by a kind of lakes which are very common in this part of Ireland, so that they have the appearance of belonging to the same owner.

From Farnham I proceeded to Cootehill, passing through Cavan, Ballyhays, and Ballamacongy, and found the roads every where hard and hilly, and the country naked and destitute of trees. The substratum is a rotten rock-stone without any intermixture of a calcareous nature. On my return I crossed "the mountain" through Stradone. The tops of these hills are cultivated and divided into small inclosures, or rather embankments. Near Cavan stands Farnham, the residence of Earl Farnham, which is one of the finest and best kept demesnes in Ireland. It affords abundance of views intermixed with some lake scenery. Near Killeshandra, in this county, Lord Farnham has a hunting and fishing cottage. The whole county is covered with hills, but exhibits no particular chain of considerable height, as it seems to be composed entirely of eminences; it contains no valleys of any extent, and in some places the cavities between the hills have become lakes. I spent a day with a large party on the borders of one of these lakes, close to which stands the elegant cottage of Lady Farnham. The scenery here is exceedingly romantic, the sides of the hills being covered with waving trees, approaching close to the margin of the water. Sir Ralph Gore, who was one of the party, and who had lived several years in Canada, observed, that the spot where we were bore a very striking resemblance to the view presented by an American river. As for Farnham, its noble possessor has spared no expense in adorning it with all those appropriate embellishments which art can give to nature. It is his chief place of residence; and he displays here in his domestic economy that warm hospitality, and that well-ordered magnificence, which unite the Irish with the English character. Lady Farnham's neat cottages, independently of their use and accommodation, add greatly to the beauty of Farnham.

I must not here omit to mention the banks of a large lake called Shaalan, which is seven miles long, but of various breadths, from half a mile to four. The northern part of them are planted and studded with gentlemen's cottages, which are used as

sporting boxes. On the south side the ground is high, and covered with corn-fields, and the view which comprehends the ruin of an ancient castle called Ross, is bounded by hills of considerable magnitude; a remarkable one, the Ben of Fore, forming the high ground over the ancient town of the same name in Westmeath.

DONEGAL.

Donegal, formerly called Tyrconnel, contains 1725 English square miles. It is a very mountainous country, and is nearly divided by a high ridge stretching east and west from Tiellen Head to the county of Tyrone, and in which there are three passes. The most remarkable river in this county is the Erne, which discharges itself into the sea at Ballyshannon. The Lennan has on its banks the beautiful village of Ramelton. At Brown Hall, near Ballyshannon, there is a very remarkable glen which attracts the curiosity of travellers. It is watered by a mountain stream which winds through limestone rocks, sometimes above ground, and sometimes concealed from view. The rock in many places is split, and much wooded, and the chasm has many bendings and precipices, over which the water is projected with great force, and when swelled by the rains, affords a very awful spectacle. In some places the water has worn the rock so much away, as to give to some of the beds through which it flows, the appearance of the mouth of a cavern. The last time I was in the county of Donegal, September 1808, I pursued the road on the western coast. After passing Imber, there is a fine view of Donegal Bay, which contains several lesser ones, but particularly that one, known by the name of Killybegs. This bay is formed by the high land of Tiellen Head, in this county, and the Stags of Broadhaven in Sligo. The prospect from the bridge of Imber is exceedingly beautiful. On the right towards the interior of the land, a mountain is seen at a distance, with cultivated fields in the fore-ground. At the foot of another mountain, a gentleman's seat, with surrounding plantations, arrests the eye; and to the left the scene is diversified by a sand-bank, thrown up by the sea; and a high ridge of plantation on the western side of the river, with Donegal Bay appearing beyond it. Proceeding onward to the mountains in front, all appearance of cultivation ceases. On the high land, in advancing to Ardra, I passed over a most extensive bog; but the approach to Major Nesbit's, at Woodhill, is scarcely to be paralleled. On the left, the landscape stretches out to the sea; not a single ridge is to be seen; three mountains, of great height, come in view; and before you is a spacious bay, surrounded by sandy shores. Mr. Nesbit's plantations are directly in front; and between them and the sea, stands the village of Ardra. On the right the land is high, and for a great way up of a boggy nature, but the top is composed of rock; and beyond the whole, the

view is terminated by a boundless expanse of ocean. Pursuing the road to Leichbeg, through Glentis, the country assumes a very singular appearance; being interspersed with small patches of cultivated land, wherever there is any soil, and cabins constructed of stone, without any cement. But the general face of the country presents an uninhabited waste of granite rock, which is every where seen in the sides of the mountains.

At Rutland Island, which I visited, my attention was for some time occupied by the exertions of the late Right Honourable Burton Conyngham, who erected a town here, destined for the residence of fishermen. The scheme has failed, but Mr. Conyngham's views were laudable; and his labours will long be remembered by every friend to the industry and prosperity of Ireland.

The whole of the western coast of this county, consists of a range of mountainous rocks, which, in some places, throw out branches that extend to the sea, or run between borders of sand, which has a peculiar whiteness, owing, perhaps, to its being formed from fragments of granite washed down from the rocks, and reduced to its present state by attrition. Between the mountains, in the interior of the county, there are tracts of bog; and, at a former period, it is not improbable that these were forests; but, at present, a traveller may proceed many a mile, without seeing the least vestige of a tree.

Near the residence of Mr. Stewart at Horn Head, there is a remarkable cavern, called M'Swine's Gun, which is situated in a rocky cliff of about sixty feet in height. In this cliff a small bay has been formed, the sides of which are bordered by rocks, rising almost in a perpendicular direction. The lower stratum of these rocks consists of porous sandstone, in which the violence and continual buffeting of the waves has formed a cavern, from which an aperture proceeds to the summit of the cliff. When the wind comes from the north-west, it blows directly into this small bay; and the billows being driven with great violence into the cavern, the water, forced to find a passage through the aperture, rises to the top of the cliff, from which it precipitates itself back into the sea with a most tremendous noise. The rock, where the water runs over, has assumed a blue colour, which gives to the whole a volcanic appearance.* To the east stands the Arigal, said to be the highest mountain in the province; it consists of mountain spar, and is shaped like a sugar-loaf. Near it there are lead-mines, the property of Lord Leitrim.

* A phenomenon, somewhat of the same kind, is observed in one of the Feroe Islands; but vapour only, and not water, issues from the hole, which is at the summit of a cliff that rises to the height of 120 feet above the level of the sea. A hollow murmuring noise also proceeds from the aperture, which is eight inches in diameter. The cause in both cases is the same; namely, water driven with force into a cavity at the bottom of the cliff. See *Land's Description of the Feroe Islands*, p. 32.

I proceeded to the Horn Head, across the whole peninsula, which contains six or seven thousand acres belonging to, and occupied by, a Mr. Stewart, who lives on the isthmus, or neck, in a comfortable white house, surrounded by plantations. This gentleman has erected a new bridge, of considerable extent, opposite to his mansion. Looking to the west over this bridge, you have a prospect of the sea, bounded on the right by a sandy beach, and an elevated sand-bank on the left; the house appears in front, and the high land of Horn Head behind, completes the view. From the main-land we could discern Tory Island, which lies at the distance of nine miles. It contains an old monastery, and the ruins of seven churches; it is inhabited by about a hundred families, and formerly was a "station;" that is to say, a place where the Catholics were sent to do penance, as is the case still at Lough Derg.

The gentlemen's seats in this county are but few; one of the most striking is that belonging to Mr. Stewart, of the Ards. It has been built under the hills, probably for the sake of shelter, and stands near the shore on a wide arm of the sea, extending over a bed of the white sand already mentioned, which gives the water an indescribable appearance of clearness. The opposite shore consists of a high sand-bank, which shifts with the wind. Behind is a high mountain, called the Murkish; and on the right are seen rocky heights, covered with flourishing plantations. The whole scene is enlivened by scattered cabins, inhabited by healthy and industrious peasants; objects that never fail to excite the most lively emotions in the feeling heart; and without which the finest prospects, though they may affect the mind with a momentary delight, must at length appear tasteless and dull.

Seldom have I seen a spot exhibiting more evident marks of the exertions which an active mind is capable of making, in the carrying on of improvements. I quitted this gentleman with regret, and proceeded to M'Swine's Castle, the property of General Hart; built on a promontory, which projects on the opposite strand. The General was then fitting it up for his own residence, and the repairs and improvements were almost completed. It is surrounded by a wall, inclosing a court-yard, at the corners of which there were formerly towers, sixty feet in height. About 130 years ago it was inhabited by a M'Swine, from whom it derives its present appellation. According to the account of my guide, the mountains here are much more populous than they were some years ago, and new cabins are arising every day; a strong sign that this part of the country is in a state of some improvement.

Desirous to see every thing curious in the neighbourhood, I passed over Lougaugh-bridge, which consists of one arch, fifty-two feet in the span, and ascended Mount-Alt; on the summit of which is a lough, or lake, bearing the same name. The views here are truly magnificent. To the west, the immense ocean, forming sometimes a smooth glassy plane, extending as far as the eye can reach, and some-

times rolling its angry waves in rapid succession towards the shore, which it covers with its spray. To the north, the view is terminated by mountains; and, on the south, the Murkish and Arigal, raising their proud summits, obstruct all farther prospect in that direction. The latter mountain does not consist of granite; but some, formed of that kind of rock, though not visible from this station, extend beyond it.

Descending from this height I passed Ramelton, and proceeded to the ferry, over Lough Swilly. Ramelton belongs to Sir James Stewart, whose seat stands at no great distance from it. Every thing connected with this place bespeaks its owner to be a man of correct taste and judgment. When passing it, I much regretted that I had not procured a letter of introduction to him; and the character I afterwards heard of him, convinced me that I was right in the opinion I had formed. At the neighbouring village there is a bridge of three arches over the Lennan. I was much struck with the appearance which the town exhibited at a distance, and particularly the contrast formed by the new houses, built of stone and slated, and the remains of the mud walls and thatched roofs overgrown with weeds, which belonged to the old ones. This difference impressed me with a lively idea of the pleasing effect produced by the hand of improvement, which had been here actively employed in bringing about a beneficial change, and exciting the spirit of industry. The beauty of the whole is much increased by the place being embosomed in wood. The river here abounds with salmon, which, like those caught in the Bann and the Boyne, are always in season.

Approaching Lough Swilly through fine quick hedge-rows, belonging to Sir James, I soon saw the barony of Inishoen. The height of the land, the immediate foreground being a sandy beach, and this noble sheet of water spread out beneath it, afforded a sight truly grand and sublime. I crossed the Lough, and proceeding through Newtown Cunningham, reached Londonderry.

I must here observe, that the barony of Inishoen is badly delineated in maps, as no roads are marked out in it; but so far from this being the case, it is intersected by very good roads, and the land is better cultivated than it is in any other part of the county; for, as it does not consist of a rocky mountainous tract, like many other parts, it is more susceptible of tillage and improvement. The Bishop of Derry has a house in it at Faun, which is very agreeably situated. The views from it of Lough Swilly are exceedingly grand, and such as every traveller should see.

DOWN.

Down is a maritime county, and contains 936 English square miles. In the centre of it the Mourne mountains, the second in point of height in Ireland, rear their lofty summits;* and this grand feature produces a very striking difference in regard to some parts of the county. To the north of these mountains, and on the western side of it, comprehending Hillsboro, Banbridge, Moyallan, and round towards Newry, the land is in a high state of cultivation, and inhabited by a middle class of opulent manufacturers, whose appearance and condition would do credit to any country in Europe. Their habitations are well built, display great neatness, and are all white-washed. The whole tract is embellished with plantations; and whether owing to the wealth created by the linen manufacture, or the trade carried on at Belfast and Newry, every thing exhibits evident signs of increased population and industry. The banks of the rivers Bann and Laggan are covered with bleach-fields, and present that cheerful and pleasing scenery which characterizes a manufacturing country, and excites in the mind an idea of improved civilization. The whiteness of the linen spread out on these fields, contrasted with the greenness of the surrounding sward, produces an effect on the eye not easily described; and the concomitant objects, added to the bustle and activity of the people employed, render the whole scene most interesting. From such favoured spots, every appearance of that misery and wretchedness, which prevail where industry has not yet extended its beneficial influence, are completely banished.

Tullymore Park, belonging to Lord Roden and Rostrevor, a celebrated bathing-place, which is considered the Brighton of Ireland, are both highly extolled, on account of their romantic scenery. Rostrevor consists of a wooded bank, on a small arm of the sea, which stretches into the country from Carlingford Bay, and has behind it the Mourne mountains. I had no opportunity of seeing these places, and have mentioned them only from the report of others. Sir Richard Hoare has described them minutely.†

All the views of Belfast Lough are on a grand scale. The opposite shore towards Larne, in the county of Antrim, being a rising ground, is studded with white-washed houses, inhabited by a numerous class of people, who have acquired opulence, and all its attendant comforts, by commercial pursuits. The Lough itself is filled with

* Slieve Donard, in Down, commonly called the Mountains of Mourne, rise to the height of 2809 feet above the level of the sea, according to the account given to me by Mr. Herbert, of Carneine, near Killarney.

† Journal of a Tour in Ireland, p. 230.

vessels, some with their sails spread, pursuing their course home from distant lands; and others lying at anchor near the town of Belfast, taking in cargoes for a foreign market; while the town itself, appearing as it were, depressed, at the end of the Lough, forms a most interesting object. The whole surface of this county, like the greater part of the cultivated portion of Ireland, is uneven. -

FERMANAGH.

Fermanagh contains 694 English square miles. The grand feature in the face of this county is Lough Erne, which stretches throughout its whole length, forming two large lakes in places embayed by mountains; which, in some parts, extend to the edge of the water, and in others receding from it, are seen at a distance. Both sides of this noble sheet of water are, therefore, hilly and uneven; but the country towards Leitrim, forms one extensive range of mountains, of which Belmore, swelling out its massy sides towards the lake, is the most conspicuous. There are several other lakes of inferior size in this county, and a great many magnificent seats, which are highly worthy of notice; such as Castle-Cool, Florence Court, Castle Archdall, Castle Caldwell, Brookboro, Belleisle, Crum, &c.

In the course of my tour I travelled from Farnham, near Cavan, to Belleisle; passing through the towns of Butler's-Bridge, Wattle's-Bridge, and Maguire's-Bridge. Lough Erne, which was on my left, is not seen here to advantage. On the south side of it there is a range of hills; and I remarked that the hills here are disposed more in ridges than in Cavan, though it equally abounds with them. It struck me, also, that this part of the country did not appear to be so thickly strewed with cabins or cottages.

Belleisle, when I was there, belonged to Sir Richard Hardinge, in right of his lady; but it has since been sold to Mr. Hannington. The mansion is small, and situated on a woody island, which is accessible by means of a causeway and a bridge, consisting of one arch. The island contains 112 acres. Adjacent to it is another island, nearly of the same extent; and both exhibit a most agreeable prospect, being covered with thriving woods of ash, oak, beech, and firs. The house fronts the south, and has before it a neat lawn, ornamented with gravel-walks and plantations. Immediately before it, at the distance of about three miles, stands a green hill, called Knockninny, which was formerly a deer park, but is now let as a farm. Behind this hill the scenery consists of a greenish mountain, which appears to be cultivated to a certain height; and connected on the right with a ridge of much higher black mountains, the termination of which becomes lost in the horizon. Immediately to the westward, within about a quarter of a mile of West Island, is a range of eleven other islands, all covered to the water's-edge with timber, which stretches directly

across the lake. On the left, in this view from the house, the lake appears too narrow, and to possess less beauty than the western side, which I have described.

On the 30th of August, 1808, I enjoyed the pleasure of a most delightful water-excursion on Lough Erne, which is still fresh in my memory; but I regret that my talent for description is little calculated to do justice to scenes which would require a more lively imagination than I possess, and a much more animated pen. As the party intended to visit Crum, a small lodge ten miles distant, belonging to Lord Erne, we attempted to direct our vessel to the south-east of the old castle, which stands on the main land, and of which little now remains; but it is celebrated for a most extraordinary ewe-tree, throwing out its branches to the enormous distance of forty-five feet. Unfortunately the wind was against us; and after beating about the lake for three hours, to the southward of Knockninny, we were reluctantly obliged to return, heartily fatigued; but compensated, in some measure, for our disappointment, by the beauty of the surrounding scenery. The views on the lake are indeed delightful, and very different from those which you enjoy during a ride on the land. The eye being very little elevated above the surface of the lake, the shores appear as if emerging from the water. The island of Belleisle, with its white mansion, surrounded by thick plantations, is the first striking object that occurs; and the eye is afterwards attracted by the other wooded islands, stretching in a semicircular direction across the widest part of the lake; and by the black mountains of great height, which rise directly beyond them. Although the sun shed his rays with great brightness, a blue mist, rising from the summits of these salubrious ridges, and apparently reaching the skies, gave a romantic and picturesque cast to the whole scene; and suggested to my mind some of those sublime passages which occur in the works of a northern poet.*

These islands lie at various distances from each other, some of them being half a mile apart. Sir Richard Hardinge says, the passages between them are as wide, and, he thinks, very similar to, the Straits of Sunda, in the East Indies. We sailed through some of them, and landed on one of the islands, called Kelligowan, which

* This natural phenomenon, so common in hilly countries, gives rise to some beautiful allusions and similes in the works of Ossian. "The sun looked forth from his cloud. The hundred streams of Moilena shone. Slow rose the blue columns of mist against the glittering hill." *Temora*, book viii. *Poems of Ossian*, Laing's edit. 1805, vol. ii. p. 248. "But they themselves are like two rocks in the midst; each with its dark head of pines, when they are seen in the desert, above low-sailing mist." *Temora*, b. v. *ib.* vol. ii. p. 146. "On Lena's dusky heath they stand, like mist that shades the hills of Autumn; when broken and dark it settles high, and lifts its head to heaven." *Fingal*, b. i. *ib.* vol. i. p. 14. "My hair is the mist of Cromla, when it curls on the hill; when it shines to the beam of the west." *Ibid.*, *ib.* p. 21. "It bends behind like a wave near a rock; like the sun-streaked mist of the heath." *Ibid.*, *ib.* p. 29.

contains forty acres of land, and produces oak, ash, firs, willows, and hazel, of an extraordinary size, intermixed with briars and underwood, that reach to the very edge of the water. Beyond this appeared another island, far more extensive, called Ennismore, and containing 1400 acres. Among these islands, the scene is continually varying in all directions; the expanse of water is completely lost, and in many places the appearance is exactly the same as that which occurs to those sailing either up or down a large river, bordered by woody banks, and pursuing its sluggish course amidst distant mountains. Yet these reaches are short; and in a moment, on turning round a point of land, you are suddenly and unexpectedly astonished by a wide expanse of water spread out before you; and numerous wooded islands, like clumps of trees, emerging from the bosom of the lake. The fresh green colour of Knockninny, Belleisle, and the West Island, together with the distant prospect of the Black Mountain, form a delightful assemblage of objects, in which the softer beauties of nature are so blended with the sublime, as to excite a sensation of pleasure, mixed with surprise and astonishment. In a word, the beauties of Lough Erne charm by their variety, and the continued change of scenery.

Castle Coole, which deserves the appellation of a palace, is a double house with extensive wings, and was built after a design by Wyatt, of Portland stone, brought hither by the father of the present Earl of Belmore, in 1791. It cost 90,000*l.*; but it stands on a lawn very much confined, and unfortunately has too few views of the Lough. The mountains, however, to the south and south-west of the lake, are seen to great advantage from different parts of the grounds; and the town of Enniskillen appears at some distance.

In proceeding from Belleisle to Florence Court, I found the road, as far as Enniskillen, very rugged and uneven, and the country well covered with wood; in consequence of the tenure being renewable under the bishopric of Clogher, which prevents the tenants from cutting down timber. Enniskillen opens to view in a very fine manner, and with great effect. The hill which appears above it, was formerly planted; but a French engineer, sent over by Lord Pelham, cleared it of wood, and constructed on it a fort. After it was built, "no ghost was wanted to tell him," that it was completely commanded by an adjoining hill, the elevation of which is much greater.

The road from Enniskillen to Florence Court, is not so hilly as in some other parts; but excepting the trees planted around gentlemen's seats, it is entirely destitute of wood. From neither of the roads is there any view of the lake. Florence Court stands at the bottom of a mountain, called Cuba, and fronts the north-west. The lawn is of considerable size, and the plantations in the demesne are very extensive. The ash-trees rise to a great height; and had the woods been thinned when they were young, many of them would have attained to a considerable growth. Some

large trees, however, may be seen at the extremities. The prospect behind the house is by far the best; as the mountains present a diversified appearance, those which consist of lime-stone being green; and the rest, which are covered with heath, black and dusky.

Proceeding to Ross Clear, the point of a peninsula stretching out into Lough Erne, and standing above the woody islands with which it is studded, I called at Ross Fadd, the residence of Major Richardson, which is within sight of Castle Archdall. The latter is situated on an elbow of the lake, and seems to be surrounded by beautiful plantations. Taking advantage of a full view, which I here had of the lake, and surveying with great attention that extensive sheet of water, I found that the account given of it by Mr. Arthur Young is perfectly correct, except in regard to the woods. Among these the axe has made dreadful havoc; whereas, in his time, the opposite hills were all covered with timber.

In his Tour through Ireland, in 1780, he gives the following description of Castle Caldwell, which I only saw at a distance. "Nothing can be more beautiful than the approach to Castle Caldwell; the promontories of thick wood which shoot into Lough Erne, under the shade of a great ridge of mountains, have the finest effect imaginable. As soon as you are through the gates, turn to the left about two hundred yards, to the edge of the hill, where the whole domain lies beneath the point of view. It is a promontory three miles long, projecting into the lake, a beautiful assemblage of wood and lawn; one end a thick shade, the other grass, scattered with trees and finishing with wood. A bay of the lake breaks into the eastern end, where it is perfectly wooded. There are six or seven islands, and among them that of Bow, three miles long and one and a half broad; yet they have a noble sweep of water, bounded by the great range of Turaw mountains. To the right the lake takes the appearance of a fine river, with two large islands in it; the whole unites to form one of the most glorious scenes I ever beheld. Rode to the little hill above Michael Macguire's cabin; here the two great promontories of wood join in one, but open in the middle, and give a view of the lake quite surrounded with woods, as if a distant water; beyond are the islands scattered over its face, nor can any thing be more picturesque than the bright silver surface of the water breaking through the dark shades of wood. Around the point on which we stood the ground is rough and rocky, wild and various; forming no bad contrast to the brilliant scenery in view.

"Crossing some of this undressed ground, we came to a point of a hill above Paddy Macguire's cabin; here the lake presents great sheets of water, breaking beyond the woody promontories and islands in the most beautiful manner. At the bottom of the declivity, at your feet, is a creek, and beyond it the lands of the domain, scattered with noble woods, that rise immediately from the water's edge. The house, almost obscured among the trees, seems a fit retreat from every care

and anxiety of the world. A little beyond it the lawn, which is in front, shews its lively green among the deeper shades; and over the neck of land, which joins it to the promontory of wood, called *Ross a goul*, the lake seems to form a beautiful wood-locked bason, stretching its silver surface behind the stems of numerous single trees. Beyond the whole, the mountain-rocks of Turaw give a magnificent finishing. Near you, on every side, is wild tossed about ground, which adds very much to the variety of the scene. Hence we passed the hill in the mountain-park, from which the scenery is different. Here you see a short promontory of wood, which projects into a bay, formed by two others, considerably more extensive; these are, *Ross a goul* and *Ross moor east*; the lake, stretching away in vast reaches, and between numerous islands, almost as far as the eye can command. In the great creek to the right, which flows up under the mountain of Turaw, are two beautiful islands; which, with the promontories scattered with trees, give it the most agreeable variety. In another ride, Sir James gave me a view of that part of his domain which forms the promontory of Ross moor; we coasted it, and crossed the hills. Nothing can exhibit scenes of greater variety or more beauty. The islands, on every side, are of a different character; some are knots or tufts of wood, others shrubby. Here are single rocks, and there fine hills of lawn, which rise boldly from the water: the promontories form equal distinctions; some are of thick woods, which yield the darkest shade; others, open groves; but every where the coast is high, and yields pleasing landscapes. From the east point of Ross moor, the scenery is truly delicious. The point of view is a high promontory of wood lawn, &c. which projects so far into the lake as to give a double view of it of great extent. You look down a declivity on the lake, which flows at your feet; and full in front is the wood of *Ross a goul*, at the extreme point of which is the temple. This wood is perfectly a deep shade, and has an admirable effect. At the other end it joins another woody promontory, in which the lawn opens beautifully among the scattered trees, and just admits a partial view of the house, half obscured. Carrying your eye a little more to the left, you see three other necks of wood which stretch into the lake, generally giving a deep shade, but here and there admitting the water behind the stems, and through the branches of the trees; all this bounded by cultivated hills, and these backed by distant mountains. Here are no objects which you do not command distinctly, none that do not add to the beauty of the scene; and the whole forming a landscape rich in the assemblage of a variety of beauties. The other reach of the lake varying under Ross moor, is a different scene, bounded by the mountains and rocks of Turaw to the right: these reaches join the lake, which opens a fine expanse of water spotted with islands. It is, upon the whole, a scene strikingly agreeable. Little of the sublime, but the very range of beauty, gaiety, and pleasure, are the characters of the spot; nature makes no efforts to astonish; many to please; the parts are

of extreme varieties, yet in perfect unison with each other. Even the rocks of Turaw have a mildness in their aspect, and do not break the general effect by abrupt or rugged projections. It was with regret I turned my back on this charming scene, the most beautiful at Castle Caldwell, and the most pleasing I have any where seen. Rode round *Ross a goul*, the promontory in front of the house, from which the views are exceedingly beautiful."

The Marquis of Ely is building a new lodge in one of these islands in the upper lake, the whole of which abounds with romantic beauties. I sailed along it from Enniskillen; and, for the first two miles, found it contracted to the width of an ordinary river. One of the most striking objects which presented itself was Devenish Island, famous for its perfect round tower, and the ruins of an ancient monastery; the mouldering fragments of which attest the desolation produced in the labours of man by the powerful hand of time, and by the continued influence of the weather. There are no trees on the island, and hence it has a naked appearance; but the tower, which is ninety yards from the first ruin, and is built of stones without cement, gives to the scene an air of variety and grandeur. After leaving this island, the lake expands to the breadth of half a mile; and we passed the remains of Castle Hume, a mansion lately pulled down. The surrounding woods, which existed in Mr. Young's time, were all cut some years ago. We next reached the Gully Islands, well clothed with wood; and though the trees are not of large size, they are sufficient to preserve the romantic appearance of these islands, which have been long and justly famed for the beauty of their scenery. During the season, they are the abode of numerous flocks of woodcocks; which, as is well known, are birds of passage, that in winter come from the north in search of a milder climate.*

Towards Castle Archdall the lake widens, so as to assume the appearance almost of a sea. I landed upon an island called Ennismackeent, from the centre of which you see Lough Erne, as if you were standing in a panorama, twenty-seven islands being full in your view. On looking back towards the east, you command the Gully and other wooded islands, together with the principal reach, half a mile wide, extending through them towards Enniskillen. On the right the high land, already mentioned; on the left, the promontory of Ross Clear, and beyond it Ross Fadd. To the north Castle Archdall, with the woods belonging to the domain, and to the west a noble bay of great extent, the shores of which are bounded on the south-west by high land rising into a lofty mountain, which sinks down as it stretches out of sight to the south.

* Dr. Ruttly says that this bird (*Scolopax sive Gallinago maxima*,) visits Ireland about Michaelmas, and disappears about March. He adds, that it has been sometimes seen white. *Natural History of the County of Dublin*, vol. i. p. 321.

To the south-west of this island, which all travellers, fond of picturesque beauty, should visit, and which might be justly styled *Panorama Island*, is a much venerated Roman Catholic burying-ground, with a large stone-cross standing on a pedestal at its entrance.

The falls of Lough Erne at Ballyshannon are much admired; but the previous fall of Beeleck presents the most interesting scenery and views, which will never fail to catch the eye and arrest the attention of the observant traveller. The country round Beeleck is truly delightful; I passed through it in the beginning of September, 1808, and found the road from Church-Hill, on the whole, a *coup-d'œil* highly interesting, as it commanded the widest part of Lough Erne to the right, and above it a mountainous ridge of limestone, clothed with grassy verdure nearly to the top. Before me the wooded peninsula, at Castle Caldwell, appeared in full view; and the road being on a very elevated situation, the greater part of the lake, forming a most extensive sheet of water, presented a scene of uncommon magnificence—a scene, indeed, such as is rarely seen, and which the astonished traveller leaves with regret. Afterwards the lake becomes contracted, and exhibits the appearance of a river with flat sides, which afford less interest and variety.

Proceeding towards Ballyshannon, the shore appears to be highly cultivated, and in a state of improvement. On my arrival at Beeleck, a village belonging to Sir James Caldwell, the first object that engaged my attention was a battery on the top of a hill; and on reaching the summit, which curiosity induced me to visit, I was not a little astonished to see before me a woody eminence, shaped like an inverted bowl, winding round in the form of an S; and an insulated rock, from thirty to forty feet high, covered with shrubs, which causes the water-fall. The stream of the river passes along here with wondrous rapidity. On turning to the right, going down the hill at the back of the battery, the village first presents itself to the eye, next the bridge, and then the water-fall; a most beautiful object, though perhaps not above twenty feet in height; but the water sometimes rolling, and at others dashing, over a rocky bed, precipitates itself from the summit of the cliff with great rapidity; which is readily accounted for, when it is recollected that the immense body of water contained in the great lakes of Lough Erne, finds its way to the sea over this precipice, and produces a most romantic effect. The view from the middle of the bridge, comprehending the fall, with a wooded island, having a rock in the middle of it, is equal to any thing of the kind I ever saw. The high ridge of land to the left, beneath which we had travelled in the early part of the day, here disappeared. On the opposite side of the river, the country consists of a mountainous tract, and is considered to be highly salubrious. I ought however to remark, that this description relates to the road which proceeds from Beeleck to Ballyshannon.

LONDONDERRY.

Londonderry contains 837 English square miles. This county, according to Dr. Beaufort, is not much encumbered with mountains, and he mentions only Benyevenagh, Slubbhallan, and Cairntogher; but if he had ever crossed the country from Londonderry to Moneymore, he would, in my opinion, have characterized this district in a very different manner. I do not here allude to such mountains as those found in Kerry, or Mourne, in the county of Down, or to barren rocky mountains, like those in the neighbouring county of Donegal. The mountains here present neither roughness nor green herbage, but exhibit something between both, which may be called uncultivated vegetation; while the lower parts are inundated with water, and in some places have been converted into bogs.* Lough Foyle and the river Foyle belong to this county; and inland from the city of Derry, afford some very fine views.

On the 13th of September, 1808, I visited Londonderry, and walked round the city. The walls are an English mile in circumference, and are furnished with five gates. There is here a cathedral, built in the year 1633; the most remarkable feature of which is two towers, rising at the eastern end. It was built by the Irish Society, to whom the city belongs. This place is supplied with water by means of pipes, which proceed from a high ridge of hills on the opposite side of Lough Foyle. These pipes extend along a wooden bridge, 1080 feet long, the building of which cost 11,000*l.*; the timber being brought from America. Lough Foyle stretches a considerable way inwards below Strabane. The episcopal palace, which stands within the walls, has lately been used as a barrack; but it is now under repair, and fitting up by the bishop. Without the city there are excellent gardens belonging to the see, and near them is a banquetting-room, built in a whimsical style by the late bishop, the windows of which command a most delightful view of Lough Foyle, contracting its breadth as it proceeds into the country, and winding through a reach of great beauty; they have the advantage also of overlooking the domain of Mr. Knox, of Trehen, on the opposite side.

The view of the city from the Derry side of the bridge is very fine, and in detailing the scenery of the country, ought not to be omitted. The bridge is a striking object; and the town, rising upon the hill, backed by more beyond it, with the shining expanse of water in Lough Foyle; the shipping in it, and various other objects of less importance, form altogether a grand and impressive picture.

The neighbourhood of Colerain, and the adjacent falls of the Bann, afford some romantic scenery deserving notice.

* The Rev. Mr. Sampson, in his Survey of Derry, p. 445, has noticed this error of Dr. Beaufort.

Near Newtown Limavady there is a woody glen watered by a stream, which is exceedingly beautiful. In the month of September, 1808, I was at the house of Mr. Hugh Lyle, near Colerain; and, in my way thither, called at Daisy Hill, near Newtown, the residence of the late Mr. M'Causland. The latter consists of a neat family mansion, with good farming-offices attached, and surrounded by thriving plantations. The town is neat, and stands close to the river. I took a view of the romantic glen below it, through which the river pursues its course. It is clothed with wood on both sides, and called in Irish *Limavady*, or the Dog's Leap. The view here is much improved and enlivened by the bleach-field belonging to Mr. Leslie Alexander; an object always connected with the idea of industry, and its consequent attendants, opulence and prosperity.

I spent the 16th of September, 1808, in visiting Down Hill; and I cannot help remarking, that I never saw so bad a house occupy so much ground. It is built of stone, and stands on a dry hill, surrounded by a planted glen, which latter is so low, that until its wood grows up it will remain hid. The best view from the house is the ocean, which is seen to great advantage. The mausoleum, erected to the late Earl of Bristol's brother, and the Mussenden temple, raised to perpetuate the remembrance of a lady to whom the earl was much attached, are objects which will attest the vanity of their founder, when the names of those they were intended to preserve are forgotten, and thus serve as proofs, how little connection subsists between public opinion and private feeling. Though we may applaud the motive which produced the one, and be inclined to throw the veil of charity over that which gave birth to the other, we cannot help smiling at the ostentatious folly of erecting costly edifices of this kind, which a successor, perhaps, will consign to neglect; and which, instead of being viewed, in general, with those sentiments of respect and veneration they were destined to excite, are, for the most part, beheld without interest, and sometimes even with disgust.

In this county there are few gentlemen's seats worthy of particular notice. Down-hill is the largest, but it is uninhabited. The cultivated land is seldom divided to any extent. The mountains are let in large lots, comprehending immense tracts; and the bases are occupied and tilled by the manufacturing peasantry, whose inclosures consist of earthen banks; and whose cattle, and even domestic birds, are all bound and tethered in a manner which savours of barbarity.

MONAGHAN.

Monaghan forms an area of 509 English square miles. The face of this county, in general, bears a resemblance to that of Cavan. The whole is hilly; but the hills seem as if scattered in an irregular manner, without forming continued ridges or

chains. The soil is in some degree superior to that of Cavan, and the country exhibits the appearance of more corn and flax; it is exceedingly populous, and contains several handsome seats, such as Caledon, Glaslaugh, Castle Blaney, and Dawson's Grove, which are all surrounded by plantations.

When I visited this part of the country, in the month of September, 1808, great additions had been made to the domain of Caledon, and to the mansion. The latter stands on an elevated situation, and, when the plantations grow up, will be a magnificent residence. From this place I passed through the village of Glaslaugh, belonging to Colonel Leslie, in the environs of which there is abundance of wood.

On the 24th of September I proceeded from Monaghan to Castle Blaney, and found the same hilly appearance as in Cavan. Lord Blaney was not at home, but I took a view of the domain, which is a beautiful place, though not on a large scale. The immediate foreground consists of a wooded promontory; and in front of the house is a lake, beyond which hills, some of them planted and rising gently to the view, add greatly to the beauty of the prospect. To the left, on the opposite side of the lake, stands a delightful eminence clothed with wood, which extends to the edge of the water, and on the right appears a screen of trees, on ground which has a considerable elevation.

From this place I continued my tour to Ardee, passing through land which exhibited every mark of the most wretched cultivation. Wood was no where to be seen; the corn-fields were naked and without hedge-rows, and the cattle and live stock very few in number. I was informed by the people that it was an estate of great size, belonging to Mr. Shirley and the Marquis of Bath, and that the appearance which it bore had long been considered as a proof of the bad effects arising from mismanagement, the people and cattle being all in an exhausted, starving, miserable state.

The dulness which pervades absentee property is evident throughout the whole country. Inactivity, and a gloomy silence every where prevail; give a melancholy cast to the ideas of the traveller, and excite in the thinking mind the most serious reflections. It is, indeed, deeply to be regretted, that noblemen and gentlemen who possess landed property in Ireland, where the beauties of nature are sufficiently attractive, and where all the necessaries, most of the comforts, and even the luxuries of life, may be procured without much trouble or expense, should prefer living in another country, and leave their tenants to the management of persons who cannot have the same interest in their welfare and prosperity. Those who are absent in the services of their country, or who travel for the acquirement of useful knowledge, have a just and most honourable excuse; but those whose object is merely pleasure, or the enjoyment of vain gratifications, which Ireland, perhaps, is less capable of affording, are not entitled to the same indulgence. Did proprietors reside on their estates

at least some part of the year, and employ their thoughts on the improvement of them; they would become better acquainted with the disposition of their tenants; the latter would feel more attachment to their landlords; the money their landlords spent among them would enliven their industry; and they would be encouraged to labour by the presence and kind attention of those to whom they ought naturally to look up as their friends and benefactors. If proprietors, consulting the interest of their tenants, which is invariably connected with their own and with that of the state, set them a good example, it would serve them as a guide; and their influence, properly exerted, might restrain them from vicious habits and pursuits. Thus the irregularities which are apt to prevail among a populace, rendered ferocious through want of culture, and become licentious by neglect, would be more easily curbed; the latent sparks of moral good suppressed but not extinguished, would readily be called into action; a spirit more congenial to that exalted state of society, for which man was intended, would be diffused; and districts of Ireland, which now exhibit an appearance of desolation, would become prosperous, happy, and cheerful.

TYRONE.

Tyrone is an inland county, containing 1271 English square miles. Small divisions of land without live fences, and an abundant population, are its striking features. The barony of Strabane is exceedingly mountainous; but on that side of the county are the seats of the Marquis of Abercorn and Lord Mountjoy, both places which, according to the accounts given to me, have large plantations attached to them. I however did not see them; and it is now nearly twenty years since I was in that part of the county.

On the 23d of September I visited the seat of Lord Northland, near Dungannon. The building now used as a dwelling house, was originally intended for offices. There is much thriving timber on the domain; from a spot near the house the town is seen to great advantage; and beyond it, the waters of Lough Neagh, the banks of which, in this county, have a great sameness, being in general flat and void of interest.

PROVINCE OF CONNAUGHT.

CONNAUGHT, the most western province of Ireland, nearly surrounded by the Shannon and the ocean, forms an area equal to 7,191 English square miles, and comprehends five counties, Galway, Leitrim, Mayo, Roscommon, and Sligo.

GALWAY.

Galway is a maritime county, and, in point of extent, is the second in Ireland, since it contains 2,593 English square miles. Its appearance is exceedingly various. The north-west part of it, consisting chiefly of the barony of Connomara, the property of Mr. Martin, remains uncultivated and nearly in the state of nature; nor is it likely to exhibit a more pleasing aspect, till from some fortunate change in the agricultural system of Ireland, it becomes divided among a greater number of occupiers, and is improved by the hand of industry. At present there are scarcely any roads through it.

In the inhabited parts of this county there are more gentlemen's seats than in any other district of Ireland; but it contains none remarkable for their magnificence except Dalystown. The substratum throughout the greater part of the country is limestone, on which account the verdure is exceedingly luxuriant. In general the fields are separated by stone fences. Dr. Beaufort has given a very good description of the face of the country in this county, which, like most of the productions of that gentleman, is very accurate. Alluding to the thinness of inhabitants, the author says, "This very scanty population may in some degree be accounted for by the rude state of the three baronies on the west of Lough Corrib, which amount to a third part of the whole county, as they contain about 341,600 acres. The lake itself covers 31,300 acres. The extensive country on this side the lake is flat, with the exception of a few fertile hills of no great height, and some low mountains on the borders of Clare. The soil is warm and fertile, covering at no great depth a stratum of limestone rock, which in the baronies of Dunkellin and Kiltartan, and in many other places, rises so thick above the surface as to render those parts unfit for tillage, though they are excellent for pasture. Few ditches are to be seen in this county, the fields being chiefly inclosed with dry stone walls,* which gives the country a dreary aspect.

* The same fences prevail in a great part of Roscommon, of Mayo, and of Clare.

“ The western part of the county is of quite a different character from the rest. The barony of Moycullin, which is also called Iarconnaught, contains some good land on the sea coast and along the beautiful shore of Lough Corrib; but the heart of this barony is an assemblage of unreclaimable rock and mountain. The rocks at Oughterard and in the bed of the river Fuogh, of which there are immense masses, are all a black and white marble, equal at least in beauty with that of Kilkenny; yet there is seldom employment for more than one solitary artist in working up a few chimney-pieces. Lough Corrib somewhat resembles Lough Erne in its form, and extends twenty miles in length, being eleven wide in the broadest part; in the middle it is contracted to a small channel, which is crossed by a ferry at Knock.* There is a fresh water muscle in this lake that produces pearls, of which I have seen some very fine specimens. The large barony of Ballynahinch, which is better known by the name of Connamara, abounds with fine harbours, but is also extremely mountainous. The hills of Ourred and Cashel are very high, and the vast ridge called Beannabeola, or the Twelve Pins, which is a well known sea-mark, consists almost of perpendicular rocks. At the foot of this ridge, close to the little village of Ballynahinch, a charming lake spreads itself for some miles; and on the river which runs from it into Roundstone Bay, there is a great salmon-fishery. On the sides of hills and in villages, which are watered by rivers and small lakes, and sheltered in some places by the venerable remains of ancient woods, the soil is mostly inclined to a black bog; but gravel, sand, or rock, lie at no greater depth than from one to three feet below the surface. Great quantities of kelp are made along the coast; and by manuring with sea-wreck the land is rendered very productive to the scattered families that inhabit it, who are all little farmers and hardy fishermen. The northern part of Ballynahinch and the barony of Ross are called Joyces country, and inhabited chiefly by a clan of that name. Ross is also extremely rough; Mamtrasna, on the borders of Mayo, is very high, and Ben-Levagh at the north-west angle of Lough Corrib is a stupendous mountain. Yet the borders of the lake, the shore of the Killeries, and the valley through which the river Bealnabrack runs, are pretty well peopled, and the soil such as would amply repay the pains and expence of good cultivation.

“ This country, which reaches from the sea to the Shannon, is well watered by rivers and lakes: several of the rivers are in part of their course subterraneous. The Black-River, on the bounds of Mayo, dips for about three miles near the village of Shrule. The Clare and the Moyne unite their waters under ground. alternately appearing and retiring from view at the Turlachmore, which in winter forms a lake, and in summer a beautiful and sound sheep-walk, upwards of six miles in length

* A great number of concealed rocks render the navigation of this lake dangerous to those who are not well acquainted with it.

and two in breadth. Near Gort there are a vast number of these *swallows* in which some part of almost every river and brook in the neighbourhood is engulfed. The river *Gustnamakin* dips several times, and after a concealed course of two miles, rises on the beach below high water mark, and discharges itself among the rocks in the bay of *Kinvarra*. *Lough Reagh* is a fine piece of water, and *Lough Coutra*, near the borders of *Clare*, is said to possess all the beauties that hills, woods, and islands can impart to water.

“The maritime advantages of this county must not be omitted. The vast bay of *Galway* is sheltered at the entrance by the three southern isles of *Arran*. The sound between these islands is a safe road, and a number of inlets on the coast, as well as the harbour of *Galway*, are sufficiently deep for the reception of merchant ships; but are more frequented by coasters and fishing boats than by vessels in the foreign trade. The indented shores of *Connamara* abound in well-sheltered havens—those of *Killkerran*, *Birturby*, *Roundstone*, and *Ballynakill*, are the largest; and the *Killeries* are at the northern extremity of this district.”*

LEITRIM.

Leitrim is a maritime county, and contains 604 English square miles. It is almost entirely covered by groups of mountains, which are not completely barren, but afford sufficient herbage for the breeding of cattle. The vallies between them contain several lakes, such as *Lough Allen*, *Clean Lough*, *Lough Melvyn*, &c. which give birth to various rivers, some of them of considerable size. The *Shannon* is said to take its rise here† at *Lough Clean*, though the honour of producing this noble stream is claimed by a spot near *Florence Court*, in the county of *Fermanagh*.‡ Both these accounts I believe to be true, as the *Shannon* originates from two rivulets which unite into one current, and this current is afterwards swelled by the accession of tributary waters to the size and extent of a large river.

Manor Hamilton stands in a romantic situation among mountains, and is surrounded by a few trees. The case is the same with *Dromahaire*, near which are the venerable remains of an ancient abbey, in the domain of *Mr. Johnson* at *Friarstown*. In this county there are few gentlemen's seats.

MAYO.

Mayo is a maritime county, and contains 2339 English square miles, including about two-thirds of *Lough Mask*, cut off by a straight line drawn through it, to the boundaries of the county. The north-west part of it, *Erris*, is mountainous, boggy, and destitute of roads. I was on the edge of this county but did not cross it, and few of

* *Beaufort's Memoir*, p. 18.

† *M'Parlan's Survey of Leitrim*, p. 18.

‡ *De Latocnaye's Rambles through Ireland*, vol. ii. p. 74.

the gentry who have property here, to use their own expression, "have ever been in it." The county contains two mountains of great height, Crow or Croagh Patrick, and Mount Nephin, the former of which rises like a pyramid to a great height, and may be seen at an immense distance. I have myself distinguished it from many parts of Roscommon, distant upwards of forty miles; according to Dr. Beaufort, the elevation of this mountain above the level of the sea is 2666 feet, and that of Nephin 2640, which agrees nearly with the measurement of Mr. Kirwan, who makes the height of the former 2661 and that of the latter 2630. These mountains hold the fourth rank, in point of elevation, among the mountains of Ireland; McGillycuddy's Reeks, and Mangerton in Kerry, and the Mourne mountains in Down, all being higher.

Having never seen the western part of this county I can say nothing of the beautiful scenery which it is said to contain. In regard to the general appearance of those districts of it which I visited, they do not exhibit any striking marks of improvement; I could see nothing but bad tillage and a thin population. The people in general were dressed in woollen clothes of a dark colour, and their cabbins, which seemed to be more confined than those in other parts of Ireland, had a most miserable appearance, and gave a dull and gloomy aspect to the whole country. As timber is here scarce, the roofs of these huts are constructed of bog-wood, never of sufficient size to furnish rafters but for the smallest cabbins. Cong, near Ballinrobe, a gentleman's seat on the banks of Lough Corrib is well covered with plantations, and said to be a place of great beauty. Mr. Young has given a description of Westport,* and his account has been copied, without any acknowledgment, into statistical surveys, and into the Post Chaise Companion, a useful and entertaining book, which has borrowed nearly all its descriptions of places from the works of this celebrated writer. "In the evening," says Mr. Young, "I reached Westport, Lord Altamont's, whose house is very beautifully situated upon a ground rising gently from a fine river, which makes two bold falls within view of his windows, and sheltered on each side by two large hanging woods; behind it has a very fine view of the bay with several headlands projecting into it one beyond another, with two or three cultivated islands, and the whole bounded by the great mountain of Clara Island and the vast region of Crow-Patrick on the right; from the hill above the wood on the right of the house, is a view of the bay with several islands, bounded by the Hummocks and Clara Island, with Crow-Patrick immediately rising, like superior lord of the whole territory, and looking down on a great region of other mountains that stretch into Joyces Country."

Patterson, in his observations on the climate of Ireland, says, "On the western coast of Ireland, in the barony of Morisk, county of Mayo, vastly exposed to the westerly

* Tour through Ireland, published in 1780, p. 210.

blasts, almost covered with considerable mountains, and invested with the Atlantic ocean and bays formed by it, the Marquis of Sligo has a prodigious extent and variety of plantations, some of them quite near the sea; and in the adjoining barony of Marrishool, under circumstances apparently no less adverse to vegetable growth, the few hedges and trees about Newport are living proofs of the facility with which trees would grow there by proper culture. Hence the writer of the County Survey, Dr. M-Parlan, is convinced that if the numerous islands in Newport or Clew Bay were planted, and the necessary parts of the banks and mountains wooded and improved, the bay would certainly exceed in picturesque beauty any thing of the kind in Europe, the bay of Naples *not* excepted.*

There are many lakes in this county which generally extend over a bottom of limestone, and communicate with each other under ground. Towards Killala there are some parts which exhibit rich pasture, and seem well adapted for grazing. "In the flat country that borders upon the lakes of Mask and Carrah," says Dr. Beaufort,† "there are many miles of rocky ground, which at a distance appear like one immense sheet of white stone; but upon a nearer inspection of these singular rocks, they are perceived to stand in parallel lines from one to three feet above the surface, like flag-stones hitched in the ground upon their edges, and however they may vary in shape, size, and distance, they are all calcareous, and have all the same direction. Fissures of a great depth are found in some of the narrowest interstices; but in general the verdure between them is beautiful and the pasture excellent for sheep.

"Large caverns and subterraneous waters are also frequent in this part of the country, especially near Cong. At the back of that small village a very broad river rushes at once from beneath a sloping bank, and after a rapid course of about a mile loses itself in Lough Corrib. It is supposed to be the outlet of a subterraneous channel, through which the superfluous waters of Lough Mask and Lough Carrah are discharged into Corrib. This rocky part of Mayo abounds also with *turlachs*, as they are called in Irish. These are plains, some of them very extensive, which having no visible communication with any brooks or rivers, in the winter are covered with water, and become in the summer a rich and firm pasturage, the waters rising and retiring through rocky cliffs in the bottoms. There are many fine lakes in this county; Lake Conn, at the foot of Mount Nephin, is nine miles long; Lough Mask is longer by two miles and considerably broader."

ROSCOMMON.

Roscommon is an inland county, containing 891 English square miles. The substratum consists generally of limestone, and stone fences are employed to inclose and separate the fields. The most prominent features of this county are rich and

* Patterson, p. 197.

† Memoir of a Map of Ireland, p. 75.

beautiful pastures. There are here extensive bogs, and indeed the whole face of the country exhibits either bogs or green fields, for it does not present that mixed appearance of russet brown surface which occurs so frequently in Ireland for miles. As the grass springs up from a calcareous soil, the verdure is exceedingly luxuriant.

Lord Boyle has a magnificent seat on the edge of a lake in this county, but as I saw it only at a distance I shall subjoin Mr. Young's account of it; but it is necessary to observe that since it was written his lordship has built a capital mansion and extended the plantations. It is spoken of as one of the finest places in Ireland. "Walked down to Longford Hill to view the lake; it is one of the most delicious scenes I ever beheld, a lake of five miles by four, which fills the bottom of a gentle valley almost of a circular form bounded very boldly by the mountains; those to the left rise in a noble slope, they lower rather in the front and let in a view of Strand Mountains near Sligo, above twenty miles off. To the right you look over a small part of a bog to a large extent of cultivated hill with the Blue Mountains beyond. Were this little piece of bog planted, the view would be more complete."

Mr. French of French Park, has in this county a large house and domain, and were my object the description of hospitality instead of scenery, I should refer for a true picture of it to the mansion of this worthy and benevolent gentleman:

————— Thro' whose free opening gate
None comes too early, none departs too late;

where it is exercised in all the spirit of former times without ostentation or fastidious ceremony, and with that unaffected air of sincerity which creates confidence, and that ease and politeness which make the kindness doubly acceptable.

Towards the south the county becomes one continued sheet of limestone.

SLIGO.

Sligo is a maritime county, and contains 727 English square miles. As Dr. Beaufort has described with much precision the face of the country in this district, I shall transcribe what he has said: "The county of Sligo contains very good land, intermixed with large tracts of coarse and unprofitable ground. In the barony of Carbury are the mountains of Benbulb and Samore; a chain of rough hills extends from Lough Gilly to the bounds of Roscommon and Leitrim. Tyreragh though level along the coast is intersected by large bogs, and the southern part of it is bounded by the Ox Mountain Sliebh-Dham, and a great range of desolate hills that extend a good way into the barony of Leny, in which also there is a great scope of bog. The Curlews and other mountains cover the most of Coolavin, and the Kishcorran forms a long ridge on the borders of Tyraghrill.*

* On the summits of most of these mountains there are very large *cairns* or *carneolis*.

“ Among these hills there are many large lakes and abundance of rivers. The Moy rises in the mountains of Knocknashee, and after receiving the waters of Lough Calt, and Lough Conn, flows in a broad stream to the bay of Killalla. Lough Arrow is about eight miles long, full of islands, and of a very irregular form. A river of the same name proceeds from it, and running northward to Ballysadere, rushes at once into the sea in a stupendous cataract. Lough Garra is also an extensive lake.

“ Lough Gilly exhibits that variety of charming prospects which bold hills, wooded lawns, and large islands clothed with verdure and crowned with trees, united with a great extent of water cannot fail to produce.

“ Upon the river by which the waters of this lake are discharged into a large bay, stands the town of Sligo, and vessels of two hundred tons can come up to the quays.”*

Hazelwood, the beautiful seat of Mr. Wynne, stands on the banks of Lough Gill, which abounds with romantic scenery. I spent a morning in the month of September, 1809, in rowing through this lake, which is five miles long and two broad. It discharges its superabundant water into the sea below Sligo, where it forms a waterfall similar to that at Ballyshannon. The house of Hazelwood is built at the end of a wooded peninsula which runs out into the water, and is seen to most advantage from the lake; the grounds are kept exceedingly neat. On the land side there is a handsome lawn, and on the other side the opposite shore of the lake consists of mountains in some places planted, and in others rough and uncultivated. To the north of the whole, at the distance of several miles towards the interior of the country there is another range of mountains, and the climate is so mild that the arbutus, myrtle, and other shrubs of the like kind grow in the grounds here with the utmost luxuriance. Nature and art have united their efforts to render this a very agreeable residence, where lake and mountain scenery combine in the most romantic manner with plantations and ornamented grounds to produce variety; still farther increased by the intermixture of old timber, some of which appears to be of a large size.

On the 11th of September, 1809, I went to Nymphsfield through Sligo and Ballisadare, where there is a considerable waterfall. At Cooloony there is another, but I observed no trees during the whole course of the way. The country seemed to consist of limestone rock, intermixed with small bogs. The mountains here are composed of a brown kind of rock, although the substratum of all the level land is limestone. The tops of the mountains are uncultivated, but tillage begins to advance gradually up their sides.

On the 13th I rode to Mercury, the seat of Mr. Cooper, which is a castellated building constructed of limestone. Johnson was the architect, and when the grounds are embellished this place will make a very fine appearance.

* Beaufort's Memoirs, p. 72.

PROVINCE OF LEINSTER.

LEINSTER the most eastern province of Ireland, is bounded on the north by Ulster, on the east and south by St. George's or the Irish Channel, and on the west by the province of Munster. It is the most level and best cultivated province in the island, and contains 7360 English square miles. It comprehends the following twelve counties, Carlow, Dublin, Kildare, Kilkenny, King's County, Longford, Louth, Meath, Queen's County, Westmeath, Wexford, and Wicklow.

CARLOW.

This county contains 346 English square miles. It is watered on the west by the Barrow; but presents very few instances of that picturesque scenery which abounds in some of the other parts of Ireland. The Slaney also flows on the eastern side of it, and though of small size, contributes to the beauty of the surrounding districts. One glen through which it pursues its course I shall describe when I speak of the county of Wexford, to which it more properly belongs; it is exceedingly romantic and highly worthy of notice. To the west of the Barrow there are mountains, and in the south are seen those called the Blackstairs, which divide Carlow from Wexford. The interior is flat, and the soil rich and of a calcareous nature.

There are here a great number of gentlemen's seats, and particularly near the town of Carlow, but that belonging to Mr. Cavannagh, which I visited on the 15th of July, 1809, is the finest place in the whole county. This beautiful domain contains a great many elms, and the front lawn is ornamented with horse and Spanish chesnut trees, oaks, lime trees, larch, and firs, disposed in single trees. It is bounded on one side by the Barrow, but this river is not seen in any picturesque view. The most striking features in the general prospect are the Blackstairs Mountains, which exhibit a very remarkable appearance, but not so much on account of their height as of their perpendicular form and uncommon blackness. The front lawn is bordered by woods of considerable extent, and beyond these is a rising slope covered with verdure and terminating in mountain scenery which produces a very grand effect. A mountain stream running through the midst of the woods adds much to the beauty of the domain in various parts. The Blackstairs Mountains, as seen from this place, appears suddenly to break off, leaving a gap between them and another mountain in Kilkenny, called Brandon Hill.

On the 17th of March, 1809, passing through Baltinglass, and crossing a corner of Kildare, I arrived at Carlow, a very neat town abounding with "houses of entertain-

ment;" for every shop almost has attached to it a house which is used as an inn. An old castle with four turrets stands on the banks of the Barrow, and though without a roof, seems still likely to stand for ages.

DUBLIN.

Dublin is a maritime county, forming an area of 388 English square miles, and contains the metropolis of Ireland, which is situated at the end of a bay of the same name. In general it consists of a cold soil, and the face of the country does not exhibit much diversity of prospect in itself, but the view across the bay towards the south, where those mountains which extend over the adjoining county of Wicklow take their rise, certainly displays as grand and magnificent scenery as can any where be seen. The Liffey, which intersects the county, runs through the heart of the city, and discharges itself into the bay.

On the 27th of April, 1809, I passed Merino, the seat of Earl Charlemont, and proceeded to the Hill of Hoath, a very remarkable spot, consisting of a rocky promontory almost insulated, from the summit of which there is a most beautiful and extensive prospect. On the right is seen the whole city of Dublin, backed by the Wicklow mountains, the bases of which are studded with numerous villas, many of them white. The mountains stretch out towards Dalgy as far as the sight can reach, and the eye looking directly forwards catches Bray Head, and at a distance Wicklow Head. I here speak of the view as seen from the cottage which stands on a very high cliff. The bay extending twelve miles to Dalgy, with the lighthouse and the walls by which it is surrounded rising from the middle of it, makes a very grand appearance. On the left there is a most commanding view of the ocean, and the whole scenery, comprehending that along the shore from Dalgy to Dublin to the distance of seven miles at least, and the more extensive range of the mountains behind, form altogether a magnificent *coup d'ail*, which perhaps may be equalled, but is scarcely exceeded, by any thing of the kind. Having surveyed with no small delight this marine amphitheatre, of which I had a full and complete view, I went round this mountainous rock, where the new harbour is constructing for the packets, having Ireland's Eye and Lundy Island in sight. I returned along the strand by Clontarf to Dublin.

The Phœnix Park, the country-seat of the lord-lieutenant, which stands on the banks of the Liffey nearly adjoining to the city, is a fine place, and makes a very handsome appearance. Mr. Luke White's, at Luttrell's Town, is also worthy of notice; but as I had not an opportunity of seeing it, I shall subjoin the following account of it by Mr. Dutton.* Woodlands, formerly Luttrell's Town, the seat of Luke White, Esq. is a truly magnificent domain, and the improvements daily making, added to

* Dutton's Observations on Archer's Survey of Dublin, p. 125.

its fine situation and great extent, must insure it a superiority over every other domain in the country. Nature has thrown the ground into the most delightful and undulating variety of surface: the views of the river Liffey are caught in her most enchanting points; the foreground, to which nature has been so lavish, is broken in the most picturesque manner by the charming plantations of Edmunsbury, Woodville, Hermitage, &c. and the distant prospect closed in the happiest manner by the mountains of Wicklow. The glen is particularly beautiful; it follows the course of a natural rivulet, flowing over a rocky bed, between steep banks well wooded, forming a most agreeable solitude without gloom, and possessing infinite variety. This domain contains upwards of four hundred acres, and is embellished with more and better full-grown timber than is to be found in any other in the county. Mr. White is annually adding to the plantations and improving the soil." Malahide, belonging to Colonel Talbot; and Merino, the seat of Earl Charlemont, have each their particular beauties.

In the south towards Wicklow the whole country is one continued series of gentlemen's seats, many of which are elegant, and laid out in a tasteful and expensive manner. Lucan is a village of great beauty, celebrated for its spa.* Glassnevin is also a neat pretty village; in a word, the whole neighbourhood of the bay is delightful, and the rising grounds towards Wicklow command very fine prospects, but the rest of the county is not remarkable for its scenery, or the picturesque appearance of its cottages.

KILDARE.

Kildare, anciently *Chili-dair*, that is, the wood of oaks, is an inland county, containing 619 English square miles. It has no mountains, but comprehends a considerable tract of bog, which is so extensive that one gentleman, Sir Fenton Aylmer, possesses 18,000 acres. The curragh of Kildare, the celebrated turfy plain on which the races are held, is equal in extent to nearly five thousand acres. The Duke of Leinster has in this county 73,000 acres of what is called in Ireland "Green-land," that is, land fit for tillage and pasture, and as the whole of it nearly is let on determinable leases, there are on it of course no seats embellished with that expence which gentlemen might be induced to bestow on their own property. The Barrow, part of which runs through this county, assumes southwards from Athy the size of a considerable stream, and its vicinity to Dublin accounts for its being ornamented with many delightful retreats. Harris-Town, the seat of Mr. Latouche; that of the Duke of Leinster; those belonging to Mrs. Connoly at Castletown; Mr. Wogan Brown,

* The water is of a sulphureous nature, and resembles that of Aix-la-Chapelle and Bruges, but with this difference, that the Lucan water is cold, whereas those of the above two places are hot. A long account of it and its medicinal virtues may be seen in Dr. Rutt's Nat. Hist. of the County of Dublin, vol. i. p. 188.

and several others, are all much admired. The habitations of the poor are so extremely wretched that they add the appearance of misery and desolation to the general dulness exhibited by the face of the country. There are here a great many "Danish mounts," or Rathis, surmounted by a single ash-tree, which may be seen at a considerable distance. I observed several of these ancient monuments in my way from Pakenham Hall in Westmeath to Naas, in the course of which ride the land every where shewed evident marks of improved cultivation. This county, indeed, like Kilkenny, contains several large farms where tillage is carried on to a considerable extent.

KILKENNY.

Kilkenny is an inland county, containing 773 English square miles. It is bounded on the south by the Suir, on the east by the Barrow, and is intersected by the Nore, which flows through its centre. All these rivers abound with fine scenery. The latter, in its course, passes through the grounds of Mount Juliet, the seat of Earl Carrick, which seems to be left in a very neglected state. The house, which is built in the old-fashioned style of architecture, stands immediately on the banks of the rapid and beautiful Nore. The domain belonging to it is extensive, and as the plantations are at some distance from the house, the trees seem less confined, and have not the awkward appearance of being all crowded together in one spot.

On the 21st of January, 1809, I walked from Kilmaine to a beautiful glen a mile and a half long, at the end of which Mrs. Power has built an elegant cottage, in a situation truly delightful; opposite to it is a waterfall, and the rivulet runs through the lawn and flower garden, having on both sides rocks ornamented with large evergreens. The morning was frosty, and the trees covered, according to the expression of the poet, with

—————frost-work fair,
Where transient hues, and fancy'd figures rise,*

glistened on every side by the reflection of the light, which added greatly to the beauty of this enchanting though wintry scene. All the improvements on this romantic spot display the fine taste of the lady to whom it belongs.

On the 16th of July, 1809, I paid a visit to Woodstock, a place exceedingly rich in timber, as it has two hundred acres of plantation on the banks of the river Nore. From some parts of this domain the village of Inistioige, and the bridge over the Nore may be seen to great advantage. If you turn the other way and look up the river, it appears to form a bending, and the woods, which approach close to its edge, add much to the beauty of the landscape. Towards the south there is one of those

* Thomson's Winter.

romantic woody glens, watered by a mountain-stream, which are so common in Ireland. A cottage *à la Suisse*, perched upon the summit of a rugged rock at a considerable height, forms a very interesting object: a spot more delightful than this glen can hardly be conceived; nature has here scattered her picturesque beauties with a lavish hand. The glen is not very wide, but it winds along with so many turnings and twistings, breaking off into a different form at the distance of every few yards, that as you advance, new scenes continually burst into view, and keep the mind alive with expectation. It is thickly clothed with wood wherever there is soil for a root to catch, and where this is not the case, a solitary rock or rugged cliff is seen projecting its head through the green foliage, while the stream at the bottom, tumbling down its rough and uneven bed with a hoarse noise, gives a grandeur to the whole scenery which cannot be easily described. The effect is still farther heightened by the view of two or three rustic bridges, constructed of timber unbarked, which gives them the appearance of trees that have fallen across by accident, rather than of works raised by the hand of man. After you have proceeded through these rude scenes along a winding path by the side of the stream, amidst the gloom of the plantations, you are not a little surprised to find yourself close to a cottage of singular beauty, standing on the very edge of a precipice, whence you have a distant view of the river Nore. Being desirous to know to whom this charming spot was indebted for so many beauties, I inquired, and learned that the bold but rough sketches of nature had been softened and embellished by the fine taste of Mrs. Tighe, who seems to have closely followed the advice of the poet—

To build, to plant, whatever you intend,
 To rear the column, or the arch to bend,
 To swell the terrace, or to sink the grot;
 In all, let nature never be forgot;
 But treat the goddess like a modest fair,
 Nor over-dress, nor leave her wholly bare;
 Let not each beauty ev'ry where be spied,
 Were half the skill is decently to hide.
 He gains all points who pleasingly confounds,
 Surprises, varies, and conceals the bounds.

Pope's Epis. to the Earl of Burlington.

This county is mountainous, but cultivation is making considerable progress, though much furze is still to be seen on the hills. The scenery of the Nore, from Kilfaine to Ross, has been described by Mr. Young.* I saw it in a different point of view, as I passed from Carlow through Graigs to Woodstock, and thence proceeded to Ross by water. The banks of the Suir afford many fine prospects; I coasted it in

* Tour in Ireland, p. 73.

going to Waterford from Carrick, and for the first four or five miles found the country well wooded, and in a high state of cultivation, the Waterford mountains appearing in the south. This river flows with great rapidity, and has a considerable breadth till it approaches Waterford, when it becomes contracted between two rocks, beyond which there is a wooden bridge. The ride from Carrick to Waterford will afford high gratification to those fond of picturesque and beautiful views. On one hand is seen the domain of Lord Besborough, ornamented with plantations; the river extending itself in reaches, enlivened by vessels floating on its surface, and beyond it the magnificent Waterford mountains, which at their base afford a very interesting ride.

The Barrow, from the bridge at New Ross to its junction with the Suir, affords most romantic scenery in places wooded to the water's edge, and in general flows between very high land. The baronies of Ibercon, Idagh, and Iverk, are exceedingly hilly and ill cultivated; and the country presents the same appearance to Brandon Hill in the barony of Gowran.

In this county there are a great many gentlemen's seats, and the flat districts of it contain more extensive tillage farms than most parts of Ireland, which gives a very striking shade of difference to its appearance.

KING'S COUNTY.

This inland county contains 661 English square miles; and excepting the Sliehbloom mountains, which divide it from the Queen's county, is generally flat. On the west it is washed by the Shannon, which, however, does not here exhibit any of the finest of its scenery. A great part of the bog of Allan lies within the boundaries of this county, and according to the account of Mr. Bernard, its member, one half of it is of this description. The great proprietors in the other half are Lords Digby and Ashtown, entirely absentees; Lord Charleville, nearly so, and Lord Ross. This district, therefore, has a remarkable air of dulness, which renders it less agreeable to the traveller who passes through it. Charleville castle, both in its exterior and interior, is a magnificent mansion built of limestone in the Gothic style of architecture, and stands in the middle of a very flat park, with a large piece of artificial water to the south. The road which passes between this piece of water and the house, is sunk into a hollow, and to the west there are extensive plantations, with a rivulet flowing through them. The domain is very large, and abounds with trees universally stunted by loads of ivy, which has been suffered to grow so thick as to smother them. Neither the house nor grounds command any distant views, and beyond the wall by which they are surrounded, nothing is seen but one bog succeeding another, and by their dismal appearance, seeming to reproach their noble owner for leaving them in so neglected

a state. I never saw an instance of so much money expended in erecting a princely mansion in so bad a situation.

On the 17th of October I rode to Birr, which is ornamented with a handsome castle, which formerly stood in the town, with its back towards the country; but the houses adjoining it have been pulled down, so that its situation is now much more open and free. A wall is raised between it and the town, and the back converted into a front, is well castellated. But what excites most admiration is the drawing-room, which is one of the best proportioned apartments I ever saw. It is fitted up and furnished in the most elegant manner, and when init you wouldhardly suppose that you were so near to the dirty town of Birr.

Durragh, near Tullamore, belonging to Colonel Herbert Stepney, is a domain highly improved and well planted.

LONGFORD.

Longford, an inland county, lying nearly in the centre of the kingdom, contains 366 English square miles. It is intersected by the Inny, and on the west it is watered by the Shannon, which at Lough Reagh expands to the size of a lake. On the banks of one of these rivers, the Inny, there are 36,000 English acres of bog, and a great deal of the rest of the county, particularly towards the north, is in a rough and uncultivated state. To the lovers of fine and interesting scenery, it affords therefore very few treats. The domain of Sir Thomas Newcomen at Carrickglass, which is well planted and kept in excellent order, forms a striking exception to the general character I have here given of the county. On the 5th of October, 1808, I passed from Edgworth's town to Athlone, through Ballymahon; and save the trees round the seat belonging to the Oxmantown property, I scarcely saw a twig.

LOUTH.

This maritime county, containing only 329 English square miles, is bounded on the south by the Boyne, and on the east by the ocean. A magnificent obelisk raised to commemorate the celebrated battle fought by King William at a ford of the above river, stands near some scenery of great beauty. A wooded glen, through which the triumphant army marched, runs down to the place where it crossed the river. It is about nine miles distant from Drogheda, and is bounded on the one side by the dressed and planted domain of Mr. Belfour, and on the other by that of Mr. Codrington. Collon is delightfully situated among hills, and Mr. Foster's extensive plantations are conspicuous in every direction for many miles. This domain commands a prospect of singular magnificence. The immediate foreground looking north-east, consists of a declivity of tilled land, bordered on each side by beautiful plantations. The eye then passing over some miles of country, catches a view of:

Carlingford Bay, forming a watery expanse of great extent, and of the coast stretching to a considerable distance, with the mountains surrounding the bay, and those of Mourne still higher, which have a blacker appearance. The blue colour of the bay, contrasted with the yellow tint of the sandy beach by which it is bordered, the Carlingford mountains in the neighbourhood, and the more elevated dusky ones of Mourne, stretching inland in the form of an immense amphitheatre, and to the eastward the sea terminating the view, form altogether a spectacle grand and magnificent. The village consists at present of about a hundred neat houses all whitewashed. It contains a church, is surrounded by trees, and has a river running through it, over which there is a stone bridge, while a bleaching-green on its banks gives it a lively appearance. This village has arisen within the last forty years: before that period it consisted, as I have been informed, of a few miserable straw-thatched cabbins daubed over with mud. Mr. Foster has established here a cotton manufactory; and the collection of shrubs round his seat, which grow with peculiar luxuriance, adding greatly to the beauty of the whole place, is very extensive. Though there are many other seats in the county, I must in a particular manner call the traveller's attention to this interesting spot, which in every point of view is superior to them all. No place in the island is more worthy of notice. By the improvements around, the stranger will perceive long before he reaches it the plans of a great and comprehensive mind, executed with much taste and judgment. The roads in the neighbourhood are in as good order as any in Europe.

MEATH.

This maritime county contains 965 English square miles. It has very few mountains or bogs, and in general consists of flat rich pasture land, divided by grassy banks. It is intersected by the Boyne, on the borders of which, at Slane, stand the magnificent seats of Earl Conyngham and Mr. Lambert. The grounds belonging to these places have the appearance of one domain, being separated only by the river running between romantic rocks, the summits and sides of which are partly adorned with wood. The view of this scenery, combined with the dressed lawns of these two seats, renders the whole prospect highly interesting. The rest of the county, however, though there are a great many gentlemen's houses within it, presents a very different aspect. The seat of the Marquis of Headfort, near Kells, is a noble mansion; but these fine places contribute to render more striking the wretched hovels in which the peasantry dwell, and which are uncommonly bad throughout all Meath.

QUEEN'S COUNTY.

This inland county contains 602 English square miles. It is separated from the

King's county by the high bleak mountains of Sliebh-bloom, which extend a distance of fourteen miles, having in one place a pass called "The Gap." This county abounds with bogs, and the river Nore runs through the centre of it.

On the 5th of January, 1809, I went from Kildare to Abbeyleix, passing Monasterivan, the seat of the Marquis of Drogheda, and in my way found a great deal of bog. Abbeyleix is a considerable domain, covered with old timber, and watered by the river Nore, which intersects it. The grounds are generally flat, and afford very little variety, the river and wood forming the most pleasing features in its scenery, surrounded by bogs. In the neighbourhood many neat villages have been erected by the patriotic exertions of its most respectable owner Lord De Vesci, and give an agreeable relief to the eye where there is so much sterility and desolation.

On the 9th I walked to Durragh, a town belonging to Lord Ashbrook, with an excellent chateau, erected according to the date in 1716, on the banks of the Nore, and returned by the seat of Sir Robert Staples, which stands on an advantageous position on the edge of the same river.

WESTMEATH.

Westmeath is an inland county, containing 592 English square miles. The finest scenery in Ireland is to be found in Kerry, Fermanagh, Wicklow, and Waterford. Next to these, in that respect, may be classed the present county, as it abounds with lakes, the banks of which are exceedingly beautiful. The substratum here being limestone, the verdure of the fields is remarkably fine, and the sight is still farther gratified by that of the hills, many of which are covered with wood. When I rode through this county I could not help thinking that a late celebrated statesman, Mr. Fox, if he had seen Westmeath, would have retracted his assertion, that "no country suited to the feeding of bullocks is fit for a gentleman to live in;" for the largest bullocks graze here in a rich dry soil on the borders of lakes, from which in some places hills gradually raise their sides, clothed with wood; and many of the gentlemen reside in great comfort on their estates, which supply them with abundance of necessaries, and afford prospects highly delightful. From Coolure, which stands on the edge of Lough Derveragh, I made many excursions to survey the beauties of the surrounding country, and always found my labour well repaid.

On the 7th of August, 1808, I went from Castletown-Delvin, to the seat of Lord Sunderlin, in Barronston, through a charming country, richly diversified with lakes, hills, and mountains. Lord Sunderlin's mansion, comprehending the wings, is 300 feet in front: it stands in the midst of a considerable park, is surrounded by excellent plantations, and has annexed to it a very extensive garden.

On the 9th of August I rode to Lord Granard's seat Clonhugh Lodge, which con-

sists of a delightful cottage, with a domain exceedingly well planted, on the edge of Lough Owell.

On the 15th, I went from Rochford to Coolure by High Park, leaving the beautiful wooded hill of Knockdrin on my right, and passing the "Crooked Wood," a hill so named from its being once covered with timber, at one end of Lough Derrin, and over a steep hill, called in the neighbourhood the "Mountain." There are here commanding views across the lake, having the town of Castle Pollard in the foreground to the right. The whole country appeared to be well cultivated.

On the 18th I made an excursion to Fore, over a country covered with hills, all cultivated to the summits. On the 21st I proceeded to Fortland, passing through Tinea, a long straggling village, and across the bridge over the Inny, which separates Cavan from Westmeath. The principal lakes here are the Owell, Deveragh, and Rochford. The small one of Fore gives birth to two rivulets which flow from it, and discharge themselves into the sea on opposite sides of the kingdom. The land here is fertile, the substratum consisting of limestone. The country is well provided with wood, and may be ranked with the most beautiful districts in the island.

On the 1st of October, 1809, I paid a visit to Castle Pollard, the seat of Mr. Pollard, and to Packenham Hall, belonging to Earl Longford, the plantations of which join, but their situation presents nothing either striking or picturesque.

WEXFORD.

Wexford is a maritime county, and contains 934 English square miles. It is washed on the western side by the Barrow, and has very few mountains. Being destitute of limestone, it assumes an appearance very different from some of the other counties, but it possesses the great advantage of the Slaney, one of the most beautiful of the Irish rivers, running through its centre. This river, though it abounds with magnificent and romantic views, and deserves as much to be celebrated as the Suir and the Blackwater, is little visited by travellers. At Newtown Barry it adds great life and animation to the scenery of that delightful spot. In its course thence to Enniscorthy it exhibits nothing particular, but afterwards its banks become elevated, and though not richly clothed with wood, they are by no means naked. Many parts of them are covered with furze, which grows here with all the luxuriance so common to this plant throughout the southern part of Ireland. From Enniscorthy to Wexford the scenery is highly picturesque and beautiful, but it is seen to the greatest advantage, and with the best effect, by those who go by water; when you arrive at Ferry Carrick, the stream becomes contracted between considerable rocks, where the traveller must land and ascend the rising ground on the west side of this narrow pass. An inland bay, which appears unexpectedly, and animates the scene in no com-

mon degree, then opens to the view. This noble expanse of water is bounded by banks rising from it, all cultivated, and in some places covered with timber. To the east, the distant mountains, which are seen of a blue tint, form a great addition to the surrounding scenery, which abounds with uncommon beauties. Immediately beneath you see one of Coxe's wooden bridges painted white, which makes a very pretty object in this natural picture, still farther diversified by the ruins of an old castle on an opposite rock.

From Ferry Carrick I proceeded along the western bank of this river to the town of Wexford, at which there is another of Coxe's bridges, of extraordinary length, extending across the bay. Beyond this there is a second expanse of water, partly bounded by sand banks, called in all the maps Wexford Harbour. Having crossed the bridge, I returned to the one at Carrick on the eastern side of the bay, and, on comparing the views I had seen on the western with those I enjoyed on the opposite bank, the former, though pleasing in no small degree, appeared to lose much of their value. This side of the lake is embellished with the plantations of Mr. Le Hunte and the Earl of Arran, their variety, their great extent, the different shades of colour they exhibit, and the wide expanse of water, all combined to render this one of the finest spots imaginable. Behind Mr. Le Hunte's seat is a small woody glen, called Eden Vale, which, considering its extent, may be compared, in point of romantic beauties, with any thing of the kind in Ireland.

I cannot close this faint description of the scenery around the bay of Wexford, without adverting to the mountains, which, though at a distance, seem to inclose and envelop, as it were, the whole of its beauties. Near it stands the house of Mr. Devereux, who at present is a prisoner in France; it is uninhabited, but it commands some delightful views of the Slaney: adjacent to it is a woody glen, through which runs a small river.

The first striking place on the Slaney is Newtown Barry, which I visited on the 17th of December, 1808, and again in the month of June, 1809. It is a mountain village, placed in the midst of a highly ornamented domain, belonging to Colonel Barry, which is intersected by the Slaney. This may be justly termed really a fairy land. The scenery is striking, and in the highest degree beautiful. Colonel Barry's house is of the comfortable size of that of a country gentleman in England; it is built very near the town, but upon ground rising above it, having attached to it a garden and a plantation of exotics. The whole is enlivened by large dressed lawns in front, extending to the river; the village, consisting of neat white-washed houses, stands on the banks of the stream; beyond it are the church and plantations, and behind all, Mount Leinster, rearing its lofty head, which, when I saw it, was covered with snow, but it in general has a purple appearance.

On turning to the left, the Slaney is here bursting through the woods towards the

lawn, and from the opposite side of the town, which is surrounded by the grounds of the domain, it receives a great many tributary streams flowing down from the mountains. Near this place there are several gravel walks formed under the immediate direction of Lady Lucy Barry, who caused part of the woods to be cut down for that purpose. They are called "Lucy's Walks," and at every step the improvements exhibit evident proofs of her ladyship's refined taste in ornamental gardening.

The domain of the Right Honourable George Ogle at Bellevue, and that of Mr. Harvey, at Kyle, on the opposite side of the river, both between Enniscorthy and Ferry Carrick, are places of extraordinary beauty, inferior to none in the British empire. Undulating and uneven in their surfaces—richly planted—the Slaney flowing between them, with reaches extending under a lake-like appearance—I have stood many an hour enjoying the sight of this beautiful stream, rolling its waters to the sea amidst this magnificent scenery. A few miles east of Enniscorthy is Courtown, remarkable for its ever-greens, many of which grow on the margin of the sea. The scenery which this county affords deserves to be much better known.

The baronies of Bargie and Forth are in a high state of cultivation, but there is scarcely a single tree to be seen in them, or any prospects worthy to arrest the attention of the lovers of picturesque views.

WICKLOW.

Wicklow is a maritime county, and contains 781 English square miles. The celebrated Dean Swift, if my recollection does not fail me, has compared this county to a frise mantle fringed with gold lace. This comparison, like many of this humorous writer, seems to be peculiarly happy, for the interior consists of boggy mountains, without trees or any improvement from cultivation, belonging chiefly to the sea of Dublin; while the districts on the coast abound with woodlands and glens, the beauties of which are so varied and so numerous, that, to give an adequate description of them, would require whole volumes. But the first and the most striking scene is that which occurs in the country between the Scalp and the Sugar Loaf Mountains.

On the 23d of May I made an excursion to Powerscourt, which is a place of great beauty. On leaving Altadore, the road for a few miles lay over mountains highly susceptible of cultivation, till I came to the head of a wide-extended glen, where I had to the north a high mountain, called the Scalp, to the south the Sugar Loaf, and directly before me the ocean, with the domain of Powerscourt covered with plantations and tillage, while the fore-ground was filled up by the seat and domain of Mr. Howard. Looking back, I beheld a magnificent glen planted with trees, and at the extremity of it an astonishing waterfall, 360 feet in height. The sides of this glen are finely wooded. But these objects form only a small part of the romantic scenery

which this charming district presents. A minute description of the whole would extend to a great length. Speaking, in general, in the extent from the Sugar Loaf Mountains, a distance to appearance of about six miles; and in that, from the waterfall, to the ocean, comprehending nearly the same: nature has scattered her picturesque beauties with so liberal a hand, that the view altogether reminds the spectator of some of those landscapes on canvass in which the painter, indulging his genius, has collected such an assemblage of interesting objects as are seldom found combined together in nature.*

On the 25th I rode to the above glen, that I might enjoy the pleasure of a nearer and more minute view of its beauties. It is known by the name of the Dargle, an appellation given to it from a corruption of the Irish word *dar*, which signifies an oak, and *gle*, which denotes a glen, and this name appears exceedingly natural, for the sides of this chasm are covered with oaks which form a very considerable addition to its embellishments. A mountain stream tumbling over its rugged bed, proceeds along the bottom of it, running down from the waterfall with wonderful rapidity. At a particular spot, called the "Lover's Leap," the view is truly picturesque and astonishing, both by its extent and the delightful scenery of the woods beneath. On looking to the right, is seen the domain of Powerscourt, a park extending from this station to the waterfall, a distance of four miles, consisting of ground thrown into the most uneven and varied forms, and richly planted with trees and shrubs of every kind, which exhibit the most luxuriant growth. Glens lined with hanging woods, and lawns here and there interspersed, appear in several parts of this lengthened prospect, affording so many charms that the eye lingers over them with delight and turns from them with reluctance. The mansion, a noble edifice, constructed of granite, is seen embosomed in trees; and the prospect behind it composed of mountains rising above each other in succession, their summits of different shapes, and various shades of colour, forming a broken outline, which permits the blueness of the sky to be seen in the intervals between them, gives a grandeur to the whole scene, and presents a most striking contrast with the verdure and other tints of the immediate foreground. To conceive a correct idea of the beauties of this truly romantic glen is impossible unless it be seen. On looking towards the left it seems to be overtopped by a mountain, and the prospect is here closed by a distant view of the ocean. It has the advantage also of being surrounded by the pleasure-grounds of Lord Monk, those of Mr. Howard, and the ornamented grounds of Mr. Grattan at Tinehinch. The

* Some of Claude Lorraine's landscapes are of this kind. An eminent painter and ingenious writer, speaking of the landscapes of Ruben's, says, "Claude Lorraine, on the contrary, was convinced that, taking nature as he found it, seldom produced beauty. His pictures are a composition of the various draughts he had previously made from various beautiful scenes and prospect."

Works of Sir Joshua Reynolds's, vol. ii. p. 105.

seat of the last-mentioned gentleman, was formerly the inn where travellers used to stop, in order to survey and admire the picturesque charms of the vale of Powerscourt.

On the 10th of May, 1809, I paid a visit to Bellevue, the seat of Mr. Latouche. It fronts the sea, from which it is distant in a direct line about an English mile, and in the south commands a view of Bray Head, with a part of the coast stretching towards another promontory, called Wicklow Head. The most magnificent appendages to this mansion are the adjoining green-houses; they are connected with it by means of a glazed passage, and contains altogether 552 square feet of glass. If the mind is here invited to contemplation by the astonishing powers of vegetation, and the singular forms exhibited by the different shrubs and plants, some of them very rare and uncommon; this disposition is heightened and increased by advancing a little farther, for having reached the extremity of the green-house, after pursuing a mazy course through the productions of almost every clime, you are conducted into an elegant chapel fitted up with great taste, where the family and servants assemble twice a day for the purpose of devotion. Behind the house, but not within view of it, is the Glen of the Downs. On entering a banquetting house in the pleasure grounds, I was in no small degree astonished and delighted by the unexpected sight* of this beautiful glen, lying directly beneath me, one side of it lined with oaks and the opposite one rising into a considerable hill, clothed by wood of different kinds, the foliage of which presented a most agreeable mixture of tints; the whole backed by a mountain called Thomond. On the south was a distinct view of Wicklow Bay and Wicklow Head, and to the north the Sugar Loaf reared its "princely summit," so easily distinguished by its singular appearance. Nature here has done much, and art has not been sparing of its embellishments; but though every thing announces wealth, it is a costly display which does not always exhibit correctness of taste and discrimination.

On the 15th of March I travelled from Newrath Bridge to Rathdrum, passing on my way the mansion of Mr. Eccles, most delightfully sheltered from the north by a rock which overtops it. Though the house itself stands on very high ground, and commands a view over the vale from Wicklow, as far as the ocean and Wicklow Head, considerable woods appear rising above it and the grounds, bending to the south, have the advantage in fine weather of being constantly illuminated by the sun, so that for the most part they exhibit a lively and cheerful appearance, which

* A celebrated author speaking of surprise says: "Cette disposition de l'ame, qui la porte toujours vers differens objets, fait qu'elle goûte tous les plaisirs qui viennent de la surprise; sentiment qui plait à l'ame par le spectacle et par la promptitude de l'action: car elle apperçoit on sent une chose qu'elle n'attend pas, ou d'une maniere qu'elle n'attendoit pas." Montesquieu *sur le Gout dans ses ouvrages*, t. vi. p. 356.

is peculiarly striking if the foliage at the same time be agitated by a gentle breeze. On leaving this place I had a cursory view of the lodge and extensive woods belonging to Mr. Drout.

On the 3d of June, 1809, I paid a visit to a mansion called Cronebane, which stands in a very singular situation, on a piece of land elevated to nearly half the height of the mountain which forms the back-ground. The two rivers, the Avon and the Avoca, wind round it in a semicircular form, and it commands a most magnificent view of distant mountains, exhibiting a broken outline which gives them a more romantic appearance, and the valley of Glendalough which lies between them. The grounds are well planted, and the walks, which are exceedingly beautiful, extend towards the mountain. This curious spot has given rise to the delightful lines of Moore, entitled the "Meetings of the Waters," which have been set to music.

At Ballyarthur there is an excellent view from the terrace, which runs along the summit of the northern bank, forming one side of the vale of Arklow. This walk is a mile long; in one part of it stands an octagonal summer-house, and below it, a slope of great extent clothed with wood, runs down to the united streams of the Avoca and Derry, which under the name of the former, proceed in one channel till they discharge themselves into the sea at Arklow. The hollow or valley seen here is much larger than to admit of its being called a glen, as it is about an English mile and a half wide. Looking directly inland, you have before you mountain scenery, the most conspicuous feature of which is the Croan Mountain, immediately opposite to a woody bank, forming that part of the vale which belongs to Lord Carysfort, and which continues to the extent of two or three miles. Directing the eye down the glen, the river is seen pursuing its winding course till it becomes lost in cultivated fields, bounded by rocky heights. On each side is a magnificent prospect of the sea, and more immediately to the left, is a most delightful rising bank, covered with oaks, belonging to Mr. Syms, forming the northern side of the river. The lively appearance of the woods, the tints of their waving foliage, the magnificence of the mountain scenery, and the wide expanse of the ocean displaying its surface, all combine to render this one of those extraordinary scenes of nature which rivet the attention with delight. The immediate fore-ground is formed by the tops of the trees, and the river with cultivated land scattered about on its edges, the whole encompassed by the most beautiful woods. But this is not the only view from Ballyarthur that deserves to be noticed; a step cannot be taken without seeing new prospects arise, to charm and astonish the eye; and I would recommend to every traveller, not destitute of taste, who visits the county of Wicklow, by no means to neglect this favoured spot, which to be admired requires only to be seen. Following the course of the river, the opposite way towards Rathdrum, the extent of the woods induced me almost to imagine that I was in the midst of one of those immense forests seen only

in countries " where great Nature dwells in awful solitude ;" * and where man, unfettered by the bonds of social life, is free to roam about as fancy directs, and as he is impelled by the necessity of procuring subsistence ; and this delusion was still farther increased by beholding a river flowing down from the mountains, rolling its shallow stream with wonderful rapidity along its rough and pebbly bed. The opposite side of the glen is covered with wood to the very summit ; and behind it are seen at a distance, mountains that rear their lofty tops to the skies.

On crossing the river, and pursuing the road on the opposite side, you have a beautiful view lengthwise of the two woody sides of the glen, with the river winding in the bottom of it, and the sea terminating the prospect. But nature, as if not satisfied with the other beauties conferred on this spot, has made the river, instead of running in a straight line, to wind round the domain of Ballyarthur in a circular direction, creating a bank covered with oaks which extends for many miles.

On the 30th I rode to Glendalough, through Cronebane, Avondale, and Rathdrum, along the banks of the Avoca, near the ruins of the Seven Churches, and passed a house belonging to Mr. Critchly, which being surrounded by wood, forms a very striking object in the midst of these rude mountains.

On the 8th of June, 1809, I went along the south bank of the river to Arklow, and returned by the north, enjoying a fine view of the superb woods rising above the river, which belongs to Ballyarthur and cover an extent of full three English miles.

On the 10th I paid a visit to the seat of Lord Wicklow, the situation of which is low ; but the wood scenery, by which it is surrounded, makes up in some measure for this disadvantage, and renders it less perceptible.

On March 1, 1809, I walked over the domain of Ballybeg, which abounds with plantations. The house stands partly on a hill, backed with woods, planted by Mr. Syms, to whom the place belongs.

On the 13th of June, 1809, passing Ballybeg, and crossing a mountainous country to Hacketstown, I found a tract where the substratum consisted of limestone. The surrounding country presented an appearance of superior farming, and in some places the fields were separated by hedge-rows.

But I must not leave this part of Wicklow without saying a few words more respecting Ballybeg. If it does not possess the magnificent scenery of which some places can boast, if it is not embellished with all those artificial beauties in which one may trace the hand of a Repton or a Brown, and though destitute of water, which adds so much beauty to rural scenery, still it has in front the magnificent view of mountain rising majestically above mountain, as if ambitious to be seen, till they become

* Thomson's Summer.

lost in the distant horizon. To the north the same alpine sort of prospect attracts the eye, and although it does not exhibit much variety, yet, as the back-ground is composed of mountains in part covered with wood, the general dreary and desolate appearance of such scenes is lessened; and the thriving plantations to the right, with the lawn in the fore-ground, afford an agreeable relief to the eye, which when fatigued with the sameness of large masses, recurs to these softer objects with more pleasure. But though the whole view presents a peculiar wildness, as if nature were in her undress, it fills the mind with sublime sensations, far superior to that kind of pleasure produced by a place fantastically loaded with the most laboured embellishments of art, which are often the production of false taste or caprice. Here nature, free and unadorned, fills up the canvass at every point, and with an extent of figure and form which renders alpine scenery so impressive.

On leaving this place I soon descended from the mountains of Wicklow into the level and fertile county of Carlow, where I experienced a very extraordinary change in regard to myself, for as I advanced farther from Ballybeg, my spirits sunk in the same ratio, and when I arrived at the low grounds, I found them as flat as the country around me. I could not help therefore casting a look back to the elevated scenery which had inspired me with such exalted sensations; which I had beheld with rapture, and which was still strongly imprinted on my memory, but with a mixed sensation of pleasure and regret.

On the 14th of March, 1809, I walked from Wicklow to the residence of Mr. Synge, which stands at the entrance of the Devil's Glen. On the right appeared the sea at a distance, extending from Wicklow Head to another mountain; beneath me a glen, with a mountain stream running along its bottom; opposite to it cultivated hills, and on the right rocky promontories. The climate and soil seem here to be peculiarly congenial to evergreens, which are planted around the house, and disposed with much taste in such a manner as to produce a very fine effect. The deep green of the Weymouth pine, intermixed with that of the larch, and other firs, adds much to the beauty of the grounds, and on the whole this is a handsome and agreeable place.

Myrtles flourish here in such profusion that Mr. Beaumont of High Park, near Gorey, has known them to be used for making stable brooms. It is not therefore to be wondered at that evergreens of all kinds should attain in this country to a size that astonishes strangers. The common laurel, Portugal laurel, and arbutus, become so large and luxuriant that they can scarcely be recognised as the same shrubs. The principal timber in the rocky glens is oak, and in all the modern plantations the beautiful larch occupies a most conspicuous place.

In this county there are no navigable rivers, but abundance of smaller streams, which running down from the mountains with great rapidity, discharge their waters into the sea. Noblemen's and gentlemen's seats are numerous, as those fond of rural

retreats are attracted hither by the vicinity of the capital, by the romantic beauties which every where almost abound, and the uncommon mildness of the climate.

The breadth of the channel between the coast of Wicklow and Britain, does not appear to be great, for from Altidore, when the weather was clear, I could plainly see the high land on the opposite shore. I was at Altidore on the 17th of May, 1809, and wrote the following memorandum which will serve to convey some idea of the sensations I experienced on entering this delightful country. "Came by the Glen of the Downs to this place; the particularly delightful season of the year, and the contrast occasioned by my leaving the confined air of Dublin, a large city, in which I had been immured for several weeks, may perhaps heighten my admiration of the country; but the tints exhibited by the foliage of the trees, the mountains covered with verdure as far as there is any soil, the glens, the *tout-ensemble*, are certainly enchanting."

Having seen and enjoyed the beauties of Wicklow, I am apprehensive that those acquainted with them will be of opinion that I have done them very little justice. My descriptions are only faint sketches comprehending the leading features, but I am not without hope that some superior genius, possessing talents fitted for the task may direct his steps thither, and inspired by the magic influence of the surrounding scenes, give a just and correct delineation of them. The painter and the poet would here find ample scope for the exercise of their different talents.

The vale of Glendallogh which I visited on the 20th of May, 1809, forms a most impressive scene, and deserves much more particular notice than I have paid to it. Luggela also is no less interesting on account of a singular lake, called Lough Tay, so completely depressed in a hollow, surrounded by dreary mountains, that it cannot be seen till you are unexpectedly surprised by its sudden appearance. The mountains which form the sides of this abyss are exceedingly rugged and barren. Beyond the lake is an expanse of green lawn, together with some plantations; in the midst of which stands a banquetting cottage belonging to Mr. Latouche, screened by a mountain or ridge rising behind it. On ascending this ridge, which my horse attained with considerable difficulty, I followed the military road for some miles of country, in which I saw neither inhabitants nor traces of cultivation, till I reached the vale of Glendallogh. After the dreary prospects I had beheld in passing through an extensive tract where it may be truly said, "the desolated prospect thrills the soul." I was most agreeably surprised to find myself all at once, as if dropped from the clouds, in the midst of a glen surrounded by the plantations of Mr. Critchly, between which and the road a small river pursues its wandering course. The venerable remains of the Seven Churches just began to appear; beyond them stood a round tower ninety-five feet in height, and still further on a mountain of no great elevation, but raising its head considerably above the tower. On the left of it the mountains

opening afford a view of a lake, but being unadorned with wood, it makes a less picturesque appearance. Still to the left is seen another line of mountains, but not of such magnitude as to entitle them to the epithets of awful or terrific. The deep silence, however, which prevails here, the unexpected sight of ruins, the majestic tower, and the mountains rising behind it, objects which if insulated might create very little interest, produce, when grouped into one landscape, a very striking effect.

Th' enchantment of the place has bound
 All nature in a sleep profound ;
 And silence of the evening hour
 Hangs o'er Glendallogh's hallow'd tow'r.

Dr. Drennan.

PROVINCE OF MUNSTER.

MUNSTER, the most southern province of Ireland, is bounded on the north by Leinster and Connaught, and on the east, west, and south, by the ocean. Its ancient name was *Munhan*, derived from the old Celtic *Mamman*, or the county of the Great Mother, and in latter ages it was divided into Desmond, or South Munster; Ormond, or East Munster; and Thomond, or North Munster. It comprehends 9276 English square miles; and contains six counties, viz. Clare, Cork, Kerry, Limerick, Tipperary, and Waterford.

CLARE.

Clare is a maritime county, bounded to the south and east by the Shannon, and on the west by the ocean. It contains 1125 English square miles. The sea coast by which it is bordered consists of a chain of basaltic rocks, on which account sailors distinguish it by the epithet of "iron bound." Towards the centre of it an arm of the sea, or rather of the Shannon, runs off to Ennis, and is known by the name of the Fergus River. The county is remarkably bare of wood, and abounds so much with limestone, that whole tracts are entirely beds of it; the surface even has the appearance of a mass of stone.

The banks of the Fergus and Shannon are bordered with rich marshes, which afford excellent pasture, and the former present some romantic scenery worthy of attention. On the 12th of October, 1808, I had a view of the Rev. Dr. Parker's, at Ballyvalley, near Killaloe, standing on the opposite side of the river. After passing the foot of the bridge, looking back near the Palace of Killaloe, the river is seen precipitating itself down a small fall with great velocity, while the bridge, consisting of twenty-nine stone arches, each twenty feet span, and the immense sheet of water presented by Lough Derg, appearing in the distant prospect, add to the grandeur and

beauty of the scene, which is still farther diversified by the town on the opposite bank of the river, placed on a hill rising above the bridge, and ornamented with its cathedral, an ancient and venerable building, the whole contrasted by mountain scenery, forming the back-ground of the prospect. The mountains want nothing but wood to give them a more romantic appearance.

Returning to Killaloe, I took a view of the cathedral, and another ancient building, both of which have been fully described by Sir Richard Hoare.* Making a Tour to the right, I proceeded to Ballyvalley, a place of modern creation, well planted with timber and in a state of great improvement. However much I admired the prospect on the other side of the bridge, as I now stood on higher ground I found it here improved; and comprehending the contrary side of the bridge, the cathedral seen in another point of view; mountains not visible at the former station, and the Shannon, swelled to its noblest expanse in Lough Derg, and gliding past in a most magnificent style under the windows. The plantations here, though young, are in a thriving condition, and seem to have been arranged and distributed to the best advantage. In front of the house is a neat lawn, bounded by the Shannon, which forms no small addition to the scene. Behind it, to the north-east, stands a mountain called Crag, once covered with oaks, which being church property, were without mercy cut down by an avaricious bishop, who seems to have been fonder of money than of the sublime beauties of nature.

In the district between Lough Derg and Ennis, there are some gentlemen's seats, the most remarkable of which is that of Sir Edward O'Brien, at Dromoland. It consists of a venerable mansion built in the taste of former times, where every thing bespeaks antiquity of family, though great exertions have been made to give to the whole all those modern improvements which the unevenness of the ground was capable of receiving. When the plantations are completed it will be a residence truly delightful.

On the 28th of October, 1809, on my way to Kilrush, after leaving Bunragy, and just before I came to Paradise Hill, I lost the limestone, and I learned that there is none west of the place last mentioned. From the top of the hill on the banks of the Shannon, the view is most magnificent; it includes the river stretching up to Limerick, and the city itself bounded by high lands on the opposite shore. On the left the Fergus River extends inland to Ennis, and at the junction of the rivers are a number of islands, one of which, called Canna, presents a very picturesque appearance by the ruins of an ancient abbey, which has one of its turrets still entire. Immediately beneath is a large island called Tory Island, and the Shannon is seen, with a widened surface, proceeding towards the ocean. The whole forms a grand natural panorama, but almost without the sight of a tree.

* Journal of a Tour in Ireland, p. 36.

After leaving Paradise Hill, I pursued a new line of road, through the interior of the country, to Mr. Hickman's, at Kilmore, a beautiful place on the edge of Clonderlough Bay, nearly opposite to Tarbert. Here again the Shannon breaks upon the view in a very magnificent manner, and from Kilmore to Kilrush I coasted along its banks.

On the 30th of October, 1809, I arrived at Ennistymond, after passing through a large tract of country badly cultivated, to Hag's Head, on which is a telegraph, now neglected. The view from this promontory is exceedingly grand. According to the account of the neighbouring peasants, the cliffs rise to the height of 1300 feet above the level of the sea; but I had no means of obtaining an accurate measurement of them. They are almost perpendicular; consist of basaltic rock lying in horizontal strata, and extending northward with nearly the same elevation run out into the sea. In the distant view, looking towards the north, is seen the Bay of Galway, bounded by the high lands of Connamara: beneath, the isles of Arran, which consist of limestone, and more impressive than all, the grand Atlantic Ocean, dashing with majestic force its mighty waves against the tremendous cliffs, which seem, with sullen pride, to scorn their efforts, and to set their impotent fury at defiance. Nature here presents herself in her most awful form, and exhibits, particularly during storms, some of the most astonishing and sublime scenes that the eye can behold. The projecting masses of rock, jagged and broken in all directions, assume a variety of fantastic forms, and contribute to render the view still more terrific. But the eye is not the *only* organ which is affected on this occasion: the ear is sometimes wonderfully struck by the loud roaring of the waves, thrown up at one time into the air in the form of spray by their collision with these ragged masses; again retiring to repeat their vain attack, and often uniting, so as to form immense waves, which, swelling as they rise, seem ready to sweep every thing before them. I could see the surge, though at the distance of ten miles, breaking over some sunken rocks near Arran, which are called the Cliffs of Mohir, together with that part of the coast over them, which is known by the name of Dooland's Land. A part of the famous Spanish Armada was wrecked on this coast in the year 1588.

On the 29th of October, 1809, I was at Miltown Malbay, an estate belonging to Mr. Morony, which consists of a large bank, running down to the sea, facing the south-west. The whole of this "iron-bound" coast is distinguished by the name of Malbay, because it has no harbour into which vessels can run for shelter and remain in safety. Trees do not thrive in this part of the country; but fine sea views, the elevation of the land and dryness of the soil, excellent roads, and a cheerful neighbourhood, render it highly agreeable as a bathing place. A curious phenomenon is observed here at a cavern called the Puffing Hole, which I was induced to visit.

When the water recedes from this cavity, which is in the rock, it becomes filled with air, and the next wave dashing into it with violence, compresses the air till its elastic force becomes so great as to drive the water back, and sometimes force it up in the form of mist or spray.*

CORK.

Cork is a maritime county of great size, being the largest in the island, and containing 2990 English square miles. As it comprehends a wide range of sea coast, with an extensive tract of country, it affords great abundance and variety of scenery. The whole of the south-west part is formed by a ridge of mountains, which rises to a considerable height, and runs out into the sea. Few parts of the county can be properly called flat, and though most of the western side is rough and uneven, it is not so rugged as to prevent the use of the plow, or impede cultivation. The Blackwater, so much celebrated for the delightful scenery on its banks, and which has its source within the boundaries of this county, intersects it, and though the finest views attending it are in the county of Waterford, the prospects in the neighbourhood of Mallow and Castle Hyde are truly delightful.

The river Lee runs through the city of Cork, and I have been informed that it exhibits most agreeable and pleasing views between that city and Passage; but as I went from Cork to Mr. Newham's at Coolmore, and thence through Passage and the Great Island to Castle Martyr, I missed the views to which I have alluded.

The Bandon also, according to Dr. Beaufort,† in its course from Inishonan to Kinsale, flows between winding banks covered with the most beautiful woods.

In this large county there is a great number of seats, belonging to noblemen and gentlemen of fortune, many of which are ornamented with plantations of thriving timber, and the whole of Cork Harbour is surrounded by places commanding beautiful and diversified prospects. As you sail into the harbour, Rostellan, the seat of the Marquis of Thomond, is the most striking. That of Mrs. Connor forms also a delightful spot. In a word, every side of the harbour affords aquatic views magnificent and grand, and the scenery of the mountains beyond Bantry is, perhaps, exceeded by none in Ireland, except that of Killarney.

On the 26th of October, 1808, I went to Bantry, proceeding through Kenmare,

* A phenomenon of the same kind is observed near some of the Feroe Islands, "Where there are holes or fissures in the rocks, the water is driven into them; and the air contained in these cavities being compressed, forces its way out with a loud report, like that of a cannon, carrying with it the water in the form of smoke or vapour, in which the rays of the sun produces sometimes a beautiful rainbow." *Land's Description of the Feroe Islands*, p. 120.

† Memoir of a Map of Ireland, p. 95.

across the mountains, and bidding farewell to Killarney, Mucross, and its various unrivalled beauties. The views among these mountains are bold, wild, and romantic, but as I had seen them in their most majestic appearance from the top of Mangerton, if I except the nearer sight of the channel between the two lakes, which afforded me great satisfaction, I was not so much struck as I expected.

At Kenmare I crossed the river of that name, and passed through a country equally mountainous, abounding with scenes as rude and wild as the imagination can paint, to the head of Bantry Bay. On approaching towards it, but before it comes in sight, the road proceeds quite to the top of a mountain, between which and another of great height, is a glen, where the scenery is much heightened by the peculiarly barren and rugged appearance of the opposite mountain. Here the eye is sometimes attracted by a solitary herd of goats browsing among the heath below; while cultivation, gradually extending up the sides of the hills, forms a pleasing contrast with the desert and more prominent features of the prospect. In this neighbourhood is a place called the "Priest's Leap," but on what account I was not able to learn.

From Bantry to Glangarriff, the road passes through mountains. Mr. White's house is an excellent mansion, built in the modern taste, and surrounded by woods rather the production of nature than of art. It stands at the edge of the harbour, which is one of the finest indentations of Bantry Bay, so perfect in its form, and so depressed at the bottom of the lofty and extensive mountains by which it is surrounded, that it looks like a basin beneath you, and though it appears small to the eye at some distance, it is not so in reality. The mountains are separated, rough, and craggy; though inferior in height to M'Gillycuddy's Reeks in Kerry, which hang over the upper lake of Killarney, they possess, in a considerable degree, a terrific grandeur of the same kind. This place is beautiful in the true sense of the word, as it is not indebted to art for any of its embellishments.

The eastern side of the harbour, on which this house is built, is well planted with arbutus, holly, and birch, growing in the most luxuriant manner: at every turn you perceive a glen, and each step presents new, varied, and enchanting scenery, the beauty of which is set off to great advantage by the sight of the immense mountains above, and those which surround you on the opposite side of the harbour, and which being barren and untenanted, have in their aspect something uncommonly wild. The oak and the birch do not attain here a large size, but the different tints produced by their foliage add greatly to the richness and variety of the scene.

Geraniums, myrtles, and many of the most tender plants, remain out of doors the whole year, under the shelter of a rock, which protects them from the cutting sharpness of the north-easterly winds. The mildness of the climate has no small influence on the scenery of this delightful spot, as the deciduous trees remain stripped of their leaves only during a very short period of the year. The most captivating features of the prospect immediately round the harbour, where the woody glens are

seen to the greatest advantage, are by this genial temperature much improved, and a sort of almost perpetual bloom and verdure are maintained.

There are here no straight highways, presenting one open view before you. The road winds round the harbour, a new mountain or a new view every moment bursting into sight, which renders the ride to Coolranny Bridge, in particular, one of the most delightful that can be conceived.

From this place I ascended the Gowl Mountains, at the gap of which I saw the Bay of Bantry in its full extent, with the mountains on the opposite shore, and in the distant prospect Cape Clear rising above them all. Hungra Hill, which was now in full view, appears to me to be wrongly placed in all the maps which I had an opportunity of examining, previously to the publication of that by Mr. Arrow-smith. I regret much that my time would not allow me to ascend it, as I am told that it commands the most extensive prospects any where to be seen. The fall of water down its sides, during rainy seasons, is exceedingly grand. When at Bantry I had the pleasure of viewing it, although twenty miles distant.

I cannot quit this neighbourhood without recommending to every traveller whose object may be to see the romantic, beautiful, or sublime scenes of nature, to pay particular attention to this part of Ireland. Killarney is spoken of as the ultimatum of every thing worth visiting in the United Empire; but highly as I think of it, though gratified and delighted by its enchanting and extraordinary scenery, I cannot help saying, that I consider Glangarriff, and the adjacent country, if not exactly its rival, at any rate a place of uncommon beauty; interesting in no small degree; possessing charms various and striking; embracing scenes suited to almost every taste; and, upon the whole, such as must always arrest the notice and excite the admiration of those who seek for nature in her most favoured retreats. The mountains exhibit as much of the terrific in their character and shapes, and want nothing but a greater height to render them as celebrated as those of Kerry. But though these mountains have less elevation, the wide expanse of water, and the views connected with so noble a bay as that of Bantry, make up for this defect, and create an interest, which those who feel it cannot well describe. For my part, Glangarriff and its numerous beauties made such a deep impression on my mind, that the picture is still lively, and will not easily be effaced.

The grounds immediately adjoining to Mr. White's house are highly dressed and ornamented, like those around the best kept seats in England, owing, I believe, to the elegant taste of his lady. This decoration, as far as it goes, deserves to be admired; but its effect is in some measure lost, when compared and contrasted with the adjacent grand scenery of nature, which, disdainful of the shackles of art, scatters her fantastic beauties with an irregularity that never satiates the eye, and with an endless variety which, always presenting some new object, excites fresh delight.

In taking leave of the south-west part of Ireland, I think it necessary to call the

attention of the reader to the bays and harbours, almost without number, by which its shores are broken and indented, and which are all sheltered by mountains of very considerable height. I must mention also the immense masses of rock which, stretching out into the Atlantic, form prominent head-lands, such as Dursey Head, and others of the like nature, to defend the bays, roadsteads, and harbours, from the violence of that mighty ocean, which rolls its foaming waves towards them with impetuous force. The terrific effects, produced by the immense surges, swelled to the size of mountains, dashing against the gigantic sides of these tremendous bulwarks, exposed for ages to many a rude shock, cannot be conceived by those who have never beheld them; and even when seen, can with difficulty be described. The scenes they produce are uncommonly striking and grand. The philosophic observer who, extending his view beyond the stretch of ordinary minds, penetrates into the economy of nature, and sees how means are best adapted to promote certain ends, will here find his ideas exalted in no small degree, and his thoughts naturally directed to the wisdom and power of HIM who has set bounds to the raging ocean, and so providentially provided for the security of insular situations, by placing them on the most solid basis, and fencing them with massy mounds, capable of resisting the inroads which that immense body of water, in consequence of its continued agitation and violence, might otherwise make.

I have somewhere read of an extraordinary genius who, being at sea in the time of a violent storm, caused himself to be lashed to the mast of the vessel, that he might enjoy, in all its terrific grandeur, the sublime spectacle exhibited by the contending elements. But, to those fond of such scenes, I would recommend a station on the summit of some of these cliffs, where, during stormy weather, they might view, without danger, one of the most awful sights that nature can exhibit, for, as has been well expressed by a Roman poet, a great part of the pleasure in such cases arises from the spectator being conscious that he himself is in safety.

Suave, mari magno turbantibus æquora ventis,
E terrâ magnum alterius spectare laborem :
Non, quia vexari quemquam est jucunda voluptas,
Sed, quibus ipse malis careas, quia cernere suave est.

Lucretius de Rerum Nat. lib. ii.

How sweet to stand, when tempests tear the main,
On the firm cliff, and mark the seaman's toil !
Not, that another's danger soothes the soul ;
But from such toil how sweet to feel secure !

Good's Translation.

On the 12th of November I reached Castlemartyr, standing on a domain of 1200 acres covered with beautiful plantations. The land is flat, and I must remark, that so large an extent of this kind is uncommon for Ireland. The evergreens were grow-

ing with Irish luxuriance, and every thing bore the appearance of being preserved in a state of great neatness. The substratum is limestone, so that the ground becomes immediately dry after the heaviest rain. The mansion is old, but commodious, and the *tout ensemble* renders this one of the finest places in the kingdom: the mouldering remains of an ancient castle, peeping through the foliage of the ivy under which they are buried, at a small distance from the house, and a considerable sheet of water, kept exceedingly clean, give a more picturesque appearance to the scenery, and add to its beauty. Lady Shannon's flower-garden displays great elegance, and her green-houses advantageously placed, and stocked with a variety of curious plants and exotics, make the spectator imagine that he is transported to a perfect fairy land, encircled by a magnificent bank, covered by arbutus, holly, laurel, mountain-ash, and other trees and shrubs. The whole does great honour to the judgment of the distinguished personage after whose plan these different objects were arranged and disposed, and shows in a striking manner, that there are Irish ladies who possess a fine and correct taste in the modern art of landscape gardening.

November 23, 1808, I paid a visit to Castle Hyde, which is surrounded by a domain of 1100 acres; it fronts the south, and stands immediately beneath a rock, close to it, which rises nearly to the same height. The Blackwater intersects this most beautiful park, rolling its waters along with that rapidity so common to the rivers in the south of Ireland, and which gives them so lively an appearance. At this place it passes between very high land, clothed on each side with wood, approaching within a stone's throw of the house. The domain of Crag, forming part of the Hyde property, and adjoining that of Castle Hyde, adds, by its plantations, to the scenery of the latter. The pleasure-grounds are kept in excellent order, and the whole forms a most agreeable residence, which, with great propriety, may be classed among the first-rate places in the kingdom.

On the 25th of November I reached Mallow, a town and large estate belonging to Mr. Jephson, within the precincts of which, on the edge of the Blackwater, stand the ruins of Mallow Castle. Crossing the river by a bridge of twelve arches, I went to the seat of the Honourable R. Hare, at Ballyellis, a modern edifice, built with considerable taste in a well-ornamented domain, which a few years ago was only mountain-land. It is not more than a mile from the town, of which it commands an advantageous view, including the river and bridge.

I next paid a visit to Lowhart Castle, belonging to Lord Arden, which, like many other mansions in this country, was built by his Lordship's ancestors, probably in the reign of Queen Elizabeth, as a place of refuge for the inhabitants during times of trouble. It is still entire, and inhabited by his steward. On the top it has a terrace, upon which a defence could be made on every side, and is surrounded by a moat. It stands on a rising ground, embosomed within a circular screen of firs and other

trees of modern growth. From this place I rode through the domain of Mr. Rixton, the celebrated fox-hunter, which is pretty, and kept in good order, to Mr. Freeman's of Castle Cor, an estate of considerable extent and great beauty, containing large plantations well laid out.

The waterfall at Hungra Hill, in this county, has not, in my opinion, been sufficiently noticed. It is briefly mentioned by Dr. Beaufort* and by the Reverend Mr. Townsend, in his *Survey of Cork*.† Dr. Smith speaking of it, says—"Not far from Ross-Mac-Owen is one of the largest and highest waterfalls in this kingdom. This cataract is very visible from the town of Bantry, at least fourteen miles distant from it. The water is collected from various small rivulets and springs, forming a large lake on the top of a vast, high, rocky, and almost perpendicular mountain, called Hungra Hill, which is at least 700 yards above the level of the bay of Bantry. The water cascades from the top of this mountain in a beautiful sheet at least ten yards broad, which expands as it falls; about half the height of the mountain it dashes perpendicular on a prominent rock, from whence a mist arises almost a third part of the hill, which in some particular stations, the sun's rays playing on it, and meeting with the eye of the spectator, must make a charming appearance; these kind of mists in such positions generally reflecting the colours of the iris. Hence it falls from rock to rock, till it has passed the rugged declivity of Hungra Hill; and before it gains the ocean it has another fall, cascading in an arch over a lower hill; all which make a fine sight as one sails up and down the bay."‡ This waterfall is indeed one of the most considerable in Europe;§ but it is to be recollected, that in summer there is no water, and that I saw it in winter. As Mr. Townsend's account of the coast of this county is interesting, I beg leave to refer to it, and also to his description of Bantry.

KERRY.

Kerry is a maritime county, and contains 1763 English square miles. It is covered with mountains, in the midst of which are the justly celebrated lakes of Killarney. These lakes are three in number; the largest is called the Lower Lake, and occupies an area of 3000 acres. The south-west shore of this lake lies at the bottom of a majestic range of mountains, and the opposite shore consists of a low flat tract of country in a state of cultivation; but the distant prospect from the other side is

* Memoir of a Map of Ireland, p. 96.

† *Survey of Cork*, p. 394. The author copying Smith, makes it 2000 feet in height.

‡ *Ancient and present State of the County of Cork*, vol. i. p. 294.

§ Bouguer speaks of a river called Bogota, sixteen miles from Santa Fé, in South America, which precipitates itself from a mountain with astonishing force, forming a perpendicular fall 300 or 400 fathoms in height. *Bouguer Voyage au Perou*. One of the highest falls in Europe is that of Staubbach, in the county of Berne, estimated at 1100 feet. See Otto's *Versuch einer Physischen Erdbeschreibung*, P. i. p. 207.

broken by a few wooded islands. Mucross Lake, to the south, occupies 640 acres, immediately under the Turk Mountain, and on the northern shore of it is the domain of Mr. Herbert; but the Mucross shore of Turk Lake forms too straight a line to be picturesque, and the rocks have an artificial appearance which detracts from their beauty, and renders them less impressive. I allude to the view of them from the water. The peninsula which is formed here, is one of the most delightful places imaginable, and the prospect from the top of the bridge which joins it to Breechen Island, is exceedingly pleasing. To the south, Mangerton and Turk in all their glory, sinking down to the rugged point at the Eagle's Nest, where there is a view of Glenaa, the immediate fore-ground being Breechen and Dyne's Islands, and beyond these the Lower Lake with Ross Castle; Innisfallen Island and the town of Killarney in the distant prospect, complete the picture. The water, the mountains, and the whole scenery, have something of a remarkably sombre cast; but this gloom is wonderfully relieved by the verdure of Mucross at one point, and the blue tint of the mountains stretching towards Dingle at another, both which, combined and contrasted with the other parts, produce a most picturesque effect.

For about three miles the lakes continue with a width which gives them the appearance of a river, passing between the back of Turk and a large range of other mountains, which terminate at the Eagle's Nest, till they approach the Upper Lake, an immense reservoir, covering 720 acres, in a hollow between stupendous mountains, the rugged, rocky, and almost perpendicular sides of which may be said to overhang the water. The scenery of this lake is of the most awful and extraordinary kind, such as very seldom occurs, and on a scale of magnificence hardly to be equalled, except in a wild country like Switzerland. Here nature assumes her roughest and most terrific attire to astonish the gazing spectator, who, lost amidst wonder and surprise, thinks he treads enchanted ground, and while he scarcely knows to which side he shall first direct his attention, can hardly believe that the scenes he sees around him are not the effects of delusion, or the airy phantoms of the brain, called into momentary existence by the creative powers of a fervid imagination. Here rocks piled upon rocks rise to a towering height; there one mountain rears its lofty head in succession above another, and sometimes a gigantic range seems to overhang you, forming a scene that may be more easily conceived than described. Such sublime views cannot be beheld but with a mixed sensation of pleasure and awe, and on a contemplative mind they must make a deep and a lasting impression.

Such are the leading and most prominent features in the character of this much celebrated wonder of the united empire, to which my pen is incapable of doing justice. Mr. Weld has given a long account of it, which he wrote during a residence of some months at Killarney. It engaged the attention also of Dr. Beaufort, whose description, however, is short, and, as evidently appears, not taken on the spot from

nature, as he doubts whether Mangerton or M'Gillycuddy's Reeks are highest. I well recollect, that when standing on the top of Mangerton, looking up to the Reeks, they appeared to me to raise their craggy and towering summits, as far above me as I seemed to be above the flat land spread out in the neighbourhood of the Lower Lake. But these eminences have been measured by Mr. Kirwan, who makes their height to be as follows :

	FEET.
Curranea Toohill, in Kerry, which forms M'Gillycuddy's	-
Reeks, rises, above the level of the ocean	3405
Mangerton*	2698

Since Mr. Young was at Killarney the timber which clothed the mountain Glenaa has been cut down, and the stumps are now copsed, but the young trees have not yet attained to a great size, being only about twenty feet in height. They are, however, sufficient to cover the mountain with foliage, which, waving before the breeze, gives it a much more lively and agreeable appearance, and recalls to the classical reader the luxuriant descriptions of "Woody Tempe,"[†] and other places celebrated by the ancients for their beauty, which occur in the works of the Greek and Roman poets. The trees also on the islands near the town have fallen under the destructive axe, which is a loss much to be regretted by the lovers of sylvan beauty, as it cannot be repaired during the course of many years. It is indeed a general complaint, that the views of Killarney have been destroyed by these sweeping falls of timber; they are injured, no doubt, in no small degree; but the views here are still almost unrivalled, particularly in regard to that species of beauty which arises from mountain scenery of the most magnificent kind, and which the hand of man has not the power to alter. It will therefore remain to delight every traveller who has the pleasure of seeing it, unless the face of the country should be changed by some grand convulsion of nature.

But allowing for every change, the Lakes of Killarney are still nearly in the same state as described by Mr. Young, and of all the descriptions I have read, his is by far the best. Every traveller who pays a visit to this romantic spot should be furnished with it. Mr. Weld particularly recommends a view of the lakes during a clear moon-light night, and I have no doubt that his observation in this respect is perfectly just. I was so fortunate as to be at Killarney at a time when the mountains

* It is very extraordinary that both Dr. Smith and Dr. Beaufort should have been mistaken in regard to the relative height of Mangerton. See *Smith's Survey of Kerry*, p. 121.

† Umbrosaque Tempe, *Stat. Theb.* lib. vi. Tenebrosaque Tempe, *Lucan. Phar.* lib. i. Nemosaque Tempe, *Val. Flac.* lib. viii.

during the night became covered with snow; the morning broke with peculiar brightness, and I spent the day on the lake, under an atmosphere remarkably clear and serene, while the towering summits of these lofty mountains, all capped with frozen snow of the purest whiteness, formed a sight which does not often fall to the lot of those who visit this favoured spot.

I spent the 28th of October, 1810, in ascending Mangerton, being convinced that the prospect would amply reward me for my trouble. When I had attained to a sufficient height, the Lower Lake of Killarney, the only one visible, had the appearance of an inundated marsh, but ascending still farther, the channel to the Upper Lake and the surrounding mountain scenery burst suddenly on my view, as if by some magical charm, the whole forming a most extensive landscape, enriched by a variety of tints arising from the difference in the distances of the objects. The cavity called the Devil's Punch Bowl, I found to be very insignificant in comparison of what I expected, being merely a large hole at the top of the mountain, filled with water; but proceeding beyond it I was gratified by a sight of the Iveragh Mountains, piled upon each other in wild confusion; the large arm of the sea called Kenmare River, stretching a great way in-land, and beyond all the wide expanse of the mighty Atlantic, seeming in the distant horizon to unite its azure surface to the fainter coloured sky, all which formed a scene truly grand and sublime; Cape Clear appearing to the south, the Blue Dingle Mountains to the north, M'Gillycuddy's Reeks towering immediately above me, and the eye, catching towards the interior of the country, a partial view of the Galtee Mountains in Tipperary. Such an assemblage of striking and remarkable objects is seldom to be seen in one prospect, and it was only by directing my sight to the lofty summit of M'Gillycuddy's Reeks, that I was convinced that every thing seen here must be trifling, in comparison with the vast and extensive views which the astonished eye would embrace in that elevated spot. I have been told, that from this immense height the harbour of Cork appears as if in a map extended under your feet, and that to the south-west may be seen some of those huge headlands which form so conspicuous a feature in that part of the Irish coast. The Dingle Mountains dwindle into hills beneath the spectator; and Brandon, which when near it I thought so tremendous, seems to be merely a hillock; the eye passes over Tralee Bay as a small indentation of the sea, hardly worth while to notice, and lost in the extent of Galway Bay and the mountains which surround it.

Those who go to Killarney without ascending one of these commanding heights, will come away delighted with the high gratification derived from the rich scenery of Mucross, the beautiful appearance of the islands emerging from the crystal flood, and astonished by the singularly wild and rugged views which the Upper Lake affords; but they will know nothing of those grand, awful, and sublime scenes exhibited by nature, where objects of the most terrific kind are united in the wildest and

most fantastical manner, and excite sensations, not easily described, in the mind of the astonished spectator; rocky mountains divided by surprising chasms and fissures, intermixed with lakes spread out to a great extent beneath them, and intersected by immense arms of the sea, penetrating to a considerable distance within the land, the whole terminated by distant views of the ocean. Killarney may be visited, but those only who take the trouble to see the parts which I have here described, can acquire a just idea of its beauties, or be able to appreciate the value of the prospects which it in some places presents. The ascent of Mangerton is by no means difficult; some gulleys hollowed out by the water, running down its sides, afford a road for the progress of the curious traveller, who with a little labour may pass through them even on horseback.

In Kerry the attention of the traveller is so much occupied with Killarney, that the scenery in other parts of the county is either overlooked or forgotten. It ought not, however, to be consigned to neglect, as there is a great deal of it, though inferior to that of Killarney, which is still worthy of being noticed.

The whole barony of Iveragh consists of a chain of rough mountains running out into the sea, and if I may judge by what I saw from Mangerton, and in my ride from Mucross to Kenmare, I am convinced that it abounds with magnificent prospects; Mr. Herbert of Carneine, the Knight of Kerry, and Mr. Weld, have all passed over it, and I have heard them extol its various beauties, which indeed must be great, connected as they are with views of the ocean and Kenmare River.

On the 17th of October, 1808, I proceeded to Kerry Head, a place which is seldom visited by travellers, as there are no roads to it of any kind. In my way thither from Listowel, I crossed a bog, passing by the monuments of the Earls of Kerry, and the ruins of the family mansion, the estate belonging to which is now nearly all sold. I then went to a place called the Causeway, crossing through a valley some miles in length, between the Stucks Mountains and those which form Kerry Head. The road here is impassable for carriages of every kind.

Kerry Head is formed by a pathless mountain, which does not exhibit the smallest trace of a road, and on seeing it I was much disappointed, as from Mr. Young's description my expectations had been considerably raised, and I of course imagined that it had more beauties than I found it to possess. The Shannon, however, in consequence of its breadth, forms a noble and interesting object, and with the sea views and the high land bordering on the coast, will always command attention. A careless observer might imagine that the land here slopes down towards the shore, but this is not the case, for in some places strata of basaltic columns, placed in an horizontal direction, rise over each other, so as to form perpendicular cliffs, two hundred feet in height; and the bottom round the whole head or promontory consists of a sort of flag-stone, which does not afford the smallest hold for an anchor. The sea here, in rough weather, is exceedingly boisterous, and dashes itself against

this rock with a most tremendous noise. To those fond of such kind of scenery I would recommend the Brandon Mountains forming the south, as Kerry Head does the north side, of Tralee Bay. These high mountains stretching out into the sea, as if braving its fury, their black and dusky appearance, and the rocks called the Hog Islands in the midst of the bay, form, on the whole, a very interesting scene.

On the 18th of October, 1808, I was at Tralee, and observed that from the signal station at Kerry Head to Ballyheigh there is no road. A few scattered villages appear in the mountains, but in a place so little frequented that the inhabitants seldom see a stranger.

Ballyheigh, the residence of Colonel Crosby, stands in a commanding situation on the north-east point of Tralee Bay, having a direct view of those heights which run up to Brandon Point. From this place I proceeded to Ardfert, a village belonging to Lord Glendore, and during the whole way never had the sight of a single bush. From Ardfert, where there is an ancient abbey and cathedral, I took the Spa road, which passes along the strand, and making the tour of Tralee Bay, had a nearer view of the Brandon Mountains on the opposite side of the bay, which, according to Dr. Smith, are some of the highest in the county, being little, if at all, inferior to Mangerton or the Reeks.* However this may be, I remarked a peculiar blueness in their appearance, forming a tint unique in its kind. According to information I received in this neighbourhood, it is worth a traveller's while to go across them to Dingle, on account of the numerous beautiful and extensive views which they afford. Near Listowel the Knight of Kerry has a romantic seat, built in the cottage style, on the banks of a mountain stream, called the River Teal, bordered on both sides with wood. I went along the edge of the county from Tarbert to Listowel, passing Ballybunian; the woods of the former have long since been cut down, but on this side there is abundance of cliff scenery, which sometimes presents very romantic views.

Kenmare River, properly an inlet of the sea, exhibits several fine prospects, and the Shannon, which bounds the county towards the north, has on its banks some delightful spots, well worth the notice of every traveller who visits this part of Ireland. But Mucross exceeds them all, and, in my opinion, is the finest place in the island, or in the whole of the united kingdom. The seat of Lord Glendore, that of Lord Ventry, as I have heard, near Dingle, the residence of Mr. Bateman at Oak Park, near Tralee, and Mr. Cronin's domain at the Park, near Killarney, are all much admired for the beauty of their situation. But these are only a few of the fine seats in this county, which contains a great many, possessing various advantages, and ornamented both by nature and art.

* Smith's Kerry, p. 193.

Sir Richard Hoare has given a description of Lislaghtin Abbey,* but he places it in a wrong situation, as it stands between Tarbert and Ballylongford. From the whole account it is evident that Sir Richard never saw it.

On the road from Tarbert to Listowel, on the 16th of October, 1808, through Ballylongford, I travelled over college property† where I saw some of the most wretched villages I ever beheld; they exhibited a true picture of Irish misery in its worst state. In my way I paid a visit to the abbey of Lislaghtin, on the outside of which there are a great many remarkable vaults disposed in rows and constructed of stone; they are seven feet high, as many in width, and have each a door large enough to admit a coffin.

Carigfoyle Castle is in a state of decay, but there still remain one hundred and six steps which conduct to the top of it, where there are two arched ceilings of stone, but it is probable that there have been intermediate ones of wood. It does not stand on an island but a peninsula.

LIMERICK.

This county contains 1045 English square miles. "Though diversified by small hills, it is not at all mountainous; except on the south-east, where it is bounded by the Galtees, a ridge of formidable mountains, extending into Tipperary; and on the borders of Kerry, where it grows uneven, and forms a grand amphitheatre of low but steep mountains, which stretch in a curve from Loughil to Drumcolloher. In the first of these rises the river Maig, which crosses the county and falls into the Shannon; as do many fine streams by which it is plentifully watered. In the western hills are the sources of the Feale and the Gale, which run westward through Kerry; and of the Blackwater, which flows in a contrary direction through the county of Cork."‡ None of the views here exhibit fine scenery; the cabins of the cotters make a most wretched appearance, and bear evident marks of the poverty of their inhabitants. The greater part of the county consists of rich grass lands slovenly kept, and divided by earthen banks, but without any trees.

On the 12th of October, 1808, I paid a visit to Adair, where I viewed the ruins of the Castle of the Desmonds, and of three abbeys belonging to it. Mr. Quin's domain, watered by the river Maig which runs through it, is of considerable extent and well planted. Mountshannon, the seat of Lord Clare, which consists of a large pile of building ornamented with plantations, deserves notice, and the environs of Limerick, studded with neat houses belonging to its wealthy merchants, engage the attention, and form a very striking contrast with some of the poorer parts of the

* Journal of a Tour in Ireland, p. 57.

† It belongs to Trinity College, Dublin.

‡ Beaufort's Memoir, p. 87.

country, which between Limerick and Adair is exceedingly bare of trees, and uninteresting. Between that city and Askeaton I passed over some tracts of land, abounding with limestone, which lies in strata near the surface.

From Adair to Askeaton, the country is of a rocky nature. Of the castle at the latter, which belonged to the Desmond family, only one side-wall remains. It was built on an island formed by the Deal River, which appeared to me to be fordable. The hall, called the Desmond Hall, stands upon arches which are still entire, and is now a ball alley. At the distance of a few hundred yards on the other side of the river, are the ruins of the abbey. The cloisters almost entire, are exceedingly beautiful, being built of sculptured marble, and would have been perfect, had not two of the pillars been secretly carried away in the year 1784, by some superstitious person, as is supposed, who perhaps considered them as sacred relics. At the north-east end of the abbey is a vaulted burying place, which I conceived to be a repository for the earthly remains of some persons of distinction, but I found on inquiry that it contained the ashes of a family of humble shopkeepers.

In this neighbourhood there are some beautiful seats belonging to gentlemen of fortune, independently of those villas which must always be attached to a city like Limerick. Among the latter, there are a few large edifices built of brick or stone, but I saw none of those neat white-washed houses which enliven the scenery on the banks of Belfast Lough. Adair is celebrated for its ruins, which have been often described.

Passing O'Brien's Bridge over the Shannon, which from Killaloe becomes contracted to the breadth of a common river, I travelled across a bog to Castle Connel, a most beautiful village, so called from an old castle built there on a rock. It is celebrated for its medicinal water, and in the summer months is much frequented by people from every part of the country. The Shannon, now widened to a considerable extent, rolls over a rocky bed, the opposite sides being planted, and the foreground occupied by a bleach-green. The village consists chiefly of lodging houses, the whole of which almost are white-washed, and to the north-east of the back scenery, the Keeper Mountains rising to view, terminate the prospect.

Proceeding on my tour, I stopped at Lord Massey's, whose domain, or at least that part of it near the Shannon, seems most delightful. On the opposite side the river makes a bend, and winding round a rocky promontory, with a continued shallow stream, enters a bed of rock, in which it proceeds till it disappears among the distant hills. On the west, the view is highly picturesque, and in the east, is seen the village of Castle Connel with its white houses, while the remote mountains fading on the sight, produce a most pleasing effect. But in the upper part of the domain the prospect is exceedingly different; for when the spectator has got so high as to be

elevated above the tops of the trees, the beauty of the scenery seems lost amidst the immense extent of the naked and bare hills.

TIPPERARY.

This large county contains 1591 English square miles; and presents extensive tracts of uncultivated mountains, but it has also abundance of fertile plains, with a calcareous substratum, which form as rich land as is to be met with in any part of the empire. The Suir, which washes the bottom of the Waterford mountains, exhibits beautiful and romantic scenery, and before it leaves Tipperary, assumes the appearance of a magnificent river. There are here a number of fine seats, among which that of the Earl of Landaff, at Thomas Town, is remarkable for the extent of its domain, which comprehends 2200 acres, the greater part planted, and the whole surrounded by a wall.

Mr. Bagwell's mansion at Marefield, which I visited on the 6th of December, 1808, consists of an excellent house on the banks of the Suir, surrounded by extensive grounds, and commanding in front a view of the Waterford mountains, with the Galtees rising at a distance towards the west.

The seat of Lord Donoughmore, at Knocklofty, is a residence with a beautiful and extensive domain attached to it, but the house stands in a hollow, and is so sunk beneath the eye, that it can scarcely be seen from any part of the grounds, which on that account have a solitary appearance, and seem as if belonging to some other place.

Near Knocklofty stands Kilmanahan Castle, belonging to Major Green. The house has been lately built on the site of the old castle, in the ancient style of architecture, which gives it a more venerable appearance, and makes the spectator imagine he is conveyed back to scenes of former times. It rises from the top of a rock at a bending of the Suir, and though in the county of Waterford, that river forming the boundary between the two counties, is so elevated, that it commands an extensive view far beyond Knocklofty and the adjacent districts. Grandeur united with convenience, renders this one of the most complete residences I have ever seen.

The Suir, like the Blackwater, runs with great rapidity, and from Kilmanahan Castle the spectator sees it rolling its waters as it were at his feet, between woody banks; the plantations and grounds of Knocklofty forming the immediate foreground, and the Galtee Mountains the distant prospect towards the west and the north.

On the 25th of March, 1809, I proceeded along the banks of the Suir, which seem to consist of excellent land, and passing the ruins of a very large building called Somerstown, with the Galtee Mountains in front, arrived at Cahir; where I saw the remains of an old castle, but of inconsiderable size. The town stands on both sides

of the river, surrounded by the extensive domain of Lord Cahir, who here has a seat, which like that of Lord Lismore, bears evident marks of the good effects that may be produced by the patriotic exertions of an ardent mind, directed to laudable pursuits, and anxious for improvement. Both these noblemen have contributed, by their extensive plantations, to increase the beauty of this country, which naturally abounds with wild and romantic scenery.

From this place I went to Clogheen, proceeding through a valley which extends from the Galtees, on the north, to the Knockmeledown Mountains on the south. The land of this vale did not appear to me to be equal in quality to that in the rest of Tipperary; and I observed, that the fields in the whole country were divided either by grassy banks or low stone walls. The Knockmeledown Mountains are exceedingly barren: they are covered with heath, which in the spring season is extremely black, and as their great height intercepted the rays of the sun which lay hid behind them, their north side being towards me, every thing assumed a dusky appearance, which threw a gloom over the whole visible face of nature. Clogheen is situated upon a stream close to the bottom of these mountains, and the road to the town forms a gradual descent of nearly two miles, with a lofty black mountain in front.

The Shannon at Lough Derg, flowing towards the county of Limerick, exhibits a variety of views of much grandeur and beauty. In this country there is a large valley called the Golden Vale, which contains land exceedingly rich and fertile.

On the 12th of October, 1808, I paid a visit to Ballyvalley, on the banks of Lough Derg, near Killaloe. The domain at Castletough, belonging to Mr. Parker, contains abundance of extensive and charming views. The grounds are finely planted, but the house stands in a most miserable situation, sunk in a hollow, with a large walnut-tree in front, which is the only object seen from it.

Another house called Castletown, formerly the residence of the heir apparent, but which had not been inhabited for twenty years, and which when I saw it was pulling down, had a far better situation, as it stood on the immediate bank of the Shannon, surrounded by trees, and commanded most magnificent views of that noble river in every direction. Nearly opposite was the Bay of Sheriff at Lough Derg, with a wooded peninsula, and an island of twenty acres called Holy Island, on which are a round tower and the ruins of several old churches.

Near Mitchelstown there are some caverns of considerable extent in limestone rock, but I never had an opportunity of seeing them.*

* Jefferson, in his Notes on Virginia, p. 19, gives an account of caverns, also in limestone, and I believe caverns are frequently found in calcareous rocks.

WATERFORD.

Waterford is a maritime county, and contains 710 English square miles. On the north it is bounded by the Suir, on the east and south by the ocean, and on the west by the Blackwater. Two such noble estuaries as the Suir and the Blackwater are seldom seen, and they abound with magnificent and romantic scenery, in places which are situated either between, or immediately under mountains of no inconsiderable height. As I passed along the banks of the Blackwater only in winter, I had not an opportunity of seeing its scenery to advantage, and therefore, for a description of it, shall refer the reader to the tour of Sir Richard Hoare.*

On the 5th December, 1808, I passed through Clonmel, and crossing the bridge into the county of Waterford, kept the Suir in view all the way till I reached Curraghmore. This river is navigable from Clonmel to Carrick-on-Suir; the banks throughout almost the whole of this extent are covered with wood, and in summer must afford a most delightful ride. Carrick appears to be in a state of decline. There is a bridge here across the Suir, the arches of which are of various sizes, and near it a castle belonging to Lord Carrick.

I spent the whole of the 8th in riding over the large domain of Curraghmore, which, in many parts, commands very extensive prospects of the country. From the tower, the eye can trace the Suir the whole way to Waterford, while the ocean, stretched out along the coast on the south, forms, in the remote part of the picture, a very fine object. The house is seen to most advantage in front, as it is backed by wood, which exhibits very grand scenery. This domain contains 2800 acres, 1100 of which are wood: some artificial pieces of water have been formed, but when viewed from the windows, they give the place a contracted look, not at all suited to the extent of the grounds. The whole is inclosed by walls. It may be justly said, that this domain excels in mountain scenery, and in that woody wildness to which a flat pond-like piece of water can never add beauty. Had this pleasant retreat been suffered to remain indebted to nature only, it might have stood the test of comparison with any thing of the kind in the kingdom.

From this place to Waterford the road passes through a district which exhibits a great variety of picturesque views along the banks of the Suir. Owing to the nature of its situation, the city is not seen till you come within a short distance of it, for it stands, as it were, in the bottom of a bason, with the Suir, about a mile broad, and filled with shipping, flowing close to its side. A noble quay a mile long, with a

* Tour through Ireland, p. 103.

wooden bridge, like that at Derry, which draws up in the middle, adds much to the beauty of this place, and is of great benefit to commerce.

Quitting Waterford on the 10th, and looking back, I observed that the view of the city on the side towards Faithleg, is far superior to that on the road which leads to it from Curraghmore, and along the Suir to Faithleg the scenery continues highly picturesque. The city of Waterford, from some parts of the country, forms a fine object.

Leaving Clogheen I passed over mountains for nearly ten miles, till I reached Lismore, and during the whole ride did not perceive a single cabin; but I observed evident proofs of that neglect to which large districts, susceptible of culture, are consigned, in consequence of ignorance, prejudice, and other causes, equally pernicious in their effects. I saw, with no small regret, a large tract of country capable of very great improvement, drowned in water and destitute of trees; I met a poor peasant, whose wretched dress bespoke the utmost degree of misery, and whose whole appearance excited my commiseration. Had our immortal bard seen this child of misfortune he must have exclaimed,

———Famine is in thy cheeks;
Need and oppression stareth in thine eyes;
Upon thy back hangs ragged misery.

Romeo and Juliet, Act v. sc. 1.

Being desirous of knowing to whom this neglected land belonged, I found on inquiry, that it was the property of the Duke of Devonshire. I have in another part of this work expressed my sentiments in regard to proprietors, non-residents in Ireland, and therefore shall not here indulge in much reflection on that subject. But I cannot help remarking, that it is a matter of no small moment, and deserves the serious consideration, not only of those whose interest is more immediately concerned, but of all who wish well to their country.

Before you approach the town of Lismore, you fall into a beautiful glen, which proceeds in a winding direction; the sides of the mountains by which it is formed, being clothed with oak and ash for the distance of two miles. A stream of considerable size, which discharges itself into the Blackwater at Lismore, runs through it, and forms no small addition to its beauties. Near the town are the remains of an immense castle, once the residence of the brave but unfortunate Sir Walter Raleigh, which forms a very interesting object. This ruined castle stands in an elevated situation, and appears to have been a place of strength.

A great extent of the interior part of this county consists of mountains, which still remain in the wild state of nature. The banks of the Blackwater are wooded,

and the Suir is adorned with the magnificent domains of Curraghmore and Coolrannie, and the seat of Lord Besboro on the opposite bank in Kilkenny.

On the 27th of March, 1809, I crossed the ferry at Youghall, and passing through an uncultivated tract of mountain, destitute of inhabitants, but highly susceptible of improvement, belonging to the Duke of Devonshire, proceeded to Dungarvon, a town built on the beach, which, as you descend the mountain, appears almost as if it stood in the sea. Afterwards, crossing a valley of excellent land about four miles wide, as far as I could calculate by the eye, I turned round the projecting point of a chain of mountains, and arrived at the small village of Killmacthomas. From this village, the first few miles exhibit the same face of country, till within a short distance of the banks of the Suir, where the eye is once more gratified with the appearance of trees. On the right, for nearly the whole of the way, there are magnificent views of the ocean, but not a gentleman's seat is to be seen between Youghall and the mansion of Lord Waterford at Curraghmore.

Reflecting on the happy changes that may be produced in the state and condition of a neglected country by art and labour, where there is genius to plan and sufficient population to execute, one is naturally led to the instance of Peter the Great, whose successful exertions hold forth a most encouraging example to the friends of national improvement. The country where Petersburg now stands, about the beginning of the last century, was a mere marsh, or rather consisted of some marshy islands surrounded by the Neva, and occupied only by the wretched huts of a few poor fishermen; the comprehensive mind of Peter perceived at one glance the advantages it possessed, and without suffering his ardour to be damped by difficulties which might have deterred men of less resolution, he determined to make it the site of a new city, embracing all the benefits arising from a maritime situation. The design thus conceived, with a spirit almost prophetic, was executed with that enthusiasm which always forms an ingredient in the character of true greatness, and Petersburg now rears its proud spires amidst cultivated plains, to attest to future ages that there is scarcely any thing impossible to real genius, directed by firmness, and tempered by judgment.

Immortal Peter! first of monarchs! He
 His stubborn country tam'd, her rocks, her fens,
 Her floods, her seas, her ill-submitting sons;
 And while the fierce barbarian he subdued,
 To more exalted soul he rais'd the man.

Thomson's Winter.

How much it is to be wished that a few sparks of this genius were conferred on great men in every country, who sometimes, instead of applying one part of their property to render another productive, which would be of the utmost utility, not only to themselves, but to the public, either waste their time in ignoble ease, or suffer themselves.

to lose all relish for useful pursuits amidst the varied enjoyments supplied by their riches.

Some of my readers perhaps may be disposed to smile at the allusion I have here made, and to think that I have wandered needlessly from my subject, to introduce a great prince civilizing a savage nation. But those whose minds are habituated to reflection, will I trust be of a different opinion. Some districts of Ireland are at present in a state little superior to that in which the greater part of Russia was in the time of Peter the Great, and the same spirit which inspires him who reforms the manners of a large empire, actuates the patriot whose improvements promote industry and happiness within the more contracted circle over which his influence extends. Every proprietor of an estate in which there is much waste land, is not required to be a Peter the Great; but if he cannot found cities, he may rear villages; if he cannot construct ports or create navies, he may enable poor fishermen to procure boats, and supply them with tackle; if he has not the means of establishing universities or learned societies, he may contribute towards the erection of schools and other seminaries. In a word, he may do what Peter did, and what every great and rich man ought to do; he may animate by rewards, and instruct by example. By encouraging industry and promoting virtuous education among the lower classes, many of the evils with which Ireland is now oppressed would be banished; those causes of reproach which give rise to national reflections would cease; every thing in that country would assume a new face; her sons would know a happiness to which, perhaps, they have hitherto been strangers, and the harp of Erin, so long mute, would once more be strung to celebrate in grateful strains the most pleasing that can vibrate on the ear of benevolence, the praises of her god-like benefactors.

CHAPTER III.

SOIL.

THE surface of Ireland affords no great diversity of soil. Sand is never seen except in places on the shore; chalk is unknown, and tenacious clays, such as those found in Oxfordshire, in some parts of Essex, and throughout High Suffolk, I could never meet with, though in the opinion of many around me I was standing on perfectly "stiff clay," an appellation given by the Irish to argillaceous soils. That clay may not exist in Ireland I will not venture to assert; but it is not at the surface, as is often the case in various parts of England.

Such kinds of flint as are common in Kent, Surrey, and Hertfordshire, are scarce. The greater part of the island abounds with limestone or calcareous gravel; few of the counties are without either the one or the other. The former is a useful production, and is converted into a source of wealth that will always be employed with advantage. The space occupied by the mountains and bogs,* when compared with the whole area, makes a great diminution in the productive acres of the kingdom. In the north, the quantity of rich soil is not very considerable, yet vallies of extraordinary rich land are to be found in every county, and I was not a little astonished, amidst the rocky and dreary mountains of Donegal, where there was hardly a vestige of cultivation, to find myself drop all at once into a district where the soil was exceedingly fertile. I am inclined to think that the general cultivation of flax is a pretty sure indication of rich land, as this plant, in poor ground, would never attain to perfection.

A great portion of the soil of Ireland throws out a luxuriant herbage, springing up from a calcareous subsoil, without any considerable depth. I have seen bullocks of the weight of 180 stone,+ rapidly fattening on land incapable of receiving the print of a horse's foot, even in the wettest season, and where there were not many inches of soil. This is one species of the rich soil of Ireland, and is to be found throughout Roscommon, in some parts of Galway, Clare, and other districts. Some places exhibit the richest loam that I ever saw turned up by a plough; this is the case throughout Meath in particular. Where such soil occurs, its fertility is so conspicuous, that it appears as if nature had determined to counteract the bad effects produced by the clumsy system of its cultivators. On the banks of the Fergus and Shannon, the land is of a different kind, but equally productive, though the surface presents the appearance of marsh. These districts are called "the caucasses;" the substratum is a blue

* In regard to the bogs, I mean to consider them under a distinct head.

+ 8lbs. to the stone.

silt, deposited by the sea, which seems to partake of the qualities of the upper stratum; for this land can be injured by no depth of ploughing.

In the counties of Limerick and Tipperary there is another kind of rich land, consisting of a dark, friable, dry, sandy loam, which if preserved in a clean state, would throw out corn for several years in succession. It is equally well adapted to grazing and tillage, and I will venture to say, seldom experiences a season too wet, or a summer too dry. The richness of the land, in some of the vales, may be accounted for by the deposition of soil carried thither from the upper grounds by the rains. The subsoil is calcareous, so that the very richest manure is thus spread over the land below, without subjecting the farmer to any labour.

In Ireland there is not much land sufficiently light, though abundance of it is luxuriant enough, to be what is known in England under the name of "turnip lands." A vein of it, however, may be seen partly in Tipperary, and partly in the King's County, west of Roscrea, where I found turnips universally growing, though the soil is much inferior to that of our best turnip land. In many of the mountains I have observed that the calcareous soil does not extend to the top, though the summits of some produce rich clover. It is found also in patches on the mountains. Such spots afford great room for improvement.

One of the most remarkable divisions of soil is that formed by the Barrow. To the west of that river limestone is met with in abundance, while it is no where to be found throughout the counties of Wexford and Wicklow. The best limestone in Ireland is obtained in the neighbourhood of Carlow, at least such is the general opinion; but it is not improbable, that if some of the marbles were analyzed, they would prove to be not in the least inferior to it. On the other hand, in the county of Waterford, there is no limestone east of the Blackwater; so that there is a border of country, extending from Dublin, through Wicklow, Wexford, and Waterford, entirely without it.

Land, with a calcareous substratum, is by no means adapted in all cases to tillage, and Mr. Tighe's remarks on this subject, in regard to Kilkenny, may be applied to a great part of Ireland. "The ground that skirts the western bank of the Nore, below Kilkenny," says this sagacious observer, "is of a poor quality, consisting of a hungry, clayey loam, lying immediately over a bed of limestone. In general the nearer the limestone comes to the surface the poorer the soil; but this bank of the river, as well as the opposite, seems admirably calculated by nature to form the best kind of sheep-walks; where they are permitted, they produce close and green herbage, are extremely dry, and tend by nature to produce white clover and wild burnet; but give miserable crops of corn."*

Independently of the caucasses, the richest soil in Ireland is to be found in the counties of Tipperary, Limerick, Roscommon, Longford, and Meath. In Longford

* Survey of Kilkenny, p. 19.

there is a farm called Granard Kill, which produced eight crops of potatoes without manure. Some parts of the county of Cork are uncommonly fertile,* and upon the whole, Ireland may be considered as affording land of an excellent quality, though I am by no means prepared to go the length of many writers, who assert, that it is decidedly acre for acre richer than England. The finer lands of Cambridgeshire and Lincolnshire, the rich lands in the south of Yorkshire, and those in the north of Nottinghamshire, are so seldom visited, that they are less known than many other parts of England; it is thence concluded, that the latter, in comparison with Ireland, is a desert. But such an opinion can be formed only by those who judge merely from what they may observe in travelling from London to Holyhead, and who have overlooked some of the richest lands in the island. If in Ireland there be no such uncultivated wastes as the heaths between Barton Mills and Swaffham, the balance is at any rate made up by the hilly tracts I have passed over in the Rosses in Donegal, and the Gowl Mountains in the county of Cork; the comparison, could it be fairly made, would be of little importance; but it is as impossible as to ascertain the quantity of water in the German or Irish Ocean. The quality of the soil on one farm may be compared with that of another, or a sandy desert with the corn fields of Flanders; but to determine the proportionate fertility of England and Ireland, in a satisfactory manner, is beyond the reach of calculation. In the latter, barren mountains abound, and many of them are incapable of culture or of being rendered productive; there are similar mountains in England; but even of the Irish mountains, which are tenanted and divided, a large proportion produces very little; whole counties are nearly in the same condition, which makes a great deduction from the general sum of fertility. There are also large masses of slaty hills, covered with moor-grass and heath, which certainly exhibit strong proofs of neglected tillage.

* The Rev. Mr. Townsend, in his Survey of Cork, 1810, has noticed the division of the limestone districts, by the rivers in that county. "Here," says he, "as well as in some parts of the county of Kerry, rivers often mark the limits of the limestone tract. The Blackwater, in its course from Millstreet to Fermoy, runs at the south side of the limestone, for the far greater part of the way between Castlemore and Cork, a distance of about eleven miles, the course of the limestone is distinctly marked, first by the river Bride, and after its junction with the Lee, by the latter river. During this space, the limestone invariably adheres to one side of the channel, which it follows through all its windings, without once crossing it. The same circumstance is observable in the river Kenmare." p. 18. It is rather curious, that in the county of Waterford the Blackwater is the northern boundary of the limestone country, which still lies to the west of that river.

CHAPTER IV.

B O G S.

MORASSES, fens, bogs, and mosses of different kinds, are every where abundant on the earth; but particularly in the northern parts of Europe. In Asia and Africa they are less numerous, but in America there are a great many, and some have thence been inclined to believe that it was peopled at a much later period. In the Netherlands, turf mosses are very common, and the Pontine marshes, on the western coast of Italy, twenty-five miles in length, and nearly half as many in breadth, the draining of which was attempted and partly performed some ages ago, but abandoned after large sums of money had been expended upon them in vain.* In Norway, marshes extend between the mountains, and in some places render the roads exceedingly dangerous. Pontoppidan speaks of one at Lessoe, through which it has been found necessary to construct a wooden road some miles in length, where a horse, if he make a false step in passing along, instantly sinks in the mud, and is inevitably lost.† On a marsh called Sævenhæz, near the town of Raab, in Hungary, a solid crust, about a mile in length, richly clothed with grass, and on which cattle feed, has been formed by nature.‡ The celebrated Thamas Kouli Khan marched his whole army through a morass in the Persian province of Chorazan,

* It would appear that these marshes, after having been drained, became again filled with water in the course of years. They are mentioned by Pliny, lib. iii. chap. 5; Lucan, lib. iii. 85; Martial, lib. x. ep. 74, and lib. xiii. ep. 112. Juvenal, sat. iii. 307, speaks of them as infested by robbers. The famous *Via Appia*, begun by Appius Claudius the censor, in the year of Rome, 441. Liv. ix. 29. Diod. Sic. xx. 36, called by Statius, *Silv. ii. 2. 12, REGINA VIARUM*, passed through them. They were drained by the Consul Cethegus, Livy xliii. and Julius Cæsar intended to drain them, but he left the execution of the work to Augustus, who undertook and completed it. Between Forum Appii, a small town built on this road, spoken of in the *Acts*, ch. xxviii. v. 15. and Terracina, there was close to the road a canal, extending through the marshes, on which boats for conveying passengers were drawn by a mule; but chiefly in the night-time, Strab. *Geog. lib. v. edit. Almel. vol. i. p. 233.* Horace used this conveyance on his journey from Rome to Brundisium, *Sat. i. 5. 9—25.* These marshes are said to have been drained at a later period by Theodoric, king of the Goths. Cluverii *Geograph. Amst. 1697, 4to, p. 64.* "Ces inarais sont à 25 milles, ou environ, au sud-est de Rome, et ont environ 25 milles de long, sur une largeur moins étendue. Ils causent tout le mauvais air de la Campagne de Rome." *Fresney, Méthode pour étudier la Géographie*, tom. vi. p. 364. "Pius VI." (Braschi) whose pontificate began in 1775, "converted, at a great expence, and with indefatigable perseverance, a very considerable part of these pernicious marshes into pasturage, corn fields, and rice plantations. He made a canal twenty miles in length, which conveys the once stagnant waters into the sea; and he intersected it with many lesser channels, which direct them so as to fertilize the fields which they once rendered useless and pestilential." *A Description of Latium &c. 1805, p. 133.*

† Norges Naturlige Historie Kiøbenhavn, 1752, 4to, p. 64.

‡ System einer Allgemeinen Hydrographie des Erhdodens, von J. W. Otto. Berlin, 1800, p. 281.

but with the loss of many of his men and horses, which sunk and were buried in the mud.*

Some districts in Europe, before their inhabitants were acquainted with the benefits of civilization, seem to have been in many parts covered by water, though at present little or no vestige of it remains.† As the arts began to be cultivated, men abandoned their savage mode of life for the pursuits of agriculture, and while governments acquired a more settled form, land rose to a higher value, and a greater degree of labour was employed in rendering it productive. Increased population called for new means of subsistence; ingenuity, therefore, was exerted to convert unprofitable marshes into land fit for tillage, and thus, in the common course of things, the whole surface of the earth assumed a new and improved appearance.

Britain, in the time of the Romans, was covered with fens and marshes, into which the natives were accustomed to retire when pursued by their enemies, as we learn from Cæsar and other ancient authors.‡ Great part of those districts which now form the territory of Holland, were morasses, frequented by numerous flocks of wild geese, the feathers of which were so highly esteemed, on account of their softness, that they were carried to Rome, and employed in making pillows and beds.§ That part of the Duchy of Holstein, called Ditmarsh, seems once to have been in a similar condition; but it now consists of land exceedingly fertile, which not only produces luxuriant grass, but excellent crops of corn. All the fields are separated by deep ditches, which convey their superabundant waters into the sea;

* Lettres Edifiantes et Curieuses, tom iv. p. 308.

† Many of those extensive plains in Russia, called *Steppes*, but particularly those in the northern parts of the empire, consist chiefly of impassable bogs and morasses. *Storch's Hist. Stat. Gemälde des Russischen Reichs.* Riga, 1797, vol. i. p. 23.

‡ Ab his cognoscit non longe ab eo loco oppidum Cassivelauni abesse silvis paludibusque munitum, quo satis magnus hominum pecorisque numerus conveniret. *Cæsar de Bello Gall.* lib. v. cap. 16, edit. Oxon. 1800, 8vo, p. 97.

Dion says that the Britons, when pursued, took shelter in marshes, and remained there several days, immersed up to the neck in mud. *Ες τι γὰρ τὰ ἴλη καταδυόμενοι καρτεροῦσι ἐπὶ πολλὰς ἡμέρας, τὴν κεφαλὴν μόνον ἔξω ἔχοντες.*—Herodian, speaking of the expedition of Severus into Britain, says, *Μάλιστα δὲ γυφουραὶ διαλαμβάνειν ἱππεῖται τὰ ἰλῶδη χωρία ὡς ἂν ἐπ' ἀσφαλῆς βαίνοντες δι' ἐρασιῶται ῥαδίως τε αὐτὰ διατρέχουσιν καὶ ἐπ' ὄχρῳ βήματος ἰδραῖως ἰσῶτες μαχίοντο, τὰ γὰρ πλεῖστα τῆς Βριτανῶν χώρας ἐπικλυζόμενα ταῖς τε ὠκεανῶ συνηκῶς ἀμπύτισι ἰλῶδη γίνονται. οἱς ἴθως τοῖς μὲν βαρβάροις ἰσῆχες θαι τε καὶ διαθεν βρεχομένοις μίχρως ἐξῆδος γυμνοὶ γὰρ ὄντες τὰ πλεῖστα τῷ σώματος τὸς ἰλῶος καταφρονῶσι.* Lib. iii. cap. 47, edit. Oxon. 1699, 8vo, p. 133.

§ According to Pliny, the Roman Prefects stationed in that country, instead of keeping the soldiers to their duty, suffered them to go in pursuit of these birds, which they caught for the sake of their feathers. *E. Germaniâ laudatissima. Candidi ibi, verum minores, gazæ vocantur. Pretium plumæ eorûm in libras denarii quini. Et inde crimina plerumque auxilium præfectis, à vigili statione ad hæc aucupia dimissis cohortibus totis. Eoque delicæ processere, ut sine hoc stramento durare jam ne virorum quidem cervices possunt.* *Plin. Nat. Hist.* lib. x. cap. 22. *Lugd. Bot.* 1669, vol. i. p. 677.

and they are secured from the inundations of the latter by dykes, constructed like those of Holland, and kept up at considerable expense.* Other instances might be given of the wonderful changes effected on the rude face of nature by industry, continued through ages; but it is needless to enlarge on them, as the immediate object of the present inquiry is, those bogs commonly called mosses, which supply an inflammable substance known under the name of turf or peat.†

In England a very mistaken notion prevails, that the bogs of Ireland are found only in low situations, and people in general have thence been led to compare them to the marshy fens of Norfolk, Cambridgeshire, Lincolnshire, and Yorkshire, in which so much has been done during the course of the last thirty years. A strong desire, therefore, has been manifested to see the same improvement introduced into the sister kingdom, and these immense tracts, at present of little use, converted into productive land, adding to the national wealth and resources. The change, indeed, effected in some of the fenny parts of England has been astonishing; Mr. Young, speaking of one of them, that of Holderness, says, he was assured that it would not be too high a calculation to estimate the general gross produce at £5. an acre, amounting in the whole to £55,000. a year. "It has been done" continues he, "in thirty years, that is, since I was at Beverley in my northern tour. There has consequently been produced to the public, from a tract which was before the residence of

* These marsh lands, however, are exceedingly unhealthy, as the dampness of the soil, and the thick heavy atmosphere, produce fevers and other diseases. See *L. M. Medel's Indenlandske Reise igennem de betydeligste og skjønneste Egne af de Danske Provindser*. Kiøbenhavn, 1803. Andet Hefte, p. 63.

† In England and Ireland it is generally called turf; in Scotland the upper crust only, which is covered with heath and cut from the surface, is called turf: the rest is called peat.

A Germanwriter gives the following account of turf:—*Turfa*, *Humus vegetabilis aquatica*, LINN. 27. *Humus limosa*. *Humus vegetabilis lutosus*, WALLER. *Humus uliginosa*. *Humus palustris*. *Torvena*, LIBAVII. In German *torf*, *turf*; in Danish *torv*, and in French *limon*, *tourbe*, *tourbe limoneuse*, &c. is a pulverulent earth, mixed with plants and tender roots, which is dug up in mosses, and properly belongs to the vegetable kingdom. There is, however, another kind belonging to the mineral kingdom, called bituminous turf, (*Terra bituminosa*, *Turfa montana*, *Amphelitis*, *Pharmacitis*, *Bitumen terrâ mineralisatum*, WALLER,) which consists of earth mixed with coarse rock-oil, or tar, and which burns in the fire with a strong smell; of this kind is that dug up in Dauphigny and in Switzerland. Turf taken from a bottom impregnated with salt, and which contains sulphur or viuriol, has a disagreeable smell, and is prejudicial to the health. In the island of Zeland there is a kind which makes the faces of those who are in the room where it is burning as pale as death; and if they sit long by it, they are in danger of fainting; it also causes vessels to appear white in the inside. Turf taken from mosses which contain no mineral substances, does not produce such pernicious effects. The matter of turf is very different according to the difference of depth. In the province of Croningen it is light and spongy at the surface, but a little deeper it becomes somewhat better, and at the bottom is firm and black. Baron Von Meidinger, in his Treatise on Turf, makes two kinds of it, the first of which he calls *Drug turf* or *Darie turf*; the other, which is of a worse quality, he names *Hage turf*. Turf is discovered either by a borer or by the plants growing over it. *Bergnänisches Wörterbuch*, Chemnitz, 1778, p. 565.

little more than frogs and wild fowl, one million six hundred and fifty thousand pounds. A country is cultivated, built, and peopled, and the people are healthy, so far as another tract of marsh on the other side of the river will permit them to be. What a vast improvement, and how many such have taken place in this kingdom in the same period? It is in these amazing exertions, which have added so immensely to the national territory, changing pestiferous marshes into well-cultivated districts, that we are to seek the causes of that matchless superiority which renders this country the envy of the world. Imagined, undertaken, and executed, in that confidence which every rational man feels in the glorious constitution of this kingdom, by which property is safe, and equal protection given to all from the peasant to the prince. *Esto perpetua!*"*

Can any friend to his country who reads with attention the impressive passage I have just quoted, and who believes that there are large tracts in Ireland similarly situated, abstain from wishing for the application in that country of the same means which have effected so much in the fens of Holderness? The bogs of Ireland, indeed, are widely different in many respects from the fens of England, as I shall shew hereafter, but they are capable of much improvement, were the system which has been pursued there changed, and a little of the English spirit transfused into some of the Irish landholders. The active and inquisitive writer above-mentioned, whose penetrating genius renders him a judge of human nature, as well as of land, has with true discernment pointed out the chief cause of the national improvement he has described. It is our happy constitution, which notwithstanding the severe shocks it has sustained from the unhallowed hands of internal enemies, still remains secure amidst the wreck of governments, rearing its venerable front above the storm—a monument of the wisdom of our forefathers, "Property is safe, and equal protection is given to all from the peasant to the prince." Establish the same equitable system in Ireland, and more will be effected in a few years towards cultivating the bogs by the spontaneous efforts of industry, than can be done in half a century by all the commissioners, engineers, and other hirelings of government that may be employed. The most certain means of improving these wastes, is to raise the condition of the lower orders, and thereby increase the wealth of the country. Give a proper stimulus to the industry of the people; allow them to participate in equal rights; inspire them with confidence in their rulers; and convince them that they will be permitted to enjoy, like Englishmen, the fruit of the r labour. By means such as these, the indolent and oppressed natives will be excited to exertions which can be called forth only by this system of encouragement and mild treatment; and in the course of a little time these dreary wilds will be converted into fertile fields, covered with luxuriant crops.

* Annals of Agriculture, vol. xxxi. p. 114.

Undertakings of this kind are not confined to England; we read of similar attempts made with success in Denmark and some parts of Germany, though at a very considerable expence. Pontoppidan speaks of a piece of land belonging to Baron Schimmelman, in the barony of Lindenberg, about thirty-five English miles in length and ten in breadth, which consisted of floating bog that moved under the feet, being reclaimed by cutting drains to let the water run from it into the sea. He mentions also a sour morass, called Hohner-Mohr, which had both surface and bottom water, and was so useless that cattle could not go into it without the danger of being lost. It was drained in the year 1761 by order of his Danish Majesty, under the direction of Dr. Erichsen, at the expence of 22,000 rix dollars. Six hundred workmen were employed upon it; and in the course of two or three years it was fit for cultivation, and parcelled out to 196 colonists.*

A piece of land between Ingolstadt and Neuburg, called the Donaumoor, comprehending four square German miles,+ consisted formerly of a mere marsh, which in wet years became like an immense lake, so that strangers could not pass through it without great danger. In some places it was covered with low brush-wood, in others with moss, but the greater part of it was overgrown with sour-marsh plants, and it served for no other use than as a kind of common into which the peasants who lived on its borders drove their cattle; but in general it was so muddy and soft, that they sunk in it up to the knees, and sometimes were lost. There were found here in digging through the strata of turf, at the depth of from one to thirty feet, a great many fallen trees, tinged to the heart of a black colour, and all lying in the same direction. As this marsh had a most pernicious effect on the health of the people who resided in its neighbourhood, the Elector of Bavaria, Charles Theodore, employed workmen to drain it, and by pursuing other means it was converted in a few years into a fertile and beautiful district.‡

The soil of the English marshes "is a black spongy moor of rotten vegetable matter."|| The bogs of Ireland "consist of inert vegetable matter, covered more or less with unproductive vegetables, and containing a large quantity of stagnant water."§ The difference between these soils is, that the rotten vegetable matter of the one produces unrivalled crops of grass, corn, &c. while the inert vegetable matter of the other, throws out no kind of plant useful to man.

* Den Danske Atlas. Kiøbenhavn, 1763, 4to, tom. i. p. 405, 406.

+ Above 14,000 English acres.

‡ Schrank's Briefe über das Donaumoor. Mannheim, 1794, 4to. Aretin's Actenmässige Donaumoor-Kulturgeschichte. Man. 1795, 4to. Otto's System einer Allgemeinen Hydrographie des Erdbodens. Berlin, 1800, 8vo, p. 205.

|| Annals of Agriculture, vol. xxi. p. 114.

§ Copy of a Letter from Mr. Davy to the Secretary of the Commissioners, dated 1st Feb. 1811.

Moss earth assumes various appearances according to the state in which it is kept, and particularly as the soil happens to be more or less wet when it is formed. The damper the soil is preserved when the moss is growing, the lighter; opener, and less useful it will be, but where the soil is kept dry, the moss, though it does not grow so fast, will be much firmer, and far more valuable. The different appearances, therefore, which moss from this circumstance acquires, have induced some to divide peat earth into many kinds. Dr. Walker, in his Essay, published in the Transactions of the Highland Society, enumerates no fewer than seven, to which he gives the following names, viz. *Wood-peat*, *Flaw-peat*, *Heath-peat*, *Gramineous-peat*, *Inch-peat*, *Consumed-peat*, and *Waterborn peat*; but I agree with Mr. Aiton, in thinking that there is no necessity for making so many distinctions.*

In Denmark, where mosses are common, and supply a considerable part of the fuel used by the inhabitants,† moss earth is divided only into four kinds. The first called heath-turf, (*Lyngtorv*), is that taken from the surface of mosses which burns in consequence of the roots and filaments it contains; but being always mixed with earth and sand it forms bad fuel, and is used only by those who can procure no other. The second kind, *Moretov*, called in Norway, *Myrtov*; in Holland *Klyne*; and in Jutland, *Skotter*; is that best known and most commonly used, and is dug up from a considerable depth. The third kind, *Martov*, named by the Dutch, *Darie* or *Darry*, is in general found at the bottom of the hills near the sea coast. In some places it is seen on the shore itself when the sea retires at low water, but as it contains a mixture of saline particles it burns with difficulty, produces little ashes, and emits sometimes a disagreeable smell. The fourth kind is mountain-turf, *Bergtorv*; it is of a blackish colour, gritty, yet sufficiently compact; burns with a strong heat and flame, and smells somewhat like coal.‡

In regard to the properties of moss earth, they must be very different according to the places where it is found, and to many accidental circumstances which are capable of altering or modifying its nature. There are some, however, which seem to belong to most kinds of moss earth in general, such as inflammability, acidity, insolubility and an antiseptic quality.

“Inflammability,” says Mr. Aiton, “is a quality which moss possesses to a very high degree. It is evident, that as the putrefaction of the moss advances, the inflammability of the peat earth is increased. Hence, the upper strata are laid aside when peat is dug for fuel; and where the moss has been in nearly the same state of

* Aiton on Moss Earth. p. 47, 48.

† The mosses in Denmark are estimated to occupy a surface equal to above 75,000 English acres. *Almindelig Udsigt over Agerdyrkingens Tilstand i Sjælland og Møen*, af. C. Begtrup Professor i Landøkonomien Kiøbenhavn, 1803, vol. ii. p. 276.

‡ Samlinger om Agerdyrkning og Landvesen Kiøbenhavn, 1794, Fierde Hefte, p. 11.

humidity during the time of its accumulation, the under strata are always the best peat. This quality in peat earth renders it of very great utility as fuel. The quality of the fuel, or in other words, the inflammability of the peat, is evidenced by its colour; the blackest moss makes always the best peat."

"Acidity is another quality easily perceptible in peat earth. Hence the unpleasant smell, and the poignant pain in the eyes, which are felt from peat smoke, especially by those that are least accustomed to breathe in such an atmosphere. Lord Meadowbank describes the acid of peat earth to be of the nature of something resembling the gallic acid.*

"Insolubility and an antiseptic quality† are also clearly perceptible in moss earth, far beyond what is to be found in any other earthy substance. These qualities are the gifts of nature, which is not more wonderful in her rich variety, than in the infinity of her laws and the properties she confers on her works. Some plants no sooner attain maturity, and get their seeds for a new crop dispersed, than they die; their frame is speedily dissolved, their parts are separated by putrefaction, and they restore the substances of which they were composed to the elements whence they had been collected. These very substances are served out by nature to form a new generation of vegetables; other plants are, at least in some situations, furnished with powers not only to resist the progress of corruption so far as regards the reduction of their own frame, but even to prevent it from dissolving other bodies, which in any other situation would go speedily into putrefaction. The most valuable plants and the richest grasses, which grow in dry and fertile soils, and are reared in a genial heat, generally form the most bulky crops. But no sooner do such luxuriant crops cease to grow, than they are subjected to corruption. That terrible destroyer of all vegetable and animal organized bodies soon reduces their fibre, separates their component parts, and completely decomposes them in a space of time not much beyond that in which they were collected and formed by vegetable organization. But moss plants are capable of resisting that awful destroyer, putrefaction, for a much longer space of time than any other animal or vegetable substance. Their growth is but small compared with that of the richer grasses, but their solubility and putrefaction is still proportionably slower; so that something of their vegetable fibre and texture is preserved for many centuries after the plant has ceased to grow. The growth of one

* In Mr. Aiton's Pamphlet this is spelt *Gallic* acid. *Cælic* acid would mean Highland acid, which to me is a new term. But perhaps it may be a typographical error.

† "This antiseptic quality cannot be ascribed to any of the mineral acids; for they appear not in our mosses either so frequently or so copiously as to produce this general effect. Neither can it be ascribed to the vegetable acid, which is still more feeble and inadequate to the purpose. But probably to a union of the vegetable acid with the inflammable matter of the vegetable substance, the result of which combination must be a bituminous matter." *Dr. Walker's Essay on Peat*, p. 33.

year rises above that of another, but little diminished in size till the mosses have accumulated to the vast depth in which we now find them."

"These singular qualities extend to every thing buried under moss; wood, when exposed to the atmosphere, or buried under any other earth, will be totally annihilated in a few years; but if it is enveloped in moss before putrefaction has made much progress upon it, it will remain but little impaired for many centuries. The under side of moss-timber is generally found entire; the progress which corruption has made on the upper side must have been before the moss rose over the trees.

"Some iron heads of arrows, wooden bowls, three sacks full of nuts, and a coat of an ancient texture and construction, were, in the year 1737, dug from under a moss fifteen feet deep in Ireland; all of them were in a high state of preservation."*

"Not only wood and utensils, but even animal substances, which are still more susceptible of corruption, have frequently been found entire, after remaining buried under moss for several years. The antiseptic qualities of peat earth seem to exceed in their effects even the art of embalming, practised by the ancient Egyptians. In the Philosophical Transactions for the year 1734, mention is made of two human bodies dug from under moss, where they had remained forty-nine years, and yet corruption had not made the smallest progress upon them; their flesh was quite fair, and pitted when pressed with the finger; the joints played freely, without the least degree of stiffness, and their clothes were no way impaired."†

"In the same work for the year 1747, an account is given of the body of a woman discovered under a moss in Lincolnshire, which, from the antique sandals found on her feet, had evidently remained many centuries under the moss, yet the body had suffered nothing by corruption. Her hair and nails were as fresh and free from putrefaction as those of any living person; her skin was soft and strong, and stretched like doe leather, but had acquired a tawny colour."‡

"The countess of Moira, in a letter published in the Archæologia, mentions that a human body was found under moss *eleven feet deep*, on the estate of her noble husband. The body was completely clothed in garments made of *hair*, which were fresh and no way impaired; and though *hairy* vestments evidently point to a period extremely remote, before the introduction of sheep and the use of wool; yet the body and the clothes were no way impaired."||

"A piece of cloth dug from under a moss *ten feet deep* on the lands of Flatt, in the parish of Glassford, Lanarkshire, was found to be fresh and well preserved. This piece of cloth was brought up from the bottom of the peat forest on the point of a spade; but the incurious labourer was neither at the pains to preserve it, nor so

* Archæologia, vol. vii. p. 3.

† Phil. Trans. vol. xxxviii. p. 413.

‡ Phil. Trans. vol. xlv. p. 571.

|| Arch. vol. vii.

much as to examine if any more clothes were deposited in the same place. Probably this might be part of the clothes of a person buried there at so remote a period that the moss had risen ten feet over it. Whether a human body had lain there or not, the cloth must have been so deposited; for the solidity of the moss over and round where it was found, proves that it had not been buried in a pit dug into the moss."

"The antiseptic quality of moss extends to all water in which peat has been infused. Moss-water even when stagnant, and in the warmest climates, neither acquires the putrid smell which arises from other stagnant water; nor do the plants grow or the animalcule gender, which we see like a green scum on the surface of all other stagnant water in hot weather, even in this cold climate; Captain Cook found moss-water good and wholesome after being kept long on ship-board, even in warm climates: it had never become the least putrid. Many people live in the midst of much stagnant moss-water, yet they are healthy, and live to as great ages as the inhabitants of the driest and warmest soil. No people whatever are more healthy than those who live in the most extensive and wettest mosses; while among the inhabitants of all low, damp, and fenny places, where stagnant water that has not been impregnated with moss, prevails, intermitting putrid fevers, putrid sore throats, and other malignant diseases, are very common. Wherever peat is used for fuel, and especially in the low smoky houses which abound in the muir country, vast quantities of the peat-smoke and peat-dust pass into the lungs of the inhabitants with the air they breathe, as well as into their stomachs with their food and drink, yet their health is in no way impaired thereby."*

"We are informed by Wallerius,† that the peat of Sweden yields upon distillation, beside air and water, a volatile spirit, resembling spirit of hartshorn, some volatile salt, and a fetid oil; and likewise that the fluid and saline matters in the Swedish peat amount nearly to one half of its weight; but the degree to which the peat had been previously dried is not specified."

"Le Sage from eighteen ounces of French peat obtained by distillation as follows:

Water of a disagreeable smell	2 oz.
Spirit of volatile alkali	4½
An oily saponaceous matter	1½
Volatile alkali concreted	0 $\frac{1}{16}$
Residuum destitute of salt	9½
	<hr/>
	17 $\frac{5}{16}$

* Aiton on Moss Earth, Glasgow, 1805, p. 66-71.

† Waller. Mineralogia, vol. i. p. 17.

“ These principles obtained from peat by distillation demonstrate its real nature and origin, that it is essentially composed of putrid vegetable matter. From peat dug in Holland, Le Sage, indeed, besides a thickish oil, obtained an acidulated water and marine acid, and found in the residuum a small portion of selenite of Glauber's salt and sea-salt. These, however, may have been occasioned by the pit having been overflowed by the sea, which is the case with many of the turf-bogs in Scotland. Such extraneous matters must no doubt often occur in the analysis of a body so generally spread over the surface of the earth; but in peat, as in every other vegetable substance that has undergone putrefaction, though the volatile alkali abounds, no fixed alkaline salt has ever been discovered.”*

According to a report made to Parliament by a board of gentlemen appointed to examine the bogs in Ireland, it is estimated that they cover at least one million of acres;† but as “ mountain bog and bog under five hundred acres”‡ are excluded from the computation, the surface covered by them is, perhaps, much greater. The commissioners conclude that six-sevenths of the bogs of Ireland occupy a portion of the island somewhat greater than one-fourth of its whole superficial extent, included between a line drawn from Wicklow Head to Galway, and another drawn from Howth Head to Sligo, resembling in form a broad belt, stretched across the centre of the country, with its narrowest end nearer to the capital, and gradually extending in breadth as it approaches to the Western Ocean.¶ This district includes a number of bogs, called in general the “ Bog of Allen,” which, contrary to the prevailing opinion in England, is not one continued morass of immense extent, but consists of a number of bogs adjacent to each other, and all contained within the belt described by the commissioners. They all, however, lie on the west side of the Shannon, and are for the most part of that kind called red bog, being very different in appearance from the deep black bog found to the south of Lough Neagh in the province of Ulster, or the high mountain bogs which I have seen in almost every part of the island.

The origin of these masses of inert vegetable matter has given rise to many learned antiquarian and philosophical discussions, and notwithstanding all the modern discoveries, it appears to me to be still undetermined when or by what means they were formed. That they are not primitive or original masses of earth, I think,

* Dr. Walker's Essay, p. 25-30. Aiton on Moss Earth, 71-74.

† First Report of the Commissioners on the nature and extent of the bogs of Ireland, p. 4.

‡ Mr. Larkin, who made a survey of the County of Cavan for its grand jury, has ascertained that it contains 90 bogs, no one of which exceeds 500 acres; but if taken collectively, it contains above 11,000 Irish acres of bog, which are equal to above 17,000 English acres, independently of many small bogs, varying in size from 5 to 20 acres.

¶ Second Report, p. 3.

is certain, because they are found chiefly in northern countries, and always cover timber, various utensils, and coins, the two latter of which are certain indications of the hand of man, previous to their existence. I have seen fossil timber, in great quantities, dug up from many of the bogs in Ireland; and it is found also in all bogs in every country of Europe. From this circumstance, many have been induced to believe, that bogs originate from decayed forests, which by some accident or convulsion of nature have been overturned and buried. Mr. Griffith, who was employed by the Irish commissioners to survey a considerable extent of bog, states, in his report, "that those bogs which fell under his observation were not produced by any cause of this kind, as trees, or the branches of trees, are rarely found in the interior of the deep and extensive bogs of Ireland, but are always met with at the edges, or near gravelly hills or islands in these bogs, lying horizontally, and in no particular direction; frequently crossing each other, and either attached to their roots or separated from them. In the latter case the stumps usually stand upright in the place where they grew, having six or eight feet of the bog sometimes above them, and three, four, or five feet, but rarely more, below their roots."* It is difficult to account for this circumstance, and therefore I am inclined, without ascribing the origin of bogs to decayed timber alone, to consider it as one of the chief causes of their formation. Dr. Anderson has combated this opinion, but I do not think with success.+ Mr. Griffith says, "trees are still to be found growing on the bog edges, and in the valleys in the bogs where rivers flow. Thus, in the vale of the stream running from Lullymore by Lullyby to Cushaling, in Lullymore bog, oak, alder, aspen, birch, willow, whitethorn, and holly trees, are now growing; but I did not observe any fir-trees, though they are found in the bog."‡ Mr. J. A. Jones, another of the engineers employed by the commissioners, reports, that "in the borings taken to ascertain the depths of the bogs in this district, no timber was met with under the surface except near their edges, and it was usually oak, deal, or yew."§ Mr. Edgeworth, employed also as an engineer, speaking of the district which he examined, says, that "it forms a considerable section of a large circular basin surrounded by hills rising in the counties of Leitrim, Longford, Cavan, Westmeath, and Roscommon. It is probable that these hills, and the valleys between them, were covered formerly with trees, and from the remains and exuvix of these woods, the bogs which at present exist have gradually been formed, fresh vegetation adding to the original morass. Whether these morasses were at first formed by the destruction of whole forests, or merely by the stagnation of water, in places where its current was choked up by the fall of a few trees, and by the accumulation of branches and

* First Report, p. 16.

+ Anderson on Peat Moss, p. 64.

‡ First Report, p. 16.

§ Second Report, p. 81.

leaves carried down from the surrounding hills, is a question that cannot now be determined. Professor Davy is of opinion, that in many places where forests had grown undisturbed, the trees on the outside of the woods grew stronger than the rest, from their exposure to the air and the sun, and that when mankind attempted to establish themselves near the forests, they cut down the large trees on their borders, which opened the internal part. When the trees were too weak and slender to withstand the influence of the wind, which, as is commonly to be seen in such circumstances, had immediate power to sweep down the whole of the internal part of the forest, the large timber obstructed the passage of vegetable recrement, and of earth falling towards the rivers; the weak timber in the internal part of the forest, after it had fallen, soon decayed, and became the food of future vegetation. Mr. Kirwan observes, that wherever trees are found in bogs, though the wood may be perfectly sound, the bark of the timber has uniformly disappeared, and the decomposition of this bark forms a considerable part of the nutritive substance of morasses.* Notwithstanding this circumstance, tannin is not to be obtained in analyzing hogs Their antiseptic quality is, however, indisputable; for animal and vegetable substances are frequently found at a great depth in bogs, without their seeming to have suffered any decay. These substances cannot have been deposited in them at a very remote period, because their form and texture is such as were common for centuries ago. In 1786 there was found, seventeen feet below the surface of a bog in my district, a woollen coat of coarse but even net-work, exactly in the form of what is now called a spencer. It fitted me as well as if it had been made by a modern tailor. A razor with a wooden handle, some iron heads of arrows, and large wooden bowls, some only half made were also found, with the remains of turning tools. These were obviously the wreck of a workshop, which had been probably situated on the borders of a forest.† Mr. William Trench, of Cangor Park, near Roscrea, in a letter I received from him, dated October 25th, 1810, says: "bog timber, for the most part, is found in this country, to lie from south-west to north-east, which I think may be easily accounted for, if we suppose it to have been thrown down by the prevailing wind of the

* Although I accord very much with the opinion which Mr. Kirwan has formed, I beg to say, that he is mistaken in thinking that the bark has uniformly disappeared. I have observed the bark of various trees taken from bogs in different parts of Ireland. Dr. Walker believed the same fact of the timber found in the mosses in Scotland, and as Mr. Kirwan imagines, supposed that the trees had decayed from age, and that the bark had dropped off before the stock fell, on which Mr. Aiton remarks, "if he had examined fossil wood with attention, he would have found that much of it still retained the bark, at least on the under side. The bark will often be found adhering to the lower side of the tree, or visible under it when the upper side of the same tree is consumed to near the centre. This proves that the tree was entire when it fell. The under side, being soon enveloped in the moss, was preserved from corruption, while the upper side, being more years exposed to the atmosphere before the moss rose over it, was much more injured." *Aiton's Treatise on Moss*, Glasgow, 1803, p. 30.

† Second Report, p. 174.

country, for all the trees here are found to incline in that direction, owing to the frequency of the wind from the west or southward. The timber which I have found, but in particular the oak, appears to have lain for very different periods. In general it is quite black, but I have found some in which that hue was only an inch deep, and the remainder of the brown colour usually exhibited by timber cut in our own time. Since you were in Ireland, a lake which you may possibly have observed between this place and the house of my brother,* has been drained so far, that the surface of the water now stands about four feet below its former level; more than one half of it has been left dry, and it appears that three-fourths of its banks are bog. The bottom consists of blue shelly marl, which seems to extend to a great depth, and when dry it is exceedingly light. In the highest part of this reclaimed land, which is about the middle of the old lake, there is seen a circular part resembling in shape the top of an immense tub, about sixty feet in diameter. The large planks which form the staves are from one to ten feet broad, and about six inches thick, quite straight, as far as it has yet been possible to trace them downwards. None of them have been raised without cutting them. At present there is no appearance of either ax or saw having been used in the formation of them."

In a bog belonging to Colonel Heyland, in the county of Derry, there was found, under a large tree which some men were raising, a considerable quantity of matter resembling coagulated blood, a part of a man's hat, and an instrument which might be used for picking pockets, as it folded up into a small space; it had handles like a pair of scissors, and when opened darted out to the length of a yard, exhibiting a long hook at the end. I heard at Colerain of a corpse being found in a bog with its clothes and shoes on, together with shoemaker's implements, which seemed to indicate that the body was that of some shoemaker.

In the county of Kerry, great quantities of pine and birch timber are found in some of the bogs; in others there are no trees.† Mr. Ensor, of Ardress, county of Armagh, says, in a letter which I received from him: "Do you know that the trees found in the bogs have been burned down? There is now in my yard a fir tree of considerable dimensions, one-third of which was burnt; and I have had in my possession also oak-trees which were incrustated with charcoal." Some arrow-heads, wooden bowls, three sacks full of nuts, and a coat of an ancient texture and construction, were, in the year 1737, dug from under a moss fifteen feet deep in Kilkenny, all of them in a high state of preservation.‡ Oak and fir, still fresh, were found in a bog south of Knoctopher.§

* Mr. Francis Trench, of Sopwell Hall.

† Weld's Account of Killarney, p. 98.

‡ Archæologia, vol. vii. p. 3.

§ Tighe's Survey of Kilkenny, p. 161.

“That bog may sometimes exist beneath other strata, and at a good depth from the surface, appears from the following fact, which was stated by the proprietor, Mr. John Prior, who in sinking a pump lately near his house at Kilree, eight miles from Kilkenny, discovered a bog having timber under it at the depth of thirty-three feet. He found the following strata: vegetable earth three feet; marl with black stones, fifteen; yellow clay and hard gravel, fifteen; making all together, thirty-three feet, and with ten feet of bog, below the whole, forty-three. Beneath was a mixture of gravel, with clay exceedingly hard, and immediately under the bog lay a large block of wood, a piece of which was sent to the Dublin Society, and appeared to be oak.”*

In Kildare, “Mr. Bagot of Nurney discovered at the depth of six feet under the surface the remains of an old plantation of fir timber; wherever he found a second in the line of drain, he was sure at the end of every ten feet to meet with a fallen tree. When these were removed, he sunk the drain six feet more to the gravel, where he found that there had been a promiscuous growth of trees.”† Sir George Mackenzie, speaking of Iceland, says—“We saw no vestige of wood in the bogs, and were informed, that where it occurs the trees were small. Mr. Hooker saw one five or six feet long, and about a foot in diameter.”‡

That England has abounded with morasses ever since the time of its invasion by the Romans, there can be little doubt; and it appears by the evidence of history, that formerly they were all covered with forests. The Reverend Dr. Rennie§ has collected many facts both from ancient and modern authors, which seem fully to establish this opinion. These morasses have been cultivated, as the arts and wealth were introduced, and the existence of many of them can be traced in tradition, or by consulting ancient records and annals. The only moss, however, of any extent, remaining at present, is the Chat Moss near Manchester, which has the same appearance as the Irish bogs. Timber is found in all these places, and in many which exhibit no appearance of peat. In the Holderness fen in Yorkshire, and in the fens of Linconshire, fossil wood is often found, and sometimes buried at a considerable depth.

Timber and other things are frequently dug up also from the earth in many other countries of Europe. The learned Pontoppidan, speaking of Denmark, says—“In regard to the old turf mosses which have had time to grow together and become hard, they are pretty common in most parts of the country, and in some places so abun-

* Tighe's Kilkenny, p. 162. † Survey of Kildare, p. 88. ‡ Mackenzie's Travels in Iceland, p. 88.

§ Essays on the Nat. Hist. and Origin of Peat Moss, Edin. 1810, 8vo. Dr. Rennie quotes many authors, ancient as well as modern; but gives us no references whatever. In alluding to Pomponius Mela, he calls him only Pomponius, an appellation by which some readers will not understand what author he means.

dant, that it is hardly possible they can be ever exhausted, if treated in a proper manner. As long as the woods supplied a sufficiency of fuel, turf was little used in towns.* At present many are obliged to have recourse to it, as is the case in Holland, where there is no other substance that can be used for that purpose. The old and solid turf-moss is as good as the Dutch, and the deeper it is found the better it is, especially when of that kind which has no perceptible admixture of sulphur; for when it contains sulphur it emits a disagreeable and unwholesome smell. It is well known that there is found in the turf-mosses here, as well as in other countries, great quantities of wood, and even whole trunks of trees, such as fir, birch, and oak, which on being cut asunder, is found to be so black and smooth that it resembles ebony. Fir timber does not appear to have abounded here; yet it is the kind most frequently dug up from the mosses." "A peasant in the district of Yaniss," adds this author, "with whom I lodged a night in my tour from Norway in the year 1754, shewed me sticks and other pieces of wood used in building, which he had dug up in his turf-moss. They were squared, had holes bored in them, and were employed by him in erecting his barn, were they were intermixed with newer pieces of the same kind."

"Sometimes there are found in turf-mosses at the depth of several feet, nuts, cherry-stones, the horns of various animals, and particularly those of the deer. It is related in an old manuscript, that a peasant of Lundebye, in digging a foundation for a dung-hill, found at a considerable depth the trunk of an old oak tree, the branches of which were surrounded not only with musc shells, but with a large quantity of sea-weed, though the village lies at the distance of two or three miles from the coast. This shews that things of a perishable nature may be long preserved when they are completely secured from coming in contact with the atmosphere."†

A German writer says—"Mosses sometimes contain at a considerable depth whole forests of trees, which have been overturned. In the island of Zeland, below the turf, of which many thousand loads are dug up and carried away every year, large pieces of the hardest fir-wood are often found. In East Friesland entire woods are buried under a covering of moss-turf.‡ Not far from the town of Fallkœping, in Sweden, there are two morasses, in which fragments of trees or roots are found on or near the surface, and if all those apparent one year be carried away, the same quantity, or perhaps more

* In country villages turf has been long used as fuel; for mention is made of turbaries or turf-pits in all ancient documents. The inhabitants of the Orkney Islands now belonging to Scotland, and which are destitute of timber, learned the use of turf as fuel from a Norwegian, who, on that account, got the name of Turf Eynar.

† Pontoppidan's Danske Atlas. Kiøbenhavn, 1763, 4to, vol. i. p. 408-410.

‡ Beschäftigungen der Berlinisch. naturf. Gesellsch, vol. iii. p. 462.

will be found again the next.* At Bruges, in Flanders, timber in good preservation has been found at the depth of forty or fifty feet, prostrated and as regularly ranged as trees standing in a forest; and in a valley on the Arno, near Arezzo, there is a whole wood concealed under the earth. In all these places the ground was covered with timber long before the formation of turf; they were therefore all dry and perhaps inhabited.†

In Scotland, timber appears to abound in the bogs or morasses, and coins are frequently dug up from them, together with utensils of various sorts. In the moss of Locher, near Dumfries, there were found some years ago a Phœnician canoe and a Roman jug.‡ In the same moss a leather bag containing silver coins of the Saxon heptarchy was also found. A pot and a decanter, both of Roman copper and manufacture, were dug from under a moss in the parish of Kirkmichael, Dumfriesshire.§ A Roman camp kettle of brass, nearly as thin as parchment, was found in the clay under a moss eight feet deep, on the estate of Aughtertyre. A Roman medal of fine gold, with a Roman inscription upon it, was found under a moss near the sources of the Annan on the side of the great road formed by Agricola. A chest of Roman arms was found under a moss near the house of Lord M'Donald in Sky. Two pair of vessels of Roman Brouze and Roman manufacture were discovered under a moss in Gender Hill, on the estate of his grace the Duke of Hamilton, in the parish of Strathaven, in June, 1803. In figure and size they resemble a common brass ladle. One of each pair goes nearly within the other, and the inner one of both pairs is perforated like a drainer. The holes will receive a pin of middling size, and are remarkably well executed, resembling a meal sieve neatly cut out of sheep-skin.|| King Robert Bruce in his expedition against Cummin, Earl of Buchan, destroyed some forests near Inverury.¶ The trees then cut down are still to be seen under the mosses, which have since risen over them to a great height.** In the parish of Applecross, trunks of trees are dug up in the hills and meadows, where no wood grows at present. They bear evident marks of having suffered by fire; and tradition says, that the Danes burnt down the forests in that part of the country.†† Trees similarly situated have been found in the parish of Edzel, in Forfar.‡‡ Timber is frequently found in the mosses in the parish of Kippen, and a Roman road entirely constructed of wood, was discovered in them some years ago.§§ A similar road has

* Schwed. Abhand. vol. xxix.

† System einer Allgemeinen Hydrographie des Erdbodens von I. W. Otto. Berlin, 1800, p. 279.

‡ Statist. Account of Scotland, vol. i. p. 160.

§ Aiton Account, vol. vi. p. 60.

|| Aiton on Moss Earth, page 19, 20.

¶ Fordun, vol. ii. p. 241.

** Stat. Account of Scotland, vol. xv. p. 144.

†† Stat. Account, vol. iii. p. 379.

‡‡ Stat. Account, vol. v. p. 103.

§§ Stat. Account, vol. xviii. p. 317.

been found under the moss of Logan.* In the parish of Pitsligo in Aberdeenshire the roots of very large oaks still exist in the mosses.† In the parish of Inch, in the same county, the hills abound with mosses, and in these very large trees are frequently dug up.‡ At Langride also the remains of very magnificent trees are found in its extensive mosses.§ Similar accounts are given in regard to the parishes of Kintore, Logierait, Peterhead, Saintfergus, and others.|| Mr. Heron mentions in his Tour, that wherever the moss of Cree is cut up, large trunks of trees are found lying extremely thick, and most of them undecayed.¶

All these facts, more convincing than speculative opinions, appear clearly to shew that bogs are indebted for their origin chiefly to fallen forests, and that by some unknown cause the trees have been converted into a vegetable matter, which increases annually in bulk, attended with the double effect of rendering the climate colder,** and covering, as it increases, a greater extent of country. Mr. Sampson says—"In the high mountains, on examining attentively the vertical section of a new cut bog, I could almost count the number of annual deposits from the coarse vegetables; these are preserved on account of their strong texture, their tannin matter, and by not being the food of animals. One could also enumerate the various vegetables which enter into the composition of each bog. These things are much more observable in the hard mosses of mountains than in the low marshy bogs; the latter having surfaces rendered unequal by tufts or tummocks, and being poached often by the feet of cattle."†† Many other facts might be produced to shew that bog is an increasing substance; but I shall content myself with a few of those which seem to me to be most conclusive.

A Danish writer on agriculture says, "Some assert that turf grows from the bottom upwards, because all the leaves of trees, earth, dust, and other particles, which have been conveyed into low bogs, either by inundations or some other revolution of nature, seek the bottom, and there first become consolidated. This account seems to be very correct in regard to certain situations, for it is evidently seen, in digging into bogs, that they consist of one stratum resting upon another, and this disposition may be traced to a considerable distance. But in bogs which move when carts or people pass over them, and where the whole surface floats upon water, it seems more probable that the turfy matter has been gradually formed from the top downwards, by the admixture, perhaps, of different vegetable particles, which, fermenting and acquiring consistence, have at first assumed the form of a thin crust, and this crust be-

* Aiton on Moss Earth, p. 44.

† Stat. Account, vol. v. p. 98.

‡ Stat. Account, vol. xvii. p. 483.

§ Stat. Account, vol. xv. p. 291.

|| Aiton on Moss Earth, p. 45.

¶ Vol. ii. p. 248.

** Aiton on Moss Earth, p. 2.

†† Survey of Londonderry, p. 448.

coming more solid, had afterwards strength sufficient to support such substances as were conveyed to it, either by the winds or currents of water. Besides, when a moss is surrounded by stagnant water, which has no efflux either naturally or given to it by art, experience shews that such water, every year, throws up to the surface a slimy matter, which becomes consolidated first at the edges, and always increases in size and solidity, so that, at length, it may easily grow together.

“ In regard to the growth of moss which has been cut, there is a difference of opinion, some admitting and others denying it. It appears, however, that the increase of cut moss, in the course of time, is not only possible, but actually proved by experience, when the ordinary causes are assisted by accidental circumstances. For if moss be so cut that no water can settle upon it, the pits will grow up sooner than in the case when the water is suffered sometimes to run off, and at others is dammed up by sluices constructed for the purpose.

“ The nature of the moss, and the quality of the bottom, will also produce some difference, as the brown and loose kind increases faster than that which is black and hard. Old people in Jutland remember places in which the turf was cut out about half a century ago, and which at present are filled up with solid matter fit to be cut again. Wherever reeds and rushes grow, the turf increases with the greatest rapidity; but places which produce these do not afford the best turf; as it is generally loose and crumbles to pieces when dry.

“ According to the usual manner in which the peasants cut turf, by digging holes here and there, it increases very slowly; but if one direction be pursued in digging, and if the loose and useless turf, which forms the upper crust, be thrown into the pit, together with all the fragments broken from the turf itself, the operation of nature will be greatly forwarded, so that the whole will grow up in the course of a few years. I know, from my own experience, the efficacy of this method, for places where turf was cut seven years ago can now bear a person to walk upon them; but I will not assert, that these places are again fit for cutting, though I have reason to think that they will be in the course of seven years more; and even if ten should be required for this purpose, it might be considered as a very great advantage.”*

Mr. Thompson, in his Survey of Meath, says “ Bog is composed of a variety of decayed aquatic vegetables, whose roots are so interwoven and matted together, that they form a substance like a sponge. These vegetables are produced each year in proportion to the quantity of water contained on its surface, so that bog may be fairly considered as a mass of vegetable matter, and, the more wet the bog, the more quickly it vegetates. It is very easy to discern each year's growth, at least for the last twenty years, by examining a section of the bog, and considering, that it increases.

* Samlinger om Agerdyrking og Landvesen, Kiøbenhavn, 1794. Fierde Hefte, p. 7, 9.

every year in as great a degree as it bears moss on its surface. The moss grows every summer, and is killed the following winter by the frosts; each year's growth forms a stratum, through which the next summer's heat draws a fresh crop, which dies in like manner. Every year's growth may, therefore, be easily distinguished, lying horizontally in strata, being of a less degree of thickness the farther it is removed from the surface; because, the more pressed by the weight of those above it until they are so consolidated as to be no longer distinguishable. Bogs are considerably higher in winter than they are in summer, perhaps three feet on a deep wet bog. This is very manifest to any person who takes the trouble of standing on one side, and marking an object just visible over the surface at the other side of the bog: this object, though visible in the months of August or September, will not be so in February or March following. The cause is obvious; the heat of the summer's sun, and the dryness of the atmosphere, cause exhalations from the bog, which deprive it of a considerable part of the water with which it was surcharged in the winter, thereby contracting and consolidating its surface, which being of a spongy nature, is swelled again by the rains of the succeeding winter, so that bogs are in a perpetual state of contraction and dilatation.*

The increase of floating bogs may be so great as absolutely to burst the surface, which is often formed by a crust consisting of the same matter. Of this phenomenon instances have occurred at Solway Moss in Scotland, and at Chiat Moss in England,† instances of it have been observed also in Ireland. "In the county of Tipperary, within a few years, a bog was so overcharged with under-water, that it broke from its ancient situation, and travelled in a compact body over several miles of country, bearing down houses, trees, and every thing that opposed its progress, until it reached the river Suir, twenty miles from its original situation."‡

A similar phenomenon occurred in the month of March, 1745, at the bog of Ad-dergoole, about a mile and a half from the town of Dunmore, county of Galway. After a most violent and surprising fall of rain, accompanied with a dreadful, though unknown noise, a turbary, containing ten acres, in which some people had been at work, and which they had quitted to seek shelter from the storm, was seen floating after them, till it subsided at last upon a low piece of pasture of nearly thirty acres, close to the river's side, called Higgins's Park, where it spread and settled, covering the whole of it, to the great astonishment of all those who beheld it.||

* Survey of Meath, p. 257.

† Annals of Agriculture, vol. xxv. p. 115.

‡ Rawson's Survey of Kildare, p. 86.

|| Transact. of the Royal Irish Acad. vol. ii. p. 3.

"Circumstances of this kind," says Otto, "may serve to account for the phenomenon of floating islands, which often consist of considerable patches of light earth, composed of roots, rushes, reeds, the leaves of

In Kildare, Mr. Rawson observes, "in almost all the bogs of any considerable depth, it is found that a quantity of water lies in a body between the turbary and the gravel, which keeps the turbary in a buoyant state, and contributes to the growth of

trees, and various plants matted together, raised, torn from the land by inundations, and driven about by the winds, from one place to another. They often possess sufficient solidity and lightness to support considerable burdens.

"Islands of this kind, though phenomena rather uncommon, were not unknown to the ancients. Herodotus speaks of one in Egypt, and Theophrastus mentions another in a lake in Bœotia, the existence of which is confirmed by Pliny, lib. xvi. cap. 35. A similar one is noticed by Dionysius of Halycarnassus, which was observed in the lake now called Contiliagno, in the territories of the church. He says it was fifty paces in diameter, rose five feet above the surface of the water, and being moveable, was driven about by the wind. Varro says that he saw islands in Lydia float about and dance up and down. On this subject the reader may consult Plin. Hist. Nat. lih. ii. cap. 96. Seneca Nat. Quæst, lib. iii. cap. 25. Baccius de Thermis, lib. iv. p. 264. Kircheri Mundus Subter, lib. v. cap. 2, and also Plin. Epistolæ, lib. viii. cap. 20. ed. Elz. Amst. 1659, p. 229.

"We have many instances of such islands in modern times. Formerly there was one in the Gerdau Lake in Prussia, which was so large that a hundred cows could graze on it. In the year 1707 it separated into three smaller islands, and a small remnant of it is still left. Rost *Dissertal. Physica de insula natante Gerdavionsc.* Bergman speaks of a floating island in the lake of Ralangen in Sweden, known under the name of Rödholm. It was visible in the years 1696, 1727, 1733, 1743, 1750, 1757, 1758, and 1766. During the above course of years, it appeared only twice in the month of August, but never before the 13th; six times in September, and twice in the beginning of October. It again sunk down in September, October, and sometimes in the beginning of November, appearing, on some occasions, not longer than ten days, as in 1758. In the year 1747 it was visible from the 17th of August to the 21st of October, consequently remained at the surface sixty days, which is the longest period of its appearance known. It contained sixty old stumps, twenty-six of which had at that time been taken away. In the year 1766, the day after it sunk down, that is, on the 4th of November, it stood at the depth of about eighteen inches below the surface. This island was one hundred feet in length, and from twenty to thirty in breadth; it always appears in a part of the lake where the surrounding water is deep. The wind does not seem to have any considerable influence over it, for it appeared during a strong wind on the 3d of October, 1757, and sunk again on the 19th during a wind of the same kind. No account can be given of the manner in which it was separated from the land. *Bergmann's Ph. Erdbeschryving*, 2 Th. p. 20.

"Pontoppidan speaks of similar islands covered with wood in some lakes in Norway, *Norges Naturlige Historie*, p. 147. And one in a piece of water near St. Omer is mentioned in the Transactions of the Academy of Sciences at Paris, for the years 1700 and 1745. Gemimanoro Montanari speaks of such islands in the vallies of Ribago and Contellazzo. *Castelli Raccolta d'autori*, &c.

"Among the latest phenomena of this kind are those near the peninsula of Rovigo, a part in Lombardy, which is encompassed by the Po and some other rivers. There are here several islands very different in their form and size, which at times become the sport of the winds and the currents; the largest of them contains about a hundred acres. They consist of strata forming a crust on the ground, and when the rivers break in so that the water penetrates below them, they rise up and float. *Silvestri Abhand. von den Schwimmenden Inseln der altern und neueren Zeiten aus dem Ital. in der Italien. Bibliothek*, vol. ii. p. 221. *Otto's System einir Allgemeinen Hydrographie*, p. 282-284.

Floating islands seen in some of the lakes in Cumberland are described in the Athenæum. See p.

the fungus substance ; a turf cutter well knows it, and with fear and caution approaches the bottom of the turf hole, from which the water frequently bursts up through a close covering of two or three feet, and would overwhelm him in a moment, did he not leave benches uncut to secure his retreat."*

Bogs may be divided into three sorts, mountain bog, red bog, and floating bog: In Ireland they are all generally in a similar situation, being raised far above the level of the sea. At present the immense mass of which they consist is employed only for two purposes, that is, for fuel and for manure. The first consideration, therefore, that presents itself, if they are reclaimable, is the expediency of reserving them for these uses. In regard to fuel, even if their surfaces were cultivated, they would still be capable, as I have endeavoured to shew in the chapter on that subject, not only of furnishing it in sufficient abundance, but of supplying turf of a better quality. As to manure, the benefit of it seems to be very doubtful, and at any rate so limited, that it scarcely requires discussion. In many cases I apprehend that even for this purpose bogs might be equally useful, whether cultivated at the surface or not. The advantage of reclaiming them being therefore apparent, the next point to be considered is the expence by which it would be attended: Mountain bog in most cases may be reclaimed at such an expence, that the land gained to cultivation will repay the owner. To combat the two other sorts will be a much more serious and difficult labour.

In all cases where the moss is of the floating kind, it is obvious that the first step to be taken is to carry off the bottom water, which must be carefully distinguished from that diffused throughout the bog.† If the spring which flows into the bog can be found, and a drain immediately applied to it, the required effect will be at once produced. In Kildare, "the late Christopher Borr, with a spirit almost peculiar to himself, made under the direction of Mr. Williams an immense drain for three miles, by which a fall of eight feet has been obtained, and the water which lay at the surface of the lands and went south-west to supply the mill, now takes a direction northward to the river Boyne. The good effects are already felt, and if Mr. Borr's liberal offer to be at half the expence in continuing the drain through another gentleman's lands had been accepted, the benefit would be incalculable."‡

I understand a gentleman in Ireland has lately gained a large tract of land, consisting of a thousand acres, by an Herculean labour of the same kind. "He has cut immense drains, which if in one straight line would extend for several miles; in one

* Rawson's Survey of Kildare, p. 86.

† Thirty-two ounces and a half of dry moss soil will absorb and retain without fluidity, eighteen ounces of water: while thirty-nine ounces of the richest garden mould equally dry, will retain only eighteen ounces and a half of water. *Aiton on Moss Earth*, p. 6.

‡ Survey of Kildare, p. 84.

of them he had to encounter a hill of nearly 70 feet in height from the base, and of a very considerable length: an obstacle which was overcome only by perseverance. This single drain cost nearly £500. but it was absolutely necessary, as the only fall for the chief drain into which the others flow was in this direction. Some of the land thus gained lets now for thirty shillings an acre. But the proprietor, Mr. Bunker, was not the only person benefited by this undertaking: the principal part of the reclaimed land belonged to others, and it is no small reflection on those who have received so much benefit from the exertions of another, that they refused to pay their proportion of the expence.”*

A very extraordinary convulsion, mentioned by Mr. Edgeworth, which took place in the bog of Rine, or Killoe, near the bridge of Rine, on the night of the 16th of Sept. 1809, seems to shew that nature will sometimes perform the operation of draining without the assistance of art. “ During a thunder storm, about twenty acres of the bog burst asunder in numerous places, leaving chasms of many perches in length and of various breadths, from ten feet to three inches. The rifts were in general parallel to the river, but in some places the smaller rifts were at right angles to it; not only the bog, but the bed of the river was forced upward, the boggy bottom filling up the channel of the river, and rising three or four feet above its former banks. In a few hours one hundred and seventy acres of land were by these means overflowed, and they continued in that state for many months, till the bed of the river was cleared, by much labour and at considerable expence.”

“ I repaired to the spot shortly after the event, and I carefully examined it without being able to assign an adequate cause for what had happened. As the bog of Rine lies in my district, I thought it proper to bestow some pains in ascertaining all the circumstances of this phenomenon. I took the levels of the bog to discover whether it had sunk partially in any considerable degree. I bored it in a great number of places to make myself acquainted with the texture of the bog, and with the nature of the sub-strata on which it lies, and to discover whether any large chasm could be found into which the water of the bog might have sunk, for the bog, which had been uncommonly wet, soon became drier than any other bog in the country. The water, however, which was found in all the rifts at three feet from the surface, continued to remain at that depth with little variation, and ever since a passage has been opened, and all the flooded meadows have become dry, the water still remains in the bottom of the chasms.”†

I have mentioned these strong facts, a few out of many which might be produced, to shew the possible benefit of one efficient drain to carry off the water which flows

* Survey of Monaghan, p. 33.

† Second Report of the Commissioners of the Bogs in Ireland, p. 176.

into a bog. I take it for granted, that its being a bog instead of a lake, is a proof that the superabundant water finds some where or other a vent to escape. If the natural drain is sufficiently large to effect its purpose, no more is required; but whether it be natural or artificial, it leaves the surface of the bog in the same state in which it was before the water ran off. I therefore think a drain can be necessary only in those cases in which there is a probability of the bog becoming so saturated with water, that it will increase and overflow, as in the instances which occurred in Tipperary and Longford. All the engineers employed by the Bog Commissioners in Ireland, (Mr. Edgeworth excepted,) have recommended deep and numerous surface drains, and this system is recommended by the Commissioners themselves in their report to Parliament, when they say, "upon these principles, therefore, we are of opinion, that neither deep nor shallow drainage is to be exclusively preferred, but that wherever extensive bogs are to be drained, main and minor drains will be required for the purpose, to act as receiving drains for the water, which a system of numerous small surface drains must collect in considerable quantities, and which we are inclined to consider that a plan of drainage, embracing a system of main, minor, and surface drains, will be found most universally applicable."^{*}

I must here beg leave to ask these gentlemen to explain the purpose of these "main, minor, and surface drains:" Are they to carry off the water retained by the bog? If so, I contend that no drains of any size will produce that effect. I have seen thousands of drains, and never could perceive the bog in the least drier even at the short distance of two yards from its edge. In corroboration of what I have asserted, I shall refer to the following opinion of Mr. Edgeworth. "Examine the ground immediately near to a hole from which turf has been cut, at ten, or even at five yards from what is called the surface of the bog, and you will find it but little drier, and certainly not in the least more fertile than what is a hundred yards more distant. Indeed, no visible change takes place from this expensive mode of improvement.

"I have carefully examined many places where former attempts had been made to improve red bog. Drains of six or seven feet wide, and as many feet deep, had been made from the centre of the bog to the streams that separate it from dry land. These were about twenty perches asunder, and though they had been made upwards of twenty years ago, the land between them was not in any respect different from what had not been drained. In a float bog, two large drains had been made fifty years ago to enclose a road; they are at present open, and only thirty-two feet distant from each other, but the ground which had been marked out for a road between these ditches, remains in nearly the same state as the bog on each side of it, except indeed, that the meadow banks formed by the stuff, which, whether from its becoming drier,

* Second Report, p. 12.

or from its exposure to the air, certainly in all cases where it is turned up, does become more capable of supporting vegetation, than it was in its former state. I learn, therefore, from experiments made long ago, and from what has repeatedly passed before my eyes, that the improvement of these bogs does not require many, or deep drains."^a

These and other circumstances of a similar nature induce me to assert, that no system of drainage will liberate the water held in bog itself; but admitting for argument's sake that it would, can the commissioners point out with what beneficial effect it would be attended?⁺ Will any one doubt that it would render bog a mass of dry inert vegetable matter? And unless some means were discovered of bringing it into a state of putrefaction, one might as well attempt to cultivate an immense wool pack. Even in their present state, Mr. Rawson says, that one man with a knife, which he describes to be like that used for cutting hay, will effect more work in removing bog matter in a day, than ten men with a spade.[‡] And yet a general system of drainage is recommended as the only way of reclaiming bogs. By a main drain to carry off the bottom water, something, indeed, in certain cases, may be effected; but here in my opinion every benefit of drainage ends. The fact is, that in the present state of bogs, nothing but a covering of earth, clay, marl, or limestone gravel, will do any good; and this can be applied better without large surface drains than with them. Mr. Robert St. George, of Kilkenny, who is one of the most useful practical men in the empire, in a Letter to Mr. Tighe, which that gentleman has inserted in the Survey of that county, says, "I have seen bog reclaimed in many parts of the kingdom by men of fortune, and adjoining towns, by people who had the power of getting manure of different kinds, such as dung, soaper's wash, &c.—the gravelling with limestone, &c.—This is a course by which a small quantity of bog in a particular situation may be reclaimed; but I think in most places the farmer's time and manure would have been better laid out on the improvement of upland, as it would have cost him less by far, to have made a much more permanent profit."[§] There can be no doubt that if bog be buried under any kind of artificial staple which can be obtained, it is possible to bring it to a state of cultivation; but the question is what will be the cost, and how much the permanent profit? The answer to this query will depend on local situation. In some cases the necessary material cannot be obtained; in others it may be found in the neighbourhood, and when the bog is not too deep, the plan of chalking pursued in Hertfordshire might perhaps

^a Second Report, page 12.

⁺ Let the reader consult on this point Aiton on Moss Earth, p. 111, and Dr. Anderson, p. 99 and 100.

[‡] Survey of Kildare, p. 94.

[§] Tighe's Survey of Kilkeany, p. 164.

be found to answer.* That of sinking a shaft, and raising the clay, marl, or limestone gravel, which forms the under stratum, and thus covering the surface, might be tried by using boards in order to convey it in wheel-barrow all over the bog.

The commissioners have formed estimates of the expence of draining, surface-covering, cultivating, and raising a succession of crops. This part of their labour has excited my astonishment; for until some *large bog is effectually cultivated*, no certain data can be obtained to serve as the foundation for any estimate whatever. That the bogs in Ireland will be reclaimed and cultivated as wealth increases, and manufactures are extended, there can be no doubt. The improvements in Swindrig Moor, described by the Duke of Buccleugh,† and those of Lord Kaims,‡ are all evidently the effect of population. Daily encroachments are making upon the bogs in Ireland from the same cause, but the pieces reclaimed are so small, and possessed by such numbers, that the cost however great becomes imperceptible. The case, however, would be very different were an individual to undertake the draining of large bogs; the expence would be heavily felt, and I am mistaken if every acre would not cost more than the price at which the best acre of cultivated land would now be purchased. When at Coolure, in Westmeath, on the 25th of August, 1808, I examined a bog belonging to Admiral Pakenham, which consists of 400 acres, all in a useless state. The surface of it is about twenty-four feet above the level of the lake, and twenty above a firm substratum of blue gravel; of these twenty feet there are five feet at the surface of a spongy dry substance, and the immediate outer crust is covered with heath; the other fifteen feet consist of a substance which can be cut with as much ease as soft clay. The five feet of spongy surface being cleared away for any given length, such as a quarter of a mile for example, and to the breadth of twenty feet, the bog is cut into peats about the size of a brick, which are used as fuel.

This having been done one year, the next the spongy surface is turned down into the trench where the peat was cut out the preceding one, and it forms the staple earth, which is subjected to the following process:—Between the final substratum and the bog, there is about eighteen inches of a blue stiff clay; as the bog is surrounded by limestone rock, which is common in the whole country, it is carted to a kiln constructed in the bog, where it is burnt into lime. The cars which bring away the turf carry back limestone; eighty barrels are allowed to each acre, and it is spread out on the new land at the rate of 150 barrels a day. The expence attending this operation is about fifty shillings per acre, and seven shillings for spreading; after this it is dug, which costs twenty shillings, and it is then dibbled with potatoes; the first crop in general is indifferent; after the potatoes are taken up it is fallowed for turnips, which are good.

* For an account of this system, see Young's Survey of Hertfordshire, p. 158.

† Annals of Agriculture, vol. xxxi. p. 226.

‡ Transactions of the Highland Society.

It is next laid down with grass seeds, and remains as meadow till it becomes covered with heath, which is the case perhaps in the course of four years; at the end of this period the same course is repeated, and then it would let for forty shillings an acre. I saw some bog which had not been cut out converted into tillage land, but it does not answer nearly so well; it had been clayed and limed in the same manner, the crops, however, were exceedingly indifferent, and the ground had an almost insurmountable inclination to produce heath.

The Admiral has caused a great number of cabins, ten feet wide and twenty in length, to be built on the edge of his bog. He supplied the timber which was wanted, paid the labourers for building each cabin eight guineas, and allowed them whatever quantity of bog they chose to cultivate. Here I found carrots and parsnips growing in great luxuriance.

Mrs. Pakenham thought that every acre of the reclaimed bog cost the Admiral more than the sum for which he could purchase an acre of good land; and it is obvious, that extensive tracts of bog cannot be improved in this manner, as it requires the whole bog to be cut out and carried away previously to its being cultivated.

On the 18th of August, 1809, I paid a visit to Mr. Vernon, Portaferry, county of Armagh, who has reclaimed much bog by covering it with earth; without this, he says, nothing can be done; but he assured me, that he could have purchased the same quantity of good land for a much less sum than his improvements had cost.

When at Lord Ashtown's, at Woodlawn, in the county of Galway, in October, 1809, his lordship shewed me good land, which had been bog reclaimed by his father; but it consisted of numerous small spots, seldom exceeding two acres, which had been covered with limestone gravel, and the bog had not been cut out. These spots, however, were numerous; Lord Ashtown assured me that in cases where it had been cut out, it was more difficult to be reclaimed.* His lordship carried me to many spots in his neighbourhood which had been improved in a similar manner. It was a pleasing sight, no doubt, and I saw more of it in that part of Ireland than in any other; but such spots, amidst hillocks of calcareous earth, which is seldom found mixed with bog in the county of Cork,† are very different from the miles of deep bog which I have seen in the King's and the Queen's Counties, and also in Kildare, and therefore can be cheaply reclaimed. I am fully sensible of the importance of reclaiming the bogs of Ireland; I know that every acre treated in this manner will add to the productive land of the empire, and so anxious was

* This is strongly confirmed by Mr. Townsend's remarks on the same thing in the county of Cork. See his Survey of that county, p. 608.

† Townsend's Cork, p. 605.

I to procure every information on the subject, that with a view to this publication, I made a visit, even at the expence of personal inconvenience, to Mr. Roscoe's bog, near Manchester, called the Chat Moss, in September, 1811; I had much conversation with him upon it in January 1810; but being desirous to ascertain from actual observation, the means which that gentleman pursued, I determined to see the spot; Mr. Roscoe was not there at the time, but I met with his Bailiff, Robert Stonard, whom I found to be a most intelligent man.

September 26, 1811, Chat Moss, between Manchester and Warrington, eleven miles from the latter, consists of high land, and in appearance is so similar to an Irish bog, that I almost imagined myself in the King's County. In general it is fourteen feet in depth; in some places a pole has been thrust down sixteen without finding any bottom. Some fossil timber, chiefly fir, is found in it lying in all directions, but much decayed. All large drains here have been abandoned, and numerous small ones were found to render it too dry.

Small drains, however, stand much better than large ones. The size, when they are new cut, is a foot deep and the same in width, the first year; the following year they are enlarged to the width of thirty inches at the top, leaving the width at bottom a foot, and sinking them to the depth of three feet. A year after they are made a foot wider and a foot deeper. By these means the bottom never rises, and the sides become settled. These drains are cut through the whole length of the moss, at the distance of fifty yards from each other. The expence of the first cutting is $1\frac{1}{2}d.$ for eight yards; of the second $7d.$ and of the third $4d.$ at which rate a good workman can earn $5s.$ a day.

I was told that in the spring of 1811, some wheat was sown on the raw moss which had been drained; but it would have been much better to have kept it in the sacks, as it will not return the seed. The plan pursued is to plough the raw moss three inches deep, to burn it, then to plough six inches deep, and afterwards to carry on to the moss, either in the fine weather of summer, or during frost, one hundred and fifty tons of marl per English acre. The marl is conveyed in three-wheel carts, the wheels nine inches wide, each carrying a ton, and drawn by two horses at length. This operation must be renewed three times for the first 21 years, that is, at the end of every seven years. When this is done it is ploughed by horses, shod with wooden pattens to prevent their sinking into the moss, and the seed is drilled by a large machine which delivers manure and seed at the same time. Fourteen or fifteen tons of manure are allowed to the acre. The plough used has a sock which goes all the way to the heel, four feet long and sixteen inches wide behind. The coulter is two feet long and two and a half inches wide, like a skim coulter, without a common one. The coulter is placed in a direction contrary to that in which it is commonly used, dragging rather than pushing. The course adopted is: 1st, wheat drilled with compost; ten bushels are

considered as a good crop ; 2d, turnips ; 3d, barley or oats ; 4th, clover and seeds, which lie for three or four years.

Sheep thrive well on the clover and turnips ; all horse-keep is purchased. Thorn quicks grew here for two years, and then came to a complete stand. A small piece of ground had been trenched for planting ; the trenches were two feet deep ; a layer of marl was then applied, and the moss at the surface was thrown over it. After this another layer of marl was laid on, and in like manner covered with moss, and then another stratum of marl. Holes being then made, horse-dung was put into them, and trees were planted in each. I saw poplar, elm, sycamore, willow, ash, and alder, which had been planted in April, two years before I was there, and which were then, that is, in the month of September, all in a thriving condition.

That peat which has been burnt answers for a manure, I believe there can be no doubt. I saw a superior patch of clover, where the land had been covered with peat ashes and with marl beyond the usual quantity. Lime in such cases has no effect. Turnips, white clover, and wheat, answer best. The horses were much harassed, and could do nothing without patters. Two horses can skim plough an acre a day for burning ;* but in regular ploughing they can go through only half an acre ; about a hundred acres here have been brought into a state of cultivation.

Here, then, we have an instance of something effected in reclaiming bog-land, without any drains of consequence ; for at the distance of fifty yards asunder, they can be compared only to ditches made in fields, to carry off the surface water which falls from the heavens ; † whatever has been done has been accomplished by covering the bog with marl. But the question, and the only one of importance in bog improvement, is the cost. Mr. Roscoe has ordered 1300 yards of iron railway to be constructed for the purpose of conveying the marl from the pit, and the same plan was pursued on the Trafford Moss some years ago. ‡ The land in the first stages of improvement, not being sufficiently hard to allow the materials to be transported in carts, the undertakers availed themselves of a road made of iron, cast in bars of six feet in length, and jointed together by dove-tailed steps, resting upon wooden sleepers. On this road one horse will with ease draw seven waggon loads of marl or sand of six hundred weight each. The extremity of the road, where it diverges on each side from the principal road, is changed daily, and a single person, without much difficulty, can take up, remove, and lay down, two hundred yards of it in a day ; a space

* Burning has been found detrimental at Rainford Moss. *Annals of Agriculture*, vol. xxv. p. 115.

† “ If any method could be discovered of rendering moss more retentive of water, it would be of much advantage. But to use means for facilitating the departure of its water, is adding to its greatest defect. Under-draining, trenching the soil, and every operation whatever, which has a tendency to drain the moss of sap, beyond merely relieving the surface of stagnant water, is highly injurious to the soil, and will not remedy its effects.” *Aiton on Moss Earth*, p. 114.

‡ *Annals of Agriculture*, vol. xxv. p. 117.

of sixteen yards wide, or eight yards on each side the road is then covered with the materials employed, beginning at the farther extremity of the road, and as the works proceed thence towards the main road, a person is employed in taking up the moveable road, which is of no farther use, and removing it to the distance of sixteen yards, by which means it is in readiness to begin upon as soon as the marling of the former road is completed. The horses have relays at proper intervals, and the marl is thus conveyed to the remotest part of the moss.

It will, perhaps, be asked, whether I disapprove of the appointment of commissioners in Ireland, and of what they have done? I am ready to admit that their labours in some degree have been useful; the public are in possession of reports on the principal bogs, accompanied with sections of their strata, but all these might have been obtained at much less expence.* This expence hitherto has been unimportant; it is, I believe, under £20,000; but the question is, what farther steps are to be pursued? and till something better is offered, I will venture to recommend one. Let an act be made for Ireland similar to the act of sewers in England, by which a local body of commissioners, without pay, are formed for each district, upon the application of two-thirds of the owners of the estates. These commissioners appoint a jury of twenty-three persons, also without pay, who on viewing and examining the land, present the necessity of main drains, the cost of which is levied by an acreable cess on the district. Romney Marsh, in Kent, the marshes in Cambridgeshire and Lincolnshire, are all under the jurisdiction of such commissioners, and in this manner the ignorance and obstinacy of no individual is suffered to injure the neighbourhood, by counteracting plans formed for the public good; and the land thus benefited by drainage pays for the expence of the improvement. In England there are abundance of persons so unenlightened as to throw every impediment in the way of projects highly advantageous to the community; this act rouses them from their indolence, overcomes their stupidity, and compels them to engage in works which they have neither judgment nor inclination to undertake of themselves.

By the accounts which I have quoted from the surveys of Monaghan and Kildare, there appear to be similar beings in Ireland. To their obstinacy I would apply a similar compulsory act, and then leave the farther cultivation of the bogs to the progress of wealth and the increase of population; I would permit no individual to oppose what tends to the benefit of all. If those, however, who hold the reins of government intend to become speculators in bog improvement, and undertakers for reclaiming them, and if public money is to be expended for this purpose, I must

* The accustomed price paid for measuring and mapping small estates divided into numerous inclosures in England, is six-pence per acre. If the number of acres of bog in Ireland, the maps of which have been laid before parliament, be cast up I suspect it will be found, that the expence of this survey has far exceeded this sum.

deprecate the measure, as it will be productive of evil without effecting any good. Places may be created for engineers and overseers, ministerial dependants may be provided for, and parliamentary interest may be obtained; but twenty years hence, after millions have been wasted, and for ever buried in these bogs, the scheme will be abandoned. This is one of those cases which should be left to the good sense of mankind, and the taste for improvement which seems daily to increase. In arbitrary governments such works must be undertaken by the crown, because the people have no encouragement to embark in them. In free states the case ought to be different. The people, if a stimulus be given to their industry, will soon perceive what is advantageous to them, and of course will not neglect an improvement in which their own interest is so much concerned. Should they want instruction, a cheap edition of Aiton's small tract on Moss Earth will teach them more than all the reports of the commissioners and engineers which I have yet read. I observe that this tract is referred to by one of them, and the name mis-spelt Eaton, but without any page of reference;* I suspect, therefore, that it has not yet found its way to Ireland. I have quoted a great deal from it without any apology, because I in vain sought for a copy of it in London, and thence conclude that it is very little, if at all, known in England. The author seems to possess so much knowledge of his subject, and has treated it in so masterly a manner, as induces me to think that he ought to be consulted before the commissioners in Ireland determine on any farther steps to be taken.†

I must here remark, in regard to the maps furnished by the commissioners, that none of them, Mr. Edgeworth excepted, who gives the latitude and longitude of Edgeworth's town, seems to have taken a single observation, or if taken, they have not mentioned them. I shewed these reports to Mr. Arrowsmith, as he was anxious to insert the true situation of the bogs in his map, but he could find no data to determine their position or boundaries. As these reports have cost the public upwards of £10,000. they ought certainly to have exhibited the actual position of each bog, laid down from accurate observations.

Those who wish to obtain farther information in regard to turf and turf mosses, may consult the following works, which I believe are some of the best on the subject. Schookius de Turffis, Gron. 1658.—Van Berkhey Nat. Hist. Van Holland, Amst. 1769.—Econ. Nachricht der Patriot. Gesellschaft in Schlesien, 1773.—Abhandl. der Freyen, Œconom. Gesellschaft in St. Petersburg, 1767.—Riem's Œconom. Encyclopedie, 1789.—Fleischer's Naturhistorie, 1792.—Lütken's Œconom. Tanker, 1759.—Beckman's Beyträge zur Œconomie, 1779.—Von Cancrin Abhandlung vom Torfe, 1789.—Westenholz Priiskrift om Vatnledning, 1772.—Dissertation sur

* Second Report, p. 178.

† Should any of the commissioners see this work, I would recommend to their attention p. 117 of Mr. Aiton's Treatise.

la Tourbe de Picardie, par Bellery, 1764.—Abildgaard Abhandlung vom Torf. 1765.—S. R. Strange Tilforlatelig Beskrifning om Brännetorf, 1762.—P. A. Gadd om Brännetorf, 1759.—Von der Natur des Torfes und von Zubereitung morastiger Gegenden. M. Müller von Entdeckung des Torfes, 1752. Several papers on turf may be seen also in the Danske Œconom. Magazin.

CHAPTER V.

MINERALS, &c.

IT is not my intention to give, under this head, a detailed account of the mineral productions found in Ireland, systematically classed and arranged, according to the modern discoveries. For so difficult and so extensive a task I do not feel competent, nor is it necessary that I should attempt it. I shall, therefore, leave it to professed mineralogists, who have made this branch of natural history their particular study, and content myself with a brief view, accompanied with remarks of those mineral substances connected with the commerce and manufactures of Ireland; or which are, or might be, applied to different purposes in the arts and domestic economy.

Those desirous of ascertaining the mineralogical productions of each county, will find specimens of them in the Liskean Collection, at the Society's house in Dublin; and the catalogue will afford much gratification to the man of science, to whom such a nomenclature, though it may furnish little amusement to common readers, must be highly interesting. When I was in Dublin, in the spring of the year 1809, the society proposed to employ Mr. R. Griffith in making a general mineralogical survey of the kingdom, and the expectation raised by this scheme, should it ever be pursued and completed, will not, in my opinion, be disappointed. The object is of great national importance, and well worth the attention of a public body, by whom alone a plan of this kind can be effectually carried into execution.

EARTHS.

Marl of different kinds is found in various parts of Kilkenny,* and though often tried for manure, it is not sought after to that extent which it might be. Some of an excellent quality was discovered a few years ago, on the farm of Miss Doyle, near the Brandon Hills, in this county, but as yet no use has been made of it. It is abundant in Cork, and is to be found in Dublin, Kerry, and many other places.† In Wexford it has, for a long time, been commonly used as manure.

Yellow ochre of a good quality abounds in Kilkenny, some of which raised at

* Tighe's Survey of Kilkenny, p. 26 and 109.

† Smith's Nat. Hist. of Cork, vol. ii. p. 367. Archer's Survey of Dublin, p. 6. Smith's Kerry, p. 391.

Curraghlahy, in the parish of Powerstown, has been applied to use. Red ochre is found in Mayo, and in several other places. To particularize all the parts of Ireland where ochre is to be met with, would be tedious; it seems to be widely diffused, particularly in the counties of Cork and of Waterford, and in the former exhibits a great variety of colour.*

An earth, having a strong resemblance to fuller's earth is found in great plenty in the lands of Calinafersey, on the bank of the river Lane, in the county of Kerry. It is smooth and unctuous, of a light yellowish brown colour, and has very little foreign matter intermixed with it. This substance takes grease and spots out of woollen, and seems to possess most of the properties of the real fuller's earth, but it has not yet been tried in the scouring of cloth. Fuller's earth is a substance of such value in the woollen manufactory, that it cannot be too carefully sought after in Ireland. A white saponaceous earth, called by some fuller's earth, from its taking grease out of woollen, is found in abundance at Ballymackean, near the old head of Kingsale, in the county of Cork.†

CLAY.

Good tenacious brown potter's clay is found in the yard of the old barrack at Castlecomer, in Kilkenny, and various kinds of clay which would answer the same purpose are dug up in the neighbourhood. Mr. Tighe says, that an attempt was made, many years ago, to establish a pottery there, but it failed, probably for want of capital. Few places are better situated for manufactures than Castlecomer, hands being numerous, provisions reasonable, and labour cheap. There is also abundance of water for every kind of machinery.‡

Clay, capable of making bricks of various colours, and particularly pale bricks, which are deemed the most durable, occurs in almost every parish and townland of Tyrone. About Fintona, in the barony of Clogher, good flooring and ridge tiles are made, also garden pots, and a great variety of earthenware for country use. The best pottery in the county, and perhaps in Ireland, is within a mile of Coal Island, on the road to Verner's Ferry, in the barony of Dungannon. All sorts of coarse crockery ware, fire bricks, and tiles for malt and oat kilns, of as good a quality as any imported, are manufactured here.

The clay before it is baked is of a dirty white colour; the best of it is made up into small oblong pieces of about a pound each, which are dried in the sun and sold on the spot at a penny each. They are used as a substitute for fuller's earth, for cleaning leather breeches, and various other purposes.§

* Tighe's Survey of Kilkenny, p. 87. M'Parlan's Survey, p. 20. Smith's Nat. and Civil Hist. of Cork, vol. ii. p. 369.

† Smith's Nat. and Civil Hist. of Kerry, p. 390. Smith's Cork, vol. ii. p. 363.

‡ Tighe's Survey of Kilkenny, p. 76.

§ M'Evoy's Survey of Tyrone, p. 25.

A plastic argillaceous clay, containing an admixture of ferruginous particles, is found at Knock, in the barony of Morgallion, in Meath. It has given birth to a manufactory of the coarser kind of pottery, such as tiles, garden pots, and other utensils used among the lower classes, which has been carried on here for many years, but rather on a confined scale.*

Clay of different kinds and colours is found in the island of Torrey, belonging to the county of Donegal. Of some of them the common people manufacture pots, which they use for boiling their potatoes or other articles of food.†

Good tobacco-pipe clay fit for use is said to be found near Aghaviller in Kilkenny.‡ Clay applicable to the same purpose, and brick clays, occur in some parts of the county of Mayo.§

A clay remarkable for being as white as snow is found in a stratum nearly six feet thick, on the lands of Castlemary, a mile west of Cloyne, in the county of Cork. It is used in white-washing the walls of houses. If only diluted with water, it communicates a whiteness superior to that produced by any kind of lime, and will stand the weather for several seasons. It is of a saponaceous nature, and takes grease out of boards. If mixed with oil, it forms putty for glaziers as good as that made with Spanish white.||

Near the Redstone river in Leitrim there are clays of different colours, bluish green, yellow, pale red, a beautiful crimson, &c. These clays are exceedingly viscous, smooth, and unctuous to the touch, and exhibit various degrees of coarseness, consistence, and induration, up to that of stone. The sands with which they are mixed are very fine and silicious.

The Redstone river, which runs through the estate of Mr. Wynne is highly worthy of notice, and deserves in particular the attention of the mineralogist. Its banks present all the variety of colours, by which these clays are diversified, and even its bed is bestrewed with stones, which shew the same vivid tints, forming altogether a very singular phenomenon.¶

SAND.

Sand, though a very common substance in most countries, and little valued, is of considerable use in the arts, agriculture, and domestic economy. On some kinds of soil it is employed as manure; it gives more tenacity to cement, and its utility in scouring utensils of iron or brass is well known in every family where attention is paid to cleanliness. It enters as an ingredient into flint glass, and it serves to

* Thompson's Survey of Meath, p. 19.

† M'Parlan's Survey of Donegal, p. 26.

‡ Tighe's Survey of Kilkenny, p. 87.

§ M'Parlan's Survey of Mayo, p. 21.

|| Smith's Nat. and Civil Hist. of Cork, vol. ii. p. 363, 364.

¶ M'Parlan's Survey of Leitrim, p. 14, 15.

make moulds for casting sheet lead and other articles.* Sand fit for all these purposes, is found, according to Dr. Ruty, in various parts of the county of Dublin.†

A kind of sand composed chiefly of crystals, which is used for making scythe-boards, greatly superior to those brought from England, is found on the shore of Lough Graney, in Clare. It is in such request among the country people, that they come for it upwards of twenty miles. Sand of the same quality is procured also from Lough Coutra, on the estate of Pendergast Smyth, Esq.‡

Silicious sand may be obtained in great abundance on Murkish Mountain in Donegal, which is situated within four miles of two deep and safe harbours, Sheephaven and Dunfanaghy. For some time past it has been sent to the Belfast glass manufactory, where it is substituted for that which used to be imported from England. It is supplied at the bay of Ards for two guineas per ton.§

STONES.

Among the productions of Ireland which may be classed under this head, none seem to have a greater claim to attention than that of basaltes, not on account of any useful purpose to which it is applied; but because nature presents it under the most awful forms, being sometimes piled up in immense structures of stupendous height and extent, where columns of it are arranged in various directions, and with as much regularity as if they had been deposited by the hand of man. It deserves considerable notice also on account of the dispute to which it has given rise between two classes of philosophers, the Plutonians and the Neptunians, the former of whom assert, that it is indebted for its origin to subterranean fire, while the latter maintain that it is the result of deposition, and consequently the production of water. Both these opinions have been supported by very ingenious arguments; and though able men have ranged themselves as partisans on each side, and endeavoured to solve the question, it does not appear to have been determined in a satisfactory manner. The basaltic district in Ireland occupies a range of coast stretched out from the estuary of Carrickfergus on the one hand, to Lough Foyle on the other, and extends inland to the southern shores of Lough Neagh. Throughout the whole of this

* Sand was formerly an object of commerce, and large quantities of it were sold by the Egyptians to the Romans for the use of their *Athleta* or wrestlers, who rubbed it over their bodies. It was sent to Rome, sometimes by ship loads; and Suetonius relates, that in the time of Nero, the people expressed the utmost indignation on seeing a vessel arrive from Alexandria entirely laden with the sand of the Nile, for the use of the wrestlers belonging to the imperial court, at a time when the city was reduced to a state of great distress for the want of corn. But this use of the sand of the Nile is much older; for we are informed by Pliny, lib. xxxv. cap. 13, that cargoes of it were sent to Leonatus, Craterus, and Meleager, the generals of Alexander the Great. *Hist. du Commerce des Egyptiens, par Ameilhon*, p. 253.

† Ruty's Nat. Hist. of Dublin, vol. ii. p. 17, 22.

‡ M^rParlan's Survey of Donegal, p. 23.

§ Dutton's Survey of Clare, p. 14.

country the basaltes is frequently seen in thick beds, and in this state it often separates into loose blocks, resembling that fossil known in Sweden by the name of *trap*; but for the most part it is entirely amorphous, and disposed in large masses which do not split or separate in any assignable direction. At that singular phenomenon called the Giant's Causeway, and many other places, it appears in large pillars standing perpendicular to the horizon; but in some of the capes, and particularly near Ushet, in the isle of Raghery, they lie in an oblique position, and at the Doon Point, in the same island, and along the Ballintoy shore, they form a variety of regular curves. The little point of Doon is indeed exceedingly curious, as it exhibits pillars perpendicular, horizontal, and bending.*

The Causeway itself is generally described as a mole or quay projecting from the base of a steep promontory some hundred feet into the sea, and formed of perpendicular pillars of basaltes, which standing in contact with each other, exhibit a sort of polygonal pavement somewhat similar in appearance to a solid honey-comb. The pillars are irregular prisms of various denominations, from three to eight sides; but the hexagonal columns are as numerous as all the others together.†

On minute inspection each pillar is found to be separable into several joints, the articulation of which is remarkably neat and compact, the convex termination of one joint always meeting with a concave socket in the next; and besides this the angles of one frequently project over those of the other; so that they are completely locked together, and can rarely be separated without fracturing the parts.

The sides of each column are unèqual among themselves; but the contiguous sides of adjoining columns are always of equal dimensions, so as to touch in all their parts; and though the angles be of various magnitudes, the sum of the contiguous angles of adjoining pillars always makes up four right ones; so that there are no void spaces among the basaltes, the surface of the Causeway presenting a regular and compact pavement of polygon stones.‡

In regard to situation, the pillars at the Causeway stand on the level of the beach, and even under the surface of the ocean, whence they may be traced through every degree of elevation, to the summit of the highest grounds in the neighbourhood; as at the old fort of Dunmull, and on the top of Croaghmore, six or seven hundred feet above the level of the sea.

With respect to size, the perfect pillars of the Causeway are usually about a foot and a half in breadth, and thirty in length. Among the imperfect and irregular crystallizations found throughout the country, small prisms sometimes occur, which

* Hamilton's Letters on the Coast of Antrim, p. 73.

† The triangular and octagonal pillars occur very rarely.

‡ Hamilton's Letters, &c. p. 28.

do not exceed a few inches in breadth, and which in length are proportionally diminutive. In many of the capes and hills the size of the pillars is much larger than at the Causeway. At Fairhead they are of gigantic magnitude, often exceeding five feet in breadth, and two hundred in length.

“Of these vast columns the passage usually called *Fhir Leith*, or the Grey Man's Path, in the promontory of Fairhead, exhibits a magnificent example. It is a deep chasm dividing the solid promontory in twain; the upper termination of this singular passage is narrow, and barred over as it were by the fragment of a pillar, which having fallen across the fissure, remains suspended at an elevated situation. As one descends, the chasm widens and becomes more important; its solid walls of rude and threatening columns increase in height, regularity, and magnificence, until they attain to a perpendicular elevation of two hundred and twenty feet, conducting the passenger at length to the interesting heap of massive ruins which forms the base of the promontory itself, and exhaust the fury of the impetuous northern ocean.”*

The leading features of this whole coast are the two great promontories of Bengore and Fairhead, which stand at the distance of eight miles from each other. The former lies about seven miles west of Ballycastle, and is generally described by seamen as an extensive head-land, running out from the coast a considerable way into the sea; but strictly speaking, it is made up of a number of lesser capes and bays, each having its own proper name, the whole of which forms what seamen denominate the Head of Bengore.

These capes are composed of different ranges of pillars, and a great number of strata; which, from the abruptness of the coast, are extremely conspicuous, and form an unrivalled pile of natural architecture, where all the regularity and elegance of art is united to the wild magnificence of nature.

The most perfect of these capes is called Pleaskin. The summit of it is covered with a thin grassy sod, under which lies the natural basaltic rock, having generally a hard surface, somewhat cracked and shivered; at the depth of ten or twelve feet from the summit this rock begins to assume a columnar tendency, and forms a range of massy pillars of basalt, which stand perpendicular to the horizon, presenting on the sharp face of the promontory, the appearance of a magnificent gallery or colonade upwards of sixty feet in height.

This colonade is supported on a solid base of coarse, black, irregular rock, near sixty feet thick, abounding in blebs and air-holes; but though comparatively irregular, it may be evidently observed to affect a peculiar figure, tending in many places to run into regular forms resembling the shooting of salts, and many other substances, during a hasty crystallization.

* Hamilton's Letters, p. 75, 76.

Under this great bed of stone stands a second range of pillars between forty and fifty feet in height, less gross and more exactly defined than those of the upper story; many of them on a close view emulating even the neatness of the columns of the Giant's Causeway. This lower range is borne on a layer of red ochre stone, which serves as a relief to shew it to great advantage.

These two admirable natural galleries, together with the interjacent mass of irregular rock, form a perpendicular height of one hundred and seventy feet; from the base of which the promontory, covered over with rock and grass, slopes down to the sea for the space of two hundred feet more, making in all a mass of nearly four hundred feet in height, which in beauty and the variety of its colouring, in elegance and singularity of arrangement, and in the extraordinary magnitude of its objects, can scarcely be rivalled by any thing of the kind at present known.

At the distance of eight miles, as already mentioned, the promontory of Fairhead raises its lofty summit more than five hundred feet above the sea, forming the eastern termination of Ballycastle Bay. It presents to view a vast mass of rude columnar stones extremely large, many of them exceeding two hundred feet in length, and in their texture so coarse as to resemble an imperfect compact granite, rather than the uniform fine-grained basaltes, which composes the Giant's Causeway. At the base of these gigantic columns lies a wild waste of natural ruins, of an enormous size, which in the course of successive ages have been tumbled down from their foundation, by storms, or some more powerful operations of nature. These massive bodies have sometimes withstood the shock of their fall, and are often seen lying in groups and clumps of pillars resembling many of the varieties of artificial ruins, and forming a very unique and striking landscape.*

The basaltes of the Giant's Causeway is a black ponderous stone, of an uniform close grain and hard texture, fusible *per se*, and pretty strongly magnetic. It does not effervesce in any of the mineral acids; it is free from animal or vegetable exuvæ; nor does it contain the slightest vestige of any organized substance whatever.†

According to the experiments of that able chemist Bergman, 100 parts of basaltes contain—

	PARTS.
Silicious earth	50
Argillaceous earth	15
Calcareous earth	8
Magnesia	2
Iron	25
	100

* Hamilton's Letters, p. 30-38.

† Ibid, p. 42.

From the metallic nature of this stone, it may be inferred, that the columns of the Giant's Causeway are all natural magnets, whose lower extremity is their north pole, and the upper extremity their south pole. For having stood during many ages in a perpendicular position, they must have acquired that polarity which is peculiar to all iron substances in a similar situation; and like natural magnets, every fragment when broken will have its north and south pole. "And this," says Mr. Hamilton, "I have found true by experience; each pillar in the Giant's Causeway, and each fragment of a pillar which I applied near to the needle, having its attractive and repellent point."

"Hence likewise it follows, that the great capes of this northern coast must possess a similar property; and accordingly in the semicircular bays of Benjore I have often found the compass to deviate very much from the meridian."*

Though basalt itself has hitherto been of little use to man, it is accompanied with other substances, many of which, by various modifications, derive their origin from it, and might be applied to some valuable purpose in economy or the arts. Among these may be mentioned thin strata of rich iron ores, of that species commonly called *hamatites*; other varieties resembling what are usually denominated *bog ores*, present themselves in greater abundance, and are found chiefly on the sides of the mountains and in the vallies. *Ochres* also, of several colours, prevail amid the basaltic beds, throughout different parts of the country. The predominant colour is red, varying from a dull ferruginous hue to the intensity of vermilion. There is much argil generally intermixed with these calces of iron, but instances occur where they are sufficiently pure to answer all the purposes of coarse paint. To these I shall add zeolites, found in the cells and cavities of the basalt, in masses which weigh from a grain to a pound; an extensive tribe of clays, varying indefinitely in colour, tenacity, fusibility, and other properties, and a compound gritty powder, much resembling the *pozzolana* of Italy, or the *terras* of the Canary Islands. The last-mentioned substance, which results from a decomposition of the finer and softer particles of the basalt, might, with proper attention, be employed for the same important uses as the before-mentioned volcanic products in sub-marine buildings and other works exposed to constant moisture. I shall close this list with one substance more, which, as it may be of use in ornamental architecture, deserves to be mentioned. It is calcareous earth united to the vitriolic acid deposited through the argil in strata of alabaster. This substance is found to answer for all the purposes of stucco, &c. equally well as the foreign gypsum.* Those desirous of farther information in regard to this wonderful phenomenon of nature, may consult the following papers in the Philosophical Transactions: Letter by Sir Richard Bulkeley, concerning the Giant's Causeway in Ireland, vol. xvii. n. 199, p. 708—710. An Account of the

* Hamilton's Letters, p. 82—91.

Giant's Causeway in Ireland, with Answers to Sir Richard Bulkeley's Queries relating to the same, by Samuel Foley, vol. xviii. n. 212, p. 170—175. Some Notes, by T. Molyneux, upon the foregoing Account of the Giant's Causeway, vol. xviii. n. 212, p. 175—188. A Letter, containing some Additional Observations on the Giant's Causeway in Ireland, vol. xx. n. 241, p. 209—223. A True Prospect of the Giant's Causeway, by Edwin Sandys, vol. xix. n. 235. An Account of the Giant's Causeway in Ireland, by Richard Pococke, vol. xiv. n. 485, p. 124—127. vol. xlviii. p. 226—238. A West Prospect of the Giant's Causeway, and an East Prospect, painted by Susannah Drury, and engraved by Vivares, were published in 1744.

An Account, by Mr. Strange, of two Giant's Causeways, and other volcanic concretions in the Venetian State, may be seen, Phil. Trans. vol. lxxv. p. 5—47.

A similar account of one in the Euganean Hills, near Padua, is given in the same volume. p. 418—423.

Ireland is said to be formed of one immense rock, or bed of granite, which is seen bursting out in some of the high and primitive mountains. Of this primitive granite, a part of the central mountains of the county of Wicklow seem to be formed, and also the ridge of mountains which separate the county of Wexford from the county of Carlow.* This kind of stone, indeed, abounds in many of the counties; where it is applied to various purposes in building and architecture. In Kilkenny it occupies that portion of the county which lies chiefly between the Nore and the Barrow, and is found of various shades, grey, red, and yellow. In the fineness of its grain it exhibits considerable difference, but some of it is very coarse. The best is raised from a quarry at Mount Loftus; it is a beautiful stone of a light yellow cast, fine grained, and compact. It can be taken up in blocks of a very large size, and wrought into any form by the chisel. It is used mostly in single pieces for gate-posts, which are exceedingly handsome, nor can there be any more durable, and at the same time equally cheap; lately a pair of gate-posts cost only a guinea. "This granite," says Mr. Tighe, "cannot be seen any where to better advantage than in the porch erected by Mr. Power, at Killfane, which consists of four pillars each, a single block surmounted by a frieze; in the execution of it the delicate mouldings are as well expressed as they could have been in any other stone."†

In the county of Down granite is to be met with in detached masses, and of various colours and degrees of fineness, but the great body of 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. Quarries of it are opened in different parts along the face of the mountains, and from the little river Annalong there is an exportation of it to other places on the coast.‡ Granite abounds also in the neighbourhood of

* M^oParlan's Survey of Sligo, p. 23.

† Tighe's Survey of Kilkenny, p. 27.

‡ Dubourdieu's Survey of Down, p. 16, 17.

Dublin, even in all the mountains to the south, and to such a degree as to have in some measure supplanted the use of Portland stone; for though it is not capable of being cut into the finer figures of architecture, it may be chiselled into any shape whatever, and at the same time is much more capable of resisting the influence of the weather. It is cut at the quarry, where at first it is of a soft nature, but hardens by exposure to the air, into window-jaumbs, and window-stools, lintens, and jaumbs of doors, pillars, troughs, and chimney-pieces. The spire of the steeple of St. Patrick's church, Dublin, was built of it, and also part of Essex Bridge."*

Granite of various kinds is seen emerging from beneath the basalt mountain of Sliebh-Gallan, in the county of Derry.†

Sand-stone, more or less fit for building, is found in the lower levels of Derry, as along the Largentea, the Castle, and the Baltagh rivers. The quarry of Alknever, near Dungivin, is of the finest quality. The colour of the stone is a bright tawney, not unlike that of Portland stone, and many of the best buildings have been constructed with it; but as it lies quite inland, and not convenient for any road, it is not to be obtained without great expence. It is wrought into window-stools, quoin-stones, grinding-stones, &c. at the rate of one shilling per cubic foot. It has been conveyed for architectural purposes to Derry, to Down Hill, and even to Caledon.‡

The county of Down produces remarkably fine freestone, the principal quarries of which are those of Scraba, near Newtown, and those of Kilwarlin, on the south side of the road from Hillsborough to Moira. The latter yields flags of great length and breadth, and of different colours, from the clear stone colour, to the brownish red; the former are very superior in beauty and hardness. A stone of uncommon dimensions taken from it, is to be seen as a step to the communion-table of the church of Hillsborough; it is twenty-feet in length, and two in breadth.§

Quarries of excellent freestone, fit for building, are found in the county of Mayo.¶

A kind of grit, or freestone as it is called, consisting principally of quartz sand, with a silicious cement, is dug up from quarries near Kilmaganny, in the county of Kilkenny, whence stones have been raised to floor part of the cathedral of Waterford; but on the side of the hills there are more quarries from which the inhabitants of Iverk obtain handsome freestones, and the farmers sometimes build of them very neat cut-stone chimneys. The stones are easily worked, and have no defect, except that they cannot be raised in blocks of sufficient size, as the strata are very thin, and seldom exceed ten inches; some of the same sort, more or less fine, are found on the side of the hills east of Knocktopher, and in the hills of Coulagh, south of Callan.¶

* Rutty's Nat. Hist. of Dublin, p. 131, 132.

† Sampson's Survey of Derry, p. 91.

‡ Ibid. p. 97 and 101.

§ Dubourdieu's Survey of Down, p. 13, 14.

¶ Survey of Mayo.

¶ Tighe's Survey of Kilkenny, p. 35.

There are abundant quarries of very good freestone south of the city of Dublin.*

Yellow mica is sometimes found in large masses on the lower part of the hills below Inistioge, on the western side of the Nore, in Kilkenny, and a kind of bed of it is seen at Inistioge. The detached stones which form the surface of the hills are worked up for common uses, and are called fire-stones, because they are employed chiefly for hearths. They are formed also into troughs and window-stools, and applied to various other purposes.†

In Kilkenny there are hills of breccia, which run southward from the Nore, and joining the hills above Knocktopher, spread towards the south and the south-east. On the top of the hill of Drumdowny, which forms the extremity of the principal range, there are about three hundred acres enclosed by a dry stone wall, and appropriated for the purpose of quarrying this stone, which is cut into mill-stones. There is a constant demand for them, and some years ago they were exported to England, but a duty of forty shillings per pair, having been imposed there on their importation, the trade then ceased. They were sent, however, coast-ways to Cork, Dublin, and other Irish ports. Ten guineas were lately the price of the largest pair of mill-stones, but eleven or twelve are now sometimes demanded. The workmen employed receive six guineas per pair for their labour, and an able and successful stone-cutter, can sometimes finish a single stone in a week; but as the stone selected frequently breaks, in consequence of flaws imperceptible till it is worked, the profit to the labourers is uncertain. The dimensions of some of the largest are five feet diameter, and sixteen inches in the eye; smaller ones, which are called horse mill-stones, are about three feet eight inches in diameter, and thirteen inches thick in the eye; the latter are sold for half the price of the former. As the stones lie near the surface or appear above it, a cavity is formed round the piece fixed upon, it is then chiselled in its original bed, and when finished is rolled down the hill by means of a pole passing through the eye, and directed by ropes, after which it is shipped with care into the vessel ready to receive it.‡

A great part of the county of Tyrone is supplied with mill-stones from the rocky mountains about Drumquin; they are seldom obtained from regular quarries, but are hewn out of single detached pieces of rock.§

Silicious schist abounds in some parts of Kilkenny; the base of Brandon Hill on the side of the Barrow, and the hill running thence to Graigue, is composed of it. Between Inistioge and Ross it is quarried out of the steep banks of the river for building. The town of Ross is mostly constructed of it. In a good quarry three men can raise a boat load, containing eleven ton, in the course of a day. A boat load costs from seven shillings to eight shillings and eight-pence; and in some places thirteen-pence is paid for the liberty of quarrying such a freight.||

* Archer's Survey of Dublin, p. 6.

‡ Tighe's Survey of Kilkenny, p. 34.

† Tighe's Survey of Kilkenny, p. 28.

§ M'Evoy's Survey of Tyrone, p. 20.

|| Tighe's Survey of Kilkenny, p. 30.

Flags, which consist of a siliciferous shistose argillite, containing mica, are dug up in Gallinoy, at Lisdowny, and at Ballyring, in the county of Kilkenny; at the last-mentioned place they are about two-pence-halfpenny per foot. On the other side of the Nore, a flag quarry is worked at Conahy. Some thin ones raised here are used instead of slates; for flooring they are sold undressed at about sixpence per small load; the best are sold dressed at sixpence-halfpenny a foot; those raised for slating cost about four shillings and ten-pence-halfpenny per load of seven and a half cwt. These stones are used for hearths and for other purposes; but the principal flag quarries are at Kellymount and Shankill; at the former, the quarry begins at ten or twelve feet from the surface, and is worked to the depth of forty feet. It gives constant employment to about sixteen men, twelve at ten-pence, and four squarers at one shilling per day; it is rented for thirty guineas a year; some of the best flags are sold at eighteen-pence a yard, and those for hearth-stones at two shillings the piece; for drawing a load hence to the Barrow, about three miles, is fifteen-pence.

The quarry of Shankill is on the other side of the same hill, and employs nearly an equal number of men, who usually work by the piece, but were formerly paid three-pence per yard, at present they sometimes get four-pence. The workmen can make from one shilling to sixteen-pence a day. The carriage of a load to the Barrow costs from thirteen-pence to fifteen-pence. The quarry is rented at £30. per annum, but the excavation is so great, that a pump is necessary to drain the water from it, by which means the expence is increased. The surface of these flags is for the most part ochreous, or tinged with iron.*

Slate, though imported in great quantities from Wales, is to be found in most districts of Ireland. Boate mentions the working of slate quarries in his time, and at present there are very large ones in various parts of the country. One of great extent found in the mountains of Glanmore, near Westport, gives daily employment to two hundred workmen; and the best sort of slates dug from it are said to be superior in quality to any brought from England.†

The Bradford slates in Clare, have long been celebrated; they are nearly equal to the best Welsh slates, and cost at the quarry £2. 5s. 6d. per ton; a smaller kind are sold for £1. 6s. Mr. Dutton thinks, as the communication is now opened by the Shannon to Dublin, that they will supply that city, to the exclusion of the Welsh slates. Killaloe slates, however, are reckoned better than the Bradford; they are sold by the ton and half ton, at £2. 5s. 6d. per ton, and in quarter tons at 5s. per hundred; small slates cost 13s. per thousand. The quarry men are allowed one-half of the profit for raising them; the other goes to the proprietor, Mr. Henry of Straffon; but the quarries are badly worked, the surface only being cut out, and it

* Tighe's Survey of Kilkenny, p. 41, 42.

† M'Parlan's Survey of Mayo, p. 20.

appears probable that the best slates are at a depth which could not be reached without machinery.*

There is a good slate quarry in Donegal, within a mile of Letterkenny, and half a mile of Lough Swilly.†

Slates are found also in the county of Cork, particularly near Kingsale on the Bandon River, where there are many quarries of it. There are quarries likewise at Cloghnikely, from which, as well as Kingsale, slates are sent by sea to Cork, where they are used for roofing houses, being exceedingly light and durable.‡

Mr. Head of Derry, in the county of Tipperary, possesses one of the finest slate quarries in the kingdom.

Limestone is so general in Ireland, that it occurs in all the counties except Wexford, Wicklow, Tyrone, and Antrim.§ It is of various colours, and besides furnishing an excellent manure, is employed in many places for the purposes of architecture.

Limestone both white and blue is found in the county of Derry, where the latter is used for building, some of it being of so fine a texture as to resemble coarse marble; but it is frequently met with in a state so friable, that it is spread over the land for manure without being burnt. In a limestone rock on the coast of this county, there is a remarkable cavern called the Robbers' Cave, which contains apartments, where a large banditti concealed themselves with a considerable booty some years ago.||

Limestone of different colours, white, reddish, and black, occurs in various parts of Kilkenny, but the black is said to produce the best lime. At Ballyragget there is a quarry of black limestone above the town, which comes close to the river; it is hard, susceptible of a fine polish, and might be used in the place of marble. The price of quarrying is three-pence a load for stone to burn, and from three-pence-halfpenny to four-pence for stone intended to be applied to the purpose of architecture; the work is usually paid in this manner, but when the men are engaged by the day, they receive thirteen-pence and their diet. In a quarry of fine blackish limestone near Ballyspellan, thin slabs for tomb-stones are sold at one shilling per foot. All the limestone of Kilkenny contains impressions of shells or corallines.¶

At Ardbraccan in Meath, on the domain of the bishop, is an excellent limestone quarry of a fine white grain, and capable of being worked into any form for building. The strata are horizontal, and of various degrees of thickness, from four inches to two feet; columns have been raised and worked here of from fifteen to eighteen inches in diameter, and nine or ten feet long; of this stone the Hon. Dr. Henry

* Dutton's Survey of Clare, p. 16.

† M'Parlan's Survey of Donegal, p. 23.

‡ Smith's Nat. and Civil Hist. of Cork, vol. ii. p. 373.

§ Newenham's View of Ireland, p. 74.

|| Sampson's Survey of Derry, p. 93—96.

¶ Tighe's Survey of Kilkenny, p. 93, 94.

Maxwell, late Bishop of Meath, built a beautiful palace at Ardraccan,* which displays simplicity of design and accuracy of execution. This stone is susceptible of a fine polish, and though white when it comes from the chisel, acquires in the course of time a greyish colour. Tomb-stones and door-cases of it are sent to a very great distance, but the quarrying of it is attended with considerable expence, in consequence of the flow of water which continually issues from the springs; yet stone has been taken from it since the beginning of the 16th century, as appears by the groins, door, and window-cases, &c. of the castles in the neighbourhood built about that period being chiefly of that stone.†

Marble, so useful in ornamental architecture and sculpture, abounds in Ireland, and quarries of it are worked in various parts, but particularly in the counties of Kilkenny, Armagh, and Cork; some of it is exceedingly beautiful, and being so near, there can be no occasion for Great Britain to import foreign marble, as the Irish is equal to any that can be met with even in Italy or Greece. It is also so plentiful, that whole edifices are constructed of it; it composes the domain wall at the palace of Armagh, and as it is of a calcareous nature, is frequently burnt into lime. One of the most important marble quarries in Ireland is that called the Black Quarry, which lies about half a mile south of the town of Kilkenny, near the right bank of the river, one side of which is rented by Mr. Darley of Dublin, but the principal part is held by Mr. Collis. This stone, when polished, exhibits a black ground, more or less varied with white marks, and it is said that these marks assume a stronger tint, or increase by long exposure to the air. The price for raising and squaring the marble is nine shillings and nine-pence per week; the wages of common labourers are thirteen-pence a day. The quantity of marble exported is about fifty tons annually, but the disadvantage of land-carriage renders it more expensive. The marble sent to Dublin is conveyed on cars as far as Leighlin Bridge, where it is embarked on the Barrow; that which is exported is usually sent to Waterford, and goes by land, at least as far as Thomastown; the blocks exported, are consigned chiefly to Liverpool and Glasgow; some coarse articles are finished at the quarry; but the principal work is done at the marble mill, ‡ which is on the left bank of the river, and nearly two miles from Kilkenny.

It bears honourable testimony to the ingenuity of its inventor, Alderman Collis, grandfather of the present proprietor, and is admirable for the simplicity of its construction, and for the power it exerts. The saws are made of soft iron, and last

* Lord Charleville, also near Tullamore, in the King's County, has built a magnificent house of limestone.

† Thompson's Survey of Meath, p. 28, 29.

‡ A great improvement in cutting marble and other stones, but particularly columns by machinery, was invented by my much lamented friend the late Sir George Wright, bart. who procured a patent for it. A number of hollow columns can now be cut from a solid block, each decreasing in size, so that none of the stone is lost except what is converted into dust by the saw.

about a week ; they are constantly supplied with water and sand, the latter of which is taken from the bed of the Nore, and well washed and riddled till nothing remains but pure silicious particles. A saw cuts ten inches a day, and twelve, when the water is strong ; to do the same with a handsaw would require two men. By means of this mill the marble is so easily worked as to be sold at a very moderate price ; a middle sized chimney-piece costs about two or three guineas, and the price of the common ones usually made, varies from twenty-five shillings to four guineas.

The marble taken from the mill is first polished by boys, with what is called a *core-stone*, that is, a brown sand-stone or grit, imported from Chester, which takes its name from being used in chimney coves. It is afterwards polished by a *hone-stone*, which consists of a piece of smooth nodule of the argillaceous iron ore, found in the hills between Kilkenny and Freshford ; it receives the last polish in the mill with rags and putty. But its importation in a finished state into England and Scotland was prevented, when Mr. Tighe wrote, by a duty of two shillings per cubic foot ; what was exported, therefore, was in the rude block.*

Black marble, exceedingly fine, has been raised at Crayleath, in the county of Down. It is susceptible of a very high polish, and if well chosen, is free from those large white spots which disfigure some of the Kilkenny marble.‡

There is a quarry near Tralee, in Kerry, which affords a black and white marble, of a texture and colour different from that found near Kilkenny ; the white spots in this being much larger, and the colour of the black part not so deep, but inclining more to blue. It takes a fine polish, and may be raised in blocks large enough for any work, such as tables, chimney-pieces, tomb-stones, &c.

Marble of various colours is found in the same county in the islands near Dunkerron, in the river Kenmare. Some is black and white, others are purple and white, intermixed with yellow spots, and some beautiful specimens have been seen of a purple colour, veined with dark green, resembling the veins in blood-stone. Sir William Petty had several quarries opened in these islands in his time, in order to carry on a marble manufactory, but they are now worked chiefly for the making of lime.‡

Marble abounds in the vicinity of Cork, near which several quarries have been opened. A grey kind, interspersed with white veins, is much used for common chimney-pieces, but that of Castle Hyde is the handsomest of all, being of a dark grey colour with various shades, and a rich display of shells.‡

Dr. Smith enumerates the following kinds of marble found in the county of Cork :—

Black, near Church Town, and also near Doneraile ; it is very hard, and susceptible of a fine polish.

* Tighe's Survey of Kilkenny, p. 99—105.

† Dubourdieu's Survey of Down, p. 16.

‡ Smith's Nat. and Civil History of Kerry, p. 397.

§ Townsend's Survey of Cork, p. 18.

Purple and white variegated; in most the purple makes the ground, and the veins and spots are white. The white part is the hardest and most pellucid.

Blue and white variegated, found also near Church Town.

Elegant yellow and purple variegated marble.

Ash coloured marble found in the lands of Carigaline, five miles south of Cork.

Ash coloured or grey, variegated with white spots or veins, found in the lands of Castlemary.

Grey marble, variegated with small spots; the *tephria* and grey serpentine of the ancients, takes a most resplendent polish, and is very beautiful in chimney-pieces, tables, and other ornamental works.

A grey or dove coloured marble, found at Carigaline, eight miles from Cork.

Blue and white variegated marble used for tables and tomb-stones.

Pale brown marble, variegated with white veins. There are excellent quarries of this kind at Kilcrea, eight miles west of Cork; it takes a fine polish, and is known by the name of Kilcrea marble.

All the marbles in this county, Dr. Smith says, are of the variegated kind, and he never heard of any of one single colour.*

Siderocalcite is found in various parts of Kilkenny, where it forms the hill called Freeman's Hill, on the turnpike road to Dublin. A quarry of it is open not far from the marble mills, and it has been used in repairing the roads, but it does not seem to be of a nature sufficiently durable for that purpose. Though brittle and full of interstices, walls have been built of it, and it has been employed in the construction of lime-kilns. As it cannot be burnt intolime, it is by the masons, therefore, called a free-stone. As it contains iron and manganese, Mr. Tighe is of opinion that it might form an useful ingredient in mortar intended for building under water.†

On the mountain of Mangerton, near the lake called the Devil's Punch Bowl, is a species of whetstone, the grit of which is as fine as that of many common hones, and being shaped properly and afterwards boiled in oil, it serves the country people for whetting razors, &c. These stones are of a bright olive colour before they are boiled, but afterwards they become darker, and seem more smooth and compact.‡

The mountain of Altahoney, in the county of Derry, abounds with white calcareous spar, which in some parts is found to be excellent for tomb-stones, window-stools, and other works.§

Some transparent pieces of alabaster, taken from the cave of Dunmore, in Kilkenny, have been occasionally polished and worked into tablets and vases. It is very abundant there, and as it can be detached in large masses, might, according to

* Smith's Nat. and Civil Hist. of Cork, vol. ii.
p. 375—378.

† Tighe's Survey of Kilkenny, p. 91—93.

‡ Smith's Nat. and Civil Hist. of Kerry, p. 396.
§ Sampson's Survey of Derry, p. 96.

Mr. Tighe, be made an object of manufacture on a large scale. This cave, one of the most remarkable in the country, has been often visited and described by travellers.* It is situated a little to the south of the church of Mothe, in a cultivated field on the slope of a gently rising hill. The mouth of the cave opens into a large oval pit, about forty or fifty yards wide, which seems to have been formed by the sinking in of the surface. It is in the eastern end, and there is a descent to it of seventy feet from the opposite quarter, over the rubbish of stone and of clay. The other sides of the pit are almost perpendicular. Rabbits often burrow near the entrance, and wild pigeons reside within the first cavern, which is spacious, and of an irregular form. The roof is nearly fifty feet in height, and the floor slopes downwards. Towards the left, a narrow passage leads by a slippery ascent to the interior cavity, where a great variety of stalagmitic forms, together with the irregularities of the rock, exhibit a most singular and striking appearance. Proceeding onwards the cave grows narrower, and again opens into a large apartment, beyond which there are winding passages and other cavities. In one of these the cave, it is said, runs out to the other side of the hill, where the light may be seen through a fissure or chink. The bottom is always slippery, and stalactites, formed by the dripping water and calcareous sinter, are deposited in various shapes on the sides and bottom. In one of the inner caverns imagination supposes it to assume the form of an organ, in another that of a cross or an altar. A stream of water passes through the cave at a considerable distance from its mouth, and many skulls and bones have been found not a great way from this stream, and in other parts far within the cavity. Some of the skulls were enveloped in calcareous spar. In or near this cave some clay, coloured by carbon, and called black chalk, is sometimes picked up.†

Incrustations on moss and roots are formed in great quantity, and with rapidity, by a stream which flows through the glen of Ballyragget in Kilkenny. This deposition makes excellent manure, and has been employed as such by Mr. T. Kavanagh.‡

Calcareous petrifications are occasionally seen dispersed in the county of Kilkenny as pectunculites, echinites, cochlites, and some cornua ammonis; tubiporites, both flattened and round, are not unfrequent, particularly in the barony of Gallmoy, where they may be often seen in the fields and dry stone walls. A very large mass of this kind was taken out of the Barrow by Sir Edward Loftus, near Mount Loftus, and is now in the cabinet of the Dublin Society. It is about two feet in one direction and eighteen inches in another.§

* Account of the cavern of Dunmore Park, near Kilkenny, in Ireland, by Adam Walker. *Phil. Transact.* vol. lxiii. p. 16—19. See also *Journal de Physique*, t. liii. p. 303, 304.

† Tighe's Survey of Kilkenny, p. 107—109.

‡ *Ibid.* p. 109.

§ *Ibid.* p. 110, 111.

Near Castle Island in Kerry, is found the famous *Lapis Hibernicus*, or Irish slate. formerly used in the *Materia Medica*, its taste is very austere, and it abounds with common green copperas, or a martial vitriol.* On the south-east coast of Lough-Shinny, between Rush and Skerries, in the county of Dublin, there are large rocks of it, which in some places exhibit a vitriolic efflorescence.†

Some years ago a copperas work, which produced a vitriol, partly ferruginous and partly cupreous, was erected near Tralee, by Col. Blennerhasset, but was dropped for want of a market. This vitriol was prepared from an ore like the Irish slate.‡

Sir William Petty speaks of alum works having been formerly erected in the county of Cork, but Dr. Smith remarks, that in what place, or from what substance extracted, he could never learn.§ Dr. Rutty mentions the same thing, and says, "that though these works have been long since dropped, he apprehends it to be no way impossible that they may be revived, and to encourage such an attempt he gives several observations and experiments which he made on different kinds of stone."||

Some pieces of very fine compact jasper, of various sizes, the largest about ten or twelve inches in length and half as broad, have been discovered by Sir Edward Loftus on his domain in Kilkenny, near the extremity of the granite district. These pieces were of a deep red colour, for the most part obtusely angular, and more square at one end than the other. They were discovered a few feet below the surface, imbedded in yellow clay.¶

Transparent regular crystals, known under the name of Kerry stones, are found in various parts of that county; many of them are so hard as to cut glass, but they will not, like the diamond, continue to do so long. They undergo little change in an intense heat, except that some of them appear here and there a little flawed by the operation. They are harder, larger, and have more lustre than those brought from Bristol. The chief place of their growth is among the rocks and cliffs of the sea coast, but particularly in those of Ballyhugh, in the barony of Glanmaurice, and also in the barony of Corkaguinny, near Dingle. Coloured crystals, resembling emeralds, topazes, and sapphires, have been found also in Kerry, near Lough Lane, but they are not harder than common crystals.**

Very fine amethysts have been discovered in the clefts near Kerry Head, which encouraged some gentlemen to form a company in order to search for them. This attempt was attended with considerable success, and we are told that a set of earrings, a necklace, and other ornaments, composed of these amethysts, were presented by the countess of Kerry to her majesty, Queen Caroline. Dr. Smith speaks

* Smith's Nat. and Civil Hist. of Kerry, p. 398.

† Rutty's Nat. Hist. of Dublin, vol. ii. p. 45.

‡ Smith's Kerry, p. 401.

§ Smith's Nat. and Civil Hist. of Kerry, p. 398.

|| Rutty's Nat. Hist. of Dublin, vol. ii. p. 45, 46.

¶ Tighe's Kilkenny, p. 29.

** Smith's Kerry, p. 403 and 407.

of one in the possession of the Earl of Shelburne, and James Crosbie, Esq. shewed him a very fine one, for which an eminent jeweller offered a considerable price.*

Dr. Rutty says, that considering the little trouble which has hitherto been taken to examine the fossils of Ireland, it needs excite no wonder that very few instances of real gems being found should have occurred; but he adds, that "discoveries even of these ought not to be despaired of, for Smith's History of Kerry mentions the amethyst; and we have good authority for another, in an account published of the Giant's Causeway in the Philosophical Transactions, by Dr. Pocock, namely, that among the stones of the said Causeway a certain rough pebble was found, which when polished proved to be a white cornelian."†

GOLD.

The gold mines, as they are called, though the gold hitherto found has not been discovered in continued or regular veins, but picked up in small pieces in the beds of rivers and other places, gave rise at one time to considerable expectation, but the hope they excited seems to have entirely vanished, and at present they are almost forgotten.

In a mountain stream flowing down from Cronebane, which separates Wicklow from Wexford, and which passes through the estate of Lord Carysford, large pieces of gold were found some years ago at different times, on land forming part of the royalties belonging to the Earl of Ormond. This precious metal was found also on the Wicklow side of the mountain, and in two instances in lumps of considerable size. On this discovery government laid claim to the supposed mines as the right of the crown, and Mr. Mills and Mr. Weaver of the copper works were appointed commissioners, under whose directions the mountain was explored with the utmost care and attention. The bed of the river was afterwards searched, and a good deal of labour was employed in washing the sand taken from it, but the gold obtained by this process was not sufficient to defray the expences. This search, however, though it may have answered no other good purpose, has served to make the common people abandon their golden dreams, and convinced them, that if they wish to acquire riches, they must look to some other more productive sources.‡ The particulars of this discovery, written by Mr. Mills and Mr. Lloyd, may be seen in the Philosophical Transactions.§ and a very entertaining account of it has been given by Mr. Frazer in his Survey of Wicklow, to which I refer those who may be desirous of farther information on the subject.

* Smith's Nat. and Civil Hist. of Kerry, p. 211.

† Rutty's Nat. Hist. of Dublin, p. 91, note.

‡ May 11th, 1811. Mr. Weaver, who is now in London, says the working of this mine is given up.

§ An account of the late discovery of native gold in Ireland, by John Lloyd, Phil. Transact. 1796, p. 34-37.—A mineralogical account of the native gold lately discovered in Ireland, by Abraham Mills, *ibid.* 1796, p. 38-45.—See also Nicholson's Journal, vol. ii. p. 223-227.

MAY 30TH 1809, WICKLOW.—*Cronebane*.—Spent the morning at the gold mine, in company with Mr. Weaver. The gold hitherto found, which was picked up within a very small extent from the bed of a mountain stream running into the Avoca, which discharges itself at Arklow, amounts in value to about £10,000. Every rivulet belonging to the mountain has been carefully searched, and a small quantity has been obtained from each. Trenches also were dug so as to intersect the rock in every direction. The gold collected was mixed with grains of quartz, and as the same mountain furnishes iron ore, of which it exhibits considerable veins, it was concluded that it might contain also one or more veins of gold; a shaft has therefore been sunk to a considerable depth, but as yet without success, and the best judges have given up every expectation of the mountain containing any gold worth the expence of extracting it.

SILVER.

According to a manuscript in the Archbishopal library at Lambeth, when the Ostmen, or Danes, had possession of the sea coast of Wexford, silver was found there in such abundance, that a mint was erected, and silver coins formed to a considerable amount.*

For many centuries the Danes held the people of Ireland in the most slavish subjection; every householder was obliged to subsist a Danish soldier, and to pay an annual tax of an ounce of pure silver. As all the ancient records of Ireland state that the sword handles, bridles, and even the stirrups of the great people were made of gold, it has hence been concluded that this country formerly contained mines both of gold and of silver.†

On the estate of Mr. Glover, near Williamstown in Kildare, a silver mine was worked about half a century ago by a Mr. Duggan, but either through want of capital or of skill, he failed in the attempt. The smelting houses and pits still remain neglected.‡

COPPER.

Copper ore is found at Ross Island in the Lake of Killarney, where mines were worked with considerable success.

OCTOBER 19TH 1808. *Killarney*.—The mines here are leased by a company from Lord Kenmare for thirty-one years, five of which are expired. His lordship stipulated for one-eighth of the produce in lieu of rent, and this contingency he has again let to Mr. White, the superintendent, for £2000. per annum. The whole concern is divided into sixty-four shares, and at this time each proprietor is

* Fraser's Survey of Wexford, p. 16.

† Rawson's Survey of Kildare, Int. p. xxxvi.

‡ Ibid. ib. p. xxxvii.

minus £180. The company have erected a steam engine, and a course has been cut for the purpose of keeping the mines clear from water. The engine, which has a thirty-five horse power, cost £4000; it consumes a ton and a half of coals in twenty-four hours, and throws up a thousand gallons of water per minute, from the depth of twelve fathoms. It is worked according to the quantity of water in the mines, and this varies so much as to render it impossible to give any calculation of the average expence. The ore is found in limestone rock, and, as it appears to take a direction southwards under the lake, dams are now making at a very great expence for the purpose of keeping off the water. When the mines are fully worked, 200 tons of ore are raised per month; it is conveyed by land carriage to Tralee, whence it is shipped for Swansea, where it is smelted. The whole expence, including one and a half per cent. insurance, is three guineas per ton. The ore is raised by small gangs, each consisting of two or three persons, who employ labourers to perform the different manual operations; these people are paid from thirty to thirty-nine shillings per ton, and find their own tools. Carting costs five-pence per pound, gunpowder two shillings and two-pence, and candles one shilling. The company furnish buckets and horses to draw up the ore and keep the mine clear of water. The price obtained for the ore varies according to its quality, and the price of pure copper, which four years ago was so high as £184. per ton, at present is £97. The company have sold cargoes of ore at so low a rate, as £14; lately they have sold some for £41, but the average is about £20. In 1805 the ore here was worth £35. per ton. The whole works employ 500 men, and during the last four years were attended with an expence of £50,000. The coals consumed by the steam engine and in the mine are brought from Swansea, and cost two guineas per ton.

It evidently appears that this mine was worked in ancient times, but by what means cannot now be ascertained. The limestone rock in which the ore was contained, seems to have been burned, and hammers, composed of the hardest stone, with which the ore was extracted, are frequently found, but there is not the slightest appearance of either iron or gunpowder having been used.

There was a copper mine also at Mucross, which has not been worked since 1754. Mr. Young says, "many shafts still appear, and as much ore was raised as sold for £25,000, but the works were laid aside more from ignorance in the workmen than any defect in the mine."* In the limestone extracted from it there was found a mixture of some metallic substance, with the nature of which no one at the time was acquainted; it was therefore considered to be of little value, and on that account employed to mend the roads which lead to the mine. It has, however, since been found to be cobalt, a semi-metal of great value, which ought, certainly, not to

* Tour in Ireland, part i. p. 290.

be neglected. At this place, and throughout the whole neighbourhood, there is plenty of marble of various colours, and particularly black, which when burnt affords excellent lime. When stones of this kind contain metallic substances, the latter may be easily extracted, for if the stone be burnt and then quenched with water, it will be converted into lime, so that the metal will be left in a free state. It was perhaps by adopting this method that the copper mines in Ross Island were formerly worked.

At Cronebane, near Arklow in the county of Wicklow, there are also copper mines, the property of an English company, but the ore is by no means so rich as that at Killarney. At Ballymurtagh, a short distance thence, there are others which belonged to the Whalleys, and afterwards to Mr. Cumac; but they involved in ruin many of those engaged in them, and are now in a state of dilapidation.

APRIL 13TH, 1809.—Dined with Mr. Mills, who holds an official situation in the ordnance department, and is the principal owner and superintendent of the copper mines of Wicklow. The whole concern is divided into 500 shares of £100. each, and the company have purchased the fee simple of the land, amounting to 167 acres, together with the royalty, and every thing attached to it. They pay £8000. per annum for labour, and £1000. for carriage to Wicklow. The duty on copper imported into England before the union was so high, that none of the mines in Ireland were worked to any extent.

MAY 29TH, *Wicklow*.—Visited the Cronebane Mines, where the ore lies in beds. One large vein, at the depth of 390 feet, is mixed with a considerable quantity of sulphur, from which the ore is separated by the means of fire; the ore is shipped for Swansea, and the sulphur is sent to London. From two to three thousand tons of ore are extracted annually: this quantity has been extended sometimes to 3500, and so much as 4000 might be raised if proper exertion were used. The ore yields about five per cent. and the annual expences are £8000.

Mr. Symes is now employed in forming a company to make trials on his estate.

Mr. Weaver says, that many of the words used here in mining are German words, and he thinks they were introduced by German miners who came to England in the reign of Queen Elizabeth.

When copper ore is mixed with sulphur, and the latter predominates so much as to burn without fuel, it is roasted, in order to extract the sulphur and lessen the expence of carriage. This is the case with a great part of the ore dug up in the county of Wicklow. The want of a good harbour on this coast renders it necessary for the proprietors of the mines to employ a much larger capital, as they are obliged to keep by them the whole of the winter's stock till the weather becomes sufficiently favourable to permit vessels to enter the port of Wicklow, if one so bad can deserve that appellation.

Since the above accounts were written, I have learned that both the copper works

at Ross Island in Kerry, and those of Cronebane in Wicklow, are given up; many others, which were once worked, have been also discontinued, and though I do not give the following as a correct list of them, I believe it contains the names of those which were most worthy of notice.

<i>Names of the Places.</i>	<i>Counties.</i>	<i>Proprietors.</i>
Dunmore, near Clognikilty*	Cork.	
Glenavan, in the barony of Burrin†	Clare . .	Mr. Annesly.
Mucross‡	Kerry . .	Mr. Herbert.
Walterstown§	Meath . .	Sir M. Somerville.
Mountain Castle, Modeligo||	Waterford.	
Lough Shinney¶	Dublin.	

MAY 13TH, 1811.—Mr. Weaver is in London, and this day informed me that the Cronebane Mines are discontinued, and those at Killarney also, so that there is not a copper mine now worked in Ireland.

According to Mr. Newenham, the increased exportation of copper ore since the union, was as follows:**—

	<i>Tons.</i>
Average of three years, ending March 25th . . .	1783 . . . 151
	1793 . . . 2344
	1808 . . . 6869

LEAD.

Lead ore is found near Enniscorthy in Wexford, and near Glendallogh in Wicklow.

MARCH 15TH, 1809.—The lead mines of Glendallogh belong to Lord Essex and Lord Henry Fitzgerald, who receive one-eighth of the produce from a company consisting of seven partners, to whom they are let on a lease of 21 years. The vein of ore is situated in a mountain; a level or adit has been formed at the expence of £1000. The ore is wheeled out on a railway, and as it does not require to be raised up, as is the case in mines in general, there is a considerable saving of labour. Another advantage is, that the water finds a ready passage, and runs off through a glen; but it is not useless, as it serves to give motion to wheels at three smelting houses, by which an immense pair of bellows is worked at each. The quantity smelted per day is 10 cwt. The fuel employed is coal, which is brought from Wicklow, and lime is used to prevent

* Townsend's Survey of Cork, p. 270.

† Thompson's Survey of Meath, p. 25.

‡ Dutton's Survey of Clare, p. 16.

|| Smith's Survey of Waterford, 2d edit. 1774, p. 303.

§ Young's Tour, part i. p. 290.

¶ Archer's Survey of Dublin, p. 8.

** View of Ireland, p. 50. I must here observe, that this gentleman's account of the minerals of Ireland exhibits them rather as he wishes them to be, than as they are in reality. His statement in regard to the copper and iron mines at Arigna, is evidently erroneous, and can never be confirmed in practice.

the coal from coaking. The lead is run into pieces like cast-iron, called bars, each of which weighs one cwt. About 180 are made per week, and the labourers receive for smelting crop ore 10s. for tale 12s. and for sluggs or refuse 13s. Washing the ore costs from £2. 6s. to £4. 10s. per ton. The carriage to Dublin is 20d. per cwt.

Lead ore was found also at the Scalp, in the neighbourhood of Dublin, and on the shore of Clontarf, near the same place; but the specimens obtained afforded so little hopes of success in the month of May, 1809, that, in all probability, every idea of working these mines has been abandoned. Lord Leitrim is engaged with a Mr. Walker, of Liverpool, in working lead mines in the county of Donegal; and Lord Donally has raised some lead ore at the silver mines in Tipperary, but it has not yet defrayed the expence of extracting it.

The following mines seem to have been worked formerly; but I by no means give the list as complete: Mr. Parkes speaks of a rich mine in Antrim,* but he neither names the place where it is, nor its owner. If any such mine exists, I never heard of it.

<i>Names of the Places.</i>	<i>Counties.</i>	<i>Proprietors.</i>
Keady†	Armagh .	Earl Farnham.
Dundrum‡	Down . .	The Blundel estate.
Clonliff, between Newtownards, & Bangor§	Do.	
Ardmore|| . . . . .	Waterford.	
Old John's Bar¶	Dublin.	

Mr. Newenham gives the following account of the increased export of lead since the union.**

	<i>Tons.</i>
Average of three years, ending March 25th,	1783 . . . 6
	1793 . . . 401
July 5th,	1808 . . . 929

IRON.

Iron is of more general utility to man than any of the other metals, and therefore Providence has dispersed it in greater abundance throughout every quarter of the globe. In this distribution Ireland has not been neglected. Ores, and other indications of iron, are very common in that country, and the whole northern part of it consists of rock, in which it seems to form a very considerable ingredient.

We are told by Boate, in his Natural History,‡‡ that, in 1652, iron works were established in many parts of the country; but iron ore, however rich or plentiful, can never be converted to any useful purpose, unless where there is a ready and cheap

* Chemical Catechism, 3d edit. p. 361.

|| Smith's Survey of Waterford, 2d edit. 1774, p. 302.

† Sir Charles Coate's Survey of Armagh, p. 286.

¶ Rutt's Nat. Hist. of Dublin, 1772, p. 137.

‡ Dubourdieu's Survey of Down, p. 12.

** View of Ireland, p. 50.

§ Ibid. p. 13.

‡‡ Boate's "Ireland, Natural History," edit. 1652, p. 125:

supply of fuel.* It is not of sufficient value, like copper or lead ore, to make it worth while to transport it to places where there is coal, in order to be smelted and manufactured into iron.

Abundance of iron ore occurs in the county of Cork, and considerable iron works were carried on here at a former period, as we are told that about the year 1632 the Earl of Cork had, in his several forges or bloomeries in this county, 1000 tons of bar iron; besides 100 tons drawn out and fagotted into roods at a slitting mill erected by his lordship, and above 2000 tons of sow iron. It appears that iron was sold at that time for £18. per ton.

We find also, that in 1629, Luke Brady, of Thomgreny in the county of Cork, Esq. Richard Blacknal of Macroom, and Henry Wright of Doughtane in the county of Waterford, obtained a patent for making iron ordnance shot, and cross-bow shot; and letters were directed to the lord-president to assist and aid them in purchasing, by composition, an iron mine from Sir Richard Everard, kn. in the territory of Clangibbon in this county, and from Sir William Fenton, in the same.†

On the lands of Tallaghan in Mayo, iron works were formerly erected by Sir Arthur Sheane, but were discontinued for the want of fuel, charred turf, which was tried, not having answered the purpose. At Mullinmore, on a branch of the Deel Water, which runs three miles under ground in its descent from the mountains, are the ruins of iron works, formerly carried on by a Mr. Rutledge, who gave them up when the woods were burnt out. Vast quantities of iron ore are found on the estate of the Marquis of Sligo in the barony of Murrisk.‡

Iron works were carried on by Mr. Rutledge, in the county of Sligo, till the woods in the neighbourhood were consumed, after which they were transferred to Foxford, where he had others.§

Iron ore is found at Arigna in the county of Roscommon, and an attempt was made to manufacture it into bars; but the undertakers, after sinking immense sums, have been obliged to abandon their design.**

Manganese is found in various parts of Kilkenny, and is not uncommon on the banks of the Barrow.†† It occurs also at Kilcredane Point, near Carigaholt Castle, the estate of Lord Conyngham; on the edge of a bog near Innistymon; and in other parts.‡‡ In the mountains of Glanmore, in Mayo, four miles nearly south of West-

* Several of the Russian smelting works in Siberia have been abandoned for the want of fuel, all the timber in the neighbourhood having been consumed. See *Storch's Hist. Stat. Gemälde des Russischen Reichs*, vol. ii. p. 448 and 621.

† Smith's Civil and Nat. Hist. of Cork, vol. ii. p. 390, 391.

‡ M^cParlan's Survey of Mayo, p. 19, 20.

§ M^cParlan's Survey of Sligo, p. 10.

** May 13th. Mr. Weaver informs me, that the colliery and iron works at Arigna have experienced the fate which I foresaw, and are now given up, after an immense fortune has been sunk in attempting to render them productive.

†† Tighe's Survey of Kilkenny, p. 88.

‡‡ Dutton's Survey of Clare, p. 19.

port, there are extensive beds of this substance,* and it is to be met with in several of the other counties.

By the preceding imperfect and irregular sketch, it appears that Ireland possesses fossil and mineral substances of various kinds, many of which, among a people animated by a more active spirit of enterprise, might be employed, not only to promote industry, and to produce opulence to the individuals, but to add to the revenue and resources of the empire. Though the attempts made to work some of its mines have hitherto failed, it is probable that great riches are still concealed beneath its soil, if proper search were made for them by persons of competent skill and perseverance. The bad success as yet experienced is ascribed chiefly to two causes, the jealousy of the English miners, who are unwilling to work mines in Ireland, and the want of capital to supply the necessary expence; but neither of these causes appears to me to be well founded, and the owners of mines in Ireland must therefore be inexcusable if they neglect to pursue means for turning them to advantage. One good effect of the union has been, that they are now freed from the duty which used to be levied on unwrought ore in Great Britain; and if they have not fuel to smelt it on the spot, it may now go to Swansea as free as if it came from the mines in Cornwall. The idea of any impediment arising from the jealousy of English miners, is too ridiculous to require observation; and with regard to capital, the settlement of Mr. Mills, Mr. Weaver, and the English company, in the county of Wicklow, is a sufficient proof that English capital in some cases will be transferred to Ireland, whenever circumstances are such as to hold out a reasonable hope of success. Mr. Weaver has already formed a new company, and taken a lease from the see of Dublin, of its royalties in the county of Wicklow; and I have no doubt that, under the direction of a man so well qualified by skill and activity for metallurgic operations, the bowels of the earth will be rendered productive, if such an effect can be produced by the united efforts of ingenuity and industry.

In regard to the noble metals, the gold mine, though placed under the direction of two of the most scientific and practical men in Europe, has not answered the sanguine expectations which, without due examination, were formed of it, and which in exploring it induced government to expend a considerable sum. The hope excited in regard to silver, seems to rest on no better foundation. All the ore of that metal hitherto found has been mixed with lead: the lead-mines of Tipperary supplied a certain proportion: but ore of this kind has never defrayed the expence of working. †

The copper mines at Killarney produced a rich ore, and, when I visited them,

* M'Parlan's Survey of Mayo, p. 20.

† Mr. Newenham speaks of a silver mine worked formerly at Edenderry in the King's County, but given up about 40 years ago. *View of Ireland*, p. 46.

were beginning to repay the proprietors; but as the vein seemed to dip under the lake, great apprehensions were entertained that the works would be soon inundated, and I now find that this has actually been the case.

The Wicklow copper mines at Ballymurtagh, have absorbed, without much benefit, a capital of at least £200,000. This extraordinary expenditure has been ascribed to mismanagement, and such indeed may have been the case; but I know that in May, 1809, the Cronebane Mines did not produce an ore of sufficient richness, according to the then price of copper, to defray the expence of raising and shipping it to England. Not a workman was employed at that time; the proprietors were waiting for a rise of prices: and since that period the works have been entirely neglected.

The appearances of lead in Ireland are, I believe, much more promising. The mine near Enniscorthy I did not examine; but the specimens of ore which I obtained seem to be of an excellent quality, and rich in metallic particles. The Glendallogh mine in Wicklow amply repays the proprietors; but the mine at the Scalp, belonging to a Dublin company, and lately begun, has not as yet held forth much hope of success. The ore falls under that description termed by the miners "proud;" that is to say, it is found near the surface, which is always considered a sign highly unfavourable.

The mine on the Clontarf shore was drowned every tide, and the progress of working it depended on the improbable success of damming out the water.

Lord Leitrim's mine in Donegal I did not see, but I received a very favourable account of it from gentlemen residing in the neighbourhood.

Iron is found almost every where; but the advantage of working it depends upon fuel, an article which Ireland does not possess of a quality proper for that purpose. The scarcity of timber, also, will be a great impediment here to mining; for it is well known, that works of this kind cannot be carried to any great extent without an immense quantity of that article; ten thousand pounds worth of it being often necessary for a single coal mine. The only mines I ever visited which do not require timber, independently of casing the shaft, are the salt-mines of Cheshire, but the salt is found there in a situation very different from what minerals are in general.

Marble, slate, granite, and other stones, fit for building, of every kind, may be obtained in Ireland, and at a very moderate expence; yet a great portion of its inhabitants reside in filthy cabins; though from the facility with which better materials could be procured, they might exchange them for others much more convenient and salubrious: but in countries where ignorance and oppression go hand in hand; where the people, through inveterate habit have become indifferent to every thing that has the appearance of improvement, and where no stimulus is applied to make them emerge from their degraded state, the advantages presented to them by nature will either be overlooked or neglected.

Ireland possesses also abundance of clays fit for making bricks, and for the use of the potter, but no manufactories of earthenware worthy of notice have yet been established in any part of the country. Dr. Rutty remarks, that pots made of Irish clay are inferior to the English, and do not stand the naked fire nearly so well; but this defect seems to arise rather from the badness of the workmanship, than from any inferiority of the material, and he has no doubt that Irish pots might be made as good as the English, if greater encouragement were given to them, which he considers the more necessary on account of the dearness of coals and of lead, articles essential for glazing.

The same gentleman states, that the bricks made at Dublin are far from being equal to the English, which are redder, more compact, and more durable; but he observes, that the former are wrought up too hastily, and not suffered to lie long enough to grow close before they are used. He adds, that the brick clays in England, and particularly those of Kent, Surrey, and Middlesex, are always exposed nine months to the air after they are dug up, in order that they may be freed from the vitriolic salts with which they abound. If these salts be not expelled before the clay is baked, they prevent its setting well in the kiln, and communicate to the bricks a quality which renders them apt to moulder and decay. Want of attention to this precaution, he considers as one cause of the badness of the Irish bricks, and their mixture with calcareous earth another.*

Without admitting to its full extent every thing that has been said by some writers in regard to the mineralogical riches of Ireland, it may be safely allowed that it possesses an abundance of mineral and fossil bodies, sufficient to encourage hope, and to excite a greater spirit of enterprise than has hitherto been manifested. A mineralogical survey of the island, therefore, well executed, and accompanied with remarks on the best means of converting the different objects of it to advantage, besides affording much satisfaction to men of science, would, no doubt, be attended with great benefit to the country.

Countries abounding with mines, contain in general a great many springs impregnated with metallic or other particles, which communicate to them various qualities, and this is the case with Ireland. Mineral springs are found in almost every county; they are chiefly chalybeate, and afford a strong proof that iron exists in great plenty. Dr. Rutty has written a learned and elaborate treatise on their medicinal properties, to which I must refer those who are desirous of information on that head. Mr. Dubourdieu, in the Survey of Down, has given an excellent account of the mineral waters in that county. Those chiefly visited by invalids, are Lucan near Dublin; Swadlinbar in the county of Cavan; Johnstown near Urlingford, in the county of Kilkenny; and Mallow, in the county of Cork.

* Rutty's Nat. Hist. of Dublin, p. 26.

CHAPTER VI.

CLIMATE.

IN considering the state and resources of a country, too little attention is paid in general to climate, though it is certain that it has a decided influence not only on its inhabitants, but on those animals and vegetables which serve them as food, and on many things which add to their comfort, and increase their enjoyments. That it affects the health and the spirits, every one feels by daily experience; and that it retards or promotes the growth of trees and plants, according to its degree of mildness, is equally well known. A knowledge of climate, therefore, is highly necessary to enable man to guard against those changes which may prove hurtful to his constitution, and to counteract the pernicious influence it often has in impeding the progress of his agricultural labours.* This knowledge, however, can be obtained only by experience and observation. But climate is so various in different countries, and is subject to so many irregularities, that it is difficult to obtain data sufficiently accurate and numerous to enable the philosopher to deduce from them certain results, and to establish an universal system adapted to all times and places.

Climate differs even in the same country, according to local situation. A hilly district is exposed to rain, while level lands are in general much drier; low valleys, sheltered by hills, are warmer than high lands, the atmosphere of which is always cold and bleak; and places adjacent to the sea coast have a temperature different from those which are more remote. The neighbourhood of woods, lakes, marshes, and large rivers, and the nature of the soil, often produce a wonderful effect in regard to the state of the surrounding atmosphere. Even a single mountain sometimes contains almost all the varieties of climate that exist on the face of the earth. Tournefort found growing on the summit of Mount Ararat, in Armenia, the plants of Lapland; a little lower down he observed those indigenous in Sweden; at a still less elevation he saw the plants common in France; below these the productions of Italy; and at the bottom, the natural plants of the country.†

* "Agriculture is in so improved a state, that half its operations are bestowed on plants, exotic to the country in which they are cultivated. To adapt the management to the change of climate is a necessary attention; for want of it, failures have depreciated articles of culture that otherwise might have proved of considerable importance. Every day's experience gives fresh instances of the vegetables of one climate being naturalized in another. These advances in universal agriculture are rapid, and ought to prevent our despairing of success in attempts which, at first sight, may savour of great difficulty." *Paper on Climate, by Arthur Young, in the Annals of Agriculture*, vol. xxxix. p. 481.

† *Zinn vom Erzeugen der Pflanzen, Hamburg Magazin*, vol. xvi.

In no quarter of the world, perhaps, is the difference of climate arising from difference of elevation more perceptible than in South America, in some parts of which there are plains at an immense height above the level of the sea. Humbolt says, that the plains in the Canton of Berne are not more than from 1312 to 1968 feet in height, and that the former, which he thinks a very moderate elevation, may be considered as that of the greater part of the plains in Suabia, Bavaria, and New Silesia, near the sources of the Wartha and Peliza. In Spain the two Castilles are elevated above 1902 feet; and the highest level in France is Auvergne, which, according to M. de Buch, is equal in elevation to 2360 feet. In Asia, the elevation of the great desert of Cobi, to the north-west of China, exceeds, according to Father du Halde, 5511 feet; and in Africa, by the account of Colonel Gordon, the land from the Cape of Good Hope to the 21st degree of latitude, rises gradually to the height of 6561 feet.*

These heights, however, are far exceeded by those of the elevated plains of Mexico. According to Humbolt, the table land of that country, where the city of Duranga is situated, rises to the height of 6561 feet above the level of the sea.† In South America, the Cordillera of the Andes exhibits, at immense heights, plains completely level; such as the plain of 8413 feet elevation, on which is built the city of Santa Fe de Bagota; of the same kind also is the plain of Caxamarea, in Peru, the ancient residence of the unfortunate Atahualpa, which is in height 9021 feet. The great plains of Antisana, in the middle of which stands the part of the volcano that penetrates the region of perpetual snow, are 13,451 feet above the level of the sea. These plains exceed in height, by 1541 feet, the summit of the peak of Teneriff, and yet they are so level, that the inhabitants of them on viewing their natural soil, have no suspicion of the extraordinary situation in which nature has placed them. But all the plains of New Granada, Quito, or Peru, do not exceed forty square leagues. The inhabitants of these frozen plains remain there concentrated, and dread to descend into the neighbouring regions, where a suffocating heat, prejudicial to the primitive inhabitants of the higher Andes, always prevails.‡

Plains more elevated than the valley of Mexico, the absolute height of which exceeds 8201 feet, possess within the tropics a climate rude and disagreeable even to an inhabitant of the North. Such are the plains of Toluca and the heights of Guchilnque, where, during a great part of the day, the air never becomes hotter than 43° or 46°, of Fahrenheit's scale, and the olive trees bear no fruit, though they are cultivated successfully a few thousand feet lower in the valley of Mexico.§

* Humbolt's Political Essay on the Kingdom of New Spain, vol. i. p. 49. See also Barrow's Travels in Southern Africa, 2d edit. vol. ii. p. 4.

† Humbolt ut supra, vol. i. p. 52.

‡ Ibid. p. 48-86.

§ Ibid. p. 67.

In Mexico the mean heat of the day in the coldest season is from 55° to 57° . In summer the thermometer never rises in the shade above 75° . In general the temperature of the whole land of Mexico is 62.6 , which is the temperature of Rome. At Guyaquil, under a burning sky, the people of colour complain of excessive cold when the thermometer sinks to 75° while it remains the rest of the day at 86° .*

In the greater part of Europe, the cultivation of the soil depends almost entirely on geographical latitude; but in the equinoxial regions of Peru, New Grenada, and Mexico, the climate is modified solely by the elevation of the land above the level of the sea. Lines of cultivation similar to those drawn by Arthur Young† and M. Decandolle, on the horizontal projections of France, can be indicated only on sections of New Spain. Under the latitude of 19° and 22° , sugar, cotton, and indigo, grow in abundance only at an elevation of from 1968 to 2624 feet. European wheat occupies on the declivities of the mountains, a zone which generally commences at 4592 feet, and ends at 9842. The banana tree, *musa paradisiaca*, the fruit of which constitutes the principal food of all the inhabitants of the tropical regions, bears scarcely any fruit above the height of 5084 feet; the Mexican oaks grow only between 2624 and 9842 feet, and the pines never descend lower towards the coast of Vera Cruz than 6068 feet, nor rise nearer to the region of perpetual snow, than the elevation of about 13,123 feet.‡

But besides the difference of climate arising from difference of elevation, there is another more singular, and for which, perhaps, it is not so easy to account. I allude here to that observed between places which lie under the same parallel of latitude. "The provinces called *internas*, situated in the temperate zone, and particularly those included between the latitude of 30° and 38° , have, like the rest of North America, a climate essentially different from that of the same parallels in the old continent. A remarkable inequality prevails between the temperature of the different seasons; German winters succeed to Neapolitan and Sicilian summers. It would be superfluous to assign other causes for this phenomenon than the great breadth of the continent, and its prolongation towards the north pole.§

A great difference is observed between the climate of the country round Pekin, the capital of China, and places lying under the same parallel of latitude in Europe. "In the province of Pe-tche-eli," says Mr. Barrow, "which embraces an extent of climate from 38° to $40^{\circ} 30'$ of north latitude, the temperature is various. In summer Fahrenheit's thermometer is generally above 80° during the day, sometimes exceeding 90° , and in the middle of winter it remains for many days together below the freezing point."|| In another part of his work he remarks, that in the northern pro-

* Humbolt ut supra, p. 67.

† Young's Tour in France, vol. i. p. 307, second edit.

‡ Humbolt ut supra, p. 69.

§ Humbolt's Essay, vol. i. p. 70.

|| Travels in China, p. 553.

vinces of China it is impossible to travel during winter with any degree of ease, convenience, or safety, all the canals to the northward of the Yellow River being frozen up.* This excessive cold is ascribed to the soil being strongly impregnated with nitre, which, in the district around Pekin, may be sometimes seen in the morning covering the fields like a hoar-frost.

A very remarkable alternation of climate prevails in the peninsula of India, where the inhabitants of the two coasts, even under the same parallel of latitude, have contrary seasons. This change of seasons, one of the most singular phenomena perhaps ever yet observed in nature, is ascribed to the Gauts, the highest ridge of mountains in the country. On the coast of Coromandel the summer begins in June, but on the coast of Malabar it does not commence till October. During the latter month it is winter on the coast of Coromandel, whereas, on the coast of Malabar it begins so early as the 15th of June. The same season, therefore, always commences on the east coast at the time when it ends on the western. When winter prevails on the coast of Malabar, when the mountains and valleys are shaken by tremendous claps of thunder, the sky is pure and serene on the coast of Coromandel; the inhabitants get in their rice harvest and carry on trade with various foreigners, who in abundance frequent their shores. But when the wet season commences, and these districts are exposed for three whole months to continual hurricanes, the coast of Malabar opens its ports to the navigator, secures to its inhabitants the advantages of trade, labour, and enjoyment; and from the end of October to the end of June, presents a favourable sky, the serene aspect of which is never deformed by a single cloud.†

This phenomenon, whatever may be the cause, extends also to the island of Ceylon. "When the west winds blow," says Knox, "the western parts of the island have rain, and this is the season for tilling the land. That part of the country lying towards the east, enjoys then dry weather, and the people are employed with their harvest. On the other hand, when the east wind prevails, the inhabitants of the eastern side of the island cultivate their land, and those on the western gather in the fruits of the earth. Harvest and seed time occupy, therefore, the whole year, though at opposite seasons. The rain of the one side, and the drought of the other, are generally separated in the middle of the island; and I have often experienced rain on one side of the mountain Cauragahing, while it was exceedingly warm and dry on the other."‡

Some countries are remarkable for great and sudden changes of temperature, and others for a singular uniformity in the gravity of the atmosphere. In West Florida

* Barrow's Travels in China, p. 513.

† Bartolomeo's Voyage to the East Indies, London, 1800, p. 3, 4.

‡ Voyage de l'Isle de Ceylon, Amst. 1693, vol. i. p. 10.

the thermometer will rise or fall sometimes 20° in the course of a few hours, and at others not 2° in many days, the extremes being at least from 17 to 98 degrees of Fahrenheit's scale; yet the sky in that country is uncommonly serene, especially when the winds are northerly.* On the coast of Guinea the state of the barometer is always nearly the same. The mercury generally stands at the height of 29½ inches as unalterably as if it were fixed. A Danish traveller who resided there some time in 1783 and 1784, says, that in the course of six months he never saw it vary one-tenth of an inch, and therefore he did not think it necessary to introduce the height of the barometer in the meteorological journal he has given. A similar regularity is remarked in the wind, which almost always blows from the west: in the day-time it veers a little to the south, and in the night to the north; the former is called the sea-breeze, and the latter the land-breeze. In the time of rain it is easterly; but when the rain ceases it returns to its usual place.†

That climate has a very striking effect, not only upon the physical constitution of man, but also on his intellectual qualities, was long ago known to the ancients. Plato, alluding to Athens, says that Minerva, when she founded it, selected a spot where she thought the temperature of the air best calculated to produce wise and prudent men.‡ The climate of Athens was mild, and the atmosphere pure and serene, and to this was ascribed the genius and vivacity of the Athenians, who distinguished themselves in literature and the arts more than any of the other people in Greece. At Thebes, which was distant only a day's journey, the air was thick and heavy, and the inhabitants were accounted so exceedingly stupid and dull,§ that it became proverbial to say of a man void of genius, that he had been born in the thick air of Bœotia. ||

The most perceptible effects which climate has on the human species, are those ex-

* Paper, by Dr. Lorimer, in *Transact. of the American Phil. Soc. of Philadelphia*, 1771, vol. i. p. 251.

† *Reise na Guinea en de Caribische Eilanden door*, P. E. Isert. Dordrecht, 1790, p. 341, 342.

‡ Ταυτην εὖν δὲ τότε ξύμψασα τῶν διακόμισιν καὶ σύνταξιν ἡ θεὸς προτέρως ἡμᾶς διακομψασα κατόκησιν, ἐκλεξαμένη τῶν τόπων ἐν ᾧ γηγένῃσι, τῶν ἰκρασῶν τῶν ὄρων ἐν αὐτῷ κατιδούσα, ὅτι φρονιματώτους ἀνδρᾶς ἦσιν.

Plato in *Timæo* in *Op.* edit. Ficini. Franc. 1602, p. 1044.

§ Inter locorum naturas quantum intersit, videmus; alios esse salubres, alios pestilentes: in aliis esse pituitosos, et quasi redundantes, in aliis exsiccatos, atque aridos: multaque sunt alia, quæ inter locum et locum plurimum differunt. Athenis tenuæ cælum, ex quo acutiores etiam putantur Attici: crassum Thebis; itaque pingues Thebani et valentes. *Cicero de Fato*. Opera. Oxon, 1810, vol. vi. p. 609.

|| Bœotum in crasso jurares aere natum. *Horat. Epist. lib. ii. ep. 1.*

Dicæarchus describes the Thebans as a bold, haughty people, ready to lift their hand against any one without distinction, whether a native or foreigner: Θερασιῶς δὲ καὶ ὑβριστῶν καὶ ὑπερήφανων, πλεῖστα τε καὶ ἀδιέφοροι πρὸς πάντα ξένοι αἰετὸν ἀνέμῳ, καταναλισκόμενοι πάντος δικαίου.

Dicæarchi Status Græcia in Hudsoni, Geog. Vet. Script. Græc. minor, vol. ii. p. 14.

Cornelius Nepos says of them in the Life of Alcibiades: omnes enim Bœotii magis firmitati corporis quam ingenii acumen inserviunt; and again, in the life of Epaminoudas, he observes: Namque illi genti plus virium quam ingenii.

ternal ones observed chiefly in the colour of the skin and in the texture of the hair. I am well aware, that writers of some eminence have denied this influence of climate, but as their arguments have been already sufficiently answered, I shall only mention two facts, which appear to me of some importance. Benjamin of Tudela asserts expressly, that his countrymen, the Jews, settled in Abyssinia, had become as black as the natives of the country;* and Caldanus, an Italian physician, saw at Venice a negro brought to that city, when a child, who by a long residence in the colder climate of Italy, had lost so much of his colour that his skin appeared yellowish.†

In tracing the various countries from the arctic circle to the equator, we find them marked with considerable regularity by the colour of the inhabitants, which always becomes darker the nearer we approach to the equator. In the most temperate latitudes of the continent of Europe we meet with a ruddy and sanguine complexion, combined in general with various shades of redness in the colour of the hair. A clearer mixture of red in white is then observed, and this is succeeded by the brown; we then find the swarthy, and crossing over into Africa, the tawny, increasing by deeper and deeper shades towards the hottest temperature of the torrid zone. In the Asiatic continent we pass at once from the fair to the olive, and thence by various gradations in the darkness of the hue to the black colour, which prevails in the southern provinces of the peninsula of Arabia and India. The same distance from the sun, however, does not in every region indicate the same temperature of climate. Elevated and mountainous countries, in proportion to their altitude above the level of the sea, ascend towards the region of the atmosphere which is the seat of perpetual cold. The clouds being arrested in their course by high mountains, not only dissolve into frequent rains, but spread their cool shades over the valleys which lie between them. Deep bays and arms of the sea, running far within the land, contribute also to temper the heat as well as the cold of the climate, and in general islands enjoy a milder temperature than continents placed at the same distance from the sun. Vicinity to the ocean produces opposite effects in high northern latitudes, and in those near the equator; for this great body of water being of a more equal temperature than the land, corrects in one case the cold, and in the other moderates the heat.‡

The nature of the soil, likewise, and the state of cultivation in different countries, create some variation in the temperature of the climate. Sand is susceptible of a much higher degree of heat from the rays of the sun, and retains it longer than clay or loam, and an uncultivated region, shaded with forests and filled with undrained

* Voyage de Rabbi Benjamin fils de Jona de Tudele, par Baratier, Amst. 1734, 2 vols. [Dans tout ce pays il y a environ cent Juifs; ces Juifs sont aussi noirs que les autres habitans, t. i. p. 297.

† Caldan Institut. Physiolog. Patav. 1773, p. 194.

‡ Smith's Essay on the Variety of Complexion, &c in the human figure, p. 38.

marshes, is more frigid in the northern, and more temperate in the southern latitudes, than countries exposed to the free action of the solar influence. In winter, the moisture of the atmosphere is congealed into more abundant snows, and in summer it descends in more frequent and copious showers of rain.

Hence, though it appears that there is a general ratio of temperature prevailing over the whole globe, according to the degree of latitude, and that a general resemblance may be traced in the complexion of nations inhabiting the same latitudes, these effects are greatly modified in different countries by a combination of various secondary causes, and the whole human appearance is still more diversified by the state of society in which different tribes exist, and also by their manner of living.*

The hair and wool of animals is greatly affected by the difference of climate. The beaver, removed from the frozen regions of Upper Canada, to the warm latitude of southern Louisiana, exchanges its delicate fur for a much harsher substance, which preserves the body of the animal in a more comfortable temperature. A similar change has been observed in the wool of sheep, removed from Europe to the islands of the West Indies. It loses its woolly nature, and is converted into a kind of hair, as straight and as coarse as that of the camel. By these means the animal is fitted to endure the intense heat of the sun, which otherwise would become intolerable. The fineness and density of the hair or wool of most animals, is increased in proportion to the prevalence and intensity of cold. Hence the excellence of Canadian and Russian furs, and the fineness of the wool of the sheep of Thibet.

The colour of the hair also seems, in many instances, to be affected by the temperature of the climate. The bear becomes white beneath the arctic circle, and black foxes are found only in the coldest latitudes. Nations likewise are found to be distinguished by some peculiar quality of this excrescence. The hair of the Danes is generally red, of a lighter or deeper shade. That of the French is commonly black; and the most frequent among the English is fair and brown. The great variety which is seen in the hair in England, may be ascribed to the uncommon mixture of nations which has taken place in it, either from early migrations, or the successive conquests to which it has been subjected.

The head of the tropical Africans is covered with a substance like wool, in consequence of the excessive heat of the vertical sun, acting upon sands which glow with an ardour unknown in any other quarter of the globe. Among the Highlanders of Scotland the predominant complexions are black and red. Red hair is likewise frequently seen in the cold and elevated regions of the Alps, while black prevails in the warm vallies at the foot of them, except along the northern frontier, where it borders on the German empire. The aborigines of America have univer-

* Smith's Essay, p. 42.

sally black hair, which is straight, and grows in a thick coat upon the head. The most frequent colour of the human hair is black, because those climates which are favourable in the highest degree to the multiplication of the species, tend also to create different shades of dark complexion.*

The crisped form of the African hair arises chiefly from certain secretions, which being deposited in the cells of the skin, become the nutriment of that excrescence; yet something may be ascribed also to the excessive heat of the sun in that burning district.† Africa is the hottest country on the face of the earth. The ancients, who frequented the Asiatic regions without fear, esteemed Africa uninhabitable on account of its heat; and modern travellers who have explored the interior of that continent, inform us, that although on the borders of the rivers Gambia and Senegal, and for some distance on each side, there are shady forests and fertile soil, yet almost the whole region, comprehended between the tropics, is one continued tract of scorching sand, on which it is painful to tread. In Africa alone do we find that exceedingly short and close nap which distinguishes the inhabitants of the western tropical region of the continent. The hair, as well as the whole constitution, is there affected by the burning heat which almost incessantly prevails.‡

The inhabitants of intensely cold countries seem to be marked by great deformity of person; the human stature is there reduced from its usual standard to a dwarfish size. The people have large heads, raised shoulders, and short necks. Their eyes are small, and in consequence of the great projection of their eye-brows, they appear to be sunk in the head. The nose is short, the cheeks are elevated, and the whole expression of the countenance is harsh and uncouth. All these deformities are observed as we proceed towards the pole, in the Lappish, the Borandian, and the Samoiede races, which, according to Buffon, are only Tartars reduced to the last degree of degeneracy. A race of men resembling the Laplanders in many of their lineaments, is found in a similar climate in America. The frozen countries round Hudson's Bay are as cold as Lapland or Kamschatka. The few wretched natives who inhabit these dreary and inhospitable regions do not exceed five feet in height; they have large heads; their eyes are small and weak, and their hands and feet are remarkably diminutive.

These effects are the natural consequences of the extreme cold of the climate, combined with the hardships to which they are daily exposed in these frozen and sterile regions; from the scantiness and poverty of their food, and the total want of every art by which they might protect themselves from the rigour of a polar winter.§

A moderate temperature of climate contributes to give tone and vigour to the body, and expand it to the largest volume. Extreme cold produces a contrary effect, and not only the animal system, under the constriction of perpetual frost, is irregularly

* Smith's Essay, p. 88.

† Ibid.

‡ Ibid. p. 97.

§ Ibid. p. 101.

checked in its growth, but the same influence is extended to every vegetable production.*

If the cold in the frigid zone gives to the countenance a harsh and strong appearance, the agreeable warmth of the atmosphere in the middle regions of the temperate zone dispose the body to more free expansion, and open the features into the most pleasing and regular proportions. Hence in Greece, Georgia, Circassia, the countries between the Euxine and the Caspian seas, and other districts distinguished by their peculiar mildness, the human form is so often seen to display those beautiful proportions † which most nearly correspond with the perfection of shape originally given to man by his Creator. ‡

“Man,” says an elegant philosophical writer, “is qualified to subsist in every climate, and it appears certain, that no animal is capable of sustaining so great a degree either of heat or of cold. § The temperate climates, however, seem to be most favourable to his nature, and to whatever cause it may be owing, it is in these that he always attained to the greatest degree of perfection, both moral and physical. The arts which he has on this scene repeatedly invented, the extent of his reason, the fertility of his fancy, and the force of his genius, in literature, commerce, policy,

* Smith's Essay, p. 102.

† Ibid.

‡ Chardin says, that in Georgia he saw the most beautiful people of all the East, and, perhaps, of the world. I have never observed, says he, one homely countenance of either sex in that country. Nature has shed upon the greater portion of their women graces no where else to be seen. *Chardin*, vol. i. 112, 171.

§ The greatest degree of natural cold was that experienced by the elder Gmelin, in 1735, at Yeniseisk, in latitude 85° north, and longitude 110° east, from Fero. It set in so strong in January, that the mercury fell to 126° below zero, that is, according to Fahrenheit's scale, under the degree of cold produced by a mixture of sal-ammoniac and ice. The small birds dropped dead from the atmosphere, and every thing capable of freezing was transformed into ice. According to Pallas, the cold was so great on the 7th of December, 1772, at Krapnoyarsk, in latitude 56° and longitude 110°, that the mercury fell to 80° below zero. But this was not the greatest degree of cold, for, as the scale extended no lower, the quicksilver descended into the bulb, and became a solid body. Nay, a whole mass of well-purified quicksilver, exposed to the open air, froze to such a degree that it could partly be hammered.

The greatest degree of heat seems to be that experienced by the negroes on the coast of Guinea. Adanson found the thermometer, at Senegal, in latitude 17° north, to stand in the shade at 108½ degrees of Fahrenheit. Izert says, that he experienced the greatest heat on the Rio Volta, on the 20th of February, 1784, when the thermometer, in an open apartment exposed to the north, stood at noon at 91°, but being carried into the sun, it rose, in a quarter of an hour, to 130°. In the month of March the same year, and at the same place, it stood several times in the shade at 93½ degrees, and in the sun rose to above 134°. *Zimmerman's Geographische Geschichte des Menschen*, vol. i. p. 33, 38. *Lert's Reise na Guinea*, p. 342.

“There is nothing more wonderful than the extremities which man is capable of enduring through the power of habit. The Finnish peasants pass instantaneously from the atmosphere of 70 degrees of heat, to one of 30 degrees of cold: a transition of an hundred degrees, which is the same thing as going out of boiling into freezing water, and what is more astonishing, without the least inconvenience.” *Acerbi's Travels through Sweden*, 1802, vol. i. p. 298.

* By the Scale of Celsius.

and war, sufficiently declare either a distinguished advantage of situation, or a natural superiority of mind.*

“ In the extremes of heat or of cold, the active range of the human soul appears to be limited; and men are of inferior importance, either as friends or as enemies. In the one extreme they are dull or slow, moderate in their desires, regular and pacific in their manner of life; in the other they are feverish in their passions, weak in their judgments, and addicted by temperament to animal pleasure. In both the heart is mercenary, and makes important concessions for childish bribes; in both the spirit is prepared for servitude; in the one it is subdued by fear, in the other it is not roused even by its sense of the present.”†

A learned physician, who has written an ingenious essay on these effects of climate, accounts for them in the following manner :

“ Heat, when applied in any great degree to the human body, excites the action of the nervous system in general, and particularly of the cutaneous nerves, most exposed to its influence, so as to render them more susceptible of any impression. If the heat be long continued, it produces on the skin a moisture called perspiration, which, by relaxing the cuticle, keeps the subjacent nervous papillæ in a supple state, and obvious to every impulse. By heat, also, the disposition of the body and juices to putrefaction is much augmented. Cold, on the contrary, in similar circumstances, corrugates or wrinkles the cuticle, and causes the cutaneous papillæ to contract and to retire deeper into the skin. It closes also the orifices of the cutaneous glands, and thus prevents the access of any irritating substance. By contracting the nervous papillæ it diminishes perspiration, and perhaps renders the perspirable matter more viscid; hence the cuticle becomes drier and more rigid, as well as considerably thicker, and by these means the accuracy of sensation or feeling is much diminished.‡ The bodily strength is also greater; the bulk of the body is larger, and its humours are much less disposed to putrefaction.”§

From these effects of heat and cold upon the body, says the author whom I have just quoted, much of their influence on the mind may be explained. Heat increases the faculty or power, as well as the accuracy of sensation or feeling. This sensibility of the body is communicated by sympathy to the mind; and hence that high degree of the former which prevails in hot climates, and which indeed is so great as to be scarcely conceivable, except by those who have felt it.||

The inhabitants of hot climates, therefore, are disposed to be passionate, litigious,

* Ferguson's Essay on Civil Society, part iii. sect. i. p. 182.

† Ibid, p. 188.

‡ Mr. Winslow remarks, that the insensible perspiration is always greatest where the feeling is required to be more accurate, as in the palms of the hands, insides of the fingers, &c. *Winslow's Anatomy*.

§ Remarks on the Influence of Climate, &c. on Mankind, by W. Falconer, M.D. F.R.S. p. 5.

|| Falconer on Climate, p. 6.

and revengeful, as is particularly observed among the Italians in Europe, and some of the negro tribes in Africa; their attachment for the other sex is likewise increased, and on that account, the jealousy which attends love, is always remarked as a part of the character of these people.

Another characteristic of the natives of hot climates is cowardice, or timidity. The cowardly disposition of the inhabitants of the East is well known: an hundred Europeans, says Tavernier, could, without difficulty, beat a thousand Indian soldiers. Xenophon also tells us, that the Asiatics in his time would not fight, unless in company with Greek auxiliaries.* Even the children of Europeans born in the Indies lose the courage peculiar to their own climate. Livy observes to this purpose, that the same holds true of men, that does with respect to other animals, and to vegetables, that the particular nature of the seed is not so powerful in preserving the perfection of the produce, as the nature of the soil and climate under which it was bred, are in changing it; and he instances this in the Macedonians, whose descendants possessed Egypt, Syria, and Babylon, who had all degenerated to an equality with the native effeminate inhabitants of the country, and who would prove as easy a conquest to the Roman arms.†

Indolence is a feature also in the character of these people, and must have been remarked by every one who has resided in a hot climate. The natives of Cochin are proud and lazy; those who have no slaves hire one, if it be only to carry a quart of rice a hundred paces; they would be dishonoured if they carried it themselves.‡ In many places people let their nails grow, that every one may see that they do not work. A similar disposition prevails throughout all the East. Idleness may by many be considered as a vice in itself, but its most fatal consequences often arise from the facility it affords for evil propensities to enter the human mind.§ What then must be the state of morality ¶ in a country where the greater part of the people have no work, employment, or calling, to occupy their thoughts, and no idea of intellectual entertainment? The reverse is no less true. "Oblige men to work," says the elegant and spirited commentator on the Marquis Beccaria, "and you certainly make them honest." It is well known that atrocious crimes are not committed in a country, unless when there is too much holiday, consequently too much idleness, and of course too much debauchery.¶

Perfidy and inconstancy are ascribed likewise to the people of warm climates, and they are said to be remarkable for these vices even to a proverb. Livy observes, that the people of Africa are inconstant in their expectations, and faithless in their

* Cyropædia.

† Dampier's Voyages, vol. iii.

‡ Livy xxviii. Speech of Manlius to the Soldiers.

§ Ulloa's Travels, book v. chap. 5.

¶ See an excellent paper on the tendency of Idleness to produce Vice, in the Rambler, No. 85.

¶ Falconer, p. 33.

dispositions.* A similar character is given of them by Virgil,† and Cicero;‡ and we are told by Sallust, that they were to be restrained neither by hope nor by fear.§ “The same reproach is thrown out against the Syrians and Asiatic Greeks in another place by Livy,|| and confirmed by Vopiscus.¶

In cold countries, as the power of feeling is blunted and the sensibility of system in general diminished, the natives are little subject to emotions of passion, and indeed difficult to be excited on any occasion. This diminution of sensibility contributes to render them less timid. The resolution of the northern nations in despising the fear of death, was remarked by several of the ancients, and particularly by Lucan.** Strabo, however, seems to hint, that the courage of these people was rather of the passive kind, since he observes, that the northern nations were famous in close fights, and for persevering courage.††

Dr. Falconer says, that one cause of the superior courage of the people of cold climates may be derived from the habit of labour, exercise, and industry, inspired by the climate. Hippocrates observes, that “idleness and leisure increase and favour a cowardly disposition, but that manly courage is the produce of labour and exercise.”‡‡ The strength also acquired gives them an idea of security which the inhabitants of hot climates do not possess, as a sense of their debility inspires an apprehension of danger.§§

Cold climates are favourable to bodily exertions and exercise, but they seem to produce in their inhabitants an inclination to indulge in the use of strong liquors. According to Tacitus, the Germans were accustomed to consult over their cups, and during their entertainments, concerning the reconciliation of enmities; the contraction of marriage; the choice of princes or chiefs; and even to deliberate in regard to war and to peace.|||| Montesquieu remarks, that this vice, though with some exceptions, predominates throughout the world in proportion to the coldness and humidity of the climate.¶¶ Drunkenness, however, is much less culpable in a cold climate than a hot one, as in the former, the hospitable disposition of the people, and the necessity of the use of strong liquors to a certain degree, may naturally lead to it. Drinking also is less criminal in cold countries, because its effects are there less pernicious both to the individual and to society. In a hot climate a drunken man is absolutely frantic; but in a cold one, it renders him heavy and stupid.***

* Lib. iii. § 5, lib. xxxvi. § 17. † *Aeneid*, lib. i. ‡ Carthaginenses fraudulentii et mendaces.

§ Bell. Jugurth. de Numidia loquens. Modern writers give the same account of them

|| *Hic Syri et Asiatici Græci sunt levissima genera hominum*, lib. xxxv. v. 17.

¶ *Raro est ut fidem servant Syri, immo difficile*. Aurelianus. *Vop.*

** *Pharsal*, lib. i.

†† Strabo, lib. iv.

‡‡ Hippocrates de aeribus, aquis, et locis, § 54.

§§ Falconer, p. 18.

|||| Tacitus says, the Germans practised this vice chiefly in company. § *De Mor. Ger. cap. xxi. xxii.*

¶¶ *Esprit des Loix*, Liv. xiv. ch. 2.

*** Falconer, p. 37.

Gaming seems also to be a vice of cold climates. We are told by Tacitus, that the ancient Germans were passionately addicted to it,* and it is said to be still prevalent among their modern successors.† According to St. Ambrose, it was common likewise among the ancient Huns. "The Huns," says he, as we are informed, "acknowledge no laws, and yet they submit to those of gaming. They are always ready to play, even when they have their foot in the stirrup. They constantly carry dice about with them, and preserve them with as much care as their arms, and more of them lose their lives in quarrels which originate from gaming, than by the hands of the enemy." He adds, "they pride themselves so much on gaming, that when they have lost their arms, articles on which they set the highest value, they expose their lives to the cast of a die, at the mercy of him with whom they play, or of those who lend them money to game with. In a word, it is certain, that one of them, known to a Roman emperor, having thus lost his liberty at play, was so honourable, that he paid the debt by submitting to a cruel death, to which he was doomed by the winner."‡

The Canadian savage is said to be very fond of gaming,§ as it affords an interesting occupation to him in the intervals of war and hunting, and serves to dispel that indolent disposition which the usual affairs and transactions of life have not sufficient stimulus to effect.||

That the people in cold climates should be fond of gaming needs excite no wonder, and may be accounted for in a very simple manner. Condemned to live under an inhospitable sky, where the nature of the weather and the shortness of the day prevent them from pursuing their ordinary labours, some occupation becomes necessary to amuse the mind and keep it alive during this general state of inaction. In the long winter evenings, in particular, they must find themselves much at a loss how to fill up their time without falling into languor or sleep. Ingenuity, therefore, is employed to devise the means of making the heavy hours pass lightly away, and these means will be different according to the disposition of those who require them.¶ Among

* De Moribus German, cap. xxiv.

† Falconer, p. 35.

‡ Ambrosius de Tobia, chap. xi. Barbeyrac Traité du Jeu, lib. iii. ch. v. § 17, p. 295.

§ Laftau Mœurs de Sauvages. Cherlevoix's Hist. of Canada. Carver's Travels, p. 244.

One of the most singular kinds of gaming is that said to have been formerly practised among some of the people of Thrace; a rope was suspended at a certain height, and exactly below it was placed a stone, which turned on a pivot; those who played at this desperate game, then cast lots who should first mount the stone, and he on whom the lot fell, holding in one hand a bill, put his neck into a noose made in the rope; another then caused the stone to whirl round, so that if the person in the rope was not speedy and dexterous in cutting it, he was in great danger of being strangled. The author who relates this circumstance, adds, that the spectators only laughed, considering the death of a man as mere amusement.'

|| Falconer, p. 35.

¶ Sed ut homines, labore assiduo et quotidiano assueti, cum tempestatis causa opere prohibentur, ad pilam se, aut ad talos, aut ad tessaras conferunt, aut etiam novum sibi ipsi aliquem excogitant in otio ludum sic, &c. Cicero de Oratore, lib. iii. cap. 15, in op. edit. Oxon, 1810, vol. i. p. 387.

§ Καὶ ἐν ἄλλοις γιγῶσι, παιδία ἔχουσι; τὸν ἐκείνη θάνατοι. Athenæus, lib. iv. p. 155. Barbeyrac, *ibid.* §. 2. This game was called the game of hanging: ἀγγόνη παιζίω.

the Icelanders, one of the most useful ways of spending idle time is that of reciting or reading passages from old sagas, or histories in verse, a custom which has been long prevalent in that country. These people play also at cards, but their favourite amusement seems to be chess, with which they are well acquainted, and though at present they do not play for money, it appears that in the eleventh and twelfth centuries, when money perhaps was more abundant, playing for money or for articles of value was carried to a very great excess, since it is expressly forbidden by some of the old laws.* Chess also is common in Russia: a celebrated traveller says, that during his continuance at Moscow, he scarcely entered into any company where parties were not engaged in that diversion; and in passing the streets he frequently observed the tradesmen and common people playing before the doors of their shops or houses. The Russians are esteemed great proficients at this game;† and the case is the same with the people of the Feroe Islands, who at some seasons of the year have the same need of amusement.‡

If we examine the character of the people of temperate climates, it will be found to be of a mixed kind, “though considerably more inclinable to virtue, at least the practical part of it, as far as regards external actions, than those of hot ones. Their greater acquaintance with the nature of trade, and the necessity of mutual confidence, especially in large concerns, renders them less knavish and deceitful. Their consciousness of superiority, both in courage and in military science, makes them less cruel, and their sense of the necessity of decent conduct and behaviour, to preserve the police and form of government, prevents scandalous or open violations of morality.”§

In regard to intellectual qualities, the same causes which sharpen or blunt sensibility, give a peculiar turn to the powers of the mind, and hence the literary productions of the south have always displayed abundance of fancy and imagination; as a proof of this we need only refer to the Persians, who, according to Le Brun, love poetry above all things,* and are fond of exhibiting in it the most lively and brilliant images. The case is the same with the Arabs: Leo mentions some at Fez, who were accustomed to recite verses in honour of Mahomet on a certain day, and he who recited the best was the chief of the poets during that year.||

The sensibility and vivid imagination of hot climates has been favourable also to discoveries, and we find that many of the most useful inventions of life were originally derived from the Orientals. One thing, however, peculiar to these climates, is the early

* Olafsen's und Povelsen's Reise durch Island, Kopenhagen, und Leipsic, 1774, vol. i. p. 26. See also p. 245, where their method of playing is described.

† Coxe's Travels in Poland, Russia, Sweden, and Denmark. Fifth edit. 1802, vol. i. p. 384.

‡ Landt's Description of the Feroe Islands, p. 398.

§ Falconer, p. 40.

|| J. Leonis Africæ Descript. Elzevir, 1682, p. 332.

development of genius, and its early decline. This is universally observed, and is particularly remarked in South America, where it is supposed to have a bad effect on the moral character, by making young people early acquainted with vice, and giving them a taste for its allurements before their judgment is sufficiently matured to perceive its mischievous consequences.* Though this fact is well established, it would perhaps be difficult to account for it in a satisfactory manner.

If the inhabitants of the northern districts of the earth have a less fervid imagination than those who enjoy the benefit of a warmer sun and a serener sky, they are better fitted, perhaps, for the study of those sciences which are most useful to mankind. England produced a Newton, and the shores of the Baltic gave birth to a Copernicus, a Tycho Brahe, and a Kepler. The inhabitants of cold climates have never been celebrated for their inventions, but they have improved many, and brought them to a state much nearer to perfection than that in which they received them.

Though much irregularity must prevail in the effects produced by climate, because it will always be combined with other causes either favourable or unfavourable to its operation, it is certainly worthy of attention, and particularly to such empires as Britain and Russia, whose extensive dominions are inhabited by people subject to the influence of almost every temperature.†

The influence which climate has on the health and animal spirits has been long known and experienced. The air of some districts is so mild and favourable to life, that the valetudinarian finds himself often revived, when he removes to them from his own more inclement atmosphere. Lisbon, Nice, Montpellier, and other places in the southern parts of Europe, have been much celebrated on this account; and even in Britain a very striking difference prevails between the fens of Lincolnshire or the marshes of Essex, and some districts in the county of Devon, where the air is said to be more salubrious and pure.

Of the noxious effects of climate we have melancholy instances in abundance. In this respect our own West India islands may be justly styled the grave of our soldiers and sailors, who are there cut off every year by thousands; of the British army stationed in these islands, amounting to 19,676 effective men, there died in the course of seven years, from 1796 to 1802 inclusive, 17,173, besides 590 officers.‡

In May 1796, the thirty-first regiment, then in St. Lucia, was 776 strong, but by November, that is, in less than seven months, fifteen only were returned fit for duty. In the same island the forty-fourth, forty-eighth, and fifty-fifth regiments, together with

* Ulloa's Voyage, vol. iv. p. 92, edit. 4to, 1726.

† Those who wish to see the subject fully examined may consult Dr. Falconer's Essay, who has discussed it at full length.

‡ From regimental returns collected by John Sawyer, Esq. commissary in the Windward and Leeward Islands during that period.

the York Fusileers, which in May, 1796, were all strong regiments, lost within the year the far greater part of their men. In Grenada, from June 1796, to February 1797, the twenty-seventh regiment lost 20 officers and 516 men. In the same island, and within the same period, the fifty-seventh regiment lost 15 officers and 605 men.*

These are only a few of the instances which might be produced of the destructive mortality occasioned by the influence of climate, and yet this subject, of so much importance to every state that possesses extensive and remote colonies, is strangely neglected. Had those who planned the attack on Walcheren been properly acquainted with the nature of that island, the unfortunate expedition fitted out against it would certainly not have sailed from our shores, or at any rate, would have been dispatched at a less unfavourable season.

Holland, being flat as well as damp, the air stagnates, and becoming charged with watery vapours, gives rise to different kinds of fever, which generally attack strangers unaccustomed to the climate.† The case is the same with a district in Holstein, called Ditmarsch. Moist winds and foggy calms are here very prevalent, with intense cold in winter and excessive heat in summer; yet the land is exceedingly fertile, and will produce crops for sixteen years in succession without any manure.‡

This last circumstance accords with an observation of Humboldt, who says, speaking of the kingdom of New Spain, "the declivity of the Cordillera is exposed to humid winds and frequent fogs, and the vegetation, nourished with these aqueous vapours, exhibits an uncommon beauty and strength. The humidity of the coasts, assisting the putrefaction of a great mass of organic substances, gives rise to maladies to which Europeans and others, not seasoned to the climate, are exposed; for, under the burning sun of the tropics; the unhealthiness of the air almost always indicates extraordinary fertility of soil. Thus, at Vera Cruz, the quantity of rain which falls in a year is 63·78 inches, while in France it scarcely amounts to 37·496."§

Batavia, in the island of Java, furnishes an instance of a climate highly deleterious to European constitutions, though the country in general is said to be

* Sir William Young's West India Common-Place Book, p. 218, 223.

† A Dutch writer, speaking of climate, says: Unde civitates loco insalubri sitas, ubi aer nebulosus, putris et pestilens, brevi concidisse videmus. Sic Alexandria Ægypti civitas olim florentissima: at quia loco insalubri posita et aer ejus propter viciniam paludis Mareotidis pene pestilens hodie nonnisi magna solitudo est. Sic Illyricum, Dalmatia, hodie pene desolatæ regiones sunt ob aëris insalubrem constitutionem. Fateor interdum lucri cupiditatem etiam loca insalubria facile perferre: cuncta enim mala et pericula spernit ac superat avaritia. Quemadmodum vicina nobis Amstelodamum. *Geor. Hornii Hist. Nat. et Civil. Lugd. Bat. 1670*, p. 267.

‡ L. M. Medel's Indenlanske Reise igjennem de Danske Provindser. Kiøbenhavn, 1803. *Første Hefte*, p. 64-66.

§ Humbolt's Essay, vol. i. p. 78.

healthy. This place, formerly the capital of the Dutch Indian settlements, is situated in the midst of swamps and stagnated pools, whence "a congregation of foul and pestilential vapours" arise every morning whenever the sea breeze sets in. The meridian sun also raises into the air, from the shallow and muddy canals with which the town is intersected, infectious miasmata, and the trees with which the quays and streets are crowded emit noxious exhalations in the night.* It is supposed, that of the Europeans of all sorts who come to settle at Batavia, not always half the number survives the year. † "As a proof of the bad effects of the climate upon both sexes, a lady told one of the gentlemen who accompanied Lord Macartney, that out of eleven persons of her family who had come to Batavia only ten months before, her father, brother-in-law, and six sisters, had already paid the debt of nature." ‡ It is stated likewise, "that one of the counsellors of the Indies, after mentioning all the pains taken by him and his colleagues for guarding the settlement against external attacks, frankly acknowledged, that their chief dependance was upon the havoc which the climate was likely to make among the enemy's forces." §

This colony is now in possession of Britain, and I sincerely trust, if there be any intention of retaining it, that the city will be razed to the foundation, and the seat of government transferred to some healthier part of the island. The Roman empire never betrayed symptoms of decline till its territories were extended from the cold shores of Britain to the burning regions of India. The extremities became then too large for the body, which being thus debilitated sunk under its cumbrous load, never more to rise. Happy would it be for nations did their governments profit by the examples afforded by history, and avoid in time those fatal measures which have invariably produced weakness, and hastened the downfall of Empires! The effects which climate has on the vegetable kingdom are no less striking than those which it has on man. The cold districts of the polar region furnish no vegetable useful as food, and the wretched inhabitants are reduced to the necessity of employing as a part of their sustenance the bark of the fir tree. || Pallas says, "that under the latitude of 68° north, the birch and the ash disappear, and even the tall fir and larch, so common in cold climates, assume a stunted and dwarfish form." ¶ In the

* Lord Macartney's Embassy to China, vol. i. p. 242.

† Ibid. 244.

‡ Ibid. 245.

§ Ibid. 253.

|| The inhabitants of Utsioko pastorate in Swedish Lapland, which lies between 69° 22' and 70° 4' north latitude, collect in summer the inner bark of the fir tree, and store it up to supply them with food in winter. They tear it off from the tree in thin strips, hang it up to dry in their huts, and when they use it they cut it very small, together with the tallow of the rein deer, and boil it for some hours into a kind of soup. They have recourse to this food even in summer, when they are not able to procure fish. *Geog. och Ekonomisk Beskrifning om Kemi Lappmark af S. G. Hermelin*, Stockholm, 1804, 4to, p. 48, 49.

¶ Reise durch Russland, vol. iii. p. 21.

year 1803 there were numbered in the latitude of 56 degrees, 196,097 oaks above 24 inches in diameter, but under the latitude of 59 only 97 of that size.* "The 60th degree," says Storch, "may be considered as the line beyond which it is impossible to improve the land by agriculture." According to the account of Pallas, the inhabitants north of Demiansk, a village in the government of Tobolsk, lying in about latitude $54^{\circ} 30'$, cultivate nothing but barley or oats, or at most a little summer grain; hemp or flax is seldom sown there, and in the course of three years there is scarcely a moderate crop. The cabbages never form heads, but sprout out into loose green leaves. Farther to the east the country under the same latitude is still more unfit for agriculture. Repeated experiments made at Ochotzk, between lat. 59 and 60° , and at Udskoi Ostrog, in lat. $55^{\circ} 20'$, prove that the summer there is too short; that the earth continues too long frozen in spring, and that the night frosts set in too early in autumn, to allow of any hope that grain can ever be cultivated with advantage. Even in Kamtschatka, the southern extremity of which lies only in about lat. 51° , similar attempts have been attended with very little success. In the western part of the Russian empire, even under the latitude of 60° , corn and garden productions can be reared with very great difficulty.†

Of all the phenomena attending climate, none are more useful, and at the same time more destructive, than the winds. These currents of air, which sometimes carry along with them the most pestilential vapours, and at others the balmy breath of health, are divided into so many kinds, and possess properties so different, that it would be difficult to describe them. There are some, however, so regular in their progress or uniform in their effects, that they may be easily distinguished from all others. Of this kind are the Sirocco of the countries bordering on the Mediterranean, and the Harmattan of Africa. The former is experienced at some seasons of the year in Italy, Sicily, and Malta. It proceeds in a north-east direction from the hot burning sands of Africa, and is said to be most frequent in the month of May, which agrees with observations made in Egypt; for the Ramsin, or "destroying wind" of the desert, visiting the shores of the Nile at this period, proves it to be the same as the Sirocco in Italy. When it first leaves the shores of Africa, it is an exceedingly dry parching wind, loaded with particles of sand; but in passing over the Mediterranean, it seizes the vapour rising from the surface of the sea, and deposits the sand which it had before taken up; and on its arrival on the shores of Italy, it there becomes a heated wind, charged with abundant moisture.

Mr. Brydone, who experienced a Sirocco wind while at Palermo, in Sicily, in the month of July, 1770, remarks, "that it came in a southerly direction, the thermometer being previously at 72° , but upon his going into the open air in the morning

* Storch's *Russland unter Alexander*, dem ersten, No. xiii. 1804.

† *Hist. Stat. Gemälde des Russischen Reichs*, vol. iii. p. 269.

at eight o'clock, he was astonished to find a sudden change of temperature. The first blast on his face excited a sensation like that caused by the burning steam which proceeds from the mouth of an oven, and on exposing a thermometer in the open air, it rose to 110°, and soon after to 112°. This extraordinary heat continued till three o'clock in the afternoon, when the wind changed at once to the opposite side of the compass, blowing strong from the north, and in a little time the thermometer fell thirty degrees.

The Sirocco before it reaches Rome crosses the Pontine Marshes, and though checked a little in its progress by the mountains of Albano and Frascati, it relaxes the fibres in a manner truly astonishing. The south-west wind which comes from Barbary, produces, though in a less degree, the same effects. But the most pernicious of all, and the most common in summer, is the south-west, which passes immediately to Rome over the marshes of Ostia,* and brings along with it particles so exceedingly noxious, that the buildings of the city exposed to the south, are more corroded than such as are exposed to the winds that come from any other quarter. So violent are the agitations occasioned by the constant heat, that people in the lower parts of the city become quite distracted, so that they jump from the windows, or throw themselves into wells; and it is confidently asserted, that as many suicides are committed at Rome in the summer, as in any town of Europe during the whole year. What in other countries is done through despondency, is at Rome the effect of phrenzy, generated by climate.†

In Sicily, the Sirocco, it is said, seldom lasts more than from thirty-six to forty hours, during which time the inhabitants confine themselves to their houses, and employ their servants constantly in sprinkling water through their apartments to preserve the air as temperate as possible. The great heat, however, does not seem to produce in that island epidemic disorders, and the only inconvenience the inhabitants experience from it, is a temporary debility; but when the north wind has blown for a few hours, they are restored to their usual vigour and strength. In Naples and other parts of Italy, the heat is totally different; it is not nearly so violent, but it lasts many days, sometimes weeks; it is also attended with putrid disorders, and never fails to produce languor and dejection of spirits.‡

Mr. Williams says, "that in England we are subject to a wind which in some degree resembles the Sirocco of Sicily, though the variation of temperature here is

* I have already noticed these marshes, and mentioned in a note, page 82, that they were drained by Augustus, a circumstance to which I find Horace alludes in his Art of Poetry, where he says,

—————Sterilise palus prius aptaque remis
Vicinas urbes alit, et grave sentit aratum :

† Annals of Agriculture, vol. iii. p. 137.

‡ Williams on the Climate of Great Britain, p. 186-188.

not so considerable. This wind sometimes takes place towards the end of April, but most commonly in May; the mean height of the thermometer in the morning and evening being usually about 45° with variable winds. The barometer falls; the wind frequently becomes stationary at south-west or south, and blowing briskly, the air is soon conveyed to us from the countries bordering on the Bay of Biscay, and from the western coast of Portugal. The thermometer rises to 59 or 60° , and even to 65° , and the heat is attended with great humidity. The previously cooled walls of our houses and stone floors condense the vapour which appears in trickling drops; we feel oppressed, and if we take exercise, a considerable debility, with a sense of fulness about the head, which never fails to accompany or to follow it. When this wind ceases it is immediately succeeded by a wind from the opposite side of the compass, that is, from the north-east, and the temperature soon lowers again to about 45° .*

A very extraordinary wind, called the Harmattan, is experienced on the western coast of Africa, between the equator and the latitude of 15° north. It blows from the north-east towards the Atlantic Ocean, and consequently must sweep a very extensive tract of dry and parched land. Izert says, that it is always accompanied with excessive drought, and a fog so thick that one cannot see an object at the distance of an hundred paces. As a proof of the extreme dryness of the atmosphere during the continuance of this wind, he informs us, that a hygrometer, constructed on the principle of that used by De Luc, which in air of a medium dampness, both in Europe and in Africa, stood at 50 or 60 degrees, rose on the 20th and 21st of February, 1786, to more than 145° , and had the extent of the instrument admitted, would have ascended to 170° . This drought, combined with the heat, occasions an uncommon coughing; but it does not last, and may be moderated by frequently sprinkling the apartment with water. The joinings of wooden floors and doors become so wide, that one can see through them; casks and barrels, if not completely full, cast their hoops and fall to pieces, and the tin-foil at the back of mirrors becomes melted.†

Though this wind is very prejudicial to vegetables of every kind, which it in general destroys, it is highly conducive to health. Those labouring under fluxes and intermitting fevers, for the most part recover during the time it prevails, and those weakened by fevers and the injudicious use of medicine, are soon restored by it to their former health and strength.‡

To be acquainted with the nature of the winds and the different effects they produce, is of great utility to mankind in general; but in particular to the agriculturist and navigator. When the passage to India by the Cape of Good Hope was first discovered, the Portuguese lost many of their ships, because their seamen had not

* Williams on Climate, p. 188.

† Izert's Reise na Guinea, p. 340, 341.

‡ Paper on the Harmattan by Mr. Norris, in the Phil. Transactions, vol. lxxii.

learned the prognostics of those violent winds called *travados*, or tornados,* which often come on so suddenly as to leave no time for furling the sails, and making other preparations to withstand them.† The signs, however, by which they are announced, are now so well known, that little danger is apprehended from them.

Machiavel,‡ Bayle,§ Montesquieu,|| and other eminent writers, seem to have believed that the northern countries are more favourable than the southern to population. Sussmilch, who is so often referred to by Mr. Malthus in his essay on that subject, controverts this opinion, and maintains that climate has no influence at all on population.¶ In civilized countries, perhaps, where an acquaintance with the arts enables men to provide abundant nourishment, and to defend themselves from the severity of the weather, this may be true; but still there are cases where they live in a state of nature, or one nearly approaching to it, in which one climate will in this respect be superior to another. Among the North American Indians the mother is always obliged to pay the greatest attention to her infant, in order to protect it from the injuries of the seasons, which are various, and often rigorous. She is burdened also with the care of providing for it food by her own exertion in the forests, where little of spontaneous growth is to be found. The hardships of a wandering life prevent the multiplication of children, so that frequently one is three or four years old before she brings forth a second. The African mother, on the other hand, is not under the necessity of devoting so much time and attention to the care of her children. She can leave them exposed to the influence of the weather, without any fear of those dangers

* "A tornado, though very violent, is never dangerous; it always gives sufficient warning of its approach, and lasts not long. Dark, heavy, and black clouds, are generally first seen rising from the south to the south-east, and as they rise forming a large black arch in the heavens, which moves slowly to the eastward, and when it arrives between south-east and east the tornado generally comes on. I particularly observed every tornado at Bulama for two-thirds of one season, and the whole of another, from their first appearance till their rage was entirely spent: and I never knew one give less than an hour's notice; but generally two, and sometimes four hours; and except seven out of seventy, they were all between the east and south-east points of the compass, generally attended with much thunder, lightning, and rain; and they usually lasted from one to three hours.

† To secure themselves from their violence, those seamen who are conversant with them furl their sails, and thus wait their approach; for if a ship be caught by one of them with much sail set, she will probably lose her sails or masts, if even the ship itself be not in danger; for as to taking in sail, it is entirely out of the question." *Beaver's African Memoranda*, p. 368.

‡ A System of General Geography, by Varenus, vol. i. p. 520.

§ *Istoria Fiorent*, l. i. c. 3.

¶ *Nouvelles de la Rep. des Lettres*, 1685, Janv. art. 8.

|| *Esprit des Loix*, l. xxviii. ch. 16.

¶ *Die Göttliche Ordnung in den Veränderungen des Menschlichen Geschichts*. Berlin, 1775, vol. i. p. 201-203.

to which the delicate constitution of a child would be liable under a cold and variable sky. The earth, aided by a favourable climate, affords, almost without labour, abundance of what is proper for the nourishment of children. When employed in cultivating the small spot of earth around her hut, or in other domestic occupations, she can leave the younger part of her offspring for a long time to their own management; and hence it may be inferred, that a warm climate is in this case favourable to the multiplication of children.*

That the climate of a country is susceptible of change in the course of years, seems to be generally admitted, though considerable difference of opinion prevails in regard to the causes by which such a change is produced. Such effects seem not to have been unknown to the ancients. We are told by Pliny, that a lake at Larissa in Thessaly, being drained, the surrounding district became colder than it had been before, so that the vines decayed, and the olive trees which grew in it perished.† He relates also, that the climate near Philippi was changed, in consequence of the land being rendered drier by cultivation.‡

In the year 1770, Dr. Hugh Williamson published a paper in the Transactions of the American Philosophical Society,§ in which he stated, that it had been observed within the preceding forty or fifty years, that a very perceptible change of climate had taken place in the middle colonies of North America, and that the winters were not so intensely cold, nor the summers so disagreeably warm as they had been some years before. This change he ascribes to increased cultivation, and the general improvement of the soil. While the face of the country was covered with woods, and every valley presented a swamp or stagnant marsh, the air in consequence of a continued exhalation from these fens, became charged with a gross putrescent fluid. Hence a series of irregular, nervous, bilious, remittent, or intermittent fevers, which for many years had maintained a fatal reign, but were then evidently on the decline. Pleuritic and other inflammatory fevers, were also observed to become milder in their nature as the winters grew more temperate.

This subject was resumed some time after by the Abbé Mann, who, in a paper published in the Transactions of the Academy of Manheim,|| endeavoured to shew that this change of climate was not confined to America, but had taken place in the greater part of Europe. As this is an interesting subject, which, if properly exa-

* Smith's Essay on the Variety of Complexion, &c. p. 141, 142. See also Ferguson's Essay on Civil Society, p. 232.

† In Thessalia circa Larissam emissio lacu frigidior facta ea regio est, oleæque desierunt, quæ prius fuerant. Item vites aduri quod non antea, lib. xvii. cap. 4. *Lugd. Bat.* 1669, vol. ii. p. 322.

‡ Et circa Philippos cultura siccata regio, mutavit habitum cæli. *Ibid.* ib. p. 323.

§ Vol. i. sect. 2, p. 272.

|| Transactions of the Electoral Academy of Sciences at Manheim, vol. vi.

examined, might perhaps serve to solve some difficulties in regard to climate, I shall give a short view of the arguments which this writer employs in support of his theory.

We are told by Herodotus, that in the European part of Scythia, on the Palus Meotis, the winter continued eight months every year, with almost insupportable severity, and that the countries farther towards the north, were on that account uninhabitable; he adds, that the other four months, called the summer, were also exceedingly cold. Now this country lies between the 44th and 50th degrees of north latitude, and we know at present that nothing of the like kind has taken place there for a long time. Cæsar, Virgil, Diodorus Siculus, Ovid, Strabo, Pomponius Mela, Seneca, Petronius, Pliny, Statius, Herodian, Justin,* all speak of the insupportable cold of the winter in different parts, lying under the same latitude (of from 44° to 50°) as between Gaul and the Euxine Sea. The descriptions they give would suit those countries lying between 56° and the polar circle, and in some respects they seem to exceed the cold of the winter in Sweden and Norway.

All the seas, lakes, and rivers, in the districts between the 44th and 50th degrees of latitude, were continually frozen in winter, so that armies of Scythians and Sarmatians, in order that they might plunder the more southern countries, passed with their horses, waggons, and baggage, over the ice, which they bestrewed with straw to prevent their sliding. We are told by Strabo, that Neoptolemus, the general of Mithridates, beat the barbarians in winter with an army of cavalry, at a place which in summer had been the scene of a naval battle.† In a Treatise on Rivers, ascribed to Plutarch, it is said, the Thermodon, a Scythian river, froze even in summer,‡ a circumstance which never happens at present to the rivers of Siberia, Lapland, and Greenland. Ovid tells us that he himself passed over the Pontus Euxinus on the ice; and he adds, that people would scarcely believe him. Plutarch says, that the pressure of this enormous mass of ice against the sides of ships, frozen in it, crushed them to pieces; and he mentions the instance of a Roman ship which had experienced that fate in the Danube. Strabo and Virgil§ speak of brass vessels bursting by the expansive force of the ice, and we are assured by Virgil and Ovid that the people in Thrace, and on the Danube, cut the wine with axes, and distributed it in

* Cæsar, lib. iv. cap. 15; Virgil *Georgic.* lib. iii. v. 349-383; *Georgic.* iv. v. 125-125; Diod. Sic. *Biblioth. Hist.* lib. v. cap. 25; Ovid, *Trist.* lib. iii. *Eleg.* iv. v. 48, 49, 51; *Eleg.* x; Strabo, edit. Basil, 1539, lib. ii. p. 67, 68, 107, 129, lib. vii. p. 297. Pomponius Mela *de Situ Orbis*, lib. ii. cap. i. *De Scythia Europa*; cap. 2 *de Thracia*; lib. iii. cap. 3 *de Germania*; Seneca *de Providentia*, cap. 4; Petronius *Arbiter Satyræ*, *Lip.* 1723, 12mo, p. 24; Pliny *Hist. Nat.* lib. iv. cap. 12. Statius *Sylv.* lib. v. edit. Elz. 1653, p. 83. Herodian, edit. Oxon. 1699, 8vo, lib. i. p. 12; lib. vi. p. 221; Justin, edit. Elz. 1664, vol. ii. p. 25.

† Strabo *Geog.* edit. Alm. vol. i. p. 472.

‡ Plutarchus *de fluviis in Geograph. vet. script.* vol. ii. p. 29.

§ *Georgic.* lib. iii. v. 363, 364, et seq.

solid portions. They add, likewise, that men's hair and beards were often covered with ice. If we compare these facts with the present state of France, Germany, Hungary, Romania, Transylvania, Wallachia, Moldavia, Bulgaria, Lesser Tartary, Podolia, and the Ukraine, it will be found that the temperature of these countries has not the smallest resemblance to what it was two thousand years ago. The effects produced there every winter scarcely take place now in a century, and when they occur they are considered as extraordinary phenomena.

Herodotus, Mela, and Pliny,* speak of the European part of Scythia, as if the atmosphere had been continually filled with snow and fogs, which impeded the view of the nearest objects, and obscured the light of day. We are told by Herodotus, that the immense load of snow, when it fell, made the air appear as if filled with feathers, and that for this reason the country was called Pteropheros. Diodorus Siculus speaks of Celto-Scythia as covered with snow in the winter time, and the same thing is asserted by Florus† and Petronius. Virgil, speaking of Thrace, and the countries on both sides of the Danube, says, that a continual winter prevailed in them, and the snow lay upon the ground to the depth of seven ells. The picture which Ovid gives of the snow at Tomi, in the latitude of 44°, is no less horrid, as he asserts that it continued two years without being melted by the sun or the rain.

Diodorus Siculus, Tacitus,‡ and Ovid, when they speak of Gaul, Germany, and Thrace, take notice of the prodigious force of the wind which prevailed in those countries in their time, and during preceding centuries. These winds raised even stones and men from the earth, carried away the roofs of houses, tore up trees by the roots, and overturned turrets and other buildings. Such effects of the wind are observed at present in the countries on the northern sea and Bay of Biscay, but seldom in those parts of the continent mentioned by the ancients.

Varro,§ Diodorus Siculus, Ovid, Pomponius Mela, Seneca, Petronius, Pliny the elder, Appian,|| Dion Cassius,¶ and Herodian, all agree in saying, that the severity of the climate and weather, which in their time prevailed in Gaul, Germany, Pannonia, Thrace, Mœsia, and Dacia, would scarcely admit the growth of either vines, olives, or fruit-trees, and that in cultivating them it was necessary to cover the earth with dung, to preserve them throughout the winter. Tacitus, however, says, that these countries produced in abundance, various kinds of grain, where the people gave themselves the trouble to improve and manure their fields by means of marl or chalk, which destroyed the cold and the moisture.

* Herodot. lib. iv. cap. 31; Pomp. Plin. Hist. Nat. lib. iv. cap. 12. Pomp. Mela, cap. 1; lib. iii. cap. 6.

† Florus, lib. iv. cap. 12.

‡ Tacit. de Morib. Germ. cap. 2, 4, 5.

§ De Re Rustica, lib. i. cap. 7.

|| Excerpta ex ejus Celticis a Valesio, p. 1230.

¶ Dio. Cassius, Hist. lib. xlix. p. 413, edit. Hanov. 1606, fol.

It is observed by Herodotus,* Strabo, and Tacitus, that the oxen in the European part of Scythia, and the country of the Celto-Scythians, had no horns, or horns exceedingly small, which they ascribe to the severity of the cold in that climate. Strabo, as a proof of the great cold which prevailed in the country now called the Ukraine, observes, that it produced no asses; animals, he says, which cannot endure cold; and he adds, that the horses there were extremely small. But nothing is more striking than the testimony of Pausanias,† who says expressly, that in Thrace there were in his time bears of a white colour, animals which at present are found only in the remotest parts of the north, on the other side of the polar circle. We are told by Virgil, Ovid, and Pomponius Mela, that the inhabitants of the European part of Scythia and Thrace, lived during the whole winter under the earth, that they burnt large logs of wood to keep themselves warm, that they never went abroad without being wrapped up in furs, and that they left no part of the body uncovered but the mouth and eyes. All these facts seem to prove, that an excessive severity prevailed two thousand years ago in the climate of those countries of Europe, lying between the latitude of 44° and 50° north, and fully establish a very considerable difference between the state of their temperature in those periods and what it is at present.

The ancients speak likewise of the effects produced by the cold of winter in Italy, Greece, Lesser Asia, &c. which at present are certainly unknown.

Dr. Williamson asserts, that the climate of America is also daily becoming milder. This effect is directly contrary to the hypothesis of Buffon, respecting the theory of the earth and planets, which he asserts have been continually losing warmth since they were first in a state of fusion, and are becoming always colder, so that they will at length be incapable of keeping alive any animal or vegetable production. All historical and physical monuments, however, prove the contrary.

Columella‡ is the first author who speaks of vines in Gaul, and he says that the Sabines and the Romans, in the preceding century, had procured, amidst the devastation of war, more abundant crops than had been procured, in his time during a state of perfect peace. But nothing in this respect is more striking than his observations with regard to the changes of climate. "I find," says he, "that it is the opinion of many respectable authors, that the quality and state of the atmosphere become changed in the course of a long series of ages; for Saserna, in the work which he has left on agriculture, infers that the state of the atmosphere is changed, because certain districts, which formerly were incapable of producing vines or olives, on account of the continual severity of the winter, now yield abundant vintages and plenty of oil, by the climate having become milder and warmer."

But to what causes is this change to be ascribed? all the ancient writers who speak

* Herodot. lib. iv. cap. 29.

† Pausan. Arcad. cap. xvii. p. 634. edit. Lips. 1696, fol.

‡ De Re Rustica, lib. i. cap. 1.

of the countries of Europe beyond the latitude of 50° north, represent them as filled with lakes and morasses, and even covered with immense forests, almost as America is at present. It is a certain fact, that the climate of America is different from that of Europe, by about ten degrees of latitude. That is, the districts of North America lying under 40° of north latitude, are as cold and moist as the countries of Europe which lie in the latitude of 50°. New England lies between the 41st and 46th degrees of latitude; yet it is observed that the climate there, in regard to heat and cold, is equal to that of the districts of England between the latitude of 50° and 56°. It is well known, that in proportion as the people of America extirpate the forests, drain the marshes, and cultivate the land, the climate imperceptibly becomes milder. For a thousand or two thousand years past, the people in all the northern parts of Europe have been in the same manner employed in the improvement of the soil. These causes, however accidental they may be, and however much dependant on human industry, must have contributed their part to render the climate milder, not only in the countries where they took place, but even in the neighbouring ones exposed to the effects of their atmosphere.

The great number of lakes and morasses, which, according to the accounts of ancient authors, existed in their time in the northern parts of Europe, must have rendered the air of these countries exceedingly cold and moist, as well as unhealthy, since it lessened its elasticity and filled it with thick vapours, which corresponds with the description they have given of them. If we except Sweden and Norway, the greater part of these lakes and morasses have disappeared, though the places where such marshes formerly existed, both in England and on the continent, in Gaul and Germany, may still clearly be observed. A great many epochs are known when the draining of lakes and morasses was undertaken; which are proofs, that in the course of ages, human industry has contributed to bring about this change. But the gradual sinking of the surface of the sea, has also had a great share in producing this phenomenon. From whatever cause, however, these changes have proceeded, it is certain that they have tended to lessen the moisture and cold of all the countries of Europe.

In the time of Julius Cæsar, and long after, almost all Germany and Sarmatia were covered with immense forests. The Hercynian forest was sixty days' journey in length. It began in Belgic Gaul, near the sea, and extended through Germany and Poland. England abounded in forests, but in a less proportion. Now it may be readily conceived what extraordinary cold, what moist and unwholesome air must have prevailed in the climate of these extensive countries; as all the mountains and plains were covered with immense woods, and as each valley almost contained a lake or marsh; and what wonderful changes must have been effected by the extirpation of these large forests, and by draining off the stagnant waters. Large

woods prevent the beams of the sun from penetrating to and warming the soil; they impede also the free diffusion of the internal heat, as the fallen leaves and branches which rot on the ground, form a crust through which the internal and external heat can with difficulty force a passage. In the last place they concentrate the cold and moist vapours, render them putrid, and corrupt the whole atmosphere. This has been always observed in America, and the consequences are bilious and intermittent fevers in summer and autumn, and inflammatory fevers in winter. It is also asserted, that the opener and drier the land in that country becomes, the more it is remarked that these fatal diseases decrease.

The increase of agriculture has also had a share in producing this beneficial change. The culture of the earth, which breaks its surface, puts it in movement, keeps it in a state of continual tenderness, and makes it capable of imbibing the rays of the sun in summer, and of affording a passage to the internal heat in winter; and by these means contributes to preserve a continual equilibrium of the principle of heat in the earth and the atmosphere. The contrary takes place in all uncultivated countries, especially when they are moist and covered with wood.

It can therefore be no longer doubted, that the gradual draining of the stagnant water in all Celto-Scythia and European Sarmatia, with the extirpation of their large forests, and the general cultivation of the fields in these countries, must have had an influence also on the atmosphere of Greece and Italy, and must have contributed to moderate their climate and to render it milder than it was 1800 or 2000 years ago.

The author concludes his dissertation by mentioning, as the last and chief cause of these changes, the principle of heat, which continually increasing, overcame in the course of time the opposite principles of moisture and cold. "Without this principle," he says, "we can never find sufficient grounds for the wonderful changes which have taken place in the nature of the soil of all these lands bordering on the Mediterranean Sea, which formed the ancient empire of Rome, from Syria to Hindostan, and which at present have all become dry and fertile."

Dr. Patterson, in his *Essay on the Climate of Ireland*, controverts the conclusion here drawn by the Abbé Mann, and endeavours to shew that his theory is not supported by sufficient evidence to entitle it to full credit. His principal arguments are deduced from observations in regard to the climate of Italy. "The winter there," he says, "is generally introduced with thunder or lightning, and the season is often very cold and frosty; Mr. Gray, in 1739, admired the beauty of Lombardy, but had to regret that it was deformed by the severity of the winter.* Towards the end of January, 1770, Brydone observed Fahrenheit's thermometer at Rome as low as 278.† In 1781, Dr. Pugh found the winter at Naples extremely rigorous; three

* Gray's Works, by Mason, Letters 13th and 20th.

† Brydone's Tour, Letter 1st.

nights' sharp frost in the month of January killed all the orange trees in the environs of the city, and did more damage than a long succession of the mildest weather could repair."*

"Brydone assures us, that the spring is no better comparatively than the winter; which was also the case in pristine times, when the weather was wet and windy, with hail even in April. It was indeed, he remarks, abundantly warm at Naples in May, but seldom a day passed without sudden storms of wind and rain, which brings to mind the "Madidum ver" of Juvenal. From a comparative view of the state of vegetation in ancient and modern times, it appears that the budding and leafing of trees, together with the flowering of plants, were at least as early in the former, when the seasons were supposed to be colder, as in the latter periods, when they are alleged to be warmer. Formerly the hay, barley, and wheat harvest began in June and ended in July; latterly wheat harvest commences in the end of May, and terminates in the end of July.

"At present, as it did in days of old, the hot weather begins in May; and throughout the summer it was, as it still is, scorching hot, so hot as to burn up the grass and to be scarcely supportable by human feelings, an intemperature which Virgil calls *torrida æstas*. By a register of the weather kept at Venice for the year 1755, it appears that there were two whirlwinds, and a violent storm, resembling that described by Virgil in his first *Georgic*, which he had often seen in the corn harvest. Upon the whole, the Italian climate in recent years displays the same cold frosty air, the same piercing changeable high winds, and the same sultry suns that it did in very remote ages."†

Dr. Patterson here speaks only of the climate of Italy; but he says nothing of Gaul, Germany, or the countries adjacent to the Euxine, the principal parts of Europe to which the Abbé Mann alludes, and which evidently have experienced a very considerable change of climate within the last 2000 years. But there is reason to think, that even in Italy the weather is not nearly so severe in winter as it was formerly. Livy, speaking of the year of the city, 355, says, "it was remarkable for a cold snowy winter, so that the roads were blocked up, and the Tyber rendered unfit for navigation."‡ Hence it appears that the Tyber was completely frozen, a circumstance which I apprehend does not take place at present. The same author mentions that the Gauls were so accustomed to cold and wet, that when exposed to heat they died like diseased cattle.§ According to Juvenal, there were fre-

* Pugh on the Climate of Naples, Rome, and Nice.

† Patterson on the Climate of Ireland, p. 178.

‡ *Insignis annus hieme gelida ac nivosa fuit: adeo ut vix clausæ, Tiberis innavigabilis fuerit.* Hist. lib. v. cap. 13, edit. Oxon, 1708, vol. i. p. 288.

§ *Quorum intolerantia gens humorique ac frigori assueta; quum æstu et angore vexati vulgatos velut in peccora morbis morentur.* Ibid. lib. v. cap. 48, p. 325.

quent* showers of hail at Rome in the spring, and by a passage in his fifth Satire, he seems to hint, that ice, in the river Tyber, was far from uncommon.† Horace also makes frequent allusions to the coldness of the climate, and particularly in his Ode to Thaliarchus, where he speaks of Mount Soracte being covered with snow, the trees loaded with it, and the rivers completely frozen up.‡ These and other instances which might be adduced, are, in my opinion, sufficient to shew that the theory of the Abbé Mann is not void of foundation, and that at any rate it deserves to be farther examined.

The opinion of the Abbé Mann, in regard to the decrease of the waters of the sea is not new; it has long been supposed that the waters of the Baltic and neighbouring gulphs, have been gradually decreasing, and something of the same kind is remarked in other parts of the world. In a small inhabited island of the Gulph of Bothnia, belonging to Sweden, called Iggön, between the 60th and 61st degrees of north latitude, some observations have been made, which seem to prove beyond a doubt, that the water in that inland sea has suffered a considerable depression. Professor Celsius remarked in the year 1731, that according to the measurement made there at Hamskar Head, by O. Rudman, more than a century and a half before that period, the surface of the water had sunk eight feet; on this account the date of the year, 1731, was cut out on a rock at a few miles distance, together with a line to mark the height of the water, and the place being again examined in 1791, at the same time of the year, that is, at midsummer, it was found that the water was 28 inches lower.§

A similiar instance on the New Continent is mentioned by Humbolt. "The sands," says he, "heaped up by the vortices of the waters from the peninsula of Yucatan, to the mouths of the Rio del Norte and Mississippi, contract the basin of the Mexican Gulph; geological facts of a very remarkable nature prove this increase of the continent. We see the ocean every where retiring; M. Ferrer found near Sotto la Marina, to the east of the small town of New Santander, ten leagues in the interior of the country, moving sands filled with sea shells. I myself, observed the same thing in the environs of Antigua and New Vera Cruz.¶

* —————per montem adversum, gelidasque cucurri
Esquillas, fremerat sæva cum grandine vernus
Jupiter Sat. v. v. 77.

† Vos anguilla manet longæ cognata colubræ
Aut glacie aspersus maculis Tyberinus et ipse
Sat. v. v. 103.

‡ Vides ut alta set nive candidum,
Soracte, nec jam sustineant onus
Silvæ laborantes, geluque
Flumina constiterint acuto

Lib. i. ode 9.

¶ Tuneld's Geographie over Konungariket Sverige. Stockholm, 1794, vol. iii. p. 33.

¶ Humbolt's Essay on New Spain, vol. i. p. 81.

In the year 1787, Mr. Kirwan published an estimate of the mean heat of different climates, calculated from observations of the mean heat of various places, as exhibited by the thermometer. But having assumed as one of his data, the mean temperature of Padua, given by Toaldo, from only one observation made in 1782, which was an uncommonly cold year, the calculation founded upon it was of course erroneous. To rectify this inaccuracy and supply the deficiencies of Mr. Kirwan's table, by adding other places of Italy, Toaldo was induced to publish a dissertation, accompanied with two tables, in the third volume of *Saggi Scientifici e Letterari dell'Accademia di Padova*.* As these tables will enable those desirous of examining the theory of the Abbé Mann, to form a comparative estimate of the degrees of the temperature in former and modern times in Italy, and may be exceedingly useful in other respects, I have here subjoined them.

Table of the Mean Heat of the following Places by Toaldo.

Places.	Lat.	Fahren- heit.	Reau- mur.	Years observ.	Places.	Lat.	Fahren- heit.	Reau- mur.	Years observ.
Naples	40° 50'	67.22	15.65	4	Milan	45° 28'	55.06	10.25	16
Rome	41 54	60.69	12.75	5	Verona	45 26	55.96	10.65	5
Florence	43 46	61.63	13.17	3	Padua	45 24	56.66	10.96	37
Lucca	43 50	60.89	12.84	36	Venice	45 25	56.52	10.90	10
Genoa	44 45	60.89	12.84	5	Udina	46 10	57.09	11.15	5
Bologna	44 29	56.64	10.94	4	Trent	46 00	54.05	9.80	3

Mean heat of Italy—Fahren. 55.67. Reaumur, 10.51.

Mean Heat of the different Months for the same Places according to Reaumur's Thermometer.†

Places.	Jan.	Feb.	March	April	May	June	July	August	Sept.	October	Nov.	Dec.
Naples	10.13	11.13	12.77	14.00	16.83	20.77	21.37	21.47	19.60	16.00	11.27	8.93
Rome	6.07	6.40	8.55	10.10	14.25	16.42	19.60	19.75	17.37	13.75	9.85	8.28
Florence	5.91	5.85	8.77	11.56	17.16	19.12	22.40	21.80	18.14	12.76	8.12	5.76
Lucca	3.50	4.75	11.10	13.00	17.15	20.05	21.45	20.20	16.20	14.30	8.70	3.65
Genoa	6.55	7.37	8.87	11.20	15.67	17.72	20.20	19.52	18.20	13.45	9.65	6.52
Bologna	1.00	1.33	5.59	10.71	18.15	19.59	22.80	20.59	18.23	9.66	6.86	2.85
Milan	0.65	3.03	6.46	9.98	13.79	17.15	18.67	18.55	15.26	10.49	6.13	1.99
Verona	2.01	3.12	5.74	9.44	12.81	16.35	17.41	18.51	16.72	12.39	8.52	4.88
Padua	1.5	3.4	6.8	10.4	14.6	17.7	19.8	19.5	16.3	11.8	6.8	2.9
Venice	1.7	2.48	5.47	8.15	13.01	16.50	18.52	17.68	14.92	11.84	7.48	2.66
Udina	0.22	2.16	6.08	11.00	16.88	18.40	22.40	22.12	16.94	11.50	3.62	1.30
Trent	0.23	2.54	5.54	9.53	13.86	16.64	18.14	17.84	15.72	10.45	5.21	2.82

* Tom. iii. Padova, 1796, p. 228.

† The degrees of Reaumur may be easily converted into those of Fahrenheit by the following rule: Multiply the given degrees by 9, and divide by 4; if 32 be then added to the quotient, the result will be the degrees according to Fahrenheit's scale.

The accounts given by the ancients of the climate of Ireland, appear in some respects contradictory. We are told by Cæsar, that the climate of Britain was milder than that of Gaul,* and, as Tacitus makes the climate of Ireland nearly the same as that of Britain,† it may thence be inferred, that the temperature of the air in Ireland was also milder than in Gaul. Claudian applies to it the epithet of icy,‡ a character which it certainly does not deserve at present. Strabo, who seems to have been very little acquainted with Ireland, considers it as a country scarcely habitable, on account of the cold;§ but according to Æthicus it enjoyed a climate superior to that of Britain.|| Mela describes the climate of Ireland as unfavourable to the ripening of grain, but says, that it produced such luxuriant crops of grass, that if cattle were suffered to feed long upon it, they would be in danger of bursting.¶ Solinus states, that the country abounded with pastures, and he makes the same observation in regard to the cattle.**

The venerable Bede, who flourished towards the end of the seventh century, says, that "Ireland is pleasantly situated, that it abounds with honey, and that it is not destitute of vines.†† Cambrensis, who was twice in Ireland, and who, about the end of the twelfth century, collected materials for a topography of the island, declares that nature has looked with a more favourable eye than usual on this land of the ze-phyrus. At the same time he asserts, that the climate is wet and windy, and represents the south-west wind as the most violent."‡‡ "This seeming contradiction," says

* Loca sunt temperiora, quam in Gallia, remissioribus frigoribus. *De Bello Gall.* lib. v. cap. 13. edit. Oxon, 1780, p. 93.

† Solum cælumque et ingenia cultusque hominum had multum a Britannia differunt, nec in melius. *Agric. Vit.* cap. 24, in Op. edit. Lipsiæ, 1801, p. 746.

‡ Claudiani Op. de iv. Cons. Honor Lubecæ, 1701, p. 96.

§ 'Οι γὰρ οὐδ' ἰσθεροῦντες πειρατῆς τῆς λίμνης οὐδὲν ἔχουσι λίγειν· ἢ πρὸς ἄρκτον πρόκειται τῆς Βριτανικῆς πλάσιος. ἀγρίων τελέως ἀνθρώπων κακῶς δίκουται διὰ ψυχρός. *Geog.* lib. ii. edit. Amel. Amst. 1707, vol. i. p. 114.

|| Hæc priori Britannię spatio terrarum angustior, cœli solisque temperie magis utilis, à Scotorum gentibus colitur. *Pomp. Mela de situ orbis, C. Julii Solini Polyhist. Æthici. Cosmograph.* Lugd. Bat. 1645, p. 508.

¶ Supra Britanniam Juverna est pene par spatio sed utrinque æqualis, tractu littorum oblonga, cœli ad maturanda semina iniqui: verum adeo luxuriosa herbis non lætis modo sed etiam dulcibus, ut se exigua parte diei pecora impleant et nisi pabulo prohibeantur, diutius pasta dissiliant. *Pomp. Mela, &c.* Lugd. Bat. 1646, p. 126.

** Multis insulis nec ignobilibus circumdatur quarum Hybernia ei præimat magnitudine. Inhumana est ritu incolarum aspero: alias ita pabulosa, ut pecua nisi interdum a pascuis arceantur, in periculum agat satias.

Ibid. p. 300.

†† Hibernia dives lactis et mellis insula, nec vinearum expers—Insulæ hujus situs est amœnus—Bede Hist. Gent. Anglican. *Vita St. Columbi*, cap. i.

‡‡ Giraldus de Barri, or as he is commonly called, Cambrensis, from his country, was of illustrious lineage, and born about the year 1146, at the Castle of Manorbier, in Pembrokeshire. He shewed strong marks of literary talents at an early age, and an ardent desire to devote himself to the offices of religion. After acquiring the rudiments of education at home, he went to Paris to complete his studies; and returning to England, in 1172, entered into holy orders. In the year 1185 he was appointed, by King Henry, preceptor to his son, Prince John, whom he accompanied to Ireland as secretary; he afterwards visited that country a second time

Dr. Patterson,* "may be reconciled, by observing, that the frequency of our showers and fresh breezes, gives an appearance of wetness and ventosity, whilst the mild temperature of our air softens the impressions of the rain and wind on the feelings, and entitles the climate to the genial character bestowed on it in the above general inference drawn by Cambrensis."

Stanyhurst, in the preface to his Irish Chronicle, observes, that few countries are comparable, none preferable, to Ireland, in wholesomeness of air, fertility of land, abundance of corn, extent of pasturage, and number of cattle.† Boate, who quotes these authorities, corroborates the account they give, and contends that there is no impediment, but the want of culture, to prevent Ireland from being justly counted among the most fruitful countries in the world.‡

In the time of Peter Lombard, about two centuries ago, the winters of Ireland, as he informs us, were so mild and open, that the inhabitants were negligent in making their hay to fodder their cattle, depending chiefly for their support on the hibernal verdure of the country.§ On this account Dr. Patterson observes, "it has been remarked, that it was perhaps not so much the mildness of the winter that made the people neglect saving hay, as inattention to their stock, according to the ground which they held. In Lombard's time, there were very few stall-fed cattle; those brought to market were not half fat; nor were farm-yards, dry-housing, and dry-fodder, then understood. A few fields of waste grass were sufficient during the winter, for beasts always accustomed to exposure in the open air; and it is added, that want of civilization and industry prevented the natives from making other exertions. However just this comment may be, on the indolence of the Irish and their ignorance of husbandry at that period, it does not invalidate the testimony of Lombard, as to the matter of fact respecting the winter season, that in general it was extremely temperate."¶

and collected materials for a Topography of it, manuscript copies of which are preserved in the British Museum, at Oxford, and in other public libraries. He refused the bishoprick of St. David's, which was offered to him, and died at that place in the seventy-fourth year of his age. For an account of his life and works, see *The Itinerary of Bishop Baldwin, through Wales*, translated by Sir Richard Colt Hoare, bart. 2 vols. folio, 1806.

* Observations on the Climate of Ireland, p. 158.

† Cum Hibernia cœli salubritate, agrorum fertilitate, ubertate frugum, pastionis magnitudine, armentorum gregibus, conferre paucas, anteferre nullas valeas.

‡ Natural Hist. of Ireland, chap. x. sect. 7.

§ De Regno Hiberniæ, Sanctorum insula Commentarius, &c. p. 85. His words are, Hic plerique negligunt resecare scœnum ob summam temperiam aeris. Lombard, in the same work, p. 72, mentions the humidity of the climate of Ireland; but observes, that it might in some measure be corrected, as is done in Flanders, by drains, and by clearing the course of rivers and streams.

¶ Observations on the Climate of Ireland, p. 159.

Before the time of Dr. Ruty, very little attention seems to have been paid to the climate of Ireland. That learned and indefatigable physician kept a diary of the weather for many years, chiefly, as appears, in order to assist him in his professional labours; and he has given, in his History of the County of Dublin, very extensive tables relating to the state of the winds, which, as they have a powerful influence on the climate of Ireland, I shall here subjoin, accompanied with an abstract of his remarks, and of the general conclusions which he deduces from them.

TABLE I.
The WINDS at DUBLIN, from 1717 to 1726.*

	E.	N. E.	N.	S. E.	W.	S. W.	N. W.	S.
1717	27	31	5	34	72	83	79	11
1718	10	21	0	73	48	103	37	6
1719	40	48	3	48	73	119	32	6
1720	13	23	3	31	112	110	47	3
1721	19	20	2	29	38	91	62	8
1722	10	32	8	56	68	91	46	12
†1723	41	26	4	58	43	89	50	7
1724	11	19	1	41	63	64	22	5
1725	25	41	2	38	62	62	52	0
1726	12	12	2	37	53	124	57	7
Total	208	273	30	445	632	936	404	65
Mean	20 $\frac{1}{10}$	27 $\frac{3}{10}$	3	44 $\frac{1}{10}$	63 $\frac{2}{10}$	93 $\frac{6}{10}$	48 $\frac{4}{10}$	6 $\frac{5}{10}$

† One Month in this Year wanting.

A Summary of the respective Winds in each Season during the above Period.

	E.	N. E.	S. E.	N.	W.	S. W.	N. W.	S.
Spring	72	108	123	7	152	188	129	14
Summer	60	46	138	4	208	205	96	13
Autumn	23	73	118	12	157	219	97	16
Winter	33	46	66	7	115	324	162	12
Total	208	273	445	30	632	936	484	55

Western Points, W. 632, S. W. 936, N. W. 484. Total, 2052.

Eastern Points, S. E. 445, N. E. 273, E. 208. Total, 926.

* An Essay towards a Natural History of the County of Dublin, vol. ii. p. 308.

TABLE II.

The Winds at Dublin, from 1727 to 1736 inclusive.*

	E.	N. E.	S. E.	N.	W.	S. W.	N.	S.
1727	59	50	109	35	78	89	135	25
1728	67	31	64	38	126	52	102	27
1729	102	22	68	33	101	51	70	43
1730	44	25	59	35	123	68	73	44
1731	28	23	95	22	150	66	42	33
1732	41	31	61	29	86	77	58	39
1733	31	30	64	20	70	81	55	42
1734	21	23	63	31	77	86	66	24
1735	27	32	85	34	64	70	68	18
1736	26	24	62	28	78	77	67	32
Total	446	291	730	305	953	717	742	327
Mean	41. $\frac{6}{10}$	29. $\frac{7}{10}$	73	30. $\frac{3}{10}$	95. $\frac{3}{10}$	71. $\frac{7}{10}$	74. $\frac{3}{10}$	32. $\frac{7}{10}$

"It is to be observed," says Dr. Ruty, "that no comparison can be made between the absolute number of the winds in this and the first table, because the observations, in the present one, were much more numerous and minute than in the preceding: consequently the number of winds must appear here far greater than where the observations were made more seldom."

A Summary of the respective Winds in each Season, during the above Period.

	E	N. E.	S. E.	N.	W.	S. W.	N. W.	S.
Spring	172	137	225	98	172	142	202	86
Summer	125	72	216	80	260	184	203	61
Autumn	73	33	156	67	250	200	171	81
Winter	76	49	133	50	271	191	166	99
Total	446	291	730	295	953	717	742	327

Western Points, W. 953, S. W. 717, N. W. 742. Total, 2412.

Eastern Points, S. E. 730, N. E. 291, E. 446. Total, 1467.

CLIMATE.

TABLE III.

The Winds at Dublin, from 1737 to 1746 inclusive.*

	E.	N. E.	S. E.	N.	W.	S. W.	N. W.	S.
1737	36	28	62	14	69	83	64	21
1738	12	24	54	20	92	100	61	42
1739	31	42	76	36	58	60	55	28
1740	25	53	73	38	42	83	75	13
1741	37	39	65	21	56	88	54	14
1742	54	44	55	22	58	72	59	16
1743	53	25	66	22	54	79	56	20
1744	31	37	58	25	59	85	78	14
1745	36	34	84	15	51	105	54	29
1746	19	52	95	15	52	104	80	24
Total	334	375	685	228	591	859	636	221
Mean	33 $\frac{4}{10}$	37 $\frac{5}{10}$	68 $\frac{5}{10}$	22 $\frac{8}{10}$	59 $\frac{1}{10}$	85 $\frac{9}{10}$	63 $\frac{6}{10}$	22 $\frac{1}{10}$

A Summary of the respective Winds in each Season, during the above Period.

	E.	N. E.	S. E.	N.	W.	S. W.	N. W.	S.
Spring	111	156	191	91	115	169	148	57
Summer	97	74	168	46	163	236	213	43
Autumn	66	81	159	58	158	212	146	63
Winter	60	67	170	33	162	242	129	58
Total	334	378	688	228	591	859	636	221

Western Points, W. 591, S. W. 859, N. W. 636. Total, 2086.

Eastern Points, E. 334, S. E. 688, N. E. 378. Total, 1400.

TABLE IV.

The Winds at Dublin, from 1747 to 1756 inclusive. †

	E.	N. E.	S. E.	N.	W.	S. W.	N. W.	S.
1747	23	52	89	22	54	97	76	25
1748	18	50	86	22	60	119	70	15
1749	18	33	78	17	67	115	68	27
1750	28	42	67	29	57	93	87	34
1751	24	54	75	19	62	94	79	19
1752	24	26	64	7	70	93	76	18
1753	20	30	56	23	72	100	101	13
1754	28	33	86	20	74	72	77	10
1755	23	26	41	28	94	103	80	20
1756	37	35	84	22	46	81	74	19
Total	243	381	726	209	656	967	788	200
Mean	24 $\frac{3}{10}$	38 $\frac{1}{10}$	72 $\frac{6}{10}$	20 $\frac{9}{10}$	65 $\frac{6}{10}$	96 $\frac{7}{10}$	78 $\frac{8}{10}$	20

A Summary of the respective Winds in each Season, during the above Period.

	E.	N. E.	S. E.	N.	W.	S. W.	N. W.	S.
Spring	89	156	190	70	134	213	215	46
Summer	71	92	191	49	162	296	224	55
Autumn	47	79	139	57	207	221	189	41
Winter	36	54	206	33	153	237	160	55
Total	243	301	726	209	656	967	788	200

Western Points, W. 656, S. W. 967, N. W. 788. Total, 2411.

Eastern Points, S. E. 726, N. E. 381, E. 243. Total, 1350.

TABLE V.

The prevailing Winds in each Month, during the above Period of 43 Years..

	S. W.	W.	N. W.	S.	S. E.	E.	N. E.	N.
March	17	12	22	2	18	9	22	5
April	16	6	18	0	24	9	22	6
May	12	10	8	2	22	22	12	4
June	22	19	15	1	22	17	12	4
July	22	21	20	4	14	8	9	2
August	24	20	17	1	16	10	4	1
September	22	24	17	2	18	8	11	1
October	27	20	16	4	23	9	6	3
November	28	23	19	2	12	4	3	4
December	29	17	15	2	12	3	1	2
January	26	15	11	5	18	3	4	0
February	31	17	13	4	13	5	5	1
Total	276	204	191	29	212	107	111	33

In regard to these tables, Dr. Rutty makes the following remarks: "From the fifth table, comprehending the whole series of time of these calculations, it appears that the south-west is of all winds the most predominant. In the last two tables, the north and south winds are more nearly upon an equality than in some of the preceding ones, the former somewhat exceeding the latter. In the fourth table, the proportion of the eastern to the western points, is nearly the same as in the first and second. In the fourth, the north-west and south-east points a little exceed the west, as in the third table. In the fifth, the north-west are somewhat less than the west, but the south-east a little exceed them. In the last two tables, the east and north prevail much more in the spring than in any other season. In the fourth table, the south-east winds are nearly equal in the spring, summer, and winter."

TABLE VI.

Proportion of each Wind to the Sum of the whole Winds, according to the foregoing Tables, from Observations made near London and near Dublin, during a period of more than Sixty Years.*

English Tables.	Gadbury.	Say.	Short.	Irish Tables.
The E. wind to the whole winds.	nearly $\frac{1}{7}$	$\frac{1}{8}$	$\frac{1}{11}$	The E. wind to the whole winds. Tab. 1. $\frac{1}{14}$ Tab. 2. $\frac{1}{10}$ Tab. 3. $\frac{1}{12}$ Tab. 4. $\frac{1}{11}$
N. E. to the whole winds.	$\frac{1}{8}$	$\frac{1}{4}$	nearly $\frac{1}{8}$	N. E. to the whole winds. Tab. 1. $\frac{1}{11}$ Tab. 2. $\frac{1}{10}$ Tab. 3. $\frac{1}{10}$ Tab. 4. $\frac{1}{11}$
N. to the whole winds.	$\frac{1}{11}$	$\frac{1}{10}$	$\frac{1}{9}$	N. to the whole winds. Tab. 1. $\frac{1}{10}$ Tab. 2. $\frac{1}{11}$ Tab. 3. $\frac{1}{11}$ Tab. 4. $\frac{1}{11}$
S. E. to the whole winds.	$\frac{1}{10}$	$\frac{1}{14}$	scarcely $\frac{1}{17}$	S. E. to the whole winds. Tab. 1. $\frac{1}{11}$ Tab. 2. $\frac{1}{10}$ Tab. 3. $\frac{1}{10}$ Tab. 4. $\frac{1}{10}$
W. to the whole winds.	$\frac{1}{2}$	$\frac{1}{6}$	above $\frac{1}{8}$	W. to the whole winds. Tab. 1. $\frac{1}{11}$ Tab. 2. $\frac{1}{11}$ Tab. 3. $\frac{1}{11}$ Tab. 4. $\frac{1}{10}$
S. W. to the whole winds.	$\frac{1}{7}$	$\frac{1}{7}$	$\frac{1}{4}$	S. W. to the whole winds. Tab. 1. $\frac{1}{11}$ Tab. 2. $\frac{1}{11}$ Tab. 3. $\frac{1}{11}$ Tab. 4. $\frac{1}{11}$
N. W. to the whole winds.	$\frac{1}{8}$	$\frac{1}{10}$	$\frac{1}{5}$	N. W. to the whole winds. Tab. 1. $\frac{1}{10}$ Tab. 2. $\frac{1}{10}$ Tab. 3. $\frac{1}{10}$ Tab. 4. $\frac{1}{11}$
S. to the whole winds.	$\frac{1}{14}$	$\frac{1}{8}$	$\frac{1}{10}$	S. to the whole winds. Tab. 1. $\frac{1}{11}$ Tab. 2. $\frac{1}{11}$ Tab. 3. $\frac{1}{11}$ Tab. 4. $\frac{1}{11}$

Respecting the above table, Dr. Rutton remarks, that the observations of Gadbury, and those of Say, were made both either at or near London, and comprehend a period of above twenty years: Dr. Short's were made from numerous registries kept in different parts of England.

"These various observations," continues he, "however different they may appear on the first view, will, on a more attentive examination, be found to correspond wonderfully in several particulars of great importance; and in others, in which they differ, they will serve to shew the specific difference of the two climates deducible from the various proportions of the respective winds in each country.

"All these observations agree in this, that the south-west is the grand trade wind of both England and Ireland, but most so of Ireland; the next in frequency

in England, is the west. The north-west is also a frequent wind in both countries, but much more frequent in Ireland, for according to all the observations, it is even double, treble, and more than sixtuple to what it is in England; and, indeed, on an average a little more frequent than the west wind. As to the east, north, and south points, the difference is also very considerable; for in two of the observations out of three, the east wind is more frequent in England than in Ireland; and the north-east, in particular, is much more frequent, sometimes double to what it is in the latter. The north, also, is often double, and more, in the three English tables, than in the Irish; and lastly, as to the south wind, it is observable, that in England it is much rarer than the north; whereas at Dublin the south wind is either a little more frequent than the north, or sometimes both are nearly equal.

“ From the above faithful collection of observations, it is evident that there is a far greater regularity and proportion maintained between the several winds than is commonly imagined, even in the variable climate of Ireland; as appears by comparing the observations of the preceding tables. So that, for the most part, the asperity of the north and east blasts is generally tempered by the succeeding softness of the west and south, and *vice versâ*; by which means a wholesome temperature is in general maintained. On the contrary, whenever we observe the usual harmony and proportion of the winds and attendant weather to vary much, we may expect an unhealthy season; as was notoriously the case in the excessive moist seasons preceding the great frost in 1740, and the unusually dry seasons and long continuance of north-east winds which succeeded the great frost for some years.

“ From the fifth table it appears, that the winds most prevalent at Dublin, in each month, are as follows:

In March there are most N.E. and N.W. winds, and least S.

In April most S.E. and least S.

In May most E. and S.E. and least S.

In June most S.W. and S.E. and least S.

In July most S.W. and least N.

In August most S.W. least N. and S.

In September most W. least N.

In October most S.W. least N.

In November most S.W. least S.

In December most S.W. least N.E.

In January most S.W. least N.

In February most S.W. least N.

“ Again, the south-west winds prevail least in spring, a little more in autumn than in summer, but most of all in winter; and supply us with the greater part of our storms.

“ The west winds blow least in spring, and less in winter than in the summer or autumnal quarter.

“ The north-west, at Dublin, blow least in winter; but the south most in winter and least in spring; so that here there are two reasons for the peculiar warmth of our winters.

“ The south-east winds prevail most in spring, and least in winter.

“ The east winds prevail by far the most in spring, next in summer, next in autumn, and least of all in winter.

“ The north-east prevails most of all in spring, and least in winter; and this affords a third reason for the greater warmth of our winters.

“ The north wind prevails most of all in spring, and least of all in the winter quarter; which is a fourth reason for the warmth of our winters.”

The state of the winds in the different seasons at Dublin, during a period of seven years, were, according to Dr. Rutty, as follows:

In the spring, the winds from some point of the north or east, to the winds from some point of the west or south, were, as 365 to 342, or as 100 to 60.

In summer, the proportion of the winds from some point of the north or east to the winds from some point of the west or south, was, as 510 to 442, or as 100 to 85.

In autumn, the proportion of the winds from some point of the north or east, to the winds from some point of the west or south was, as 374 to 446, or as 100 to 119.

In winter, the proportion of the winds from some point of the north or east, to the winds from some point of the west or south, was, as 335 to 351, or as 100 to 104.

“ Thus, the general predominance of the north and east winds in spring is apparent; and it is seen, also, that in summer the winds from the north and east quarters still prevail, though less than in spring; and the fine weather which we have at Dublin in summer is generally attended with winds from the east; but in autumn the winds from the west and south assume and maintain the ascendancy, as also in winter, yet less than in autumn, and for this obvious reason, that whatever notable frosts we have, are commonly brought on by east and north winds.”

But, a clearer idea of the state of the winds and their several proportions to each other, in the different seasons, may be formed by inspecting the following table, constructed from the accounts annexed to each month during the course of above seven years, that is, from 1759 to 1765 inclusively.

TABLE VIII.*

1759	E	NE	SE	N	W	SW	NW	S	1763	E	NE	SE	N	W	SW	NW	S
Spring	9	19	11	11	23	12	29	1	Br. over	133	156	278	87	364	357	271	80
Summer	7	3	21	5	24	26	29	3	Spring	14	11	25	4	30	22	17	3
Autumn	9	7	19	6	31	17	15	8	Summer	10	13	25	2	19	37	14	8
Winter	10	13	18	1	19	19	17	2	Autumn	11	12	16	6	27	25	16	3
1760									Winter	4	12	8	3	31	39	13	0
Spring	13	15	17	4	17	18	17	16	1764								
Summer	15	10	11	7	20	19	17	14	Spring	5	18	23	8	12	39	17	0
Autumn	2	3	19	3	37	19	18	3	Summer	15	9	32	5	31	28	13	3
Winter	1	3	13	6	37	32	12	1	Autumn	9	7	4	15	34	26	13	3
1761									Winter	9	3	36	5	11	27	7	4
Spring	7	16	14	10	10	22	14	2	1765								
Summer	5	10	10	7	35	43	16	3	Spring	8	16	19	10	24	20	18	3
Autumn	8	5	25	3	19	17	15	5	Summer	10	6	20	5	25	22	20	4
Winter	2	2	7	4	26	26	13	3	Autumn	3	5	9	5	35	29	19	3
1762									Winter	5	8	22	2	25	17	9	0
Spring	18	16	20	7	13	15	14	3	Total	236	276	517	157	668	688	447	114
Summer	12	11	15	1	28	24	30	2									
Autumn	7	12	16	9	17	32	13	6									
Winter	8	11	42	3	8	16	2	8									
Carryover	133	156	278	87	364	357	271	80									

The total of three of these columns differ from Dr. Rutty, who makes the S.E. points 516, the N.W. 457, and the S. 96.

TABLE IX.

Exhibiting the Number of Winds in each Season at one view.

	E	NE	SE	N	W	SW	NW	S
Spring	74	111	129	54	129	148	126	18
Summer	74	62	134	32	182	199	139	29
Autumn	39	51	108	47	200	165	119	31
Winter	39	52	146	24	157	176	73	8

" It appears from these tables, compared with those above, which comprehend a period of more than forty years, that there is a wonderful harmony between these registries, made by different persons, through all the varieties of weather attending; and from this comparison the following inferences may be drawn :

" 1st, That the south-west and west winds are the two grand trade winds, or reigning winds of Ireland, blowing most in summer, autumn, and winter, and least in spring; yet even in spring they prevail sufficiently to temper the pernicious blasts from the east and north.

" 2d, The eastern winds are almost equal in spring and summer, and nearly double to what they are in autumn and winter.

" 3d, The north-east wind blows most in spring, and doubly to what it does in autumn and winter.

" 4th, The north-west wind blows most in spring, and least in winter.

" Thus far the observations of the last septenary agree with all the foregoing, even from 1716 to 1765 inclusive; but one difference appears, which is, that in the last septenary the north winds prevail considerably above the south, whereas in two of the four other registries the south prevails above the north.

5th, " But all registries agree in this, that the south-east and north-west winds are nearly equal, and come next in number to the south-west and west.

Dr. Rutty's general observations on the climate of Ireland may be collected from the following extracts.*

" The comparative heat of the several seasons in London and Dublin is thus estimated by that accurate observer, Dr. Bryan Robinson:

	<i>In London.</i>	<i>In Dublin.</i>
Winter - - - - -	1·00	1·45
Spring - - - - -	3·00	2·14
Summer - - - - -	5·00	4·68
Autumn - - - - -	3·00	3·80
	<hr style="width: 50px; margin: 0 auto;"/> 12·00	<hr style="width: 50px; margin: 0 auto;"/> 12·07

" This greater warmth of air at Dublin, than is common to so northern a situation, is probably the cause why the perspiration of the human body is there so copious. Being estimated at a medium for the whole year, 1721 and 1744, it was found to be as expressed in the following table, which contains a comparative view of that at some other places."

In Dublin, 1721 - - - - -	1·141
<hr style="width: 50px; margin: 0 auto;"/> In Dublin, 1744 - - - - -	0·980
In Cork - - - - -	1·472
In England - - - - -	0·817
In South Carolina - - - - -	0·927
In Italy - - - - -	1·480

" Hence it seems to appear," says Dr. Rutty, " that the perspiration in Ireland is greater than in England; and in South Carolina and in Cork it is almost equal to what it is in Italy. But though our air be temperate as to heat and cold, the country has not unjustly acquired the appellation of *Matula Jovis*,[†] from its redundant moisture, which is easily accounted for by our situation farther out in the ocean, and our nearer approach to the vapours brought to us on the wings of the predominant west and south-west winds, but especially from some point of the

* Chronological History of the Weather and Seasons, and of the Prevailing Diseases in Dublin, by John Rutty, M.D. London edit. 1770, in the introduction, p. 38.

† Hornius says, that the same expression was applied to Heidelberg in Germany: sic de Anglia dici solet nullam fere diem esse qua celum non sit nubilum. Idem de Heidelberga jactatur, quam propter frequentes imbres *matulam jovis* studiosi vocare solent. *C. Hornii Hist. Nat. et Civil.* p. 271.

south, more than about London, as appears by diaries of the weather kept in both places. The signal moisture of our air further appears from our frequent wet summers, more like winters; from our fogs in winter, which are often so loaded with vapours, as not only to increase the weight of the hygrometer, but to raise the mercury in the barometer, and as a farther proof of the great moisture of our air, the first named instrument varied in its weight in several years from two hundred and forty-one to four hundred and thirty-three, viz. a hundred and ninety-two grains. Our linen and our paper imbibe this moisture, books grow mouldy, our woollen also, in rooms without a fire, imbibe it even in summer time; so do salt, sugar, hops, and meal; our corn requires to be kiln-dried, a practice unknown in some parts of England; and Boyle, and Godfrey the chemist, affirmed that salts imbibed much more moisture in Ireland than in Sweden. A traveller of veracity assures me, that the isicles dangling on our hair while travelling in frosty weather, are not observed on the continent of America; and therefore they may be considered as a proof of the abundance of watery vapour suspended in our atmosphere; from all which it is evident, that we live in a constant *balneum vaporis*, which is undoubtedly also imbibed by the absorbent vessels on the surface of our bodies."

In regard to storms, Ireland, I apprehend, is more subject to hurricanes than England; but thunder and lightning do not by any means visit the former so severely as the latter. Dr. Rutt's observations on this subject are contained in the following table:*

Storms in London from 1697 to 1717.				Storms in Dublin from 1716 to 1756.			
March	-	-	1	-	-	-	3
April	-	-	0	-	-	-	3
May	-	-	0	-	-	-	1
June	-	-	0	-	-	-	1
July	-	-	0	-	-	-	4
August	-	-	2	-	-	-	4
<hr/>				<hr/>			
Total of the spring and summer } storms at London in 20 years } 3				Total of the spring and summer } storms at Dublin in 40 years } 16			
September	-	-	2	-	-	-	9
October	-	-	5	-	-	-	9
November	-	-	2	-	-	-	14
December	-	-	7	-	-	-	17
January	-	-	2	-	-	-	16
February	-	-	6	-	-	-	17
<hr/>				<hr/>			
Total of the autumn and winter } storms at London in 20 years } 24				Total of the autumn and winter } storms at Dublin in 40 years } 82			

* Natural History of the County of Dublin, vol. ii. p. 471.

It hence appears, that storms were much more frequent at London in the autumn and winter months during the shorter range of twenty years, than in the spring and summer; the proportion being as 8 to 1. In the longer range of forty years at Dublin, the proportion was nearly as 5 to 1; and in a somewhat longer range at Dublin, namely, from 1715 to 1758 inclusive, the number of storms in each month was as follows:

May	-	1	September	-	9
June	-	1	October	-	9
April	-	3	November	-	14
July	-	4	December	-	17
August	-	4	January	-	17
March	-	5	February	-	19

As a farther illustration of this subject, I shall subjoin another table of the storms which took place at Dublin from 1760 to 1765.

Year.	Months.	Moon's Age.	Points.
1760	November 6	Day before new moon	W and SW.4
1761	October 22	3 days after last quarter	SE.3
	28	2 days after new moon	S.4
	November 19, 20, 21	Last quarter	SW
1762	January 16, 17	Day before last quarter	W
	March 12	3 days after full moon	SW
	October 20	3 days after new moon	SE
1763	September 10	3 days after full moon	SW
	October 2-3, a storm and great floods	2 and 3 days after last quarter	NE
	December 1	4 days before new moon	W
	28, 29	Last quarter	SW
1764	September 13, 14, 15	3, 4, and 5 days after full moon	W and SW
	December 5, 6	2 and 3 days before full moon	W and SW
	18	4 days before new moon	SE
1765	September ended	Day after full moon	W
	November 25	3 days before full moon	SW
	December 10	3 days before new moon	SW

From this and other tables Dr. Ruty deduces the following corollaries:

- 1st, "That the greater part of the storms are from the south-west and west.
- 2d, "During these seven years there was not one storm at the new or full moon; and most of the storms which took place were at a considerable distance from either.
- 3d, "The above calculations may be of use in the doctrine of chances, where navigation is concerned. For a man who commits himself to the sea only in the spring and summer has five chances to one of avoiding a storm, to what he has who undertakes a voyage in the autumn and winter.

4th, "The number of the points from which the storms blew at Dublin for forty years, were—

South-west	-	-	57	South	-	-	6
South-east	-	-	12	North-east	-	-	1
West	-	-	9	East	-	-	1

"5th, Most of the storms in Ireland come from some point of the south or west, viz. by far the greater part from the south-west; next from the west and south, but rarely from the north and east. So that a certain eminent divine, who talks of storms from the angry north, has but badly copied nature, and we read in Job, chap xxxii. v. 9, "Out of the south cometh the whirlwind, and cold out of the north," which is a much more just account of this matter, and holds good in our climate. Compare Isaiah, chap. xxi. v. 1, and Zech. chap. ix. v. 14, "And the south wind in Palestine blew from the sea," as it does with us. This may be of use in economies, but particularly in regard to the choice of a situation for building a house, and furnish a proper precaution against the blasts from the south-west.

"6th, In the English registries, October, December, and February, and in the Irish, November, December, January, and February, are far more prolific in storms, than the grand equinoctial months of March and September; so little dependance is there on vulgar tradition.

"7th, As a considerable point in view in preserving these records of the winds and weather, was to establish or explode, by faithful observation, the commonly received opinion of the influence of the moon on the weather, I have annexed the age of that planet to each storm in the above table. The astrologers, with confidence tell us, that the influence of the moon is exerted either at the time of the new or the full, or within three days of either, in which their cunning is very remarkable, even in taking care to allow themselves the large scope of six days for their prognostics, though at the same time this implies a consciousness that the great commotions of the atmosphere were far from being generally synchronous with the new and full moon; and accordingly it appears, by a register of storms during a series of sixty years, that there were but eight notable storms on the days of new moon, that is, about eight in 742, and only about six on the days of full moon, or about six in 742 moons; and as to their *triduum*, or three days before or after the new or full moon, in the above registers it is observable, that 23 of the storms mentioned happened within three days before or after the new moon, and 29 of them within three days before or after the full. We have therefore 66 as the number of storms on the new moon, full moon, and within three days before or after either; and as to the rest of the storms, viz. those which happened in more than three days before or after the new or full moon, twenty of these happened in more than three days before or after new, and twenty-one in more than three days before or after the full, making in all forty-one. So that we

have here more than forty-one storms in more than three days before or after the new or full moon; whence it sufficiently appears what little certainty there is in any prognostications made in this manner.

“As some of the more sober philosophers seem to acknowledge the powerful influence of eclipses, with respect to the great commotions in our atmosphere, it may be worth while to consider them also. Now during the above period of sixty years, there happened 249 eclipses of the sun and moon, and of all these the following four only appear to have been synchronous with any of the storms during the above period, namely, the eclipse of the sun, October 25, 1706; that of the moon, January 13, 1738; that of the same planet, December 21, 1740; and the eclipse of the sun, July 14, 1748.”

Dr. Rutton next makes the following observations on a catalogue of the gluts of rain which fell in Dublin, from the year 1716 to 1758 inclusive. “This catalogue was accompanied with the moon’s age, and the winds which prevailed at the time; 1st, During the forty-three years comprehended in the above period, the number of the respective winds at Dublin, attending the several gluts of rain, was as follows:

South-East	- - -	205	North-East	- - -	62
South-West	- - -	156	East	- - - - -	58
West	- - - -	75	South	- - - - -	55
North-West	- - - -	62	North	- - - - -	41

“Thus the south-east appears to be the most prolific in rain, and even considerably more so than the south-west, but how far this may be owing to the proximity of the Irish Sea and St. George’s Channel, I shall not take upon me to determine. Here still, agreeably to the other observations, the south exceeds the north; and the north-east and east fall but little short of the north-west and west.

“2d, The indefatigable Dr. Short, in his Appendix* on the Weather and Meteors, annexed to his Observations in the Bills of Mortality, asserts, that according to tradition, the greatest rains happen at or a little before or after the autumnal equinox; but from direct observations, that the most rainy months are neither at the equinoxes nor solstices as is commonly believed, how comes it that of all the gluts of rain which happened during these forty-three years at Dublin, that is, of 713 rainy days, two only took place exactly on the autumnal equinox, and eleven nearly within three days before or after the vernal equinox, and three only within three days before or after the autumnal?”

“Next, in regard to storms, which also, according to vulgar tradition, should accompany the equinoxes, it appears from the above register of storms during the space of more than sixty years, made partly at London and partly at Dublin, that of 131 storms which happened in that period, one only took place on the equinox, and six

within about three days before or after the equinox, whence we see how far vulgar traditions will stand the test of solid fact and observation.

“ 3d, Goad, in his *Astro-Meteorologia*, lays down with great assurance the three following aphorisms :

“ 1st, *Ex omnibus effectibus pluviam sæpissime producet novilunium.*

“ 2d, *Plenilunium pluvias aut ventos producit idque violentius quam novilunium.*

“ 3d, *Plenilunium mensis Aprilis et Augusti pene semper pluviam generat.*

“ It is somewhat surprising how men dare hand down to posterity such assertions as facts, when each of them, brought to the test of observation, appears to be false, at least in this climate, for

“ 1st, As in the above catalogue of great rains, during the space of forty-three years, there were nearly 713 days of great rain ; it is observable that only twenty-two of these great falls of rain happened precisely at the new moon, and 141 within three days before or after the new moon ; and as during the same term of forty-three years there were 532 moons, the great rains fell only on twenty-two of the new moons, and 141 times within the triduum.

“ 2d, As to the full moon with us, the reverse of what is here asserted took place ; for in the above catalogue, fewer rains attended the full than the new moon, that is to say, of 713 rainy days, sixteen only happened at the full moon, and 102 at the triduum, that is, three days before or after.

“ 3d, As to the full moons in April and August, in the above catalogue, during these forty-three years, it appears that only seven of the great rains in April happened at the full, or within the triduum ; and eight in August at the full, or within the triduum ; but the rest of the full moons and the tridua in both these months, during the above period, were not attended with notable quantities of rain ; from all which, and the former observations, I am ready to conclude, that the supposed influence of the moon on either our rain or winds, does not stand the test of solid observation, but appears to be a vulgar error.”

In regard to the humidity of the atmosphere at Dublin, Dr. Rutty gives the following table of observations made with a hygrometer, which consisted of a sponge dipped in brine, and then dried. The year here is supposed to begin in March.*

A. D.		Grains.	A. D.		
1759	The	3760	1760	The quantity	165 $\frac{2}{100}$
1760		3901	1761		106 $\frac{2}{100}$
1761	Hygrometer	3816	1762	of Rain was	106 $\frac{1}{100}$
1762		3724	1763		120 $\frac{1}{100}$
1763		3867	1764		121 $\frac{1}{100}$
1764	was	3902	1765	in Inches	144 $\frac{0}{100}$
1765		3844			198 $\frac{1}{100}$

* Natural History of Dublin, vol. ii. p. 454.

The foregoing table shews, that in a series of seven years, the greatest quantity of watery vapours imbibed by the sponge, was 3902 grains, and the least 3760, so that there was only a difference of 142 grains.*

DR. RUTTY'S SCHEME OF THE SEASONS AT DUBLIN FOR FIFTY YEARS.

YEARS	SPRING.	SUMMER.	AUTUMN.	WINTER.
1716	Various	Mostly fair	Windy, and wet	Frosty
1717	Various	Hot and dry	Variable	Various, windy, frosty
1718	Various	Warm, fair, and pleasant	Mostly fair	Mild; very little frost
1719	Various	Fair	Variable	Wet, windy, and frosty
1720	Various	Wet	Variable	Cold, frost, sleet, snow
1721	Various	Wet	Variable, inclinable to wet	Mild, open, dry, fair
1722	Various, inclining to wet	Moderately dry and warm	Mostly fair	Inclining to wet, and windy; little frost
1723	Unusually hot and dry	Excessively hot and dry	Unusually hot, and dry	Pretty open
1724	Mostly fair, and pretty dry	Wet	Mostly dry	Open; first stormy, then fair
1725	Inclining to fair, or dry	Wet and cold, as almost through Europe	Various	Cold, snow, and frequent rain
1726	Fair, and dry	Various	Various	For the most part open
1727	Various	Inclining to fair and dry	Wet	Mild and open
1728	Mild, and mostly fair	Wet	Various	Variable, inclining to frost
1729	Cold, and dry	Dry mostly	Inclining to wet, and windy	Open, much rain, somewhat windy
1730	Various	Wet	Various	Open, mild, and comparatively dry
1731	Dry and cold. Ended hot	Hot, and dry	Various; sometimes windy	Wet, and warm
1732	Various; the last month rainy	Moderately fair, or dry	A prevalence of windy weather	Wet, stormy, and warm
1733	Very dry	Dry. Ended wet and windy	Wet, and windy	Wet, windy, and very warm
1734	Warm; but a cold May	Wet	Various	Wet, windy, mild
1735	Open partly. Ended cold	The hottest summer remembered	Wet	Very open, and moist
1736	Generally mild	Mostly fair, hot, and cold	Moderately fair, and mild	Very open, wet, and windy
1737	Warm	Cold & wet. July dry and hot	Fair, and mild	Open
1738	Seasonable	Very wet	Mostly wet	Stormy, and wet
1739	Mostly cold	Dry, with north winds	Variable	Frosty, after a long series of open winters
1740	Dry, and cold	Hot	Unusually frosty	Cold, and frosty
1741	Excessively dry	A second hot summer	Variable	Frosty; some storms
1742	Excessively dry	Mostly fair, dry, and hot	Various	Stormy, and some frosts
1743	Various; still inclined to cold	Various. August wet & windy	Very changeable	Frosty; ended stormy
1744	Very backward	Wet	Rainy	Foggy, and frosty; Jan. floody
1745	March, forward; the two other months backward	Wet	Various, and some frost	Open, except a frosty January
1746	First part cold; last hot and dry	Wet, except August	Very changeable	Wet, windy, and very open
1747	Mostly cold	Hot, and dry	Unusually fair mostly	Mild, except a frosty February
1748	Various	Warm, and dry	Warm, and summer-like	Windy, and warm
1749	Cold	Partly cold, and winter-like	Mostly mild, warm, and dry	Mild, and open
1750	Cold, dry, and backward	Mostly cold, and winter-like	Variable	Much frost and snow, except a warm December
1751	Cold	Wet	Variable	Hazy, foggy, cloudy, little frosty
1752	Cold & dry, except a moist May	Extremely wet	Moderate, and dry	Frequent frosts, and snow
1753	Seasonable, except a wet March	Inclining to wet	Dry; frosty at the end	Rainy
1754	Various, partly temperate, partly cold	Wet	Fair, and summer-like	Frosty
1755	Wet	Wet, and cold	Inclining to wet, except Oct.	Wet
1756	Various	Very wet	Various	Frosty
1757	Cold, and backward	Inclining to cloudy, and wet	Dry, and summer-like	Mild and open mostly
1758	Cold, and dry	Mostly rainy	Mostly fair and fair	Open and mild
1759	Fair, and dry	Fair, dry, and warm	Mostly fair and moderate	Variable, inclining to moisture
1760	Dry	Variable, inclining to cold	Excessively wet	Very open, and warm
1761	Dry, and cool	Extraordinarily dry	Various, except a wet Oct.	Dry, except Jan. the two last months a little frost
1762	Dry	Dry	Moist	Foggy, and warm
1763	Mild	Wet and cool	Variable	Wet, with great floods & storms
1764	Mostly dry, and cool	Cool and moist	Variable	Warm and moist, except Feb.
1765	Variable, except a dry May	Excessively dry	Variable	Much frost and snow

* There appears here to be some mistake either of the author or printer, for, opposite to the year 1762, in the table, the quantity of moisture given is 3724 grains. If this number be correct, the difference should be 178 instead of 142.

By comparing the above scheme of the weather for fifty years at Dublin, with two registries kept at London,* Dr. Rutty draws the following conclusions, in regard to the state of the several seasons at each of these places :

“ The medium of Gadbury's and Say's Registry, is 13 cold springs in 44. In the Dublin Registry for 50 years, there are 16 cold, backward, or dry springs, in 50 ; so that the proportion of cold and dry springs is a little greater at Dublin than at London. Does not this difference arise from the more northern situation of the former, and consequently its greater proximity to the large mountains of ice and snow in the north ?

“ In both the London registries of 41 summers, there were at a medium nearly 20 hot and dry, and 20 wet, cold, and windy, that is, nearly half hot and dry.

“ In the Dublin registry of 50 years, 22 were fair, hot, or dry ; 24 wet, and the rest changeable. In the London registry, therefore, the number of hot and dry summers is almost equal to that of the cold and wet, while at Dublin the number of the wet a little exceeded that of the hot and dry. Upon the whole, then, it does not appear that London has a great deal to boast above Dublin in regard to the superior heat and severity of its summers.

“ In both the London registries of 41 autumns, 15 were frosty, dry, or warm, 9 wet, and the rest changeable.

“ In the Dublin registry of 50 years, 16 autumns were fair and dry, 12 wet, and the rest changeable ; so that the autumns at Dublin are also a little wetter than at London.

“ In both the London registries of 48 winters, 19 or 20 were frosty, 17 mild, and the rest changeable.

“ In the Dublin registry of 50 years, 13 winters were frosty, 14 wet, and about 26 open, mild, or warm ; so that according to all observations, the Dublin winters are in far greater proportion warmer and moister than at or near London ; and this furnishes another conclusion of more importance, which is, that notwithstanding some defects inevitably attending such registries ; yet upon the whole, both the English and Irish registries have been faithfully kept.”†

In the Transactions of the Royal Irish Academy, Mr. Kirwan has given synoptical tables of the state of the atmosphere and weather at Dublin, from the year 1792 to 1804 inclusive, the principal results of which are as follows:‡

* The first of these extending from 1669 to 1659, was published by John Gadbury, whose pen was undoubtedly far more usefully employed in this manner than in vain attempts at prognostication. The second, extending from 1695 to 1717, was drawn up from observations by a correspondent of Dr. Short's, whom he calls the reverend, worthy, and ingenious Mr. Say, late of St. James's, Westminster. Dr. Rutty extracted it from the Doctor's Chronological History of the Weather and Seasons.

† Natural History of the County of Dublin, vol. ii. p. 469.

‡ Transactions of the R. I. A. vol. v. p. 47, 235 ; vol. vi. p. 169, 173, 309, 435 ; vol. vii. p. 316, 359 ; vol. viii. p. 203, 509 ; vol. x. p. 31, 189.

1792.

Greatest height of the barometer was in September, 30·69; least, January, 28·76; mean of the whole year, 29·958.

Greatest height of the thermometer was in August, 77; the least, in January, 19·5; mean of the year, 50·509.

Greatest quantity of rain fell in August, 5·8588 inches; total in the year, 30·700 inches. Days of rain 288.

1793.

Greatest height of the barometer, January and October, 30·68; least, December, 28·68; mean of the year, 30·054.

Greatest height of the thermometer, August, 75·5; least, January, 28; mean of the year, 49·64.

Greatest quantity of rain fell, November, 2·7192 inches; total in the year, 22·8554 inches. Days of rain 214.

1794.

Greatest height of the barometer, May, 30·71; least, April, 29·12; mean of the year, 30·036.

Greatest height of the thermometer, July, 79·50; least, November and December, 32; mean of the year, 51·915.

Greatest quantity of rain fell, November, 7·676719 inches. Total of the year, 28·8260958 inches. Days of rain, 218, and four of light snow.

It is to be remarked, that on the 2d of July this year, Sixes' thermometer rose to 81·50 at one o'clock P. M. at two o'clock it was 79·50.

1795.

Greatest height of the barometer, November, 30·88; least, October, 28·94; mean of the year, 30·047.

Greatest height of the thermometer, August, 78; least, January, 19·50; mean of the year, 49·191.

Greatest quantity of rain fell, October, 6·6208 inches. Total of the year, 26·483270 inches; days of rain 196, on 25 of which there fell snow. Storms in the year, 24.

1796.

Greatest height of the barometer, March, October, December, 30·70; least, January, 28·76; mean of the year, 30·044.

Greatest height of the thermometer, June, 73·5; least, December, 20; mean of the year, 48·847.

Greatest quantity of rain fell, May, 4·339074 inches. Total of the year 21·942136 inches. Days of rain 204, on ten of which there fell snow. Storms in the year, 19.

1797.

Greatest height of the barometer, February and December, 30·72; least, December, 29·00; mean of the year, 30·535.

Greatest height of the thermometer, July, 75; least, November, 22; mean of the year, 49·49.

Greatest quantity of rain fell, October, 3·15078 inches. Total of the year 24·457224. Days of rain 216, on eight of which snow fell, and on four of which it hailed. Storms in the year, 24.

1798.

Greatest height of the barometer, February, 30·88; least, April, 28·80; mean of the year, 30·56.

Greatest height of the thermometer, June, 81; least, February and November, 25; mean of the year, 49·22.

Greatest quantity of rain fell July, 3·310419 inches. Total of the year 20·16457 inches. Days of rain 191, on twelve of which snow fell. Storms in the year, 27.

So great a fog took place, February 7th, that carriages were by mistake driven into the Liffey.

The following results for the same year, are taken from a Table of Observations made by Henry Edgeworth, Esq. at Edgeworthstown, in the county of Longford.*

Greatest height of the bar. Feb. 30·25; least, April, 28·10; mean of the year, 29·50.

Greatest height of the thermometer, June, 76; least, Dec. 18; mean of the year, 48.

Greatest quantity of rain fell, January, 5·80 inches. Total of the year, 35·56.

1799.

Greatest height of the barometer, December, 30·75; least, November, 28·86; mean of the year, 30·51.

Greatest height of the thermometer, June, 74; least, February, 14·50; mean of the year, 45·06.

Greatest quantity of rain fell, April, 3·940975 inches. Total of the year, 22 inches. Days of rain 106, and on 20 some snow fell.

1800.

Greatest height of the barometer, March, 30·94; least, November, 29·07; mean of the year, 30·478.

Greatest height of the thermometer, August, 81·50; least, December, 23; mean of the year, 47·819; greatest quantity of rain fell, January, 3·980384 inches. To-

* Transactions of the Royal Irish Academy, vol. vii. p. 317.—The same gentleman gives the following abstract of the quantity of wind in 1796, 1797, and 1798:

In 1796 the number of the most windy days was 165, of which 29 took place in January.

In 1797 the number of windy days was 160, of which 22 took place in January.

In 1798 the number of windy days was 157, of which 21 took place in October.

tal of the year 23·567028 inches ; days of rain 197, on 10 of which some snow fell. Storms in the year, 24.

1801.

Greatest height of the barometer, April, 30·76 ; least, December, 28·80 ; mean of the year, 30·531.

Greatest height of the thermometer, July, 75 ; least, October, 34 ; mean of the year, 49·278.

Greatest quantity of rain fell, November, 3·468058 inches. Total of the year, 21·965855 inches ; days of rain 175 and 19, on which a little snow and some hail fell. Storms in the year, 22.

1802.

Greatest height of the barometer, June, 30·68 ; least, November, 29·10 ; mean of the year, 30·586.

Greatest height of the thermometer, August, 76 ; least, January, 22 ; mean of the year, 48·637.

Greatest quantity of rain fell, December, 6·226619 inches. Total of the year, 27·97878 inches ; total days of rain, 222. Storms in the year, 13.

1803.

Greatest height of the barometer, June and September, 30·77 ; least, October, 20·80 ; mean of year, 30·64 :

Greatest height of the thermometer, July, 79·50 ; least, December, 22 ; mean of the year, 49·16.

Greatest quantity of rain fell, November, 5·926320 inches. Total of the year, 19·67748 inches ; days of rain, 193, on 17 of which snow fell. Storms in the year, 17.

1804.

Greatest height of the bar. Feb. 30·87 ; least, Jan. 28·86 ; mean of the year, 30·567.

Greatest height of the thermometer, Sept. 75 ; least, Dec. 31 ; mean of the year, 49·916.

Greatest quantity of rain fell, March, 4·348204 inches. Total of the year, 30·033722 inches ; days of rain 231. Storms in the year, 23.

Register of the Rain Guage kept at the Botanic Garden near Dublin.

Years.	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total.
1802	·652	1·145	1·136	·560	·750	1·630	4·420	2·760	1·400	3·240	3·700	5·250	26·993
1803	1·720	1·000	1·700	1·190	1·190	1·000	·470	2·450	·600	·220	2·756	4·680	18·970
1804	3·220	·500	4·060	1·710	2·710	1·450	3·000	3·260	·400	3·100	2·700	3·610	29·720
1805	2·760	·530	·550	1·000	1·550	·870	4·060	2·260	2·400	2·560	·650	2·370	22·470
1806	2·750	1·120	1·520	1·000	2·940	·900	3·020	1·290	2·130	1·670	3·920	2·220	24·490
1807	2·160	1·500	·450	·570	3·450	1·350	1·330	1·530	7·332	2·995	1·750	1·750	26·500
1808	·674	1·500	·654	1·250	2·340	1·670	4·500	1·834	1·590	2·040	2·330	2·770	23·182
1809	4·960	2·246	1·390	2·800	1·400	1·950	·456	4·510	3·640	1·770	1·759	2·170	25·899
1810	1·240	·700	1·674	·959	·843	·720	2·590	2·250	2·777	2·223	3·867	2·460	22·663
1811	1·300	1·750	1·560	2·145	2·030	·500							
Total	21·666	12·321	14·694	13·544	19·503	12·070	24·146	22·474	22·269	20·121	23·492	27·310	

By the above register it will be seen that the order of the months, in regard to the quantity of rain which falls in each, beginning with the driest, is as follows; June, February, April, March, May, October, January, September, August, November, July, December. This seems to vary considerably from the order observed at Belfast.

Dr. Rutton says, that the range of variation of the barometer at Dublin, is about $2\frac{2}{3}$ inches; and according to another estimation $2\frac{1}{3}$. The range of the thermometer is about 36 degrees.* Dublin, according to Arrowsmith, lies in lat. $53^{\circ} 21' N$. lon. $6^{\circ} 15' +$

The medium atmospherical heat of five years in Dublin, viz. 1794, 1796, 1797, 1799. and 1800, is $50^{\circ} 15$ plus; the maximum is $81^{\circ} 50$; the minimum $14^{\circ} 50$; the medium heat of the earth in the same city, as found by the temperature of the water in covered deep wells, in the year 1788, was from 50° to 52° . The thermometer in January 1789, at eight o'clock A.M. stood at $17^{\circ} 5$ in London; at two o'clock P.M. it rose to 24° , in Dublin it rose to $28^{\circ} \ddagger$

It was my intention to add to the preceding information in regard to the climate of Ireland, a regular series of observations made in different parts of the country, but as the study of meteorology has not yet made that progress there which it has in England, the materials which I have procured on the subject are not so complete as I could wish. In England many individuals keep registries of the weather, and are acquainted with the use of the common meteorological instruments; but in Ireland the case is different, for I never saw a barometer or a thermometer in the possession of any farmer. The documents, therefore, which I have obtained, are not sufficiently extensive to afford any satisfactory results; for to enable one to draw general conclusions with regard to the climate of a whole country, so extensive as Ireland, it would

* Essay towards a Nat. Hist. of the County of Dublin, vol. i. p. 4.

+ The observation was made in Mecklenburgh Street. The observatory at Dunsink is in lat. $53^{\circ} 27'$ lon. $6^{\circ} 20'$.

‡ Observations on the Climate of Ireland, by W. Patterson, M.D. Dublin, 1804, p. 162.

be necessary to have a series of observations made for a number of years, and at various places, distant from each other.

I have, however, to return thanks to several respectable friends who furnished me with such information as they were able to procure.

To General Vallancey and Mr. John Leslie Foster, I am indebted for a register of the rain-gauge kept at the Botanic Garden, belonging to the Dublin Society. I am under great obligations also to Archdeacon Hill, of Limerick, who obtained for me from the widow of the late Dr. Crump, whose polite attention to my request I also acknowledge, a journal kept by her late husband at Limerick during the year 1795; and I cannot help regretting the premature death of that ingenious physician, whose talents and knowledge qualified him in an eminent degree for being useful to his country. Dr. M'Donnell, of Belfast, procured me much information from that place. My thanks are due also to Mr. Aldworth of the county of Cork, and Mr. Phelps of Limerick, for their communications; nor must I forget Mr. Robertson of Kilkenny, who has distinguished himself not only by his skill in horticulture, but by a laudable desire to cultivate and improve every branch of useful knowledge connected with his profession.

The subjoined table,* containing the quantities of rain which fell at different parts of Great Britain, lying chiefly on the western coast of the island, during the course of five years, that is, from 1788 to 1792, inclusive, was drawn up by the late Dr. Garnet, and is here introduced, as the Rev. Mr. Sampson refers to it in his remarks on the quantity of rain which falls at Londonderry. It is to be observed, that Kendal bears north, 30° west from London, distant 226 miles, measured on a great circle of the earth, and according to the observations of Mr. Dalton, the town is elevated about forty-six yards above the level of the sea; Keswick bears north, 30° west; from Kendal 22 English miles, measured on a great circle, and according to Crosthwaite, is elevated about seventy-six yards above the level of the sea. Fellfoot lies at the south end of Winandermere, where the lake contracts into a river, and is about twenty-six yards above the level of the sea. These places are surrounded by high hills, some of which rise to the height of more than a thousand yards above the level of the sea. Salford joins to Manchester, and Youngsbury is near Ware in Hertfordshire, 20 miles north of London. The difference in the quantities of rain which fell in these different places, according to this table, is surprising. Much more falls in hilly than in level countries.

Years.	Dumfries.	Kendal.	Keswick.	Fellfoot.	Lancaster.	Salford.	Youngsbury.	London.
1788	26·423	39·2575	34·3057	42·06	29·45		17·676	14·592
1789	48·093	69·535	72·2449	66·52	51·01		29·493	21·976
1790	39·354	66·263	64·7439	55·45	46·61	42·75	22·970	16·052
1791	39·2817	62·200	73·5522				24·200	
1792	47·5130	54·584	54·6051			54·75		19·5

* Transactions of the R. I. A. vol. v. p. 262.

LONDONDERRY.—LAT. 55° 0'. LONG. 7° 17'.

The Rev. Mr. Sampson, in his Survey of Londonderry,* gives the following Tables in regard to the climate of that place, from the papers of his friend the late Dr. Patterson.

Summary of the Ranges of Meteoric Instruments.							
Years.	Barometer.		Thermometer.		Hygrometer, DeLuc.		Rain Gauge.
	Max.	Min.	Max.	Min.	Max.	Min.	Inch. Parts.
1795	30·54	28·64	74	21½	55½	32	32·861 plus
1796	30·61	28·97	71	17	56½	31	25·715394
1797	30·53	28·80	72	30	50·3	25½	30·821272
1798	30·65	28·60	74	26	44½	24½	33·2310176
1799	30·64	28·76	74	21	47½	31	34·7709468 plus
1800	30·49	28·85	81	28	52½	33½	29·2263628
1801	30·59	28·64	76	22	52½	26½	32·197740
Mean.	30·62+	28·66+	74+	25·7+	51·37+	29·13+	31·115147

* Page 12.

Table of the winds during the above period.

Years.	N.	S.	E.	W.	NW.	NE.	SW.	SE.
1795	21	38	26	79	109	62	83	60
1796	32	33	42	103	101	45	69	49
1797	19	51	16	98	55	29	82	50
1798	26	68	34	100	42	23	98	57
1799	49	34	34	109	67	16	70	56
1800	41	27	21	136	79	27	36	75
1801	37	46	36	141	86	23	35	29
Total	225	297	209	766	539	225	476	376

State of the weather in the different years during the same period.

Years.	Fair.	Show-ery.	Wet.	Hail.	Soow.	Frost.	Aurora Borealis.	Thunder and Lightning.
1795	131	195	36	18	33	60	3	8
1796	148	169	49	26	18	35	4	7
1797	114	216	35	28	13	32	3	5
1798	126	207	32	22	14	29	0	2
1799	128	198	39	22	25	53	0	9
1800	136	207	22	17	20	49	2	10
1801	124	217	24	31	25	25	4	7
Total	907	1412	237	164	184	255	16	48
Mean	129+	201+	34+	23+	21+	40+	2+	7—

On the above tables the author makes the following remarks:—"To what degree the climate of Ireland, when compared with others, should be deemed wet, a few observations will tend to ascertain. By the rain-gauge in the preceding summary, it appears that the maximum annual quantity at Londonderry in the space of seven years, does not amount to 35 inches, the minimum is below 26 inches, and the mean is 31·118147. The greatest quantity that I have found to fall in this place did not exceed 36 inches, whereas, at Keswick in Cumberland, the maximum amounts to the enor-

mous quantity of 84·6051. the minimum to 34·3057, and the mean to 68·5 inches. At Kendal, in Westmoreland, the rates are nearly the same. The medium quantity in Ireland, at large, is from 24 to 28 inches. Taking the annual quantity of rain that falls on the east coast of England, which is rarely less than 18 inches, and the maximum of the west coast of that country, the average will exceed 54 inches, and we cannot suppose that Scotland would produce a lower.

“ The frequency of our showers in Ireland, and not the quantity of rain, has given rise to the popular notion of the peculiar wetness of our climate ; but I hope I have brought cogent arguments to shew that, in this respect, it is neither hurtful to animal nor vegetable life, and that in fact it is not comparatively humid and rainy. Sometimes in spring, the seed time is retarded a little by the wetness of the weather, but our spring seasons are so often cold and backward, that early sowing is not always most eligible in this district .

“ If, in summer and autumn, frequent showers render the hay and grain harvests *brittle*, vigilance and industry would, on these emergencies, be as successful as they are in the *catching* harvests of England, and improved culture would prepare the crops to meet the exertions of the husbandman.

“ During nine years, from 1795 to 1803 inclusive, the winds were: north 295, south 398, east 283, west 1005, north-west 737, north-east 265, south-west 599, south-east 454.

“ Of sixteen terms noted at Derry, from 1795 to 1802 inclusive, the mean heat was 49°, which corresponds with the highest medium temperature of the earth in the same place, ascertained by experiment. The maximum of the sixteen terms was 81°, the minimum 17°.

“ At Derry, in twelve years, from 1791 to 1802 inclusive, the medium number of fair days was above 126 ; the maximum 148, minimum 113. It appears from nine years observation, that the medium number of fair days at Belfast is also above 126 ; maximum 161, minimum 90.* The yearly number of fair days at Dublin, is from 168 to 205, and the middle number is 179. At Edgeworthstown, in the county of Longford, in the year 1798, there were 233 fair days. Taking twenty-three terms in Derry, Belfast, Dublin, and Edgeworthstown, from 1783 to 1802, the medium number is nearly 140 ; so that even the annual mean of fair days, in the kingdom at large, may be stated at nineteen above the third.”†

* Dr. Patterson supposes this to be a mistake, since it does not rate in proportion with the maximum.

† Essay on the Climate of Ireland, by W. Patterson, M.D. Dublin, 1804, p. 164.

BELFAST.—LAT. 54° 35'. LONG. 5° 55'.

Extract from the Register of the Barometer and Thermometer kept at Belfast Library.

The following abstract of a Diary of the Weather, from January 1, 1793, till January, 1799, kept at Belfast by a man of singular accuracy, may serve as the means of correcting other observations of the same kind made by incorrect persons, or with bad instruments. Communicated by Dr. M'Donnell.

Barometer.			Thermometer.			
Years.	Highest.	Mean.	Lowest.	Highest.	Mean.	Lowest.
1796	31-00	30-07	28-76	68-50	52-78	30-00
1797	30-50	30-5	29-00	68-00	53-83	35-00
1798	30-55	30-01	29-08	70-00	51-05	33-00
1799	30-60	29-96	29-00	68-25	51-13	31-00
1800	30-65	29-93	28-90	73-00	52-29	33-05
1801	30-55	30-07	28-00	79-00	55-44	35-00
1802	30-50	29-95	28-92	73-00	52-90	33-05
1803	30-66	29-55	28-51	77-20	52-60	25-00
1804	30-70	29-96	28-50	73-00	53-55	31-60
*1805	30-52	30-00	28-58	72-52	53-01	32-50
1806	30-70	30-07	28-65	73-00	53-76	32-50
1807	30-38	29-15	29-00	75-00	51-91	28-00
1808	30-90	29-97	28-92	75-60	52-50	27-00
1809	30-64	29-55	28-60	78-50	55-20	30-05

* The return for 1805 is doubtful, being stated from memory.

Years.	1793	1794	1795	1796	1797	1798
Barometer mean height	29-63*	29-55*	29-83	29-76		
Thermometer do.	52	50	50	52		
Rain-gauge, Inches	24-55	25-0156	26-951	18-193	26-135	26-106
Wind prevailing points	SW.	SW.				

The subjoined Table shews the Result of a Register of the Rain-Gauge kept at the Library of Belfast during the years 1796, 1797, 1798, and till Nov. 4th, 1799.

REGISTER OF THE RAIN-GAUGE KEPT AT THE LIBRARY, BELFAST.

Years.	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sep.	Oct.	Nov.	Dec.	Total.
1796	2-953	2-412	0-672	0-692	2-222	1-204	2-723	0-392	3-242	1-065	0-410	1-388	19-405
1797	0-749	0-745	1-890	1-155	1-958	0-726	3-743	2-605	3-245	1-860	2-235	3-005	23-916
1798	3-233	0-650	0-525	2-005	1-030	1-765	4-626	1-445	4-649	1-850	3-650	1-160	26-121
1799	1-845	1-801	2-237	1-510	1-570	0-799	2-752	4-334	1-583	3-755	0-626		22-512
Total	8-810	5-605	5-324	5-362	6-780	4-497	13-844	8-776	12-719	8-060	6-921		

To the preceding I shall add another register, kept at the Academy, Belfast; but it is to be remarked, that it closed on the 18th of September, 1798, as it was observed that the rain-gauge had been going to decay for some time. It could not, therefore, be depended on after the month of June.*

* I am indebted for this table, to select papers of the Belfast Literary Society. Fasciculus Fourth.

Register of the Rain-Gauge kept at the Academy, Belfast.

Years.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
1793	1·737	2·595	1·592	1·464	1·050	1·715	1·380	4·165	0·948	1·626	3·661	2·318	24·554
1794	1·209	2·450	1·390	2·017	1·209	0·353	2·310	3·090	3·627	4·559	3·295	2·557	28·156
1795	0·520	2·768	2·248	1·580	0·706	0·750	3·231	2·655	0·773	4·837	3·785	2·804	26·957
1796	2·456	2·322	0·551	0·561	1·789	1·437	2·427	0·515	2·424	1·222	1·025	1·434	18·193
1797	1·106	0·568	2·095	1·178	2·045	0·631	4·060	2·583	3·125	1·880	1·220	3·924	34·415
1798	3·160	0·800	0·710	1·730	1·000	1·360							
Total	10·215	11·503	8·886	8·830	7·799	6·279							

"The annual fall of rain on an average of six complete years, is only 24·700 inches; consequently, the popular opinion of Belfast being subject to much rain, is founded only on the frequency of showers. The manner in which rain falls is of more consequence than the quantity.

"The greatest fall in twenty-four hours was on October 10, 1794, namely, 1·310 inches. Heaviest showers: July 3, 1794, 0·700 of an inch fell in two hours; and August 1, 1795, 0·366 in a quarter of an hour. The Lammas flood seems to be remarked, rather because it is unseasonable, than as being very regular or violent. Between December 23d, 1794, and January 31st, 1795, there fell only six hundredth parts of an inch of rain and a slight shower of snow. Longest drought: 19 days from August 11, 1796; and the same number of days from June 3, 1799.

"The year 1798 was reckoned dry, and the summer very fine. The year 1799 was followed by two years of scarcity, and was considered as very wet. Yet there fell in July, August, September, and October, 1798, more rain by 0·245, than in the corresponding months of 1799. The difference of the seasons did not consist in the quantity of rain; but in the general inclemency of the weather.

"In 1793 there fell at Glasgow 29·198 inches of rain in the following proportions, which may be compared with the quantity the same year at Belfast.

Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
6·50	5·100	3·050	5·890	0·560	1·400	2·333	4·155	1·232	2·724	2·953	2·816

"This was less than in 1792 by 6·752 inches. The average of two years was therefore 32·569 inches.

"In one of these years, 1792, there fell at Kendal 83½ inches; and about the same time 84 at Keswick. The quantity at Walton, near Liverpool, in 1793, was 30·900; evaporation 0·285. It is said that 115 inches have fallen at Senegal in four months."

The following comparative register of the state of the Thermometer, according to observations made at Mount Stewart, county of Down, Ireland, by Lady Elizabeth Pratt, and at Euston Hall, Suffolk, during the month of January, 1810, and also one kept at Lympton, eight miles from Exmouth, in Devonshire, by Lord Charles Fitzroy, at the same hours of the day, during nearly the same period, will serve to give an idea of the difference of temperature between these places, and of the weather which prevailed at each of them.

A comparative Register of the Thermometer kept at Euston Hall, in Suffolk, and at Mount Stewart in Ireland, at the same period.

Register of the Thermometer, for January, 1810.

January	1810	10 o'clock.	1 o'clock.	5 in the evening.	Observations.
Mount Stewart.	1st day of	50°	51°	49°	
<i>Suffolk.</i>	the month.	44½	50	46	
Mount Stewart.	2d day of	45	50	47	
<i>Suffolk.</i>	the month.	46	49½	44	
Mount Stewart.	3d day of	40	48	47½	
<i>Suffolk.</i>	the month.	42½	47½	44	
Mount Stewart.	4th day of	50	51	46	
<i>Suffolk.</i>	the month.	46	48	47	
Mount Stewart.	5th day of	47	50	--	
<i>Suffolk.</i>	the month.	45	47½	42	
Mount Stewart.	6th day of	46	46	45	
<i>Suffolk.</i>	the month.	44	47	45	
Mount Stewart.	7th day of	47	47	45½	
<i>Suffolk.</i>	the month.	44	45	40	
Mount Stewart.	8th day of	45½	43	43	
<i>Suffolk.</i>	the month.	—	—	—	
Mount Stewart.	9th day of	38	35	35	
<i>Suffolk.</i>	the month.	—	—	—	
Mount Stewart.	10th day of	46	46	47	
<i>Suffolk.</i>	the month.	35	—	37	
Mount Stewart.	11th day of	45	46	43	
<i>Suffolk.</i>	the month.	44	—	42	
Mount Stewart.	12th day of	36	35	33	
<i>Suffolk.</i>	the month.	38	42	38	
Mount Stewart.	13th day of	—	—	—	
<i>Suffolk.</i>	the month.	31	32	31½	
Mount Stewart.	14th day of	34	35	32½	
<i>Suffolk.</i>	the month.	26	30½	22	
Mount Stewart.	15th day of	30½	31	28	
<i>Suffolk.</i>	the month.	21½	28	18	14½ at Eleven at Night.
Mount Stewart.	16th day of	32	35	30	
<i>Suffolk.</i>	the month.	20	27½	12	

A comparative Register of the Thermometer kept at Lypmston, in Devonshire, and at Mount Stewart in Ireland, at the same period.

December	1809	10 o'clock.	1 o'clock.	Sin the evening.	Observations.
Mount Stewart.	6th day of	50°	53°	45°	A fine warm day, with sun.
Devonshire.	the month.	50½	—	52½	A dark day, with drops of mild rain.
Mount Stewart.	7th day of	45	44	40	Not cold, but stormy with some rain.
Devonshire.	the month.	47½	49½	—	Heavy rain in the morning, fair afterwards.
Mount Stewart.	5th day of	41	45	41	High wind S. E. with rain for several hours.
Devonshire.	the month.	44	45½	47½	Grey morning, then sun, with distant showers.
Mount Stewart.	9th day of	45	47	43	The storm continuing, with violent rain.
Devonshire.	the month.	48	51	52	Cloudy, with showers, dark, and stormy wind.
Mount Stewart.	10th day of	39	41	34	Rather less wind and no rain, but very cold.
Devonshire.	the month.	45½	46½	42	Sun and wind; stars after heavy rain.
Mount Stewart.	11th day of	34	35	37	A clear day and no rain, but cold westerly wind.
Devonshire.	the month.	39	43	39½	Dark, and Therm. at 40 at Eleven at night.
Mount Stewart.	12th day of	35	37	34	Rain in the night, west wind, day fine, but cold.
Devonshire.	the month.	45	44	41½	Sun and wind, squally, hard rain at night.
Mount Stewart.	13th day of	35½	37	34	A clear day, with sun, wind westerly.
Devonshire.	the month.	40	—	36½	Sun, wind, and showers.
Mount Stewart.	14th day of	34	35½	42	Rain all night, fine day, wind very high.
Devonshire.	the month.	36	42½	44	Cloudy, sun with clouds, star-light.
Mount Stewart.	15th day of	36	36	34	Rain in the night, high wind S. E.
Devonshire.	the month.	38	40	34	Appearance of slight frost, rain.
Mount Stewart.	16th day of	36	36	34	Rain in the night, and high wind S. E.
Devonshire.	the month.	34	43½	41½	White frost in the morning, rain from two o'clock.
Mount Stewart.	17th day of	32	38	40	White frost, wind N. E. a very fine day.
Devonshire.	the month.	44	47½	40½	Heavy showers, at night star-light.
Mount Stewart.	18th day of	42	43	42	A good day, wind north.
Devonshire.	the month.	42	—	41½	Wind and showers, clear evening.
Mount Stewart.	19th day of	42	42	41	A beautiful morning, wind N. W. a fine day.
Devonshire.	the month.	—	45	38	Clear all day.
Mount Stewart.	20th day of	42	42	—	
Devonshire.	the month.	40	44	46	Grey morning, light clouds in the evening.
Mount Stewart.	21st day of	35	38	33	
Devonshire.	the month.	34	36	35½	
Mount Stewart.	22d day of	38	42	39	
Devonshire.	the month.	38	40	36	
Mount Stewart.	23d day of	43	46	41	
Devonshire.	the month.	37	—	41	
Mount Stewart.	24th day of	47	47	38	
Devonshire.	the month.	37	40	38	
Mount Stewart.	25th day of	34	37	35	
Devonshire.	the month.	39	40	37	
Mount Stewart.	26th day of	40	41	43	
Devonshire.	the month.	35	38	36	
Mount Stewart.	27th day of	44	45	41	
Devonshire.	the month.	39½	42½	47	
Mount Stewart.	28th day of	47	49	47	
Devonshire.	the month.	44	47½	44	
Mount Stewart.	29th day of	47	49	47	
Devonshire.	the month.	50	50	49	
Mount Stewart.	30th day of	47	49	46	
Devonshire.	the month.	49	50	51	
Mount Stewart.	31st day of	47	49	46	
Devonshire.	the month.	48	49	50	

ARMAGH.—LAT. $54^{\circ} 20' 30''$. LONG. $6^{\circ} 32'$.

VARIATION OF THE MAGNETIC NEEDLE, WEST OF NORTH.

Extracted from the Transit Book of the Observatory at Armagh.

1799	December 27	-	-	-	$27^{\circ} 40'$
1804	May 10	-	-	-	$28^{\circ} 31' 30''$
1805	May 14	-	-	-	$28^{\circ} 16'$
1810	April 19	-	-	-	$29^{\circ} 00'$
1811	July 26	-	-	-	$29^{\circ} 02'$

KILKENNY.—LAT. $52^{\circ} 38\frac{1}{2}' 2''$. LONG. $7^{\circ} 11' 30''$.

I am happy to find, by a letter from Mr. Robertson of Kilkenny, that a taste for scientific pursuits begins to prevail in that part of Ireland. A society for establishing a library and collection of natural history has been formed at the above town.

Mr. Robertson makes the following general remarks on the weather in the neighbourhood of Kilkenny.—“The spring months of February and March I have observed, are in general rainy, and mild, the winds being mostly south-south-west and south. April and May are drier, but often attended with northerly and north-west winds, which prove very destructive to the blossom of the fruit-trees, prematurely forwarded by the softness of the preceding weather.

“The summer months of June and July are frequently chilled by rains and cool westerly winds, which, however, are occasionally warm, and followed by more settled fine weather.

“During the months of August, September, and October, there is a much greater proportion of north and easterly winds.

“In the winter months of November, December, and January, there is much rain, but little frost, and severe cold is rarely of more than a few days continuance.

“In winter, the thermometer seldom sinks below the freezing point, and during the summer heat, it seldom rises above 79 in the shade, though I have observed it as high as 84; I think its average range during our warm weather seems to be between 70 and 75.

“I am of opinion that the west winds prevail with us, in general, for about two-thirds of the year.

“Summer fruits ripen here about a fortnight later than in the neighbourhood of London, and late ones are still more backward. Grapes planted against our best walls never ripen in the open air; and many autumnal flowers that expand perfectly well on your opposite coast, such as double pomegranate drops, do not open here even in the most sunny aspects; yet we have sufficient warmth to mature, besides our abundant crops of grain, the summer and autumnal fruits, and with the assistance of walls, the greater part of the winter ones.”

The following Table, the first fruits of the Kilkenny Society, contains a Meteorological Journal of the Weather during the last three months of the year 1811, and a part of January, 1812, communicated by Mr. Robertson.

At 1	P. M.	Weather, wind, &c.	At 1	P. M.	Weather, Wind, &c.
Oct.	Ther. Bar.		Dec.	Ther. Bar.	
1	60 29.59	Showers, winds. -w. partly cloudy	1	50 29.50	Wind south-west, high, dry
2	60 29.57	Wind north-east, afternoon wet	2	39 30.15	Wind n.-west, stormy and showery
3	53 29.54	Wind north-easterly, heavy rain	3	47 30-	Wind westerly, high, showery
4	61 29-	Wind southerly, heavy rain	4	33 29.25	Wind n.-west, high, rain, and sleet
5	60 29-	Wind south, wet	5	30 29.92	W. n.-w. frost, & showers of snow
6	57 29.54	Wind westerly, high	6	39 29.70	Wind south, &c. thaw
7	61 29-	Wind south, light rain	7	51 29.24	Wind southerly, wet
8	63 29.65	Wind southerly, dry	8	42 29.15	Wind southerly, dry
9	66 29.62	Wind south, dry	9	35 29.90	Wind south-west, dry
10	61 29.55	Wind south, high and showery	10	42 29.25	Wind easterly, dry
11	57 29.46	Wind west, heavy rain	11	37 29.59	Wind northerly, light frost, dry
12	60 29.5	Wind west, high, showery	12	49 29.66	Wind s.-west, light rain, and thaw
13	65 29.70	Wind southerly, dry	13	49 29.60	Wind south-west, light rain
14	60 29.37	Wind south-west, heavy rain	14	44 29.66	Wind south-west, dry
15	60 29.30	Wind south, high, dry	15	44 29.60	Wind south-west, dry
16	61 29.50	Wind south, dry	16	37 29.42	Wind north-west, high, with rain
17	60 29.10	Wind south, high, light rain	17	42 29.50	Wind north-west, heavy rain
18	60 29.74	Wind south-east, dry	18	47 29.55	Wind south, showery
19	61 29.90	Wind south-west, dry	19	45 29.46	Wind south-west, dry
20	60 29.77	Wind southerly, light rain	20	38 23.40	Wind n. frost, and heavy rain after
21	56 29.30	Wind southerly, heavy rain	21	37 29.60	Wind north, light rain
22	51 29.23	Wind southerly, light rain	22	35 30.20	Wind north-west, frost, dry
23	47 29.6	Wind north-west, heavy rain	23	45 30.11	Wind north-west, light rain
24	43 29.10	Wind westerly, rain	24	42 30.5	Wind west, light rain
25	51 29-	Wind south, hoar frost, rain, P. M.	25	38 30.5	Wind south-east, dry
26	77 29.50	W. s.-east, heavy rain, & lightning	26	33 30.10	Wind north-east, dry
27	47 29.52	Wind northerly, foggy, dry	27	35 29.15	Wind n.-west, frost, sleet, and rain
28	45 29.70	Wind southerly, light rain	28	33 29.57	W. northerly, frost, and light snow
29	47 29.78	Wind north-west, dry	29	33 29.75	Wind northerly, hard frost, dry
30	50 29.90	Wind north-west, showery	30	30 38.20	Wind n. frost, ther. at 9 at 26, dry
31	52 29.39	Wind southerly, hoar frosts, wet	31	35 29.99	Wind westerly, gentle thaw, dry
No. 1	53 29.30	Wind southerly, heavy rain	Jan 1	36 29.66	Wind south-west, thawing, dry
2	51 29.30	Wind southerly, heavy rain	2	37 29.56	Wind westerly, dry
3	45 29.40	Wind southerly, wet	3	30 29.27	Wind north-west, frosty, dry
4	46 29.66	Wind westerly, dry	4	34 29.32	Wind westerly, frosty, dry
5	44 29.60	Wind westerly, high, showery	5	33 29.56	Wind northerly, frosty, dry
6	49 29.60	Wind westerly, showery	6	40 29.90	Wind south-west, &c. thaw, dry
7	46 29.50	Wind westerly, dry	7	40 30.4	Wind north-west, light frost, dry
8	44 29.20	Wind easterly, heavy rain	8	36 30.72	Wind north-west, frost, dry
9	47 29.42	Wind northerly, dry	9	41 30.14	Wind westerly, thaw, dry
10	50 29.2	Wind southerly, rain	10	40 30.16	Wind northerly, dry
11	46 23.55	Wind north-west, blowing, rain	11	40 30.5	Wind north-west, dry
12	44 29.50	W. westerly, heavy rain, hoar frost	12	36 29.90	Wind north-east, light frost, dry
13	46 29.65	Wind westerly, fair	13	36 29.83	W. northerly, light frost, & thaw, dry
14	47 29.53	Wind westerly, high, dry	14	42 30.3	Wind westerly, dry
15	40 29.50	W. n.-w. stormy, showers, sleet, rain	15	42 30.12	Wind north-west, dry
16	44 29.55	Wind north-westerly, dry	16	42 30.7	Wind s.-east, light rain, a shower
17	49 30.5	Wind north-westerly, dry	17	44 50.10	Wind southerly, dry
18	49 30.10	Wind southerly, dry	18	45 30.20	Wind westerly, dry
19	46 30.10	Wind westerly, dry			
20	41 30.33	Wind north-west, light frost, dry			
21	47 30.15	Wind south, dry			
22	45 30.5	Wind south-west, light rain			
23	45 30.20	Wind west, hoar frost, dry			
24	46 30.19	Wind west, dry			
25	46 30.35	Wind north-west, dry			
26	43 30.25	Wind west, dry			
27	49 30.25	Wind south-west, dry			
28	51 30.20	Wind south-west, dry			
29	49 30.15	Wind south-west, fair			
30	49 30.5	Wind south-west, dry			

October had 20 wet days, 11 dry.

November 11 wet, 19 dry.

December 16 wet, dry 15.*

* I trust in future the society will pay attention to hygrometrical observations, and also to the rain gauge.

CLIMATE.

201

LIMERICK.

The late Dr. Crump's Account of the Weather at Limerick, Anno 1795.

The Latitude of Limerick is 52° 41' 30" North—Longitude 5° 31' West.

Date.	Bar.	Ther.	Wind	Remarks.	Date.	Bar.	Ther.	Wind	Remarks.		
1	Jan.	29.9	E	Dry, slight frost	20	Feb.	30	SE	Frost		
2		30.2	E	Do.	21		29.5	SE	Snow		
3		30.2	E	Do.	22		29	SE	Variable		
4		30.3	E	Do.	23		29.3	SE	Wet		
5		30.2	E	Do.	24		29.3	S	Dry		
6		30.3	E	Do.	25		29.2	E	Do.		
7		30.2	E	Do.	26		29	E	Do.		
8		30.1	E	Do.	27		29.3	E	Dry, snow at night		
9		30.2	E	Do.	28		29.2	E	Dry, thaw		
10		30.2	E	Do.	1	Mar.	29.5	S	Variable		
11		30.1	E	Do.	2		29.7	SW	Dry		
12		29.9	SE	Wet	3		30.0	W	Do.		
13		29.5	SE	Do.	4		29.9	SW	Slight showers		
14		29.7	E	Dry frost	5		29.2	SW	Wet		
15		30.2	E	Do.	6		29.5	NW	Showers, stormy		
16		29.9	E	Do.	7		30.0	NE	Dry		
17		29.9	NE	Do. slight snow	8		30.1	NW	Do.		
18		29.6	SE	Dry	9		29.8	W	Wet		
19		29.6	E	Do.	10		29.2	W	Do.		
20		29.6	E	Dry, hard frost	11		29	47	NW	Do.	
21		29.8	E	Do.	12		29	44	NW	Heavy showers, hail	
22		29.9	NE	Do.	13		29	45	S	Wet	
23		29.8	NE	Do.	14		29.3	45	SE	Dry, slight frost at night	
24		29.8	S	Dry, slight thaw	15		29.5	45	SE	Do.	
25		29.8	SE	Dry, heavy snow at night	16		29.3	46	SE	Slight showers	
26		29	E	Sleet, with high wind, rain	17		29.4	45	SE	Dry	
27		29	NW	Dry, thaw	18		29.9	44	E	Do.	
28		29.5	NE	Snow	19		30.1	45	NE	Do.	
29		29.8	NE	Frost, dry	20		30.2	50	NW	Do.	
30		29.8	E	Frost	21		29.7	45	NW	Heavy rain before day, showers	
31		29.3	SE	Wet	22		30	45	NE	Dry	
1	Feb.	29.5	E	Dry frost	23		31	1	45	NW	Do.
2		29.5	NE	Do.	24		29.7	45	NW	Do.	
3		29.3	NE	Heavy snow	25		29.7	45	W	Do.	
4		29.5	E	Frost	26		29.16	45	W	Do.	
5		29.5	E	Do.	27		29.6	50	W	Wet	
6		29.4	SE	Sleet and rain	28		29.7	50	SW	Dry	
7		29.4	SE	Wet	29		29.6	53	SW	Dry, heavy rain at night	
8		29	NW	Dry	30		29.6	53	SW	Dry	
9		29.8	W	Variable	31		29.7	53	SW	Mild showers	
10		29.7	W	Wet	1	Apr.	29.7	50	SE	Dry	
11		28.7	W	Variable	2		29.5	48	SE	Do.	
12		29.2	NW	Dry frost at night	3		29.6	50	NW	Showery	
13		29.7	NE	Frost	4		29.9	50	SW	Dry	
14		30.3	NE	Do. slight	5		29.9	50	E	Do.	
15		30.5	N	Frost	6		30.1	48	SE	Do.	
16		30.5	W	Do.	7		30	50	SE	Dry, showers at night	
17		30.4	SE	Do.	8		29.8	50	SE	Dry	
18		30.3	SE	Do.	9		29.8	48	SE	Do.	
19		30.2	SE	Do.	10		29.8	48	SE	Wet afternoon	

The late Dr. Crump's Table continued.

Date.	Bar.	Ther.	Wind	Remarks.	Date.	Bar.	Ther.	Wind	Remarks.
11	Apr.	30 50	NE	Dry	6	June	29-7 60	NW	Heavy showers
12	—	30 58	NW	Do.	7	—	29-7 60	NW	Showers
13	—	30 55	W	Hazy, wet	8	—	29-7 60	NW	Heavy rain, morning
14	—	30 55	W	Dry	9	—	29-9 60	NE	Dry
15	—	29 5 50	W	Showery	10	—	30-1 60	SE	Do.
16	—	29 5 50	W	Do.	11	—	30-1 60	E	Dry, slight mist
17	—	29 5 51	W	Do.	12	—	30 62	N	Do.
18	—	29-4 55	W	Heavy showers	13	—	30 55	E	Do.
19	—	29 54	NW	Do.	14	—	30 67	SE	Do.
20	—	29-2 50	N	Showery	15	—	29-9 69	S	Do.
21	—	29-2 50	NE	Do.	16	—	30 69	E	Do.
22	—	29-2 50	NW	Do.	17	—	30 67	NE	Do.
23	—	29-2 55	W	Do.	18	—	30-1 60	NE	Do.
24	—	29-2 54	W	Do.	19	—	30-1 60	SE	Do.
25	—	29-2 53	W	Heavy rain	20	—	30-3 65	W	Do.
26	—	29-2 53	SW	Heavy showers	21	—	30 70	W	Slight showers, dry
27	—	29-4 53	SW	Wet	22	—	30 70	W	Dry
28	—	29-2 45	NW	Heavy showers	23	—	29-9 69	SW	Do.
29	—	29-2 45	W	Do.	24	—	29-7 69	SW	Do.
30	—	29-2 45	W	Do.	25	—	29-9 70	SW	Thunder, heavy showers
1	May	29-8 55	W	Dry	26	—	29-9 70	SW	Dry
2	—	30-1 56	W	Do.	27	—	30-0 65	SW	Heavy rain at night
3	—	30 58	W	Do.	28	—	29-5 60	W	Heavy showers and mists
4	—	30 59	W	Do.	29	—	29-5 60	W	Very heavy showers
5	—	30 60	W	Do.	30	—	29-5 60	W	Showery
6	—	30-2 58	W	Do.	1	July	29-6 65	W	Dry
7	—	30-2 59	W	Do.	2	—	29-6 65	W	Do.
8	—	30-2 55	NE	Do.	3	—	29-6 67	E	Showery
9	—	30-2 54	NW	Do.	4	—	30 66	NE	Dry
10	—	30-1 55	W	Do.	5	—	30-1 68	E	Do.
11	—	30-0 54	W	Do.	6	—	30-1 70	E	Do.
12	—	30-1 53	NW	Do.	7	—	30-1 70	E	Do.
13	—	30-1 55	NW	Do.	8	—	30-1 72	E	Do.
14	—	30-1 54	NW	Do.	9	—	30-1 72	NE	Do.
15	—	29-6 54	NW	Showery	10	—	30-1 72	E	Do.
16	—	29-7 55	SW	Dry	11	—	30-1 70	E	Do.
17	—	29-6 55	SW	Wet	12	—	30-1 70	E	Do.
18	—	29-6 57	SW	More wet, after dry.	13	—	30-1 68	E	Do.
19	—	29-8 55	SW	Dry	14	—	30-1 66	NE	Do.
20	—	30-2 61	W	Do.	15	—	30-1 62	NE	Do.
21	—	30-2 65	W	Do.	16	—	30-1 68	NE	Do.
22	—	30-3 65	W	Dry, (therm. 99 in the sun)	17	—	29-9 65	N	Do.
23	—	30-2 65	W	Dry	18	—	29-9 70	NW	Do.
24	—	30 67	NE	Do.	19	—	29-9 72	W	Do.
25	—	30-1 64	E	Do.	20	—	29-8 70	W	Do.
26	—	30-2 60	SE	Do.	21	—	29-5 72	SW	Showers, heavy
27	—	30-3 57	NE	Do.	22	—	29-7 68	NW	Dry
28	—	30-3 60	NW	Do.	23	—	29-6 64	NW	Slight showers
29	—	30 60	NW	Do.	24	—	29-6 64	NW	Heat
30	—	30 60	W	Dry, slight mists	25	—	29-8 63	NW	Slight showers
31	—	29 5 60	W	Wet	26	—	29-9 63	W	Do. & heavy wet afterwards
1	June	29-2 60	W	Showery	27	—	29-7 63	NW	Wet
2	—	29-5 60	NW	Do. heavy	28	—	29-8 64	W	Dry, showers
3	—	29-5 58	NW	Do.	29	—	29-8 64	SW	Dry
4	—	29-5 58	NW	Slight showers	30	—	29-8 65	SW	Heavy showers
5	—	29-7 65	W	Dry, heavy rain at night	31	—	29-8 65	SW	Showers

Hail & rain,
High tides.

High sharp winds.

CLIMATE.

203

The late Dr. Crump's Table continued.

Date.	Bar.	Ther.	Wind	Remarks.	Date.	Bar.	Ther.	Wind	Remarks.
1 Aug	29.364	W	Wet and showery	26 Sep.	29.553	SE	Wet		
2	29.364	W	Showery, heavy	27	29.530	NE	Heavy showers		
3	29.366	W	Heavy showers	28	29.563	W	Wet		
4	29.365	W	Dry	29	29.754	W	Do.		
5	29.365	W	Do.	30	28.563	W	Do.		
6	29.366	W	Do.	1 Oct.	29.560	W	Do.		
7	29.664	W	Showery	2	29.562	W	Dry		
8	29.665	W	Showers	3	29.562	W	Dry, fog		
9	29.666	W	Dry	4	29.560	W	Do.		
10	29.575	W	Do.	5	29.457	NE	Wet		
11	29.572	W	Do.	6	29.556	SE	Dry, heavy rain at night		
12	29.470	W	Do.	7	29.555	S	Dry, heavy showers		
13	29.470	W	Heavy rain, morning	8	29.255	SW	Dry, heavy rain at night		
14	29.565	W	Dry	9	28.952	NW	Showers		
15	29.665	W	Showery	10	28.551	NW	Wet		
16	29.665	W	Dry, heavy rain in the night	11	29.52NW	Heavy showers, wet			
17	29.562	NW	Heavy showers	12	29.355	SW	Wet		
18	29.664	W	Showery	13	29.356	S	Do.		
19	29.770	W	Dry	14	29.356	S	Do.		
20	29.769	W	Do. showers	15	29.355	SW	Do.		
21	29.669	W	Heavy showers, thunder	16	29.256	SW	Do.		
22	29.569	W	Heavy showers	17	29.557	SE	Showery, heavy rain at night		
23	29.554	W	Do.	18	29.356	SW	Wet		
24	29.564	W	Do.	19	29.255	SW	Do.		
25	29.562	W	Do.	20	29.54	SW	Do.		
26	29.563	W	Dry	21	29.52	SW	Dry, Showery		
27	29.962	W	Dry, slight showers	22	29.50	S	Dry		
28	29.962	W	Dry	23	28.955	SW	Wet, high storm at night		
29	29.966	W	Do.	24	28.556	SW	Dry [bar 28.5		
30	29.970	W	Do.	25	29.456	W	Heavy showers, wet		
31	29.566	W	Do.	26	29.656	W	Dry		
1 Sep.	29.765	W	Do.	27	29.352	W	Wet		
2	29.772	W	Do.	28	29.50	W	Wet, high storm at night		
3	29.574	W	Dry, heavy rain at night	29	29.250	W	Wet, remarkable high tide		
4	29.270	EE	Do.	30	29.249	SW	Wet		
5	29.167	SE	Stormy, wet	31	29.250	SW	Do.		
6	29.567	SW	Dry	1 Nov.	29.250	SW	Dry		
7	29.767	SW	Dry, showery	2	29.647	NE	Do. slight frost, night		
8	29.966	SW	Showery	3	30.150	NW	Dry		
9	29.965	SW	Dry	4	29.648	SW	Heavy, wet, stormy night		
10	30.158	S	Do.	5	29.648	W	Do.		
11	30.170	SW	Do.	6	30.50	SW	Dry		
12	30.171	SW	Do.	7	30.50	SW	Do.		
13	30.170	SW	Do.	8	30.148	W	Dry hoar		
14	30.171	S	Do.	9	30.256	SW	Do.		
15	30.170	SE	Do.	10	30.250	E	Do.		
16	30.158	S	Do.	11	30.450	NE	Hoar		
17	30.268	S	Do.	12	30.348	NW	Dry, mild, slight showers, night		
18	30.258	SE	Do.	13	30.255	NW	Dry		
19	29.739	SE	Heavy showers, wet	14	30.351	N	Do.		
20	29.639	SE	Heavy wet	15	30.355	SW	Do.		
21	29.533	S	Dry	16	29.152	W	Do. rain at night		
22	30.135	S	Do.	17	28.755	NW	Wet storm		
23	30.163	SE	Do.	18	28.547	N	Dry stormy morning		
24	30.151	E	Do.	19	29.35	W	Sleet, smart frost, & snow at night		
25	29.750	E	Showers	20	29.240	NE	Dry frost at night		

The late Dr. Crump's Table continued.

Date.	Bar.	Ther.	Wind	Remarks.	Date.	Bar.	Ther.	Wind	Remarks.
21 Nov.	29.4	47	W	Thaw and showers, wet night	12 Dec.	29.5	45	SE	Wet, barom. falling fast, storm
22	29.1	47	NW	Wet	13	28.7	50	S	Wet
23	29.2	50	W	Heavy, wet	14	29.2	50	S	Dry
24	29.2	46	W	Dry, heavy, wet night	15	29.2	52	SE	Wet
25	29.3	40	NW	Dry hoar, snowy night	16	29.1	52	SE	Heavy, wet
26	29.3	40	N	Frost	17	29.4	52	S	Dry
27	29.2	40	SE	Sleet and rain	18	29.4	55	SW	Do.
28	29.7	41	N	Dry	19	29.5	55	W	Heavy, wet storm
29	29.7	43	W	Heavy, wet	20	29.5	54	W	Showery, wet
30	29.7	44	W	Wet storm	21	29.5	50	SW	Wet showers
1 Dec.	29.9	53	W	Dry	22	29.5	53	SE	Wet
2	29.9	50	NW	Showers, stormy	23	29.6	50	SW	Dry
3	29.9	53	NW	Dry	24	29.9	47	SW	Showery
4	29.9	54	W	Moist	25	30.1	50	SW	Dry, heavy, moist
5	30	55	W	Dry	26	29.7	52	SW	Dry, high wind
6	29.9	55	W	Do.	27	29.6	50	SW	Wet, high winds
7	30	54	W	Do.	28	29.6	52	SW	Showery
8	30.1	54	W	Heavy mist	29	29.7	48	SE	Dry, slight frost
9	30.1	53	W	Do.	30	29.7	54	W	Do.
10	30.1	47	NW	Dry	31			SE	Heavy, wet
11	30	45	E	Do.					

State of the Weather at Limerick in 1810.*

State of the Weather at Limerick for 1811.

Months.	Days with Rain.	Nights with Frost.	Months.	Days with Rain.	Nights with Frost.
January	20	11	January	13	21
February	14	12	February	21	3
March	19	6	March	12	7
April	14	8	April	22	6
May	9	10	May	27	
June	10		June	24	
July	25		July	16	
August	21		August	24	
September	17	2	September	12	
October	18	8	October	27	2
November	23	12	November	26	2
December	27	7	December	23	12
Total	217	76	Total	246	53

Archdeacon Hill says,† that a gentleman at Limerick who constantly observes the state of the barometer, and in the habit of committing his observations to paper, tells him that during the last ten years he has never seen the barometer higher than 30.5, nor lower than 28.5, except in two instances, when it stood at 28.

* Communicated by Mr. James Phelps.

† In a Letter, 14th Oct. 1811.

The greatest height of the thermometer in the shade in summer is 72 ; the greatest depression 58.

In winter it is under 55, except on some uncommonly warm days accompanied with a southerly wind, the depression at that season has never exceeded 28.

I earnestly sought throughout the west for further accounts of climate, but scientific pursuits are thought so little of in Ireland that my endeavours were in vain. There are some people I know, who consider all such inquiries as mere theory, and altogether useless—a short examination, however, will prove the fallacy of such opinions. Science was exemplified by the late Dr. Percival ; and Dr. Aikin, at Manchester, and the members of the Lunar Club at Birmingham, have unceasingly pursued it. The Athenæum and Lyceum arose under the patronage of Roscoe, Currie, and Rathbone, at Liverpool ; and it is from societies formed for these purposes that Arkwright, Bolton, Watts, Wedgewood, Strutt of Derby, Brinkesly, &c. &c. have sprung, and with them the rapid and astonishing progress of English manufacture has taken place within the last thirty years, enlightening and enriching the middle class of society, whose general acquaintance with mechanics and chemistry, is truly astonishing. Where philosophical knowledge is neglected, superstition must prevail in religion, ignorance in agriculture, and every thing belonging to it, and error in many of the common concerns of life. The unexampled perfection of the comforts of Englishmen, is chiefly to be attributed to a familiar intercourse with the arts, the produce created by them is daily and hourly exchanged with the most refined and the most barbarous nations of the earth ; but from all, Britain draws wealth, and the result has been power, commensurate with the knowledge of her children.

WATERFORD COUNTY.

Dr. Smith relates that the air in the county of Waterford, and even of the greater part of Ireland, had in his time become more temperate and salubrious, because, having had more extensive woods and bogs, it was more subject to rain and moisture.

Before an east wind the refraction of the air becomes much greater than usual, especially towards that part bounded by the sea ; at this time vessels seen in the horizon, rocks, islands, promontories, and other objects, appear much higher than common, and seem in a manner lifted into the air ; and this generally is the case even a day or two before the wind blows from that point.

In Waterford the winters are attended rather with rain than with snow, and neither snow nor frost continues there so long in the neighbourhood of the coast, as in the more inland parts of the country. The winter of 1744, when the northern part of Ireland was covered with snow for many weeks, to the great destruction of the cattle, here was little in this county, and what fell continued not above two days. In the winter of 1739, also, when there was one of the severest frosts

ever known in Ireland, with large quantities of snow, very little fell in the neighbourhood of the ocean, and the cattle grazed there as usual, while at the same time there was little or no thaw in the more inland parts for six weeks after.

Dr. Smith says, that the sea on this coast becomes sometimes phosphorescent, emitting a strong light in the dark, and that when this phenomenon appears in the winter time, it portends an approaching storm.*

CORK, LAT. $51^{\circ} 53' 54''$. LONG. $8^{\circ} 30''$.

Though Cork is a populous trading city, I was not able to obtain from that quarter much information with regard to climate; but Mr. Aldworth informs me, that a botanical garden has lately been attached to the Cork Institution, and that a regular meteorological journal will be kept there in future.

This gentleman says, "that as an old agriculturist, he is inclined to think that less rain falls in the interior of Ireland than in any of the British isles, and yet, perhaps, there are more wet days there than in the former. The earth is kept longer moist without heavy rains, and this is better suited to the soil, the substratum being generally argillaceous rock, or calcareous stone, covered more or less by a fine hasel mould, capable of the highest improvement for grass, corn, and potatoes, as well as various other productions. No country, perhaps, is more calculated for the breeding and rearing of cattle and sheep than the south of Ireland, since it is exempted from the extremes either of cold or of heat. In general cattle are never housed, and though they lose much of their flesh during the severe weather, they become fat on the summer grass before the succeeding winter."

Dr. Smith, in his Civil and Natural History of Cork, remarks, that it appears from a regular diary of the weather, kept for several years in the city,† that the winds blow from the south to the north-west three-fourths of the year at least.

The greatest height to which the mercury in the barometer had ascended in the course of thirteen years was $30\cdot4$ inches, but it attained to this height only once; its lowest height was $28\cdot2$ inches. In the Doctor's time it often rose to 30 inches, and frequently fell to $28\cdot6$, and this seems to have been its utmost range.

* Ancient and Present State of the County and City of Waterford, by Charles Smith, M.D. p. 284.

† By Dr. Timothy Tuckey.

The quantity of Rain which fell at Cork is stated to have been:

Years.	Inches.	Years.	Inches.
1738	54.5	1744	33.6
1739	nearly the same.	1745	45.4
1740	21.5	1746	30.0
1741	33.6	1747	nearly the same.
1742	35.1	1748	37.4
1743	39.3		

For the purpose of comparison, Dr. Smith gives the following table of the quantity of rain which fell a few years before, at London, Padua, and Edinburgh, collected from the Philosophical Transactions.

LONDON.		PADUA.	EDINBURGH.
Years.	Inches.	Inches.	Inches.
1729	20.34	35.42	
1730	21.49	34.30	
1731	13.60	34.20	
1732	19.65	35.45	24.82
1733	18.00	32.13	19.69
1734	24.57	38.56	19.22
1735	28.83	29.68	

Some peculiarities, in regard to the state of the air and the weather, have been observed in this county at different periods. In the winter of 1695, and a considerable part of the following spring, there fell in several places a kind of thick dew, which the people called butter, on account of its yellow colour and of its consistence, being soft and clammy.* It fell always in the night, and chiefly in marshy low grounds, on the top of the grass, and on the thatch of the cabins, but seldom twice in the same spot. It commonly lay a fortnight without changing its colour, but after that time it dried and became black. Cattle fed as readily where it lay as in other places. It often fell in lumps as big as the end of the finger, thin, and in a scattered manner. It emitted a strong and disagreeable smell, similar in some degree to that which arises from church-yards and graves. During the greater part of the season, when this fetid dew fell, there were stinking fogs, which it is supposed might have produced it.

In the summer of 1748, a shower of a yellowish substance, resembling brimstone, fell in and about the town of Doneraile. It emitted a sulphureous smell, and as it lay but thin on the ground it soon dissolved.

* An account of it by Dr. St. George Ash, then Bishop of Cloyne, was printed in the Philosophical Transactions, No. 220, p. 223.

Lightning sometimes has produced in this country very extraordinary effects; about fourteen years before Dr. Smith wrote, a ship, riding at anchor in Bantry Bay, had her masts shivered in a strange manner by the electric fluid; part of them being twisted like a rope, while others were burned to a cinder. At the same time the external air became so rarified, that the hull burst asunder by the great pressure of the internal air against its sides.

On another occasion, a small ship of war riding in the same bay had her masts shattered in the like manner; and the bodies of the crew of another vessel were marked with stars, similar to those formed by the cracks in a glass bottle. All these effects happened in winter, at a period when there were strong gales of westerly winds.

On the 27th of January, 1747, one Robert Barry, a labouring man, being in bed with his wife and two children in a close room, the door of which, opposite to a chimney in an outer room, was shut, a flash of lightning broke down some part of the top of the chimney, and split the chamber door, forcing one half of it into the room where the people lay. The man had his breast scorched, and a small streak was marked from his shoulder to his stomach. The woman had that side of her face on which she lay very much scorched and swelled; the daughter's hair was burnt close to her temples, and the boy was scorched on the back part of the neck. The lightning forced its way through the wall behind the fire-place, making a hole, which was larger on the outside of the house, than within. A pig was found dead near the chimney. The people being asleep did not hear the thunder, though there were very loud claps, and the man said that when he awoke he found a stone on his breast.

On the night of the 10th of January, 1749, a flash of lightning passed through the county, in a direct line from west to east, and after killing some cows to the south of Cork, struck the round tower of the cathedral of Cloyne. It first rent the vaulted arch at the top, tumbled down the great bell, together with three galleries; and passing perpendicularly to the floor, which is about eight feet higher than the exterior foundation, forced its way with a violent explosion through one side of the tower, and drove the stones, which were admirably well joined, through the roof of a neighbouring stable. The door, though secured by a strong iron lock, was thrown to the distance of above sixty yards, and shattered to pieces. A few pigeons that frequented the top of the steeple were scorched to death, not a feather of them being left unsinged.

On the 14th of June, 1748, about four o'clock in the afternoon, there was one of the most violent showers of hail ever remembered in that part of the country. It was attended with thunder and lightning, and continued above a quarter of an hour. Several of the hail-stones measured five inches square, and others had projecting

from them, five or six points, each about an inch in length. They broke several windows and did considerable damage in and about Cork.*

Dr. Smith speaks of a tract, entitled *Medicina Statica Hibernica*, or Statical Experiments, to examine and discover the insensible perspiration of the human body, in the South of Ireland, made for a year and some months, by Colonel Kye, printed in 1734. This tract contains tables of the state of the air and weather, together with that of the barometer and thermometer; but I have never had an opportunity of seeing it.†

As heat and cold, as well as other things belonging to climate, are relative, the inhabitants of a country cannot form a just estimate of that in which they live, unless they compare it with those of others. A comparison of this kind, combined with a survey of the vegetable productions in each, may furnish many useful hints in regard to agriculture, planting, and the rearing of exotics; and the philosopher, by examining the situations and natural state of the countries compared, may be able to ascertain the causes of some phenomena, for which it would otherwise be difficult to account. But meteorologic information lies so scattered, that it requires much trouble to collect it. I shall therefore here subjoin a few general notices on that subject, respecting different parts of the earth where observations have been made, extracted from the best authorities.

Mean height of the barometer at different places, from Erxleben and others.‡

Height, once observed at Middlewich§	-	-	31·00
Greatest observed height according to Shuckburgh	-	-	30·957
Upsal	-	-	30·15
South Carolina	-	-	30·09
Mean in England and Italy, according to Shuckburgh	-	-	30·04
London, according to the Royal Society	-	-	29·89
Leyden	-	-	29·84
Kendal	-	-	29·80
Padua	-	-	29·80
Liverpool	-	-	29·47
Petersburgh	-	-	29·57
Paris	-	-	29·31

Mr. Kirwan says,|| that the deviations of the mercury in the barometer, from its

* Smith's Natural and Civil History of Cork, vol. ii. p. 395-398.

† Ibid. p. 400.

‡ Dr. Young's Lectures on Natural Philosophy, vol. ii. p. 464.

§ Manchester Transactions, vol. v.

|| Transactions of the Royal Irish Academy, 1788, vol. ii. p. 47.

mean altitude, are far more extensive in the neighbourhood of the poles, than in that of the equator. In the year 1725, the mercury in the barometer, if we may credit Mr. Consett, stood at the stupendous height of 31.59 inches; yet it has been seen so low as 28.14. In the northern parts of France the variations are greater than in the southern; * at Naples they scarcely exceed one inch; † but in other parts, within a few degrees of the line, on the approach of the rainy season, or of hurricanes, the barometer falls an inch or more. ‡ The above remark and facts agree with the observation of Izert on the coast of Guinea. §

At Liverpool the wind is said to be westerly two-thirds of the year. ||

The mean temperature of London, from the observations of the Royal Society, is 50°.5, varying in different years from 48° to 52°. The mean of the greatest heat and greatest cold is 50° or 49°. ¶

The mean fall of rain in London is about 23 inches; at Exeter, which is nearer the Atlantic, it is 33; the average of England and Wales is 31.**

The following Table of the quantities of rain which fell at various times in several parts of Great Britain, is taken from different volumes of the Philosophical Transactions:

London	-	1773	-	-	29½	Bristol	-	1774	-	-	42½
		1774	-	-	26½			1775	-	-	38½
		1775	-	-	27			1776	-	-	31
		1776	-	-	20½			1778	-	-	26
		1777	-	-	25½	Edinburgh,		1776	-	-	26
		1778	-	-	20½						
		1779	-	-	26½	Holm, near	}	1765 to 1769		-	31½
		1780	-	-	17½	Manchester,					
Lyndon in	}	1774	-	-	53½	Harrowby,	}	1772 to 1782		-	27½
Rutlandshire		1775	-	-	31½	near Leeds,					
		1777	-	-	23½						
		1778	-	-	26½	Mean rain in	}	1770 to 1780		-	26
		1779	-	-	20	10 years from					
		1780	-	-	20						
		1782	-	-	32	Mean rain in	}	1736 to 1780		-	22
						10 years from					

* La Colte, p. 186.

† Phil. Transact. abr. vol. viii. p. 566.

‡ Phil. Transact. 1778, p. 182. History of Jamaica, vol. i. p. 372.

§ See page 159 of this work.

|| Dr. Young, vol. ii. p. 455.

¶ Ibid.

** Ibid. vol. i. p. 713.

At Charlestown, South Carolina.*

1738	-	-	49	1744	-	-	48
1739	-	-	65	1745	-	-	50
1740	-	-	39	1746	-	-	39
1741	-	-	52	1747	-	-	44
1742	-	-	36	1748	-	-	51
1743	-	-	39				

By another account, the average rain in ten years is 42 inches; 65·96 have been known in one year. A beef-stake, of the common thickness, laid on a cannon for the space of twenty minutes, has been *over done*. The thermometer in the streets 130·4. At three o'clock in the afternoon on the 14th, 15th, and 16th of June, 1738, the thermometer was at 98 degrees in the shade.‡ At Surat it has been known for days together, in the shade, at 105. At Senegal, in December 1763, it stood at 93, and at Sierra Leon at 98.§

According to a mean of 26 years, from 1751 to 1776 inclusive, the days of rain in the Island of Zeland, lying between lat. 55° 2' and long. 56° 8', were as follows:

January	-	-	11	Brought up	-	72
February	-	-	10	August	-	12
March	-	-	9	September	-	10
April	-	-	9	October	-	13
May	-	-	11	November	-	13
June	-	-	10	December	-	11
July	-	-	12			
			<hr/>	Total	-	131
			72			

According to Professor Horrebow's Meteorological Observations, from 1751 to 1761, it appears, that in the island of Zeland, when the wind blows 37 times from the north, it blows 32 from the east, 42 from the south, and 56 from the west.

A Danish mathematician, at Copenhagen, has calculated the following table of the comparative degrees of heat at the under-mentioned places, by means of an AI-

* Description of South Carolina, 1761, 8vo, p. 25.

+ Chalmers's Account of the Weather and Diseases of South Carolina, 1776, 2 vols. 8vo.

‡ Description of South Carolina, 1761, 8vo, p. 17.

§ Long's History of Jamaica, vol. ii. p. 372.

gebraical formula, making his standard, or greatest degree of heat, equal to 31415 equal parts.*

Places.	Latitude.	On the longest day.	At the equinox.	Shortest day.
Copenhagen	- 55° 41'	- 21393	- 9984	- 1413 parts.
Altona	- 53 41	- 22393	- 11017	- 1905
Christiana	- 59 54	- 19507	- 7901	- 599
Bergen	- 60 30	- 19215	- 7618	- 511
Drontheim	- 63 26	- 17772	- 6283	- 168
Wardoehus	- 70 22	- 14322	- 3544	- 0
Edinburgh	- 55 57	- 21367	- 9849	- 1350
London	- 52 32	- 22899	- 11620	- 2218
Amsterdam	- 52 26	- 22944	- 11674	- 2248

Although Ireland be considered as a damp country, and subject to much rain, there are countries in Europe extolled for their climate, which are exposed to a much greater quantity. Mr. John Leslie Foster informed me, that he is of opinion, that three times as much rain falls in Lombardy as in Ireland,† and indeed it will be seen by the following account, that his estimate, though perhaps too high, is not far from the truth.

Italy, like Ireland, is included between two seas, so as almost to be surrounded by water. It has the Alps as its northern boundary, and is intersected by the Appenines, which not only reach to its extremity, but branch out into many divisions that occupy an immense tract of land. From these circumstances there is reason to conclude, that the quantity of watery vapours to which this country is subject, must be considerable. It appears, indeed, that there is scarcely any part of it where the quantity of rain which falls in a year does not exceed, by one-third, the quantity that falls in the neighbourhood of London, and that in some parts there is more than even in Lancashire.

	Inches.
The quantity of rain at Naples, from observations made for ten years, is	31·5
Rome, from 1732 to 1740, inclusive	34
Sienna, from 1756 to 1760, inclusive	41·6
Pisa	43·6
Leghorn	37·11
Padua, from 1725 to 1730, inclusive	37
Milan, from 1764 to 1766, inclusive	41·3
Modena, from 1715 to 1724, inclusive	50·11

* Beskrivelse over Agerdyrkingens Tilstand i Sielland og Moe Kiøbenhavn, 1803, vol. i. p. 75, and 78.

† Dr. Symonds says that he was much surprised to find the poplars and willows not in leaf on the 21st of April, and this convinced him that the trees and plants are in general as forward in England in the beginning of vegetation; the great difference lies in every thing ripening faster in that country than in ours.

Paper on the Climate of Italy, in the Annals of Agriculture, vol. iii. p. 137.

It is to be observed, that the vast range of mountains called Garfagnana separate the territories of Modena from those of Lucca and Pistoia, and are probably the highest in the Appenines, though the Monte di Scala in the Bolognese is reported by some to be more lofty.

But though there falls a larger quantity of rain in Italy than either in England or in Ireland, it must not be inferred that the atmosphere in general is so moist as in either of these countries, for it is well known that sometimes it does not rain for a considerable length of time, and that as much rain will fall in a few days, as in several weeks in England.

From Naples to the Alps, the autumn and winter are in general the most rainy seasons. In 1741 there was almost as much rain at Rome in November and December as in the ten preceding months. From the register kept six years at Sienna, it appears that the most rainy season was the autumn, next the winter, then the spring, and last of all the summer. It is commonly observed in Tuscany, that the three winter months of December, January, and February, determine the goodness of the crop of wheat.*

Among the methods of comparing the heat and cold of one country with another, we may reckon the usual time of beginning harvest, which varies considerably even in the same country, but this is particularly the case in Italy. Professor Symonds enumerates the following particulars in regard to the wheat harvest, which came immediately under his own observation.†

In Calabria citra it begins on the	-	1st or 2d of June.
Calabria oltre - - -	-	the latter end of May.
About Naples - - -	-	12th of June.
Sulmona - - -	-	beginning of July.
Aquino - - -	-	end of June.
Rome - - -	-	middle of June.
Camerino - - -	-	the very end of July.
In the Marc of Ancona - - -	-	middle of July.
Tuscany - - -	-	18th of June.
About Ferrara - - -	-	latter end of June.
Milan - - -	-	latter end of June.
Vercella and Novara - - -	-	2d week of July.
Vicenna - - -	-	latter end of June.
Valdaguo - - -	-	beginning of July.

* Annals of Agriculture, vol. iii. p. 140.

† Ibid, p. 146.

Annual fall of Rain at different Places, from Erxleben and others.*

Upsal	-	-	-	16.7	Leydon	-	-	30.2
St. Petersburg	-	-	-	17.2	Dalton's mean for England	-	-	31.3
Diss, in Norfolk	-	-	-	18.7	Manchester	-	-	33.0
Carlisle	-	-	-	20.2	Dover	-	-	37.5
Paris	-	-	-	20.2	Lancaster	-	-	45.0
Edinburgh	-	-	-	22.0	Plymouth	-	-	46.5
Dublin	-	-	-	22.2	Kendal	-	-	59.8
London	-	-	-	23.0	Keswick	-	-	67.5
Norwich	-	-	-	25.5	East Indies, sometimes	-	-	104.0
Chatsworth	-	-	-	27.8				

In a paper published in the seventh volume of the Transactions of the Royal Irish Academy, the Rev. Mr. Hamilton endeavours to shew that the climate of Ireland has of late years undergone a considerable change; that a more general equability of temperature prevails throughout the year, the summer being less warm, and the winters milder and opener. As this is a curious and interesting subject, I shall give a short view of the author's theory. The winds which most usually prevail in Ireland blow from the westward; they are mild in their temperature, and moist in their nature. Being therefore highly favourable to animal as well as vegetable life, to them, among other natural causes, may be ascribed the population of Ireland, and the uncommon fertility of its soil. Of late years these winds, from whatever cause, have assumed more than common violence; which the author endeavours to prove by observations made on the trees of the country, the sands of the coast, and the tides of the ocean. To this cause he ascribes unsuccessful attempts made to plant on high and elevated situations. He gives some instances also of places buried under sand, where the vestiges of towns and villages seem to attest that they were once the residence of men.† Of late years extraordinary high tides have been more frequent than

* Dr. Young's Lectures on Nat. Phil. vol. ii. p. 477.

† "Amid the sands between Portrush and Dunlce, in the county Antrim, in the year 1783, the ruins of a village might be seen, deserted by its inhabitants, who had been obliged to move farther into the country," p. 36.

‡ About a century ago, the peninsula of Rosgull, lying between the harbours of Sheep-Haven and Mulroy in the county of Donegal, was selected as the residence of one of the noble families of Hamilton, titled Bayne. For the age wherein it was built, and the style of architecture of that day, the mansion of Rosenpenna may be called elegant. The approach was from a level green on the shore, through a succession of embattled courts and hanging terraces, rising in order one above another, and adorned with marble piers of no mean design and workmanship. The rear was ornamented with gardens, laid out and planted in the fashion of the last century, and the parks and fields of the domain seem to have been well divided and enclosed.

§ At present every object in this place presents peculiar characters of desolation; the gardens are totally denuded of trees and shrubs by the fury of the western winds; their walls, unable to sustain the mass of over-

formerly; public roads have been destroyed by them, walls beat down, and other damage occasioned, all evidences of increasing tides, and the greater frequency of storms.

He however concludes, that the annual quantity of heat received in the country in the present day is not less than it was in former days.

If the prevalent winds of a country blow over an ocean situated in its parallel, that country will be relatively denominated temperate; it will be free from all extremes: the heats of summer and the colds of winter will be checked by sea-breezes of a contrary property, and the land, influenced by the neighbouring element, must more or less partake in its equability of temperature. Such is the case in almost all the islands in the world, and such at all times has been the peculiar character of Ireland.

Fifty years has elapsed since the River Foyle has been completely frozen over at Derry. It is also observed, that the Thames is less frozen of late years than formerly.*

The summers in Ireland are colder, and the winters warmer than they were some years ago: hence hemp does not grow so well, and the ancient apiaries of the country, once so celebrated, are nearly extinct. Honey, therefore, has become a rare article of luxury, or an expensive medicine.

As instances of the winters being milder, he says, the Irish grapes scarcely droop beneath the frost; wheat and oats vegetate in the open fields during the very solstice itself, and myrtles and laurels, when in sheltered situations, brave the severity of winter. The Foyle, and other large rivers of the northern province, frequently frozen in former times, flow now with an uninterrupted course throughout the whole winter.†

Mr. Williams, in his Treatise on the Climate of Great Britain, seems to be of opinion, that a change, somewhat similar, has taken place in this country. The climate of England, he says, though allowed by those who have had an opportunity of making comparisons, to be the most uncertain on the globe, possesses many advantages, the inhabitants not being subject to the extremes of heat and drought in summer, nor of cold and frost in winter. Its greatest defect appears to be the dry, cold, easterly winds, prevalent in the spring, and the frequent rain and cloudy skies experienced in summer. He then adds, that it has been generally believed of late

bearing sands, have bent before the accumulated pressure, and overthrown in numberless places, have given free passage to this restless enemy of all fertility. The courts, the flight of steps, the terraces, are all involved in equal ruin; and their limits only discoverable by tops of embattled walls, visible amid hills of sand," p. 37.

* Archæol. vol. iii. p. 55.

† Ibid.

years, that the summers have become more wet, and consequently colder, and the winters less frosty and more mild than they were in former times.

Mr. Williams ascribes this change to several causes, the introduction of exotic trees, which generate a vaporous atmosphere, too powerful for the heat of our sun to dispel; the increase of hedge-rows, in consequence of the multiplication of enclosures, and the extension of canals, which now form an evaporating surface of prodigious extent.*

Dr. Patterson denies all changes of this kind, and alluding particularly to the theory of Mr. Hamilton, asserts, that there is still less reason to suppose that any material change has of late years taken place in the climate of Ireland. His reasons are, because its temperature in heat, which radically governs the other atmospheric conditions, has been uniformly moderate throughout all ages; because its general surface is only 270 feet above the level of the sea; because the altitude of its highest mountains is comparatively low, and because its geographical situation is far advanced westerly into the Atlantic, the vast and potent arbiter of the seasons in Ireland.†

Respecting the climate of Ireland in general, it would be difficult to form any satisfactory conclusion. It has as yet been little studied, and until more observations are made, and in a greater number of places, the results must be very imperfect.

Though the country is somewhat northerly, says Boate,‡ extending from the commencement of the fifty-first degree of latitude to the fifty-fifth, the air is very temperate, and more free from violent cold, even in the most northern part, the province of Ulster, than any other country lying under the same latitude, and even than some which are situated more to the south.

The cold weather, indeed, commences rather early, that is, in the beginning of October, and sometimes in the middle or latter end of September, and for the most part continues five or six months, till the middle or latter end of March, and sometimes throughout a considerable part of April. During this period, persons sensible to cold, and accustomed to a sedentary life, can seldom remain long without a fire.

On the other hand, the cold is rarely violent, or so intense as to produce congelation. There are generally three or four frosts every winter, but they seldom continue more than two or three days at a time. There have been a few winters that frost has lasted ten or twelve days, so that the Liffey and other rivers were covered with ice, capable of supporting men and animals, but these are extraordinary instances, which scarcely occur in the course of ten or twelve years.

If the cold be moderate in winter, so is the heat in summer; so that even in the

* The Climate of Great Britain, by John Williams, Esq. London, 1806, p. 2, 3.

† Essay on the Climate of Ireland, p. 178.

‡ The reader must bear in mind, that Boate wrote his Natural History of Ireland about the year 1645. How far the climate may have been changed since that time, I will not pretend to say. I think it right to state, that I have abridged his account, and modernized the language.

hottest season, people are never incommoded by it. In the summer months, the weather, on the contrary, is more inclined to cold than to heat, and even so much that a fire is often desirable.

In the spring, fair weather with constant sunshine generally prevails about the month of March, for five or six weeks; but afterwards the weather becomes rainy during the whole summer, so that there are scarcely two or three dry days in succession. In the latter end of autumn the weather is again fair, and continues so for some weeks, as in the spring, but no longer. It is commonly observed in Ireland, that it rains more in the day than the night, and that when it rains two or three days following each other, the intervening nights are entirely fair and serene.

In Ireland, very dry summers are uncommon, and even when they take place they are not attended with any bad consequences, as it is a common saying, that the driest summers there never hurt the land. Corn and grass which grow on arid and elevated ground, may, indeed, sustain some little injury from the drought, but the country in general is benefited by it. When a dearth happens in Ireland, it is not occasioned by immoderate heat, but generally through excess of rain.

Fogs and mists are not more common there in the plains than in any other country. The mountains, however, are frequently covered with them to a great extent for several hours at a time, even when none are to be seen in the adjacent low districts; and it sometimes happens, that the top of a mountain is enveloped in fog, when the sides and lower part of it enjoy clear sunshine. There are even instances of the middle parts of a mountain being shrouded, while the summit and lower regions are quite open and uncovered. This is the case sometimes with the high mountains between Dundalk and Carlingford, not only in summer, but at other times of the year.

There are two kinds of mist or fog in Ireland, one of which is constant and uniform, filling the whole air in such a manner as to impede the view, and continuing in the same state till it vanishes, either by rising into the atmosphere or falling to the earth. This kind is commonly followed by rain.

The other consists of clouds of foggy vapours, scattered about, with clear spaces between them. These clouds are often strongly agitated, and sometimes driven about with great velocity. This species of fog arises, not only on the sea coast, but also in the interior of the country upon mountains, and often terminates in one general mist.

Ireland is not much exposed to snow, and some years there is none at all, especially in the level countries. In the mountains it is generally more abundant. In consequence of the winters being so open, cattle of every kind remain there out of doors during the whole season without much inconvenience: yet there are instances, such as that of the year 1635, when there was a great fall of snow about the

end of January or the beginning of February, that the people have found it very difficult to bring their cattle in safety to their folds or to a place of shelter.

Thunder and lightning are not more common than in other countries, and there are even some years in which they have not occurred above once or twice in a summer. They are seldom violent, and rarely do hurt either to the inhabitants or to their animals.*

In the year 1788, and part of 1789, Mr. Hamilton endeavoured to ascertain the temperature of the soil of Ireland, from its southern to its northern coast, by examining the temperature of covered wells of pure water; and though this method must be attended with some degree of uncertainty, because water will sometimes be affected by the nature of the soil through which it flows, it ought not to be altogether rejected. It appears by the results, that there is a difference of nearly three degrees between the two extremities of the country.

Mean temperature of the Sea-Coast of Ireland, observed in different Latitudes.

Lat. 55° 12'	Mean temperature of the northern coast of Ireland, near the town of Ballycastle, observed in 1788 by means of copious springs, flowing from limestone soil+	- - - - - 48°
Lat. 54° 48'	Mean temperature of the island of Enniscoo, one of the Rosses islands, on the western coast of Ireland, observed by means of a covered well in a granite rock; the maximum of temperature taken in 1787, the minimum‡ in 1788	- - - - - 48° 6'
Lat. 53° 20'	Mean temperature of the eastern coast of Ireland, near Dublin, observed by means of deep covered wells, in soils of clay, gravel, and limestone; 1788	- - - - - 49° 4'
Lat. 51° 54'	Mean temperature of the south coast of Ireland, near the city of Cork, observed by means of deep covered wells in limestone and other soils,§ 1788	- - - - - 51° 2'

II. Mean Temperature of Places distant from the Sea, and elevated above its Surface.

Lat. 55°	Mean temperature ¶ in the neighbourhood of Londonderry, distant twenty Irish miles from the northern sea, and at a supposed elevation of 100 feet above it, 1788	- - - - - 46° 9'
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* Ireland's Natural History, by Gerard Boate, late Doctor of Physick to the State of Ireland, published by Samuel Harlib, Esq. imprinted at London, 1662, 12mo, p. 163-176.

† Observed by Mr. Edmond M'Gildowny.

§ Observed by J. Longfield, M. D.

‡ Minimum observed by Robert Corbet, Esq.

¶ Observed by Wm. Patterson, M. D.

|| 54½ Irish miles are almost equal to a degree of the meridian, that is, to 60 geographical miles, or 69½ English miles.

Lat. 54° 20'	Mean temperature * in the neighbourhood of Armagh, distant 25 miles from the Irish Channel, and elevated about 58 feet above the coast,† by means of a well 60 feet deep, sunk to the bottom of a gravelly hill, 1788	-	-	47° 5'
Lat. 53° 12'	Mean temperature, derived from the maximum of 1787 and minimum of 1788,‡ in the neighbourhood of Tullamore, King's County, near the centre of the kingdom, distant 50 miles from both the seas,§ and elevated 206 feet above the coast in a level country, which may be counted the highest ground of the general surface of Ireland.||	-	-	48°

III. Mean temperature in Cities.

Mean temperature in different parts of the city of Londonderry, by maximum of 1787, and minimum of 1788, various, from	-	-	47° 6' to 49°
Mean temperature in different parts of the city of Dublin, in 1788,	50°	to	52°
Mean temperature in different parts of the city of Cork, in 1788,	52° 5'	to	53° 5'

The general temperature, in the vicinity of the capital, is somewhat lower than the 50th degree of Fahrenheit's thermometer, and a mean of the hottest or coldest months of the year rarely varies more than ten degrees from this standard heat; winter, therefore, is usually accompanied by a temperature of 40 degrees; spring and autumn of 50, and summer of 60; and the general heat of any single month of these seasons seldom varies much from the corresponding temperature of the particular season to which it belongs.

Of these limits, the lowest is not sufficiently cold to check the natural herbage of the island, nor the highest powerful enough to parch the surface of a moist soil, or to scorch its luxuriant grasses. Hence, the fields maintain a perpetual verdure, unimpaired by either solstice; the farmer is enabled to lay his lands under grass at almost every season, even at the commencement of winter, and the grazier never loses the benefit of his rich pastures at any period of the year, unless during the passage of a temporary drift of snow; so that horses, cattle, and sheep, attain, with little care, to a degree of perfection which they never acquire in other countries without great trouble and expence.**

* Observed by the Rev. Dean Hamilton.

† This elevation is presumed from the following circumstances: the elevation of Lough Neagh above the sea, from observations (see *Whitworth's Reports*,) which have lately been found extremely correct, is 38 feet; from Lough Neagh to Blackwater town, through a distance of seven or eight miles, the river Blackwater is navigable, and extremely still, so that its fall cannot exceed ten feet; from Blackwater town to the valley of Armagh, is a direct distance of about four miles, and for that space the elevation marked is only the result of conjecture, = ten feet, making altogether 58 feet.

‡ Minimum observed by the Rev. Peter Turpin.

§ See Map of Ireland.

|| Hamilton on the Climate of Ireland. Transact. of the Royal Irish Acad. vol. vi. p. 49.

** Ibid.

That the climate of Ireland is moist, I think there can be no doubt, and I consider this as the reason of wheat not being generally cultivated to the north of the county of Longford. Mr. Young says, that from the observations he made himself, he is confirmed in the idea, that the climate of Ireland is wetter than that of England. By a register which he kept from the 20th of June to the 20th of October, he found, that in 122 days there were 75 of rain, and on many of them the rain was incessant and heavy. He examined several registers kept in England, and could observe no year which exhibited nearly the same degree of moisture. From the information he received, he is induced to believe that the rainy season usually sets in about the first of July, and continues very wet till September or October, when there is usually a fine dry season of a month or six weeks.* Mr. Young gives, as a convincing proof that the climate of Ireland is far moister than that of England, the amazing tendency of the soil to produce grass; and he speaks of instances of turnip land and stubble, left without ploughing, which yielded the next summer a full crop of hay; facts, he observes, of which we have no idea in England. He mentions, also, that the wheat of Ireland has no weight, compared with that of dry countries; the crops are full of grass and weeds even under the best management, and the harvests are so wet and tedious as greatly to damage the produce; but for the same reason, cattle of all kinds look well, as they never fail of finding abundance of excellent grass; for the very driest summers do not affect the verdure as in England.†

Mr. Tighe observes, that the crops of corn ripen earlier on limestone than on any other stratum;‡ and he points out some variation of the climate observed by the foliage of the trees; at Inistioge, the oak came into leaf on the 4th of May;§ on the 18th of that month, 1809, I went into the county of Wicklow, and found the trees in full leaf, but I must remark, that I kept on the east coast of that county. Mr. Wainewright, Lord Fitzwilliam's agent, told me that he always went to Wicklow in May to receive his lordship's rents, from those estates lying on that side of the county, and that for many years past he had always at that season, gooseberries, but that at Malton, in the interior of the county, near Tinehaly, the gooseberries were later by three weeks than at Wicklow. Dublin is supplied with new potatoes from the sea coast of Wicklow. House lamb is reared there also, and to the east of the Wicklow mountains I found spring wheat growing in a state of great luxuriance, while I could hear nothing of it to the south or west of them; so that I consider the climate in that part of Ireland to be decidedly different from that in the rest of the country.

In the south of Ireland, the superior value of the mountains of Tipperary, Cork, and Kerry, was frequently mentioned to me, as the climate allows them to be grazed

* Tour in Ireland, part ii. p. 4.

† Ibid. p. 100

‡ Survey of Kilkenny, p. 13.

§ Ibid.

throughout the whole of the year. The season is reckoned to break invariably, that is, to set in rainy about the 15th of July, and it continues so till October, which is generally fine, and the favourite month for sea-bathing.

In the last week of October, 1808, I was at Glangarriff, west of Bantry, and at that time I found the season as mild as in England in the first week of June. There was a large party of ladies there, and I remarked that they went out to sea in boats with no other covering above their usual dress than summer muslin cloaks. On the 15th and 16th of November it was exceedingly wet; but it again became fine, and there was no appearance of a severe season till the 5th of December.

On the 28th of October, 1809, I was at Malbay on the coast of Clare; many Limerick families remained there bathing, and I found myself much oppressed with heat while walking on the cliff. In the beginning of December it set in very wet, and according to the memorandum which I made in the course of my journey, wet weather is prevalent in the mountainous districts of Kerry and the south-west parts of Cork. In the south of Ireland furze is the common fuel throughout the greater part of the year, a sure indication of a mild climate; coal fires are used only for a very short time. The Reverend Horace Townsend, whose remarks on the climate of this district are more important on account of his residence in the county,* says, "along the sea coast the winter is disarmed of its severity by the softness of the southern wind, which mitigates the rigour of the frost, and seldom suffers the heaviest snow to remain many hours undissolved, except on the north sides of the high hills. The sea breeze also tempers the summer's warmth by its refreshing breath, so that the greatest degree of heat, as well as cold, is found on the northern side of the country. The disparity is not very considerable at either season, but it seems to be greater in the winter than in summer, as fruits and corn are found to ripen in all places of equal latitude nearly at the same time, provided there be no material difference in the nature of the soils. This county is remarkable for the mildness of its temperature, never experiencing those extremes of heat and cold to which the same degree of latitude is subject, not only on the continent, but even in England. The difference is occasioned by our nearer approximation to the Atlantic Ocean, which loads this part of the island with vapours; seldom, indeed, to be complained of in winter, but too often interrupting the maturer rays of the summer sun. Cork, however, suffers much less in this respect than Kerry, and other countries on the western coast, whose loftier mountains involve them still more in cloud and vapour. In such as abound more in pasture than tillage, this humidity of atmosphere affords, perhaps, no cause of complaint."

Severe frosts are indeed unknown throughout the southern part of Ireland. It was the opinion of many gentlemen with whom I conversed, that such an event would

* Survey of Cork, p. 2.

be a great public calamity; for as the people have no expectation of any such event occurring, they never take the precaution of securing their potatoes, and consequently their whole stock of food would be destroyed. Such a misfortune happened in the year 1739-40; at which time, according to Dr. Smith, one-third of the inhabitants of the southern counties died.* I have heard it asserted that the great fecundity of the potatoe in Ireland is to be attributed to the absence of frost after the 21st of April; and in this opinion I believe there is much truth. Wall-fruit seldom ripens there, and peaches, nectarines, and apricots, even when brought to maturity in green-houses, are destitute of flavour; grapes out of doors I never saw, except at Wicklow. Myrtles, the growth of which is considered by many as a sign of a mild climate, are to be found throughout the south of Ireland, but this may be owing to some other cause. The same plants flourish luxuriantly on the eastern coast of England, particularly at Burnham, when sheltered from the north by a wall, and this is the more extraordinary, as the warmth communicated to plants by a covering of snow is not there afforded, it seldom lying long on the vicinity of the sea.†

One remark in regard to Ireland ought not to be omitted, I mean the service it renders to England, by being, as it were, a screen or *paravent* to shelter it from the violence of the western gales, the force of which seems in some degree to be broken by it before they reach the opposite shores. Placed between this country and the Atlantic Ocean, it arrests also in its course the immense body of vapour raised from that wide expanse of watery surface, so that a considerable portion, which might otherwise be conveyed to us, attracted and broken by the mountains and high land, falls down in copious showers. A similar effect seems to be produced by that range of mountains which extends from Cornwall to the north of Scotland. And this may account for the difference in the quantity of rain which falls on the western and eastern coasts of England.

The great proportion of rain which falls on the north-western coast of our island, says Williams, is probably caused by its vicinity to North Wales and Ireland; the humid south-west wind experienced in Lancashire and Westmoreland, passes first over the mountainous tract in South Wales, where the clouds are deprived of such a portion of their electricity, that the contained vapour is precipitated in torrents. Fur-

* Survey of Kerry, Dublin edition, 1750, p. 77.

† Since the above was written, I have received a letter, dated May 15th, 1811, from William Harvey, Esq. Kyle, near Wexford, wherein he states, that there had been in that county six weeks' incessant rain, which had suspended every kind of agricultural labour, and that it was found necessary to put spring corn and potatoes into the ground again. I am informed, also, that similar accounts have been received by Owen Wynn, Esq. of Haselwood, near Sligo, and the Rev. Dr. Dudley, of Killoon, near Wexford, now in London. This is more remarkable, as in the south of England a more genial season was never experienced.

ther, when the wind veers more to the westward, the vapour before its arrival here passes over Ireland, the climate of which being naturally humid, and the clouds crossing so short a portion of sea, the disposition of the air is scarcely changed; so that when the wind is in any westerly point, the inhabitants of Lancashire and Westmoreland will seldom have cause to complain, either of intolerable and long continued drought, or of their lands suffering for want of atmospheric irrigation. The proportion of rain which fell in the course of a year at Townley in Lancashire, measured a century ago, and compared with the great quantity which fell during the same space of time at Upminster in Essex, was as follows:

	INCHES.
Townley on an average of six years - - - -	42.5
Upminster from 1700 to 1705 inclusive - - -	19.5

The mean quantity of rain which has been observed to fall in the county of Rutland is 20.5 inches. This very large proportion of rain which the county of Lancashire receives, compared with Essex, is probably occasioned by the above-mentioned local circumstance, for we cannot suppose that the soil of the county of Lancashire requires this extraordinary degree of irrigation, the latitude of that county being three degrees more to the north than Essex.*

Though Ireland abounds with lakes and bogs, which might be supposed to have some influence on the climate, and consequently on the animal economy of its inhabitants, it does not appear that it is any where particularly unhealthy. Bogs, so far from communicating any bad qualities to the atmosphere,† as is the case with many of the fens and marshes in other countries, seem to have a contrary effect; for it is observed, that the peasants who reside among them enjoy good health. A Mr. Hamilton observes, there is here no characteristic disease to mark a natural source of unhealthfulness; there are few disorders which cannot be traced up to some artificial cause. From its peculiar salubrity, the natives of this island are celebrated for just symmetry of proportion and an athletic frame; because, from earliest infancy to manhood, a check is rarely given to the progressive increase of animal

* Williams on the Climate of Great Britain, p. 78, 79.

† “Those bogs wherewith Ireland is in some places overgrown, are not injurious to health, as is commonly imagined; the watery exhalations from them are neither so abundant nor so noxious, as those from marshes, which become prejudicial from the various animal and vegetable substances which are left to putrify as soon as the waters are exhaled by the sun. Bogs are not, as one might suppose, masses of putrefaction; but, on the contrary, they are of such a texture as to resist putrefaction above any other substance we know of. I have seen a shoe, all of one piece of leather, very neatly stitched, taken out of a bog some years ago, yet entirely fresh; from the very fashion of which there is scarcely room to doubt that it had lain there some centuries. I have seen hutter called *Rouskin*, which had been hid in hollowed trunks of trees so long that it was become hard, and almost friable, yet not devoid of unctuousity. That the length of time it had been buried was very great, we learn from the depth of the bog, which was ten feet that had grown over it.” *A Philos. Survey of the South of Ireland*, Dublin, 1778, 8vo, p. 378.

strength, or the approximate form of an undiseased body; from the same source those ardent passions and that flow of animal spirits which renders the natives of Ireland always cheerful, often turbulent and boisterous, the natural consequence of uninterrupted health and a vigorous constitution.*

As far as my own observation goes, I have remarked, that typhus fever is common throughout Ireland, and arises, in all probability, from the smallness of the cottages, which do not admit a free circulation of the air so as to become properly ventilated. The Irish, also, are more subject to scrophula than the English, and agues are prevalent throughout the south, but are little known in the north.

An eminent physician in London, a native of Ireland, assures me that nineteen out of twenty of the intermittent patients in the London dispensaries are Irish.

It deserves to be particularly mentioned, that whether owing to the climate, or to any other cause, instances of suicide rarely occur in Ireland.

There is one subject connected with climate, which, though of considerable importance to the farmer and agriculturist, does not seem to have been sufficiently attended to. I allude to the art of prognostication, by which certain changes of the weather, or the nature of the approaching seasons, may be foretold with some degree of probability a considerable time before they actually take place. Many popular and vulgar notions, are, indeed, entertained on this subject; but it is certain also, that it has engaged the attention of eminent philosophers, both in ancient and modern times. We are told by Aristotle, that Thales, being reproached on account of his attachment to the study of philosophy, which left him in a state of poverty, determined to shew by a striking example that philosophers, if they chose, had it in their power to acquire riches. Having discovered, therefore, by his skill in astrology, that the ensuing season would be uncommonly favourable in the production of cloves, he bought up at a cheap rate, in the winter season, the whole of the future crop, as no one thought of bidding against him. What Thales foresaw took place; and as he had at his disposal the whole of the cloves in the country; there was a great demand for them, and he obtained for them whatever price he asked.†

* Hamilton on the Climate of Ireland. *Transact. of the Royal Irish Acad.* vol. vi. p. 47.

† Arist. Polit. lib. i. edit. Francof. 1801, p. 48. Pliny ascribes this circumstance to Democritus. Ferunt Democritum, qui primus intellexit ostenditque cum terris cœli societatem, spernentibus hanc curam ejus opulentissimis civium, prævisa olei caritate ex futuro Vergiliarum ortu, qua diximus ratione ostendemusque jam plenius, magna tum vilitate propter spem olivæ, cœmisse in toto tractu omne oleum, mirantibus qui paupertatem et quietem doctrinarum ei sciebant in primis cordi esse. Atque ut apparuit causa, et ingens divitiarum cursus, restituisse mercedem anxietatis et avidæ dominorum pœnitentiæ, contentum ita probasse, opes sibi in facili, cum vellet, fore. *Nat. Hist.* lib. xviii. cap. 28. *Lugd. Bat.* 1669, vol. ii. p. 497. Pliny, however, seems to have committed a mistake, for the same thing is related by Diogenes Laertius in his life of Thales. Θερά και ὁ ἑὸς ἱερότατος ἐν τῷ δευτέρῳ τῶν σποράδων ἱεροσηματων ἔτι, βουλόμενος δοῦσαι ἑἴς ἑἑ ἰσας πλοῦτιν, Φερέ

This art may be divided into two kinds. The first is founded on the same principles as the doctrine of chances, by combining and comparing the state of the different seasons, as dry, wet, or variable, for a long series of years, and thence deducing the probability of what a season will be, according to the nature of the one that precedes it.

Mr. Kirwan, to whom meteorology is so much indebted, has illustrated this subject in a very simple and perspicuous manner, in the fifth volume of the Transactions of the Royal Irish Academy. As the hints he has thrown out may lead to some important results, I shall give the concluding part of his paper, together with the tables which he has added to it, especially as they are applicable chiefly to the climate of Ireland.

“If we had tables of the quantities of rain that fall in each month for eighty or one hundred years, we might calculate the mean proportion of each, whether taken singly or in groups, and thence deduce the probable quantities of rain in the succeeding months, the table would every year grow more perfect, and in time approach very near the truth. But I have met with no account of the quantities of rain that annually or monthly fall in Ireland, nor any account of the weather, except that taken by the industrious Dr. Rutty, with a view to medicine. His observations extend to forty-one years; but his estimations are merely vague and popular. However, I shall exhibit a view of them, and to shew how more accurate observations might be managed, deduce some consequences from them !”

“The letters in the columns of the following table denote wet, dry, and variable. It is to be observed also, that Dr. Rutty makes the spring to begin in April, the summer with June, and the autumn with September.”

μιλλούσης θάλας ἴσισθαι προσιόσας ἰμισθώσατο τα ἰλαιουργεα, καὶ πάμπλειστα συνηλε χρέματα. Lib. i. edit. H. Steph. 1570, 12mo, p. 10. And Cicero says—*Alii autem in republica exercitati, ut de Atheniensi Solone accepimus, orientem tyrannidem multo ante prospiciunt: quos prudentes possumus, dicere, id est providentes, divinos nullo modo possumus, non plus quam Milesium Thalem, qui ut objurgatores suos convinceret, ostenderetque, etiam philosophum, si ei commodum esset, pecuniam facere posse, omnem oleam, ante quam florere cepisset in agro Milesio cœmissee dicitur. Animadvertent fortasse quadam scientia, olearum ubertatem fore.* *De Divinal.* lib. i. Op. edit. Oxon, 1810, vol. vi. p. 551.

Table of the State of Spring, Summer, and Autumn, in Dublin, from
1725 to 1765 inclusively.

Year.	Spring.	Summer.	Autumn.
1725	D.	W.	V.
1726	D.	V.	V.
1727	V.	V.	W.
1728	D.	W.	V.
1729	D.	D.	W.
1730	V.	W.	V.
1731	D.	D.	V.
1732	V.	D.	W.
1733	D.	D.	W.
1734	V.	W.	V.
1735	V.	WW.	W.
1736	V.	DD.	D.
1737	D.	D.	D.
1738	V.	W.	W.
1739	W.	W.	V.
1740	D.	D.	W.
1741	DD.	D.	V.
1742	D.	D.	V.
1743	V.	D.	V.
1744	D.	V.	W.
1745	D.	W.	V.
1746	D.	W.	V.
1747	D.	D.	D.
1748	V.	D.	D.
1749	W.	V.	D.
1750	D.	W.	V.
1751	W.	W.	V.
1752	D.	WW.	D.
1753	W.	W.	D.
1754	V.	W.	D.
1755	W.	W.	W.
1756	V.	W.	V.
1757	W.	W.	D.
1758	D.	W.	D.
1759	D.	DD.	D.
1760	D.	V.	W.
1761	D.	DD.	V.
1762	D.	D.	W.
1763	V.	W.	V.
1764	D.	W.	V.
1765	V.	DD.	V.

HENCE we see, that in forty-one years there were
 6 wet *Springs*, 22 dry, and 13 variable.
 20 wet *Summers*, 16 dry, and 5 variable.
 11 wet *Autumns*, 11 dry, and 19 variable.

<p>A <i>dry Spring</i> has been followed by</p> <p>A dry Summer 11 times. A wet 8 A variable 3</p> <p>A <i>wet Spring</i> has been followed by</p> <p>A dry Summer 0 A wet 5 A variable 1</p> <p>A <i>variable Spring</i> has been followed by</p> <p>A dry Summer 5 A wet 7 A variable 1</p>	<p>A <i>dry Summer</i> has been followed by</p> <p>A dry Autumn 5 times. A wet 5 A variable 6</p> <p>A <i>wet Summer</i> has been followed by</p> <p>A dry Autumn 5 A wet 3 A variable 12</p> <p>A <i>variable Summer</i> has been followed by</p> <p>A dry Autumn 1 A wet 3 A variable 1</p>
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* HENCE in the beginning of any year,

- | | |
|---|--|
| <p>I. The probability of a <i>dry Spring</i> is - $\frac{22}{41}$
 of a wet - - - - $\frac{6}{41}$
 of a variable - - - $\frac{13}{41}$</p> <p>II. The probability of a <i>dry Summer</i> is $\frac{13}{41}$
 of a wet - - - - $\frac{22}{41}$
 of a variable - - - $\frac{6}{41}$</p> <p>III. The probability of a <i>dry Autumn</i> is $\frac{11}{41}$
 of a wet - - - - $\frac{20}{41}$
 of a variable - - - $\frac{10}{41}$</p> <p>IV. After a <i>dry Spring</i> the probability of
 A dry Summer is - $\frac{11}{41}$
 A wet - - - - $\frac{8}{41}$
 A variable - - - $\frac{3}{41}$</p> | <p>V. After a <i>wet Spring</i> the probability of
 A dry Summer is - 0
 A wet - - - - $\frac{5}{41}$
 A variable - - - $\frac{6}{41}$</p> <p>VI. After a <i>variable Spring</i> the probability of
 A dry Summer is - $\frac{5}{41}$
 A wet - - - - $\frac{7}{41}$
 A variable - - - $\frac{1}{41}$</p> <p>VII. After a <i>dry Summer</i> the probability of
 A dry Autumn is - $\frac{5}{41}$
 A wet - - - - $\frac{5}{41}$
 A variable - - - $\frac{6}{41}$</p> <p>VIII. After a <i>wet Summer</i> the probability of
 A dry Autumn is - $\frac{5}{41}$
 A wet - - - - $\frac{3}{41}$
 A variable - - - $\frac{12}{41}$</p> <p>IX. After a <i>variable Summer</i> the probability of
 A dry Autumn is - $\frac{1}{41}$
 A wet - - - - $\frac{3}{41}$
 A variable - - - $\frac{1}{41}$</p> |
|---|--|

* These rules relate chiefly to the climate of Ireland.

BUT the probability of the autumnal weather will be attained much more perfectly by taking in the consideration of the preceding Spring also; in order to which we may observe that,

A *dry Spring and dry Summer* were followed by a

Dry Autumn	3 times.
Wet	4
Variable	4

A *dry Spring and wet Summer* were followed by a

Dry Autumn	2
Wet	0
Variable	6

A *wet Spring and dry Summer* were followed by a

Dry Autumn	0
Wet	0
Variable	0

A *wet Spring and wet Summer* were followed by a

Dry Autumn	2
Wet	1
Variable	2

A *wet Spring and variable Summer* were followed by a

Dry Autumn	1 time.
Wet	0.
Variable	0

A *dry Spring and variable Summer* were followed by a

Dry Autumn	0
Wet	2
Variable	1

A *variable Spring and dry Summer* were followed by a

Dry Autumn	2
Wet	0
Variable	2

A *variable Spring and wet Summer* were followed by a

Dry Autumn	1
Wet	1
Variable	5

A *variable Spring and variable Summer* were followed by a

Dry Autumn	0 times.
Wet	1
Variable	0

X. Hence, after a *dry Spring and dry Summer* the probability of a

Dry Autumn is	$-\frac{3}{17}$
Wet	$-\frac{4}{17}$
Variable	$-\frac{4}{17}$

XI. After a *dry Spring and wet Summer* the probability of a

Dry Autumn	$-\frac{2}{17}$
Wet	$-\frac{0}{17}$
Variable	$-\frac{6}{17}$

XII. After a *dry Spring and variable Summer* the probability of a

Dry Autumn	$-\frac{0}{17}$
Wet	$-\frac{3}{17}$
Variable	$-\frac{3}{17}$

XIII. After a *wet Spring and dry Summer* the probability of a

Dry Autumn	$-\frac{0}{17}$
Wet	$-\frac{0}{17}$
Variable	$-\frac{0}{17}$

XIV. After a wet Spring and wet Summer the probability of a

Dry Autumn - - - $\frac{3}{4}$

Wet - - - - - $\frac{1}{4}$

Variable - - - - $\frac{1}{4}$

XV. After a wet Spring and variable Summer the probability of a

Dry Autumn - - - $\frac{1}{4}$

Wet - - - - - $\frac{3}{4}$

Variable - - - - $\frac{1}{4}$

XVI. After a variable Spring and a dry Summer the probability of a

Dry Autumn - - - $\frac{3}{4}$

Wet - - - - - $\frac{1}{4}$

Variable - - - - $\frac{1}{4}$

XVII. After a variable Spring and a wet Summer the probability of a

Dry Autumn - - - $\frac{1}{4}$

Wet - - - - - $\frac{3}{4}$

Variable - - - - $\frac{1}{4}$

XVIII. After a variable Spring and a variable

Summer the probability of a

Dry Autumn - - - $\frac{1}{4}$

Wet - - - - - $\frac{1}{4}$

Variable - - - - $\frac{1}{2}$

The other kind of prognostics is founded on the observation of certain appearances in the atmosphere and heavenly bodies, or of various sensations occasioned through a change in the state of the air, which animals express by marks of uneasiness, or in some other manner: These prognostics were well known to the ancients, and many of them are mentioned by Aratus* and Pliny†, and also by Virgil in the first book of his Georgics.‡ Pliny, to shew the utility of attending to them,

* Aratus was a Greek poet, a native of Solæ in Cilicia, contemporary with Theocritus. He wrote a poem called *Φαινόμενα*, Apparentia, in which he describes the position, motion, rising and setting of the stars. Claudius, and Germanicus Cæsar were so delighted with it, that they translated it into Latin. It was translated also by Cicero when a young man; and is quoted by the Apostle Paul, *Acts xvii.* 28. Aratus introduces his prognostics with the following lines, the fifth and sixth of which have been often admired.

Ἄστροις ἀνθρώποισι τετυγμένα σημαίνου.
 Τῷ κίβωτι πεπότησο, μέλει δὲ τοι εἶ ποτε τοῖ
 Πιστεύεις, ἱερὸν ὅσα πε κερηρήνια κίττα
 Σήματα χιμερίους ἀνμοίς, ἢ λαίλαπτι πότῳ
 Μόχθος μὲν τ' ὀλίγος, το δὲ μύριον ἀντικ' ὄνειρα
 Γίνετ' ἐπιφροσύνης, ἀλλ' ἐπιφραγμένῳ ἀνδρὶ
 Αὐτὸς μὲν τα πρῶτα σαύτιρος, εὐ δὲ καὶ ἄλλοι
 Παρισπῶν ὄψεται, σὲ ἰγγυθὲν ἄρορε χιμῶν.

Hyginus, Aratus, &c. Lugd. Bat. 1803, p. 228.

† Tradunt eundem Democritum metente fratre ejus Damaso ardentissimo æstu orasse, ut reliquæ segeti parceret, raperetque descita sub tutum, paucis mox horis sævo imbre vaticinatione approbata. *Hist. Nat. lib. xviii. cap. 23. Lugd. Bat. 1668, vol. ii. p. 518.*

‡ Atque hæc ut certis possimus discernere signis
 Æstusque, pluviusque, et agentes frigora ventos;

relates, that Democritus seeing his brother Damasus employed in reaping at a time of intense heat, begged him to desist and to carry home what he had already cut, in order that it might be deposited in a place of shelter. Damasus, no doubt, took the hint, for we are told that the prediction of the philosopher was verified in a few hours by a heavy fall of rain.

That changes in the weather may be foretold from various appearances in the atmosphere, and some of the heavenly bodies, will be readily admitted by those acquainted with the principles of natural philosophy; and though the prognostics derived from the actions of animals appear to be more vague and uncertain, they may be explained in a manner no less satisfactory. "The fibres," says an Italian meteorologist,* "which by their nature are easily moved, as well as the nerves, which are highly susceptible of irritation, are readily affected by changes of the surrounding atmosphere, and suffer from their impressions, whether the air varies in its weight or qualities, or is changed in regard to its elasticity. We find among those who are sound and in perfect health, vivacity, good spirits, and great agility, when the air is pure and elastic. On the other hand, when the air becomes light and damp, it throws the body into a state of languor and debility. Valetudinarians, whose constitutions are delicate, or who are advanced in life, are much sooner sensible of the impressions occasioned by changes of the weather, than those who are strong and robust. In general, the senses of men, who in their way of life deviate from the simplicity of nature, are coarse, dull, and void of energy. Those, also, who are distracted by a multiplicity of objects, scarcely feel the impressions of the air; and if they speak of them, they do it without paying much attention to them, or thinking either of their causes or effects. But animals which retain their natural instinct; which have their organs better constituted, and their senses in a more perfect state, and which, besides, are not changed by vicious and depraved habits, perceive sooner, and are more susceptible of the impressions produced on them by variations of the atmosphere, and sooner exhibit signs of them."

It is difficult to explain clearly, and with precision, how modifications in the atmosphere, and vapours, and exhalations affect animals, and produce changes in their bodies, since we are not acquainted with the curious organization of their most delicate parts; but we can observe and perceive the progress and general consequences of these phenomena, as well as of those by which they are produced.

The following are the common and familiar signs exhibited by animals which

*Ipse pater statuit, quid menstrua Luna moneret
Quo regno caderent Austri; quid sæpe videntes
Agricolæ propius stabulis armenta tenerent.*

Georg. lib. i. v. 353.

* Toaldo.

indicate changes of the weather, and which are not so much taken from the agricultural poet who first collected them, as from common observation.

1. When the bats remain longer than usual abroad from their holes, fly about in great numbers and to a greater distance than common, it is a sign that the following day will be warm and serene; but if they enter the houses, and send forth loud and repeated cries, rain may be expected to follow.

2. If the owl is heard to scream during bad weather, it announces that it will become fine.

3. The croaking of crows in the morning indicates fine weather.

4. When the raven croaks three or four times, extending his wings, and shaking the leaves, it is a sign of serene weather.

5. It is an indication of rain and stormy weather when ducks and geese fly backwards and forwards; when they plunge frequently into the water, or begin to send forth cries and to fly about.

6. If the bees do not remove to a great distance from their hives, it announces rain; if they return to their hives before the usual time, it may be concluded that the rain will soon fall.

7. If pigeons return slowly to the pigeon-house, it indicates that the succeeding day will be rainy.

8. It is a sign of rain or wind when the sparrows chirp a great deal and make a noise to each other to assemble.

9. When fowls and chickens roll in the sand more than usual, it announces rain; the case is the same when the cocks crow in the evening, or at uncommon hours.

10. Peacocks, which cry during the night, have a presensation of pain.

11. It is believed to be a sign of bad weather when the swallows fly in such a manner as to brush the surface of the water, and to touch it frequently with their wings and breast.

12. The weather is about to become cloudy and to change for the worse, when the flies sting and become more troublesome than usual.

13. When the gnats collect themselves before the setting of the sun and form a sort of vortex in the shape of a column, it announces fine weather.

14. When sea fowl and other aquatic birds retire to the shore or marshes, it indicates a change of weather and a sudden storm.

15. If the cranes fly exceedingly high, in silence and ranged in good order, it is a sign of approaching fine weather; but if they fly in disorder and immediately return with cries, it announces wind.

16. When the porpoises sport and take frequent leaps, the sea being tranquil and calm, it denotes that the wind will blow from that quarter from which they proceed.

17. If the frogs croak more than usual ; if the toads issue from their holes in the evening in great numbers ; if the earth-worms come forth from the earth, and if the ants remove their eggs from the small hills ; if the moles throw up the earth more than common ; if the asses frequently shake and agitate their ears ; if the hogs shake and spoil the stalks of corn ; if the bats send forth cries and fly into the houses ; if the dogs roll on the ground and scratch up the earth with their fore-feet ; if the cows look towards the heavens and turn up their nostrils as if catching some smell ; if the oxen lick their fore-feet ; and if oxen and dogs lie on their right side, all these are signs which announce rain.

18. The case is the same when animals crowd together.

19. When goats and sheep are more obstinate and more desirous to crop their pastures, and seem to quit them with reluctance, and when the birds return slowly to their nests, rain may soon be expected.

OTHER SIGNS WHICH ANNOUNCE CHANGES OF THE WEATHER.

1. If the flame of a lamp crackles or flares it indicates rainy weather.
2. The case is the same when the soot detaches itself from the chimney and falls down.
3. It is a sign of rain when the soot collected around pots or kettles takes fire in the form of small points like grains of millet ; because this phenomenon denotes that the air is cold and moist.
4. If the coals seem hotter than usual, or if the flame is more agitated, though the weather be calm at the time, it indicates wind.
5. When the flame burns steadily, and proceeds straight upwards, it is a sign of fine weather.
6. If the sound of bells is heard at a great distance, it is a sign of wind or of a change of weather.
7. The hollow sound of forests, the murmuring noise of the waves of the sea, their foaming, and green and black colour, announce a storm.
8. When the spiders' webs and the leaves of trees are agitated without any sensible wind, it is a sign of wind and perhaps rain ; because it denotes that strong exhalations rise from the earth.
9. These signs are less equivocal when the dry leaves and chaff are agitated in a vortex, and raised into the air.
10. A frequent change of wind, accompanied with an agitation of the clouds, denotes a sudden storm.
11. A want, or too great a quantity of dew, being a mark of a strong evaporation, announces rain ; the case is the same with thick, white, hoar frost, which is only dew congealed.
12. The winds which begin to blow in the day time, are much stronger, and endure longer than those which begin to blow in the night.

13. Whatever kind of weather takes place in the night, it is not in general of very long duration ; and for the most part, wind is more uncommon in the night than in the day time. Fine weather in the night, with scattered clouds, does not last.

14. A Venetian proverb says, that a sudden storm from the north does not last three days.

15. The hoar frost which is first occasioned by the east wind, indicates that the cold will continue a long time, as was the case in 1770.

16. If it thunders in the month of December, moderate and fine weather will probably follow.

17. If it thunders at intervals in the spring time before the trees have acquired leaves, cold weather is still to be expected.

18. If the wind does not change, the weather will remain the same.

In regard to the general qualities of the seasons and their influence, attention may be paid to the following signs :

If the earth and air abound with insects, worms, frogs, &c. ; if the walnut-tree has more leaves than fruit ; if there are large quantities of beans, fruit, and fish ; if the spring and summer are too damp ; if hoar frost, fogs, and dew, come on at times when they are not generally seen, the year will be barren : the opposite signs announce fertility and abundance.

Animals seem also to foresee and prognosticate fertility or barrenness. It is said, that when the birds flock together, quit the woods and islands, and retire to the fields, villages, and towns, it is a sign that the year will be barren.

A great quantity of snow in winter promises a fertile year ; but abundant rains give reason to apprehend that the year will be barren. A winter, during which a great deal of rain and snow falls, announces a very warm summer. It is generally believed, but perhaps without foundation, that thunder and storms in winter prognosticate abundance. When the spring is rainy, it produces a plentiful crop of hay and of useless herbs ; but at the same time a scarcity and dearth of grain. If it is warm there will be much fruit ; but they will be almost all spoiled. If it is cold and dry there will be little fruit or grapes, and silk-worms will not thrive. If it is only dry, fruit will be scarce, but they will be good. In the last place, if it is cold they will be late in coming to maturity. If the spring and summer are both damp, or even both dry, a scarcity of provisions is to be apprehended. If the summer is dry, diseases will prevail ; but they will be more numerous if it is warm. If it is moderately cold the corn will be late, and the season will occasion few diseases.

A fine autumn announces a winter during which winds will predominate : if it is damp and rainy, it spoils the grapes, injures the sown fields, and threatens a dearth. If it be too cold or too warm, it produces many maladies. A long se-

verity of the seasons, either by winds, drought, dampness, heat, or cold, becomes exceedingly destructive to plants and animals. In general there is a compensation for drought between one season and another. A damp spring or summer is commonly followed by a fine autumn. If the winter is rainy the spring will be dry; and if the former be dry the latter will be damp. When the autumn is fine the spring will be rainy. That this alternation is in general verified, may be seen in a journal carried on for forty years, and formerly edited by M. Poleni.

Many other prognostics derived from natural phenomena might be mentioned; but as the greater part of them are well known, and may be seen in a pamphlet entitled "The Shepherd of Banbury's Rules," and similar publications, it is needless to enlarge on them.

I must however observe, that the Irish peasants have certain prognostics, but chiefly of a local nature, from which they can foretel with considerable accuracy the approaching state of the weather. Sometimes when I asked their opinion on this subject, they would reply, "Arigil has got his night-cap on," by which is to be understood that they expect a wet day. It is a common saying also,

When Carney Clonhugh puts on his hat,
Let Ballinalu take care of that.

If a mist in the morning moves up the mountain, it is a sign that the day will be wet; but if it descends, there is reason to expect that it will be fine. Mr. Townsend remarks, that when a mountain appears to be nearer than ordinary, and is seen as it were through a hazy atmosphere, a fall of rain may be shortly expected; but he thinks, contrary to the opinion of some with whom I have conversed, that clouds capping the lofty hills, while the lower ones are perfectly clear, are generally a favourable sign, and that the contrary appearance denotes rain.

As it is well known that the state of the atmosphere, whether cold and dry, or warm and moist, has a very powerful influence on the production of echoes, it may not be improper to mention, as connected with this subject, that there are a great many, and some of them very extraordinary in Ireland. The one at the Eagle's Nest at Killarney is well known, but it is by no means the most singular, as there is another much more remarkable near Killaloe, in the mountains to the north of the Shannon; and Dr. Smith speaks of a third equally curious, on the sea beach in the county of Waterford. Besides these, there are a great many others in different parts of the kingdom.

In the thirty-ninth volume of the *Annals of Agriculture*,* Mr. Arthur Young, in a paper on climate, has indulged in a speculation which is not only curious, but in some instances might be exceedingly useful. What is the best climate?

The island of Rhodes is much extolled by ancient authors on account of the serenity of its sky, and hence Horace bestows on it the epithet of *clara*, or bright.* Solinus says, that the weather there was never so cloudy as to obscure entirely the sun,† and it appears that it was a favourite retreat for such of the Roman nobility as were dissatisfied with the existing state of politics at Rome.‡ This preference given to Rhodes, arose no doubt from the nature of the climate. Colonel Purry, a Swiss, wrote on this subject a tract, in which he fixed upon latitude 33°, and consistently with his own doctrine, founded Purry's-burg, in North Carolina. But a worse climate, it is said, is hardly to be found than that of the district where this town is situated.

Mr. Young states, that from the accounts given to him by travellers, he is inclined to believe that the finest climate will be found between 32° and 41°, in hilly districts, where the hills connect with, but are not themselves mountains. A flat country in all the parallels between 32° and 41° is much too hot and too much infested with insects to be agreeable; but hilly situations are equally free from putrid effluvia, too often met with in low ones, and from the torment of gnats, &c. which swarm in a low moist atmosphere. The vallies and plains in such parallels yield (spices excepted) the richest productions on the globe, while the hills produce vines, &c. and afford an air truly delicious to breathe in.

The climate of Chili in South America is supposed to be one of the finest in the world. The season which the inhabitants call their winter does not last three months, and even then the weather is exceedingly moderate; all the rest of the year is delightful.§

A remarkable instance of the fineness of the climate in latitude 33° is given by Dr. Shaw, who, between Cairo and Mount Sinai, slept on the sands without any covering; though wet to the skin with dew|| he caught no cold, and he mentions this as a strong proof of the excellence of the climate.¶

Many parts of the Turkish empire are much praised on account of their cli-

* *Laudabunt alii claram Rhodon aut Mitylenen.* Lib. i. ode 7.

† *Polyhist. cap. 17. Nunquam ita cælum nubilum est, ut in sole Rhodos non sit.*

‡ D. Brutus, in a letter to M. Brutus and C. Cassius, says:—*Ac si dederint, quod petimus, tamen paullo post futurum puto ut hostes judicemur, aut aqua et igni interdicamur. Quid ergo est inquis tui consilii? dandus est locus fortunæ: cedendum ex Italia: migrandum Rhodom, aut aliquo terrarum arbitror. Si melior casus fuerit, revertemur Romam: si mediocris, in exilio vivemus: si pessimus ad novissima auxilia descendemus.* *Epist. lib. xi. ep. i. op. edit. Oxon, 1810, vol. iii. p. 275.*

§ C. Matius, also, writing to Cicero, tells him:—*Mihi quidem si optata contingant, quod reliquum est vitæ, in otio Rhodi degam: sin casus aliquis interpellarit, ita ero Romæ, ut recte fieri semper cupiam.* *Ibid. ib. ep. 28, p. 297.*

¶ Byron's Narrative, p. 222.

|| Le Blanc in his Travels, p. 277, speaks also of the great dews that fall in Egypt.

¶ Travels in Barbary and the Levant, 4to, 2d edit. 1757, p. 11.

mate, and particularly those districts called Asia Minor, lying between the Black Sea and the Mediterranean. The rich and fertile soil of Cappadocia is highly extolled.* The south coast of the Black Sea is represented by a very intelligent traveller as one of the most delicious climates in the world; every thing about Trebisond was so captivating that he could have spent the remainder of his days there with pleasure.†

The air of the Morea, also, is exceedingly temperate, and there is seldom any rain from April to August. The winter is mild, and is never attended with much cold beyond two months.‡ A Dutch traveller speaks highly of the country around Ephesus, and applies the epithet 'paradisical,' to the delicious tract through which the Meander pursues its winding course.§

La Roque, a French traveller, bestows much praise on the district of Khesroan, on the confines of Mount Libanon, in Syria. It produces mulberry trees, grapes which afford excellent wine, and olive trees of a very large size. It abounds also with rich pastures, corn-fields, fruits of every kind, and is well stored with cattle, and with game of various sorts. "This fine country," says the author, "situated under the most temperate climate of all Syria, seems to contribute in some measure to produce that mildness and good disposition remarked in its inhabitants. It is rare, indeed, to find among mountains, which in general tend to render the manners rude and ferocious, a people of so excellent a character as the Maronites of Mount Libanon."||

The complete discussion of this subject would lead to a review of the different climates, and of the advantages and disadvantages which they possess. Some, highly favoured by nature in many respects, are subject at times to earthquakes, hurricanes, and other causes of devastation, which render them comparatively less agreeable, and frequently expose their inhabitants to great loss, as well as to considerable danger. Providence has assigned to all countries a proportion of good and evil, and as habit reconciles men to many inconveniencies, and fits them for supporting almost every degree of temperature, the severity of climate where the arts supply the means of guarding against its effects is very little felt, and neither excites complaint nor produces uneasiness, except among those labouring under disease and infirmity.

The climates of Britain and Ireland may be inferior in some respects to many others; but if the inhabitants consider all the advantages which they enjoy, they will find little cause to be dissatisfied, for they may justly say, in the words of an elegant Greek writer, "some countries produce fruits, trees, and animals of a superior

* Gibbons' Decline and Fall of the Roman Empire, 4to, vol. iv. p. 56.

† Tournafort's Voyages into the Levant, vol. i. p. 177

‡ Randolph's Present State of the Morea, 1689, p. 19.

§ Van Egmont's Travels, 8vo, 1759, vol. i. p. 125.

|| Voyage de Syrie et du Mont. Liban. Paris, 1722, tom. ii. 222.

kind, but ours gives birth to, and educates men fitted for business as well as the arts, and excelling in bravery and courage.”*

CHAPTER VII.

LANDED PROPERTY, RENTAL TENURES.

THE first title to landed property seems to have been acquired by labour bestowed on agricultural improvement. In the early stages of society, when men pursued a nomadic and pastoral life, the soil belonged to the whole community, and its natural produce was enjoyed by every individual in common. This state of things prevailed among the Scythians, as we learn from Herodotus,⁺ Justin,[‡] and other ancient authors, and it is still retained by some of the Tartar tribes, their descendants, who form part of the population of the extensive empire of Russia.‡

The people of Ireland during its state of independence were divided into a great number of septs, each under a chief, who seems to have possessed a judicial as well as military power; but the latter was delegated to a deputy called a Brehon, who administered justice to the different members of the tribe. It appears, however, that the Irish laws then in use were exceedingly barbarous, since murder, robbery, and other crimes, which under well-regulated governments are considered capital offences, were, according to the *brehon* law, punished only by a fine called *ericke*.||

* Ἐπίσταμαι γὰρ ἰν μὲν τοῖς ἄλλοις τόποις φύσει ἰγγινομένης καρπῶν καὶ δένδρων καὶ ζῴων ἰδίας ἐν ἰκατοῖς καὶ πολὺ ἄλλων διαφέρουσας. Τῆν δὲ ἡμετέραν χώραν ἀνδρας καὶ τρέφειν καὶ φέρειν δυναμένην οὐ μόνον πρὸς τὰς τέχνας καὶ τὰς πράξεις ευφροιστατοῦς ἀλλὰ καὶ πρὸς ἀνδρῶν καὶ πρὸς ἀρίστην διαφέροντας. Isocratis Areopag. in Op. apud Crispin, 1622, p. 306.

+ Herodotus speaks of Scythians, who were acquainted with agriculture, but to the east of these were others who led a wandering life with their herds and their flocks, and paid no attention to the cultivation of the earth: Τὸ δὲ πρὸς τὴν ἴω τῶν γυρῶν τῶτων Σκυθῶν, διαβάτην τὸν Παντικῆππην, ποταμῶν, Νομάδες ἢδὲ Σκύθαι κίμονται ὅτε τι σπείροντες ὄδιν ὅτε ἀρύονται. Herodot. lib. iv. cap. 19. edit. Glasg. vol. iv. p. 37.

‡ Hominibus inter se nulli fines, neque enim agrum exercent: nec domus illis ulla, aut tectum aut sedes est, armenta et pecora semper pascentibus et per incultas solitudines errare soliti. *Justini Hist.* lib. ii. cap. 2, edit. Elz. 1640, p. 16. See also *Strabo*, lib. vii. and ix. edit. Alm. Amst. 1707, vol. i. p. 302; vol. ii. p. 492. *Pomp. Mela*, lib. ii. cap. i.

§ Storch's Hist. Stat. Gemälde des Russischen Reichs, vol. i. p. 190-231.—The state of these people is well described by Ferguson, in the following words: “The arts which pertain to settlement have been practised, and variously cultivated, by the inhabitants of Europe. Those which are consistent with perpetual migration, have, from the earliest accounts of history, remained nearly the same with the Scythian or Tartar. The tent pitched on a moveable carriage, the horse applied to every purpose of labour and of war, of the dairy and of the butcher's stall, have made up the riches and equipage of this wandering people. *Essay on Civil Society*, part ii. p. 262.

|| Lord Littleton's Hist. of Henry II. p. 23.

Long after the English invasion, the Irish seem to have retained so much of the pastoral manners of their ancestors, that without confining themselves to a fixed residence, they wandered about from place to place with their cattle like the ancient Scythians, according as they found pasture sufficient for their support. This custom, known under the name of *boolying*, supposes that there were then in the country large tracts of unappropriated land, and that the waste lands bore a great proportion to those which were employed in tillage.*

It appears, also, that property in land was vested in the chiefs only, or leaders of the septs, and that the inferior people were merely tenants at will. The estates of these chiefs, however, were not transmitted from father to son by hereditary descent; but on the death of the proprietor passed to the eldest of his male relations, the best qualified to be the leader of the tribe, and the most capable by courage and military skill to defend it. This custom in ancient times was distinguished both in Ireland and in Scotland by the name of *Tanistry*.†

Though the inferior tenants or followers of the chief seem to have held their lands only during pleasure, it is not improbable that they were permitted to remain in possession of them during life, and upon their decease, their estates were divided among the eldest males of the sept.‡ This, by some writers, says Dr. Millar, has improperly been called succession by *gavel kind*; but it was very different from the Welch, or Kentish gavel-kind, and the consequence of it was, that the landed property of the commons was perpetually changing from one man to another.§

From the reign of Henry II. to the accession of the House of Tudor, the power of the English government was both feeble and precarious. It could therefore afford but little assistance to the original settlers, who easily obtained grants of land, not only within the pale, as it was called, but in other parts of the country. Though no more than a third of it was in possession of the English, such liberal donations were made to a few individuals, that the whole kingdom is said to have been parcelled out among ten proprietors.||

These great lords, however, were not only incapable of managing the vast estates already in their possession, but were interested to prevent the remainder from being given either to the native Irish, or to such new English planters as might be willing to improve it, and therefore by means of these grants there came to be in Ireland at one time no less than eight counties palatine, each of which was governed by a sort of independent sovereign.¶

* Review of the Government of Ireland in Millar's Historical View of the English Government, vol. iv. p. 10.

† Ibid, p. 12.

‡ See Sir John Davis's Discovery, 1747, p. 169.

§ Lord Littleton's Hist. of Henry II. vol. iii. p. 22.

|| Millar's Historical View of the English Government, vol. iv. p. 20.

¶ Millar's Hist. View of the English Government, vol. iv. p. 10.—The Author refers to Sir John Davis's Discovery.

The state of landed property in Ireland, however, seems to have been very uncertain for a long series of years, and considerable changes were made in it by forfeitures, the consequence of various rebellions. In the reign of Elizabeth there were no less than three. By the attainder of John O'Neil and his associates, more than half of Ulster was vested in the queen, to be disposed of as might be deemed most expedient for the interest and security of her government;* and after the rebellion excited by the Earl of Desmond, his immense estate was seized and appropriated to the same purpose. In consequence of the latter confiscation, lands were offered to settlers at the small rent of three-pence, and in some cases of two-pence per acre; and on these terms grants were obtained by Sir Walter Raleigh, Sir Christopher Hatton, and many other persons of distinction.†

These frequent changes of landed property produced many violent disputes between different families, and in the reign of James I. so much confusion had arisen, that it was found necessary to appoint commissioners to examine defective titles, and to invite possessors to surrender their estates into the hands of the governor, that they might obtain a new and a more legal grant. The governor was empowered also to accept surrenders from such Irish lords as held their estates by the ancient precarious tenure usual in Ireland, and under certain regulations to re-invest the possessor, according to the common law of England, with a full and complete right of property. Care was taken at the same time to limit the new grants to the actual possession of the claimants, to secure the state of the inferior tenants, and to convert their former uncertain services and duties into a fixed pecuniary payment. The old custom of tanistry was thus abolished, and according to the new grants estates became universally transmissible to heirs.‡

Immense possessions fell afterwards into the hands of government by the flight of Tyrone and his principal adherents, so that in the six northern counties there were more than 500,000 acres to be disposed of, but in more moderate portions, in order to avoid those abuses which had taken place on former occasions of the same kind.§

* Leland's Hist. of Ireland, 4to, edit. vol. ii. p. 247.

† Millar's View of the English Government, vol. iv. p. 31.

‡ Ibid, vol. iv. p. 36.

§ Ibid. p. 36. Leland says, that the lands to be planted were divided into three different proportions, the greatest to consist of 2000 English acres; the least of 1000, and the middle of 1500; one-half of the escheated lands in each county was assigned to the smallest; the other moiety divided between the other proportions; and the general distributions being thus ascertained, to prevent all disputes between the undertakers, their settlements in the respective districts were to be determined by lot.

Estates were assigned to all, to be held of them and their heirs; the undertakers of 2000 acres were to hold of the king *in capite*; those of 1500 by knight's service; and those of 1000 in common socage.—All were for five years, after the date of their patents, to reside upon their lands, either in person or by such agents

In this distribution of land the city of London participated,* the Corporation having accepted of large grants in the county of Derry. They engaged to expend £20,000. on the plantation; to build the cities of Derry and Coleraine, and at the same time stipulated for such privileges as might make their settlement convenient and respectable. Under a pretence of protecting this infant settlement, or perhaps with a view of raising money, the King instituted the order of Irish baronets, or Knights of Ulster,† from each of whom, as was then done in Scotland with respect to the knights of Nova Scotia, he exacted a certain sum as the price of the dignity conferred.‡

During the usurpation of Cromwell, several forfeitures were made of lands belonging to those who had adhered to the royal party; but these lands were appropriated chiefly to the discharge of the arrears due to the English army. Connaught was reserved entirely for the Irish, under certain qualifications determined by parliament. Here they were to confine themselves and enjoy their allotments of land, that the new English planters might proceed without interruption, and without the danger of degenerating, as in former ages, by their intercourse with the Irish, and that the natives, divided by the Shannon from the other provinces, and surrounded by English garrisons, might be restrained from their barbarous incursions. But after all these assignments and provisions, the counties of Dublin, Kildare, Carlow, and Cork, remained still unappropriated, and these, together with the lands of bishops, deans, and chapters, a part of which was granted to the University of Dublin, were all reserved by parliament to be afterwards disposed of at their pleasure.§

After the restoration it was again found necessary to make some new regulations in regard to landed property, and the adjustment of grants, which after considerable difficulty, and much opposition, was effected by the famous Act of Settlement and the subsequent bill of explanation, || a detailed account of which may be seen in the Life of the Duke of Ormond, by Carte.¶

In the reign of King William, forfeitures were made of lands belonging to the

as should be approved by the state, and to keep a sufficient quantity of arms for defence.—An annual rent from all the lands was reserved to the crown: for every sixty English acres 6s. 8d. from the British undertakers; 10s. from servitors, and 13s. 4d. from Irish natives. *Leland's Hist. of Ireland*, vol. ii. p. 432, 433.

* James said on this occasion, that “when his enemies should hear that the famous city of London had a footing therein, they would be terrified from looking into Ireland, the back-door to England and Scotland. *Letter of Sir T. Philips*.

† Leland says, the number was limited to two hundred.

‡ *Leland's Hist. of Ireland*, vol. ii. p. 433, 434. *Millar's Historical View of the English Government*, vol. iv. p. 38.

§ *Leland's Hist. vol. iii. p. 396.*

|| The 14th and 15th, and the 17th and 18th Charles II.

¶ Vol. ii. p. 221 et seq. See also Howard's *Treatise of the Exchequer and Revenue of Ireland*; Dublin, 1786, 4to, vol. i. p. 201 and 211; also *Leland's Hist. vol. iii. p. 417-442.*

adherents of James, amounting in the several counties to 1,060,792 acres, which being worth £211,623. a year, at six years' purchase for a life, and at thirteen years' for an inheritance, amounted to £2,685,130. Out of these lands the estates restored to the old proprietors by the articles of Limerick and Galway, were valued at £724,923. and those restored by royal favour, at £260,863. and after these deductions and several other allowances, the gross value of the estates forfeited from the 13th of February, 1688, amounted to £1,699,343.*

On this occasion seventy-six grants passed the Great Seal; the principal of which were as follows: To Lord Romney, three grants of 49,517 acres; to the Earl of Albemarle, two grants of 108,603 acres; to William Bentinck, (Lord Woodstock) 135,820 acres; to the Earl of Athlone, 26,480 acres; to the Earl of Galway, 36,148 acres; to the Earl of Rochford, two grants of 30,512 acres; to Lord Coningsby, 59,667 acres; to Colonel Gustavus Hamilton, for his services in wading through the Shannon, and storming Athlone at the head of the English grenadiers, 5,966 acres; to Sir Thomas Pendergast, for the most valuable consideration of discovering the Assassination Plot, 7,082 acres.†

It has been observed by a respectable writer, that "landed property is the basis on which every other species of material property rests. On it alone mankind can be said to live, to move, and to have their being."‡ To form a just notion, therefore, of the state of this kind of property in Ireland, more than common attention is required, as it must be considered under various points of view. Hence, it is necessary to examine the tenure by which it is possessed, the rights which are annexed to it, the incumbrances which affect it, and the manner in which it is managed; the soil, the minerals, and fossils which it covers, the waters annexed to it, the woods and herbage it produces, the buildings and fences erected upon it, may all be comprised under the term "possessory property."§ Seigniorials, as chief rents, whether of the crown or others; manorial, as fines, of which there are but two instances in Ireland; or prescriptive, as common rights, which are also exceedingly rare; predial, as tythes; parochial, as taxes, are abstract rights, and on account of these it is evident that possessory property is susceptible of further analysis, and more particular distinctions;|| but a minute account of them is not here to be expected. This subject belongs rather to the laborious investigator of ancient rights and tenures; and as landed property in Ireland is now insured to its possessors by laws formed under a constitution similar to that of England, I shall refer those who may be desirous of fuller information on this head, to works which treat expressly on the subject.

* Lord Sunderlin, at Barranston, county of Westmeath, who is the descendant of Arthur Malone, one of the commissioners of the forfeited estate, possesses the original book of sale, &c. &c.

† Howard's Treatise of the Exchequer and Revenue of Ireland, vol. i.

‡ Marshal on Landed Estates, p. 1. London edit. 1806.

§ Ibid. p. 2.

|| Marshal, p. 3.

There is one striking difference, however, in this respect, between England and Ireland, which is much in favour of the latter; I allude to the absence of those manorial rights over landed property, so troublesome and vexatious in the former, and which, as I shall shew when taking a comparative view of the two countries, in many instances are highly prejudicial to the public good, and impede in no small degree the progress of improvement.*

"The land revenue of the crown in Ireland consists partly of perpetual unimprovable rents, reserved out of lands or other hereditaments, granted in fee to the subject, and partly of the rents or profits of lands, of which the freehold or inheritance still remains in the crown, commonly denominated crown lands.† The collection of revenue is under the management of the Commissioners of Excise."

For the origin and history of these rents I refer the reader to the chapter on Revenue, and also to Howard's Treatise of the Exchequer of Ireland, a book of authority; Carte's Life of the Duke of Ormond; and Davis's Historical Tracts.

These rents are classed under the four following heads:—Crown Rents, Port Corn Rents, Composition Rents, and Quit Rents.

It appears by the returns made to the precepts of the Commissioners, that the rental of the crown lands amounts at present only to £1,226. derived from 21,333 profitable acres, let or granted on determinable leases.‡

There are no port corn rents now on the rental.§

Composition rents are probably classed in the roll rent, under the head of crown rents.||

* The following note will show why there could be no manors in Ireland: "In England the word manor now denotes a parcel of land, with or without a house upon it, of which a part remains in the owner's hands, and is called his domain land, *Arva dominica*, or *terra domini*; and another part has been granted away before the 18th Edward I. or the year 1290, to two or more persons, to hold to them and their heirs for ever, of the grantor or lord and his heirs for ever, either by knight's service, or in fee or common soccage. In that year the statute of *quia eruptores* was passed, which prohibited the making of these under grants of land to be holden of the grantor, which were found to be attended with many inconveniences, and ordained that all lands that should afterwards be granted away, to be held in heritage by the grantors, should be holden of the same upper lord of whom the grantor himself held them before the new grant. In consequence of this statute, it has been impossible to create a new manor ever since the year 1290, which is now upwards of 500 years. But before that time, any man who was possessed of freehold lands of inheritance, might have converted them into a manor when he pleased, by granting two or more portions of them to be holden by them and their heirs for ever, of him and his heirs for ever, either by the tenure of military service, called in the law books, Knight's Service, or in fee and common soccage." *Historia Anglicana selecta Monumenta*, p. 255.

† Fourth Report of the Commissioners of Inquiry.

‡ Ibid. p. 49.

§ Ibid.

|| Fourth Report, Appendix, p. 85.

Quit rents did average from 1785 to 1804, about £64,000. but a great part of them have been sold in the same manner as the land tax in England.*

The report to which I have here referred, gives an ample account of the landed property now belonging to the crown in Ireland, but it is not sufficiently extensive to require particular notice.

The income of estates in Ireland varies from the lowest value to £100,000. per annum. The titles to them are in general derived by grants from Henry VII. Queen Elizabeth, Cromwel, or King William III. A few, however, are held by original title to the soil, as is the case with that of Mr. Cavanagh, at Borris in the county of Carlow, that of Mr. O'Hara, the member for the county of Sligo, and several in the province of Connaught; but frequent rebellions, as already seen, have occasioned many changes in the ownership of estates; and by various vicissitudes incidental to human affairs, they have been transferred from one hand to another through many generations, so true are the words of the poet—

Estates have wings, and hang in Fortune's power
Loose on the point of ev'ry wav'ring hour,
Ready by force, or of your own accord,
By sale, at least by death, to change their' lord.
Man? and for ever? wretch! what would'st thou have;
Heir urges heir, like wave impelling wave.

Pope's Epist. b. ii. ep. 2.

It has been a common practice in Ireland to grant leases for ever, or for 999 years, or renewable for lives on the payment of a certain fine; and by these means the fee of most extensive estates belongs to persons who at present receive very little head rent. The Earl of Ormond possesses the fee of a district, which, if properly managed, would produce at least an income of £500,000. per annum. The Marquis of Lausdowne has 60,000 acres in the county of Meath,+ which are let for ever at a very small rent. Property of this kind I at first considered as fee farm rents; but I found on minuter inquiry that the owners claim a right to *every thing* under the soil. Near the Croan Mountain, in the county of Wicklow, I saw, on the estate of Lord Carysford, a stone quarry, which Mr. Weaver informed me could not be worked because it was claimed, in consequence of a title of this sort, by Lord Ormond. In the course of the present work many instances will occur of the misfortune which arises from the great extent of many properties in Ireland; but this is an evil which can be remedied only by time, as our laws allow the period of two generations for cutting off an entail and selling property. Hence much room is left for the

* Fourth Report, Appendix, p. 105.

+ Thompson's Survey of Meath, p. 60.

effects of dissipation and extravagance, and immense tracts of land, which in many instances belong to individuals, pass from one family to another, or become broken and divided.

The management of estates, in a certain degree, depends on the settlements by which they are handed down from father to son; as they sometimes allow them to be let only under particular restrictions. For some years past many gentlemen have let their lands on shorter leases than is prescribed by these settlements; but I entertain great doubt in regard to the power of departing from them. The title to leasehold property ought to be as well protected as that to freehold, and instances where every advantage has been taken of the slightest flaw in the powers of a lessor, are so numerous, that it is an object highly worthy of the most serious attention. Another practice which those who take leases should guard against, is that of fining down the rent by the payment of a large sum when the contract is first made, for in most settlements this circumstance will undoubtedly vitiate the lease. The custom of taking all advantage of such oversights is now so general, that breaking a contract of this kind is not considered in Ireland as the smallest violation of honour. I have frequently been in company with noblemen and gentlemen who had acted in this manner with perfect impunity, and who did not seem in the least ashamed of their conduct. I am, however, happy to state, that a more delicate sense of moral rectitude seems to prevail among the people in England. A gentleman in Essex, a few years ago, took a similar advantage, to the prejudice of his tenants; but though he raised his income by this mean subterfuge, he lost the confidence of his neighbours, and his conduct was universally detested.

In Ireland, landlords never erect buildings on their property, or expend any thing in repairs, nor do leases in that country contain so many clauses as in England. The office of an agent is thus rendered very easy, for he has nothing to do but to receive his employer's rents twice a year, and to set out the turf-bog in lots in the spring. Six months credit is generally given on the rents, which is called "the hanging gale." This is one of the great levers of oppression by which the lower classes are kept in a kind of perpetual bondage, for as every family almost holds some portion of land, and owes half a year's rent, which a landlord can exact in a moment; this debt hangs over their heads like a load, and keeps them in a continual state of anxiety and terror. If the rent is not paid, the cattle are driven to the pound, and if suffered to remain there a certain number of days, they are sold. This I have frequently seen done after the occupying tenant had paid his rent to the middle-man, who had failed to pay it to the head landlord. The numerous instances of distress occasioned by this severity, which every one who has resided any time in Ireland must have witnessed, are truly deplorable; and I believe them to be one of the chief causes of those frequent risings of the people, under various denominations, which at dif-

ferent times have disturbed the internal tranquillity of the country, and been attended with atrocities shocking to humanity and disgraceful to the empire.*

Though few leases contain clauses by which the tenant is bound to cultivate the ground in a particular manner, there are some which oblige him, when called upon, to labour for his landlord at an inferior rate of wages. The common price in these cases is eight-pence a day, in some instances only six-pence; and in consequence of the service required by this clause being neglected, I have seen a poor man's cattle taken from his door, and driven away without the least expression of feeling or regret. If a peasant consents to the introduction of such a clause into his lease, and he binds himself to work for his landlord when required, at a fixed rate of wages, which is always low, can any one be surprised that the Irish are reproached with idleness, or that they should perform work, under such circumstances, in a careless and slovenly manner? Can men who hold leases on conditions so degrading, be considered as living in any other state than that of slavery? But I shall enlarge farther on this subject when I come to treat of labour. I have known persons of landed property who had taken a dislike to the eldest son, on whom the estate was entailed, let the whole for the term which their settlement permitted, putting the son's life in the lease to trustees, to be disposed of according to their will, and thus leave the greater part of the actual rent to other persons.

I shall now proceed to give a short account of the extent of landed property in the different counties, an object of the utmost importance in considering the political economy of Ireland; but I wish it to be understood that I by no means give an estimate of the real income of individuals, for there are some owners of very large estates who have not a shilling income, the whole of their fortune being absorbed either by the payment of a mother's jointure, the fortunes bequeathed to brothers and sisters, or debts contracted by themselves, or left them by their predecessors. Others have land in different counties, and many possess estates in England and the West Indies, besides funded and personal property. I do not therefore conceive that I am disclosing the private situation of families, a circumstance which I am anxious to avoid, and on this account I have been obliged to suppress a very large mass of information on the subject, now in my possession.

The rent of land in Ireland is divided into so many parts, first, a certain proportion to the crown; then money paid to the holder of the grant; next, the profit of the middle-men, sometimes two or three deep, and perhaps the occupier himself may come in for a share if his lease be of any long standing; that the only way to obtain a certain result is to consider the present value of an estate to a solvent tenant.

* Earl Charlemont, according to his biographer, used to observe, and there is much truth in the remark, that "a rebellion of slaves is always more bloody than an insurrection of freemen." See *Hardy's Life of that Nobleman*, p. 95.

This has been the method which I have adopted in all my inquiries in every part of Ireland; and I am inclined to place great confidence in the answers I obtained, as they were given by most intelligent gentlemen, who had for many years been upon grand juries; I have, indeed, found their opinions so nearly coinciding with each other, that the result, if not perfectly correct, must be very near the truth. But, to ascertain the rental of the kingdom, it would be necessary to know the quantity of unprofitable land in each county, with the extent of bog and mountain; and this information I have not been able to procure.*

The rents of cities and towns must form a very great addition to the general amount, for it is well known that houses are dearer in some of the most remote corners of Ireland, than in the best parts of London. This is ascribed to the temporary residence of the military, a circumstance, indeed, which in some measure may have enhanced the value of houses, but does not account in a satisfactory manner for what will, no doubt, be considered by some as a paradox. In my opinion it arises from another cause, which is, that many towns in Ireland belong to individuals, and this is one of the very few cases in which the effects of monopoly are observed. To illustrate this by an example, I shall select Belfast; no other spot could be found so well adapted to the trade carried on at that place; and on this account the merchants and manufacturers settled there, cannot change their residence; but Belfast is the property of an individual, and therefore he has it in his power to exact whatever rents he may think proper. I do not mention Belfast as a place where this is actually the case; but as one where it is possible to raise the rents in consequence of the circumstance to which I have alluded.

ANTRIM.—This county belongs chiefly to a few great proprietors, the Antrim family, the Marquis of Hertford, the Marquis of Donegal, Lord Templeton, and Lord O'Neil.

The Antrim property is already divided between the heiresses of the late Earl, and is leased for ever, so that the head-rent does not produce a twentieth part of the gross rental. The Marquis of Hertford has in this county 64,000 green acres, by which term I mean land capable of tillage, independently of bog or mountain land, let only on determinable leases, in the centre of which is the flourishing town of Lis-

* As Mr. Arrowsmith has bestowed the most indefatigable labour, in order that he might give an accurate and just representation of the minutest wastes in his new map of Ireland, I consulted him in regard to the measurement of them, but they are so varied in their form, and so intermixed with the mountains, that it would be very difficult, if not impossible, to obtain, in this manner, any result that could be depended on. I have therefore abandoned the idea of taking them from Mr. Arrowsmith's map; but it is his opinion, that one-fourth of the kingdom consists of bogs, water, and mountains; in this estimate of waste lands, he does not include roads, as they contribute to public utility, but I must request the reader to keep in mind, that this is merely an opinion formed without any data sufficient to establish its authority, or to make it be generally admitted as truth.

burne, and on this estate live many of the most thriving and opulent persons in the kingdom. A finer property can hardly be imagined, and under judicious management it might be turned to very good account. The Marquis lets farms by the English acre for twenty-one years and one life, and at what I consider a very moderate rent. This is one of the estates worth upwards of £100,000 per annum. The marquis of Donegal lets his land for sixty-one years and a life, but renews at the end of a few years for a fine, which prevents his ever having much power over this immense property. The estate of Lord Templeton, in this county, is only leasehold held under the Marquis of Donegal. The whole town of Belfast, every brick of it, belongs to this nobleman, who, however, receives only a small part of the total amount of the rental.

Lord O'Neil is the owner also of an immense estate, and he leases his land for twenty-one years and a life.

There are here a great many estates of two or three thousand pounds per annum, held by lease under the above titles, some for ever, belonging to Lord Antrim, and others determinable, held under different noblemen, whose names it is needless to mention.

ARMAGH.—Lord Charlemont, Lord Gosford, Mr. Brownlow, Lord Caledon, Mr. Cope, Lady Olivia Sparrow, and Count de Salis, have estates in this county of from six to ten thousand pounds per annum, let on leases for twenty-one years and one life.

A large portion of this county belongs to church and college establishments, and to corporations, which have not the power of granting a freehold lease of lives. There are also a great many minor estates, but the tenures by which they are held divide them into the minutest parts, so that few persons, the gentry excepted, occupy so much as twenty acres, a quantity considered as a large farm.

On the 14th of August, 1809, the remainder of a lease of twelve acres, at Ardress, near Moy in this county, rent 5s. 6d. per acre, depending on the life of a person seventy-three years of age, was sold for £160. without any building or local advantage to attach value to it. The first lease, in this country is called "a grand lease."

The lease of twelve acres, belonging to Mr. Ensor, rent seventeen shillings per acre, depending on the life of a person fifty years of age, sold for £120.

Mr. Brownlow having granted a lease for twenty-one years and the life of the lessee, of twenty-seven English acres, at twenty shillings per acre; the tenant within three weeks was offered £300. for his bargain.

CARLOW.—The largest landed estates in this county belong to Mr. Cavannagh of Borris, Mr. Brewen, Mr. Latouche, whose property of £7000. per annum, purchased from the Bagenals, and a seat in parliament, cost £110,000. twenty-eight years ago; Mr. Burton, Mr. Rochford, and a few others, possess from five to seven thousand per annum, and there are a great many who have from £500. to £2000. In this county

there is very little of that minute division so injurious to other parts of Ireland. It has neither a temporal nor a spiritual peer resident within it; and though destitute of manufactures, it is tenanted by more wealthy people than almost any other county in the island. Of late, leases have been granted for twenty-one years and one life; formerly they ran for thirty-one years and three lives. It is worthy of remark, that the fee has been more transferred here than in any other part of the country: Thirty years ago, the Bagenal property, which is now very small, was equal to 32,000 acres, and the estate of the Whaleys, once very considerable, has been all sold.

On the 13th of June, 1809, the rent of land was, at Gurryhurden three guineas; Carlow ten, Brownhill four.

The average rent of the county of Carlow is 50s. per acre. Good grazing land produces from £3. to £3. 10s.

June 17th, 1809. Pollerton.—Sir Charles Burton averages the county at two guineas and a crown.

June 26th. A Mr. Butler, of the county of Kildare, thinks that the cultivated land in Carlow would produce two guineas. He had not long before let 300 acres near Gurryhurden, for three guineas.

June 27th. Queen's County.—Mr. Roche thinks that the rent of the green-land in the county of Carlow is two guineas.

The quantity of cultivated and uncultivated land in the county of Carlow is stated to be as follows:

<i>Baronies.</i>	<i>Cult. Land.</i>	<i>Mount. and Bog.</i>
	<i>Acres.</i>	<i>Acres.</i>
Ruthvilly - - - -	28,510	- - - -
Carlow (Catherlough)*	18,487	- - - -
Forth - - - -	21,601	- - - 1937
Idrone - - - -	38,615	- - - 7100
St. Mullins - - -	16,303	- - - 3171
	<hr/>	<hr/>
	12,3516	12,217
		<i>Total</i> 135,733

July. 14th, 1809. BORRIS.—Walter Cavannagh, Esq. has granted leases for three lives and 31 years, which he considers as a bad method, as he finds that the tenants have all become independent. The land let to a tenant is subdivided among his children, and by them amongst their children, so that at the end of a lease he has twenty tenants instead of one. On his estate, according to the new way of taking land, twenty acres are considered a large farm. Some districts of the county let for four guineas, and no part for less than twenty shillings per acre. The average, not including the vicinity of towns, is above forty shillings.

* This was the old name of the county.

July 26, 1809. MYCHELL.—Mr. Cornwall thinks the average of the county of Carlow is three guineas. In 1787 this gentleman let 900 acres in the parish of Mychell for 7s. 6d. per acre: it would now bring fifty shillings, at the common term of three lives, or thirty-one years. A great part of this county belonged formerly to Quakers.

CAVAN.—The great landed property in this county is that of Earl Farnham, consisting of 26,000 acres. The leases are for three lives or thirty-one years. Mr. Sanderson possesses the fee of 30,000 acres, but perpetuity leases have been granted upon nearly the whole. Another large property is that of Mr. Coote, of Bellamont Forest, whose leases run for twenty-one years, or one life. The other estates sink to a very small amount, and belong chiefly to absentees. This is one of the districts of Ireland where the linen manufacture has contributed to render the tenures remarkably small, as is the case in the neighbouring county of Armagh, where twenty acres are considered a large farm.

AUGUST 23, 1808. Mr. Coote thinks that the land in this county in general would let for thirty shillings per acre.

Colonel Barry is of opinion that the rental here is from twenty-six to thirty shillings per acre.

FARNHAM.—Mr. Coote conceives that Cavan does not supply its inhabitants with corn, and that it imports some from Longford. Monaghan may produce a sufficiency for its inhabitants, but nothing more.

Cavan is a populous and manufacturing county. The land is let in small farms, but the ground is uneven, and the soil poor.

AUGUST 23, 1808: CAVAN.—Mr. Saunderson complained of the want of markets for grain, as there is here no navigation; and it would not bear the expence of land carriage. The illicit distilleries are, therefore, the chief sources of consumption. Mr. Saunderson thinks that the land in general of this county would not let for thirty shillings per acre.

CLARE, belonged formerly to the family of O'Brien, who possessed the office of *Custos Rotulorum* from the reign of Queen Elizabeth, till the death of the late Marquis of Thomond, but at present this immense estate is divided into four, one of which, inherited by Lord Egremont, came to his family by the female line, a great part of the property is leased in perpetuity, but enough is still left, as the leases fall out, to raise the income of £1000. per annum.

The Marquis of Thomond, Sir Edward O'Brien, bart. and Mr. O'Brien, of Brotherwick in Northamptonshire, are proprietors in this county: Lord Conyngham also has here a large estate. Lord Egremont's land is let for thirty-one years, and the tenant pays the receiver's fees. His lordship is called "a bad landlord," because he does not enter into the vile system of making freeholders; but a lease of thirty-one years is a sufficient encouragement to any tenant, and I must commend the prin-

ciples of this high-spirited nobleman, who spurns the mean idea of driving his tenants to a county poll, in the same manner as black cattle are driven to a fair. His lordship, however, lets his land by advertisement, which, where the tenants are good, I think a very bad method.

Sir Edward O'Brien lets his land for twenty-one years and one life: Lord Conyngham lets for three lives. In this county there is considerable absentee property, but there are some residents, besides the proprietors already mentioned, who have estates of from four to five thousand per annum. There is not here much of that minute division of property observed in some of the other parts of Ireland.

OCTOBER 21st. CLARE.—Sir Edward O'Brien averages the rent of green-land, without including the caucasses, at a guinea and a half per acre.

OCTOBER 23d. DROMOLAND.—I rode to see an estate in this neighbourhood, of 207 acres, belonging to Mr. Singleton, for which he lately gave £18,500. It was a part of the caucasses, and according to this price, appeared to have been sold at about ninety pounds per acre.

CORK, being a large county, contains a great number of proprietors, and more variety is observed in the size of the estates. Lord Bandon has property here which produces £30,000. per annum; Lord Carberry possesses thirty-two miles of the sea-coast, and Lord Shannon's estates bring in an annual income of more than £20,000. The Duke of Devonshire has as much; and Mr. Aldworth possesses the fee of an immense tract, but it is leased chiefly for ever. Lady Kingston's estate of £30,000. per annum, lies partly in this county, and partly in Limerick and Tipperary. The heirs of the late Smith Barry, Esq. have £20,000. per annum. Lord Longueville has the same. Sir John Keane, £14,000. Mr. Freeman, £15,000. Mr. Anderson, £10,000. Mr. Newenham, of Coolmore, £10,000. Lord Ponsoby, £10,000. Mr. Hyde, £8,000. Colonel Fitzgerald, £8,000. The Marquis of Thomond, £6,000. Lord Riversdale, £10,000. Mr. Jephson, £12,000. Lord Cork, £20,000. Lord Middleton, £8,000. Lord Egmont, £14,000. Lord Arden, £6,000. Lord Kenmare, 20,000 acres. Mr. Townsend, Mr. Beacher, and many others, have property in this county; and the list might be much farther extended, by the names of inferior landholders; but the latter are not in that proportion which is to be wished, as in many districts there is no intermediate class between one of these territorial lords and his lessee.

The large estates of the Duke of Devonshire and Lord Middleton, are said to be managed in the most miserable manner that can be conceived; and if one may judge from appearance, I must confess that I am strongly inclined to believe it. In the course of my tour, I could always tell to a yard upon whose property I trod. The land belonging to these proprietors is the worst cultivated in the country, and every where exhibits worn down fences, filthy and disgusting cabins, and inhabitants whose wretchedness is seen in their looks. But what is most surprising is, that this should

be the case in the middle of estates belonging to Lord Shannon, Mr. Newenham, Colonel Fitzgerald, and Mr. Hyde, whose tenants are eating wheaten bread, and living in a comparative state of affluence.

There are here many resident proprietors whose exertions to promote improvement render them worthy of every praise, and whose conduct towards their tenants would do honour to any country. I know no part of Ireland that is more favoured in this respect: Mr. Hyde, Mr. Aldworth, Mr. Freeman, Lord Doneraile, Lord Shannon, Mr. Newenham, Col. Fitzgerald, and others, all display, in the management of their property, an enlightened policy, highly worthy of imitation, and no less beneficial to themselves than to their country.

Mr. Townsend says,* "that the size of farms admits of all the variety that can be found in a country where none are large. The generality of those held by a single farmer are small; such as exceed thirty acres are often held in partnership; a kind of tenure objectionable in many respects, yet not ill suited to the incumbrances of a poor tenantry, whose chief riches consist in their labour. Two or more families, each bringing a little, are thus enabled, by combining their forces, to accomplish what they were individually unequal to.† This species of tenure is further promoted by their common law of inheritance, which divides the land of the father among his sons: the daughter's portion is generally paid in money, though sometimes the son-in-law obtains a subdivision of the farm."‡ In the county of Waterford I found the division was between the daughters; the difference of custom in the two counties is extraordinary, but still it is division. Mr. Townsend, in another place, states the existence of the same evil. "Along the sea-coast, and where the population is crowded, farms are generally very small, and from the general custom of subdivision among the sons of the occupier, becoming still smaller. In these situations, and more particularly on those lands where no leases are given, the houses are very wretched."§

This gentleman complains also of the want of confidence in regard to renewal. "Many landed proprietors advertise to let to the highest bidder, without any consideration for the claim of the occupying tenant. To these circumstances are imputed the frequent failure of tenants, and the generally unimproved state of the country. The farmer who sees his lease drawing near a close, and feels no animating hope of

* Survey of Cork, p. 251.

† Mr. Townsend certainly does not reason here with a true knowledge of political economy.

‡ "So much are they attached to this apparently equitable law of equally dividing the property of the father among the sons, that, in case of joint tenants, they never take advantage of survivorship, but suffer the father's part to go to the sons. I have known many instances where the surviving lessee might have availed himself of that benefit, (of which also he was well aware,) but none in which he did. They are often ready enough to take even unfair advantages of each other in their dealing, but this seems to militate too strongly against their notions of right and wrong." *Townsend's Survey of Cork*, p. 252, also 202.

§ Survey of Cork, p. 319.

a renewal upon reasonable terms, yielding to the emotions of despair, racks and impoverishes the farm he has so little chance of retaining."*

OCTOBER 30th, 1808. GLANGARRIFF.—The inhabitants of these mountains live in villages † near the coast, to which there are no roads. The rent which the mountain lands produce is very small; they are let by the lump, and the leaseholder again lets to the cotter, and the cotter to another, perhaps two or three deep.

NOV. 7th, 1808. COOLMORE.—In part of this county the substratum is limestone, and the land lets for five guineas per acre: where the substratum is brownstone, it lets at three guineas. Mr. Warren, a little before this period, had let thirty acres of poor land, at the distance of seven miles from Cork, on a perpetuity lease, at £120. per annum. All land is measured here according to the English acre. One mile from Cork, twenty acres were let for ever at £200. per annum, and a fine of £1000. Mr. Newenham has an estate now let under a thirty-one years lease at £220. per annum: there are six years of the lease unexpired: at present it would bring an annual income of £4000. The improved state of cultivation, and the great rise in the value of land, is here very extraordinary.

NOV. 10th. CORKBEG.—The farmers here are all saving money. The value of land, in the course of twenty-five years, has been tripled, and even quadrupled: Mr. Fitzgerald has let a farm of seventy acres, the substratum brownstone, at three guineas per acre, and might have the same rent for three hundred acres which he holds himself, but it consists partly of limestone. A considerable quantity of wheaten bread is consumed here; the people began to use it during a year when potatoes were scarce, and the consumption of it has ever since increased.

NOV. 15th. ROSTELLAN CASTLE.—I returned hither by the way of Cloyne, which is built on bishop's leases: this may account for its being so miserable a place.

NOV. 18th. CASTLE-HYDE.—Mr. Hyde has near this place an estate, 300 acres of which were let by his grandfather for three lives fifty-six years ago, at the rate of eight shillings per Irish acre. Were the leases expired, it would bring three guineas and a half per English acre, or nearly £5. 16s. per Irish.

Land in the neighbourhood of Fermoy lets at from three guineas and a half to five guineas, but close to towns at ten guineas.

NOV. 18th. CASTLE-HYDE.—Went from this place to Mitchelstown, over a dreary country, belonging chiefly to Mr. Hyde, and worth from twenty-five to thirty shillings per acre.

Mr. Hyde remarks, that "though land lets exceedingly high in the neighbourhood of towns, the rental of the county of Cork is much lessened by an immensity of mountain-land, which does not bring three-pence per acre, and that even the flat lands at a distance from the town produce very little."

* Townsend's Survey of Cork, p. 583.

† Villages, in this place, has not the same meaning as in England: it is the collection of houses belonging to those who hold the estate in partnership.

NOV. 23. DONERAILE.—Lord Doneraile says, the average rent in this neighbourhood is two guineas and a half. He estimates the whole rental of the county at a full million. His Lordship can let the land of his domain for three guineas per acre; near the town for five.

He remarked that the great wastes in England are invariably owing to the want of streams, which are as necessary to population as land. Lord Doneraile's father let an estate for ever at £2000. per annum, and lived to see it re-let at a profit rent of £18,000.

NOV. 25th. BUTTEVANT.—The late estate of the Barrymore family, now the property of Mr. Anderson, which contains 1,600 acres, has lately been let by its present proprietor for £6,000. a-year. The village consists of wretched cabins constructed of mud, and every shop and public-house is inscribed with the name of Barry.

NOV. 23d. CASTLE-HYDE.—The Kingston, Hyde, and Aldworth estates, the last of which is let in perpetuity leases, are all held by settlements from Queen Elizabeth. The rest in this neighbourhood are by grants from Oliver Cromwel. The Boyle estate was obtained by purchase from Sir Walter Raleigh; that of Lord Ponsonby was purchased from Sir Walter's family, and the property of the Duke of Devonshire was inherited in right of a female Boyle.

Mr. Hyde complains, that it is difficult to hold tenants to occupancy, as juries and even judges set their faces against it. The former, who holds from five to fifty acres, thrives in consequence of the rise of the times, and is never under the necessity of paying any thing for labour. The cotter tenant hires a cabin, the worst in the country, with a small patch of potatoe land, at a rent of thirty shillings per annum. He also agrees for the keep of a *collop* or half a *collop*, which is still lower. At the same time he works for his landlord at the small wages of 5d. per day; but when he comes to settle, he receives nothing, as the food of his few sheep is set off against what he charges for labour. In this manner the poor cotter must toil without end; while his family eats up the produce of the small spot of land he has hired. This is called by the lower classes of the Irish "working for a dead horse;" that is to say, getting in debt.

Happening to dine at Cork with Dr. Moylan the Catholic bishop, he related to me the following circumstance in regard to some townlands belonging to the Duke of Devonshire:—These lands were occupied by two hundred families, and on the expiration of their leases the Duke's agents, wishing to substitute protestants in the room of catholics, refused to renew them. The occupiers finding that they were likely to be deprived of their possessions, drew up a memorial of the case, which Dr. Moylan presented to the Right Honourable Henry Elliot, who transmitted it to General Walpole. But what was the result? It was returned to the very agent,

whose conduct was censured: and this gentleman, a zealous friend, no doubt, to the established church, disregarding the claims of the catholics, introduced protestants in their stead; but interest, which often assumes the appearances of liberality, and in many cases impels men to do what they otherwise would not, induced the new tenants to enter into treaty with the old ones, and the latter obtained leases of their former lands at a small rack rent; but with this difference in their situation, that they were now sub-tenants, under persons who were middle-men.

The leases here are generally for thirty-one years and three lives; of late they have been granted for twenty-one years and one life; but in some parts of the country the land is re-let in very small divisions, and particularly on the seacoast. In the mountainous districts land is let to partnerships; and on the sides of mountains it is let by the lump, each partner having a right to turn out a fixed number of stock.

In regard to the rental of this county in general, I found that the opinions of the Lords Shannon and Doneraile, and that of Mr. Hyde, coincided with the idea of Mr. Townsend, whose estimation is twenty shillings per acre.* But the valuation of the former was made according to the Irish, and not the English acre, which will render the rate very different, and still farther, from the estimation of Mr. Newenham, who, I think, has overrated it considerably. He, however, must be a better judge than I am; and those desirous of seeing his calculations, will find them in the Addenda to Mr. Townsend's Survey of Cork.†

DONEGAL.—In this county Lord Conyngham has in the Ross estate 30,000 acres of granite mountain, the present rental of which does not exceed £2,200. per annum. His leases are granted for thirty-one years and three lives. He is owner also of two other estates, which contain together 40,000 acres.

Lord Donegal possesses nearly 100,000 acres in Inishoen. His leases are for sixty-one years; but he constantly renews on a fine, otherwise his rent would be enormous. Mr. Murray, a gentleman who resides in Scotland, has £10,000. per annum, and the Marquis of Abercorn £9,000.

The rents of this county are all exceedingly low, and therefore the produce of estates is very small in comparison with their extent. The mountains are let by the lump. The common leases, at present, are for twenty-one years and a life; but the greater part of those in existence, were granted for sixty-one years and three lives.

Lord Leitrim has in this county £9,000. per annum, and Lord Erne £3,500.

As is the case in the greater part of Ireland, there is much want here of those minor proprietors so frequently met with in England, who possess estates of from

* Survey of Cork, Addenda, p. 78.

† Ibid.

£200. to £1,000 per annum. Wherever such incomes are found they belong only to leaseholders.

The leases granted by Sir James Stewart, are for thirty-one years and three lives.

The system of village partnership so prevalent in the west of Ireland is seen also in this county.

SEPT. 7th. BROWN-HALL.—Mr. Hamilton is of opinion, that the rent of land fit for the plough, is from ten to twenty shillings per acre. Mountain land which is let by the lump is of little value.

SEPT. 8th. DONEGAL is one of those counties which imports corn. The principal land-owners are absentees; but this list comprehends some who reside in Ireland, though they are absentees from the county.

SEPT. 11th. BALLYCONNEL.—The Isles of Arran, off Rutland, contain 2,600 acres, and 100 families. The rent amounts to between £300. and £400. Of this extent 500 acres are cultivated.

SEPT. 18th. CHURCH-HILL.—In the neighbourhood of Ballyshannon land lets at from five to eight guineas.

Dr. M^cParlan, alluding to the year 1802, says—"The villages of this county, which amount to about five hundred, are not on the increase, but dispersing daily into separate habitations and holdings."* Before I last visited Ireland I imagined that this remark applied to country towns; but I found that the Doctor here alludes to the dispersion of partnership occupations, which he comprehends under the denomination of "the villages."

DOWN.—This county can boast of having more gentlemen of great wealth resident within its boundaries than any other in Ireland. The largest absentee property is that belonging to the Marquis of Downshire, which is divided into very minute portions, and produces £30,000. per annum; Mr. Ford has an estate of £16,000; Lord Londonderry one of £15,000; and Lord Dufferin, and Mr. Kerr, have each the same.

But in this county, besides these large estates, there are a great number of small ones, and leases at present are granted for twenty-one years and one life. With regard to the general income of it, the Rev. Mr. Dubourdieu says: "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, which may be computed at 44,658 acres, the surplus of the total acres of the county about 300,000; so that the rental of the county may very fairly be given at £300,000. 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 neigh-

* Survey of Donegal, p. 64.

bourhood of the large towns, such as Belfast and Newry, let beyond their value, not as farms, but merely as a matter of convenience to the opulent inhabitants. They are not, therefore, to be considered as giving by any means a general idea of what the rental produces. What is mentioned above, merely refers to the average rent of the cultivable land.”*

This account was published in 1802, since which time a considerable rise has taken place in the value of land; but it is still valuable, as it supplies us with data by which the amount of the waste land in the county may be ascertained. By estimating, therefore, the remaining 300,000 acres at forty shillings per acre, the whole rental of the county will be equal to £600,000.

DEC. 13th, 1809. KIRSASSOCK.—Mr. Christy is of opinion that the county of Down may be taken on an average at two guineas an acre.

DEC. 15th. BALLYLEEDY.—Lord Dufferin lets land during three years for one half the produce. Both his lordship, and Mr. Potter his agent, estimate the rental of the county at two guineas per acre.

JUNE 30th, 1808. MOYALLAN.—In 1793 land was let for thirty-one years, or two lives, at thirteen shillings per Irish acre. At present it lets at the rate of two guineas per acre for twenty-one years.

JULY 5th.—The estate of Earl Moira, in this county, which was sold a few years ago, would now sell for forty per cent. profit.

Since I was last in Ireland I have learned, not without considerable regret, a circumstance in regard to the conduct of the owner of one of the best estates in that county, which, as it cannot be doubted, for I have it from the best authority, ought to be publicly known from one end of the British empire to the other. As soon as the proprietor came of age, his agent sent notice to all the tenants whose leases were expired, that there could be no renewal for them unless each consented to pay a fine of ten guineas per acre! But this was not all:—to those in possession of leases a threat was held out, that unless they surrendered their leases, paid the required fine, and took out new ones, a mark would be placed against their names in the rental book, and not only they, but their heirs and families, would be for ever excluded from any benefit of a renewal. Can words be found sufficiently strong to characterize this unparalleled exaction? Was it any thing else than levying a tax of ten guineas per acre nearly in the same manner as the autocrat of Russia would order a new impost by an imperial *ukase*?

Those who can stoop to be the advocates of despotism, or to vindicate oppression, may, perhaps, tell me that the cases are widely different, and that the tenants were not obliged to submit to so unjust a demand. But the estate to which I allude extends over many miles of country, and a refusal on their part would have been sealing an

* Survey of Down, p. 31.

act of expatriation. They had no alternative—they could only comply: and thus the hard-earned savings of many years' labour were wrested from the hands of industry, to be employed, perhaps, for the worst of purposes—to be spent at the gaming table—to pamper luxury—or to gratify the vitiated taste of profligacy and dissipation. It was the apparent act of the numerous agents who infest the estate; but the plan must have been known to, and approved by the owner. He is yet young; there is room, therefore, for amendment; and I hope he will live long enough to become wise by experience, and to be convinced that such management of his princely estates, is not only fraught with injustice to individuals, and pregnant with mischief to the country, but diametrically opposite to his own real interest. When tenants experience treatment of this kind, can they be attached to their landlord? And must not such conduct contribute in no small degree to increase discontent and excite disaffection?

During the eventful period of the last twenty years, we have seen kingdoms overturned and thrones shaken to the foundation; independent states annihilated, and every vestige of liberty destroyed throughout almost every part of Europe. Britain, alone, has braved the awful storm, and made a successful resistance to the desolating hand of tyranny. Her sons, blessed with comparative happiness, have disdainfully rejected the allurements held out to them by the revolutionary demon, which brought ruin on those who listened to its seducing voice: and though a part of the populace of Ireland became, at one time, victims to a momentary delusion, the good sense of the people in general, combined with the arm of power, suppressed the spirit of insurrection before it had time to do any serious mischief. The bravery and patriotic zeal of our soldiers, who are sensible of the advantages they enjoy, have not only driven the enemy from our shores, but carried death and destruction to his armies and fleets. Our grateful allies are now pouring forth benedictions on the British valour and name.* Such are the effects of superior freedom and the comforts it brings. Secure, by proper treatment, the affection of the

* 'Tis Britain's care to watch o'er Europe's fate,
And hold in balance each contending state;
To threaten bold presumptuous kings with war,
And answer her afflicted neighbours' prayer.

Addison's Letter from Italy, 1701.

For every virtue, every worth, renowned;
Sincere, plain-hearted, hospitable, kind;
Yet like the mustering thunder when provok'd,
The dread of tyrants, and the sole resource
Of those that under grim oppression groan.

Thomson's Summer.

lower orders, and the safety of Britain will be established on a basis that can never be shaken. But the present are no ordinary times, and every friend to national independence must regret that a single instance should occur of the people being treated with either harshness or neglect. No discouraging obstacles should be thrown in the way of agriculture; agriculture tends to create a rich peasantry, and such peasantry constitute strength. Britain has been called a commercial country; but with the prospect now before her, she must assume another character, and become also a military one. Her armies, therefore, must be supplied with hardy recruits, and where are they chiefly to be found but among those enured to labour.* Impose, then, on that useful class no extraordinary burdens which may check their ardour and damp their industry, and bear in mind what has been feelingly expressed by an ingenious poet whom Ireland claims as her own:

Ill fares the land, to hast'ning ills a prey
 Where wealth accumulates, and men decay,
 Princes and lords may flourish, or may fade;
 A breath can make them, as a breath has made;
 But a bold peasantry, their country's pride,
 If once destroy'd can never be supply'd.

Goldsmith's Deserted Village.

DUBLIN.—Mr. Luke White, Mr. Hamilton, Mr. Talbot, the Lords Longford, De Vesci, and Mountjoy, are among the largest proprietors of land in this county; and its contiguity to the capital renders it a much more marketable commodity than in most of the other counties of Ireland. Leases vary in their terms, except that of generally including a life for the purpose of conveying a vote; and the size of estates and farms is exceedingly different; but it is to be remarked, that there are here no large territorial domains, which can scarcely ever exist in the neighbourhood of a large commercial city.

* Fortissimi viri et milites strenuissimi ex agricolis gignuntur minimeque male cogitantes. *Plin. Hist. Nat.* lib. xviii. cap. 5. *Lugd. Bat.* 1669, vol. ii. p. 419.

A late celebrated writer, who was conversant with subjects of political economy, says, "Husbandmen at the same time make the best soldiers: a military spirit in the lower classes arises from bodily strength, and from affection to their native soil: both are eminent in the husbandman. Constant exercise in the open air renders him hardy and robust; and fondness for the place where he finds comfort and plenty, attaches him to his country in general." This observation the ingenious author confirms by the testimony of Vegetius, *De Re Militari*, lib. i. cap. 3. *Nunquam credo potuisse dubitari, aptiorem armis rusticam plebem, quæ sub divo et in labore nutritur.* He also adds, "An artist, or manufacturer, on the contrary, is attached to no country but where he finds the best bread, and a sedentary life enervating his body, renders him pusillanimous. For these reasons, among many, agriculture ought to be honoured and cherished above all other arts. It is not only a fine preparation for war, by breeding men who love their country, and whom labour and sobriety fit for being soldiers; but it is also the best foundation for commerce, by furnishing both food and materials to the industrious. *Sketches of the History of Man*, by Lord Kaims, book ii. sketch 9,

This county was surveyed by Lieutenant John Archer, in 1801, in consequence of an order from the Dublin Society. And in 1802 a volume of observations on this survey was published by Mr. Hely Dutton; but neither of these gentlemen has stated a single fact from which an opinion could be formed in regard to the rental of the county, which, on account of the number of acres attached to villas and country-seats, must be exceedingly high.

APRIL 30th, 1809. DUBLIN.—In the course of a ride with Mr. Grierson to his farm beyond Finglass, the country to the north and west of Dublin appeared to be flat; but adjoining to Wicklow there is a range of mountains along the southern boundary. Mr. Grierson's farm consists of 160 acres, 140 of which are in tillage, and could be let for five pounds per acre. The whole of the subsoil is of so calcareous a nature, that on dropping a small quantity of muriatic acid on some earth which had been dug up from the ditches, it produced a strong effervescence; and the same effect was observed in every other place where the experiment was repeated.

FERMANAGH.—Lord Enniskillen has an estate in this county of £13,000. per annum. And in the month of August, 1809, when I was at Florence Court, two of the leases were nearly expired; but his lordship found that the land had been divided and subdivided from father to son down to the small compass of two or three acres.

Colonel Archdale and Mr. Brook of Brookboro, have estates of the like extent. The Marquis of Ely, Lord Belmore, and Sir James Caldwell, possess estates of from six to seven thousand pounds per annum. The leases run, in general, for three lives or thirty-one years; but of late the period commonly adopted is twenty-one years and one life.

There are here a few estates of from £1500. to £2000. per annum; but the fee of the greater part of the county is in those large domains, between the proprietors of which and lease-holders there is no intermediate step.

In this county there is considerable church property, which belongs to the see of Clogher.

The leases granted by Lord Belmore oblige his tenants to work with their horses and cars a certain number of days in the year, and particularly at the season for procuring turf.

AUG. 29th, 1808. BELLEISLE.—Sir Richard Hardinge says, "An island of Lough Erne, called Enismore, belonging to the bishopric of Clogher, and containing 1400 acres, sold fourteen years ago by the late Lord Ross for 8000 guineas, would now let for £2000. per annum."

GALWAY.—In this large county there is not, in my opinion, £50,000 per annum of absentee property. Mr. Martin, who possesses seventy miles of the sea-coast, has the largest territorial extent of any individual in the British islands; but it exhibits

every mark of the most wretched cultivation, or rather of no cultivation at all. The land is let without measurement, and miserably grazed by half-starved stock, and yet this gentleman is a constant resident on his estates. If this property be compared with the state of that of Earl Fitzwilliam, how shall we find out the truth of the incessant complaints made against absentees.

The Earl of Clanricarde, Lord Clancarty, Mr. Eyre, and Mr. Ross Mahon, have all estates here of about £10,000. per annum. Mr. Pendergrast Smith has one more considerable, and there are many, the yearly incomes of which amount to five, six, and even seven thousand pounds. There is abundance of smaller incomes, and I am inclined to think that a full third of the land is let on partnership leases, a system of management which I shall describe hereafter, when I come to treat of agriculture.

OCT. 8th, 1809. WOODLAWN.—It is common here to grant leases for three lives or thirty-one years, to an indefinite number of persons, very often twenty, who, by law, are joint tenants, and entitled to the benefit of survivorship. This has been an old-established practice, handed down from father to son for many generations. These people divide the land, and give portions to their children, which consist of a fourth or fifth of what they call a "man's share," that is, of the land which originally belonged to one name in the lease. A certain portion of the whole farm, or *take*, as it is styled, is appropriated for tillage, and this portion is then divided into lots, perhaps twenty or thirty. These lots are again subdivided into fields, which are partitioned into smaller lots, each partner obtaining one or two ridges; but these ridges do not continue in the hands of the same occupier longer than the time they are in tillage. The pasture is held in common, and the elders of the village are the legislators, who establish such regulations as may be judged proper for their community, and settle all disputes that arise among them. Their houses stand close to each other, and form what is here termed a village.

OCT. 20th, 1809. WOODLAWN.—Mr. Trench says, that if the occupying tenants be desired to state how much they will give for their land, they are so frightened, that they never make an offer, but rather remain silent, and afterwards submit to any terms that the middle-man may think proper to impose: he knows no instance of their quitting the land rather than accede to the proposed conditions. *This information accords* with an instance which I witnessed in the county of Waterford, where 900 acres were re-let at an advance of fifteen shillings per acre by a gentleman in the course of a week after he had obtained a lease of them, though the tenants had refused an offer of the land at the same rent at which he had taken it.

OCT. 9th, 1809. CANGOR PARK.—The best land in the county of Galway lies between Mount Talbot and Portumna, and along by Ballyroan and Kilconnettenagh. At present it would bring at an average thirty-five shillings per acre. The district next in quality, extends from Athenry to Galway; it consists of limestone

rock, and is worth from twenty-five to thirty shillings. It is, however, not arable, on account of the rocky nature of the soil, and what grain is produced is raised by the spade. But the ground is of an excellent quality and well adapted for the pasturage of sheep. I have been informed by Mr. William Trench of Cangor Park, a gentleman distinguished for his acuteness of observation, that "no snow ever lies upon it," a circumstance certainly worthy of attention. The district which forms the third in this scale, is smaller; it lies in the neighbourhood of Monivea, and the average value is twenty shillings. There is here plenty of limestone-ground; the substratum is a whitish clay, called *laclay*, and it produces very coarse grass, much mixed with heath. The fourth district, in point of value, comprehends Conamara and Joyce's Land, but exhibits no cultivation whatever.

APRIL 11th, 1809. At this time the green land of the county of Galway would average from a guinea and a half to two guineas per acre.

OCT. 1st, 1808. BALLYDOUGEL.—I observed here no appearance of live hedges; stone fences universally prevail. The substratum is limestone. This is a grass district, and much fewer potatoes are produced in it than in most other parts I have seen. The land, which is grazed chiefly by sheep, lets at present for, from two guineas to fifty shillings per acre, which I consider enormous.

KERRY.—In this county there are some landed estates of immense extent. Lord Kenmare is the owner of above 35,000 acres, which bring him about £8000. per annum, but his sub-tenants receive £40,000. Lord Ventry has £20,000. per annum; his estate lies in the barony of Dingle, and he allows no middle-man to interfere with it. The landed property of Lord Innismore, purchased from Lord Kerry, produces at present £20,000. per annum; he lets his farms by advertisement to the highest bidder, and generally to partners, according to the mode I have described under the head of Galway. Mr. Lock, of Norbury Park near Epsom, has an estate of £9000. per annum, which cost £160,000. Mr. Herring, of Foots Cray in Kent, has another of £7000. and Sir Benjamin Walsh, one of £3000. A very large tract of land in the north-east part of the county, all let to middle-men and wretchedly tenanted, belongs to Trinity College, Dublin. Lord Corke's estate brings him £5000. per annum; that of Lord Healdy £4000. and a large mountainous district, the property of the Marquis of Lansdowne, produces £6000. Sir Edward Denny, a minor, is proprietor of Tralee and its neighbourhood, which at present brings only £2000. per annum, but when the leases are expired it might be raised to £30,000. It consists of 18,000 acres, and comprehends seventeen miles of coast. Lord Glandore has an estate of £7000. per annum. In this county there are few small estates. Leases are granted in general for thirty-one years and three lives, and a considerable portion of the whole is let to partnership-tenants.

Mr. Herbert, of Mucruss, has £7000. per annum, but his middle-men receive £17,000. His estate is in proportion to that of Lord Kenmare as three to eight;

but a great part of the landed property of the latter lies in the counties of Cork and Limerick. Lord Powis has the fee of a large estate, which at present produces £30,000. per annum. In 1734, one of his ancestors leased it for ever at £1900. per annum, and a fine of £6000. A very considerable estate in this county belongs to Lord Carbury.

The following memoranda I made near Kerry Head, in the year 1808, in a district infested at the time by persons known under the denomination of White Boys, and by others, who were impelled by misery and want to the commission of various acts of outrage and violence.

OCT. 17th, 1808. KERRY HEAD.—Few persons here occupy such a quantity of land as to oblige them to employ a labourer; it is not therefore customary for people to go from their own homes to work, and indeed none but those who have taken very dear farms, and experience the necessity of procuring a little ready money, ever think of it. This system, considered in a public point of view strikes me as being exceedingly injurious. A country, occupied by inhabitants whose ambition is so limited, that they have no desire to push their industry beyond that indolent exertion which procures them the bare necessities of life, must remain without improvement. Such people cannot be said to *live*, but to *exist*; to supply their animal wants is the chief object of their labour, and if they can raise money enough by the sale of butter and pigs to pay their rent, all their care and anxiety is ended. The existence, however, of these wretched beings, depends entirely on the season, for if their potato-crop fails they are in danger of being starved. This mode of life, instead of elevating the moral faculties in the slightest degree, tends only to depress and degrade them. It becomes the parent of idleness,* the worst evil that can afflict human nature, and that habit, if it spreads or becomes general, must lead to national poverty, and even want, with its concomitants, vice and misery.

The progress of national misfortune, as connected with a vicious system of internal administration, may be traced out in a very few words. The gradations are not many, but they are striking. Oppression deadens every generous feeling in the mind, and begets apathy and idleness; idleness is the parent of want; want gives

* La nature est juste envers les hommes. Elle les recompense de leurs peines; elle les rend laborieux, parcequ' à de plus grands travaux elle attache de plus grandes récompenses. Mais si un pouvoir arbitraire ôte les récompenses de la nature, on reprend le dégoût pour le travail, et l'inaction paroit être le seul bien. *Monthesquieu Esprit des Loix.* Liv. xiii. ch. 2. Œuvres, vol. ii. p. 4.

I heartily approve of every regulation that tends to prevent idleness. Chief Justice Hale says, "That the prevention of poverty and idleness would do more good than all the gibbets, whipping-posts, and gaols in the kingdom." *Lord Kaims' Sketches of the History of Man*, book ii. sk. 10.

Isocrates praises the Athenians for their attention to prevent idleness among the people, which he considers as the cause of poverty and crimes. τὸς μὴν γὰρ ὑποδείκτραν πρᾶττοντας ἐπὶ τὰς γυμνασίας καὶ τὰς ἐμπορίας ἔτραπον ἰδίους τὰς μὴν ἀπορίας διὰ τὰς ἀγρίας γυμνασίας τὰς; δι' ἀκαουρίας διὰ τὰς ἀπορίας

Isocrates Arcop. in Op. apud. Crispin. 1622, p. 293.

birth to discontent, and discontent produces anarchy, resistance to the laws, and rebellion. Experience, it is said, renders men wise; but the application of this maxim is certainly limited. Experience can never give wisdom to fools, and happy would it be for mankind, if the management of large estates, as well as of empires, were never intrusted, but into the hands of those who have sense enough to see their errors, and honesty enough to correct them.

OCT. 18th, 1808. KERRY HEAD.—The leases granted by Lord Innismore are for thirty-one years and three lives. Colonel Crosby, late member of parliament for the county, has an estate here of £6000. per annum. In this neighbourhood, if a lease be so far expired, that the only part remaining is the contingency of the tenant's life, twenty applications will be made for the reversion of it, and bargains of this kind are very common. But the usual practice is to expose land to public *call*,* and he who bids most obtains it; the unfortunate cottier, if he wishes to procure a small tenement, must then apply to the lessee, and submit to pay an exorbitant rent, which is wrung from him by this petty lord, who, by these means, acquires a considerable income.

Mr. Herbert, of Carniene, says that in many places there is no market for the produce of an estate, and that the whole, therefore, must be consumed within its own precincts. The labourers on such a domain can be considered in no other light than a colony of beggars, and so poor is the land in the whole county of Kerry, mountains included, that he thinks it would not average more than ten shillings per acre.

KILDARE.—In this county there are 73,000 acres of land which belong to the Duke of Leinster, at present a minor, and the whole of it almost is let on determinable leases. Another immense tract is the property of Sir Fenton Aylmer. Mr. Latouche, Mr. Wogan Brown, and some other proprietors, have estates of from six to seven thousand per annum, and several have smaller ones. The farms in Kildare are in general larger than in most of the other counties, and the leases which formerly were for thirty-one years and three lives, are granted at present for twenty-one years and one life. Mr. Rawson says,† “Farms are frequently taken in partnership, and that lands are advertised to be let to the best bidder.” He states, also, “that lands are often hired by persons without any property,” and this appears to be a common practice throughout the kingdom.

KING'S COUNTY.—Lord Digby possesses in this county an entire barony, called Geshill, which contains 10,822 acres, or forty-seven town-lands. His lordship grants no lease on lives, and lets only for the determinable number of twenty-one years. I am, however, sorry to say, that I could not observe on his lordship's estate any signs of a superior tenantry. Lord Ross and Lord Charleville, whose

* In England called a public Auction, in Scotland a *roup*.

† Survey of Kildare, 1808, p. 15.

leases run for twenty-one years and a life; Mr. D. B. Daly, Mr. Stepney of Durragh, Mr. Bernard, and others, have all large estates in this county; but the above noblemen possess so much of it, that the remaining land-holders are scarcely sufficient to make a grand jury, and on that account it is sometimes difficult to form one.

JULY 10th, 1809. CHARLEVILLE CASTLE.—Lord Charleville's leases run for twenty-one years and a life, to the occupying tenant. His lordship has often known instances, where the lessee of a life lease, in consequence of a quarrel with the owner in fee, divided his tenure among several tenants, and in this manner created a number of voters in opposition to the political influence of his landlord.

Tillage farms here are small; but there are grazing ones of very great extent. According to a remark of Sir Charles Coote,* "some petty farmers pay their rents with the produce of their own and their horses' labour."

APRIL 5th, 1809. GLOSTER.—Mr. Lloyd averages the rent of this county, without including bog, mountain-land, or towns, at thirty-five shillings per acre. He is of opinion, also, that the catholics will give much more rent for land than the protestants.

In the neighbourhood of Edenderry, the Marquis of Lansdowne has an estate of £8000. per annum, let for ever, which produces to his sub-tenants £10,000. A part of the Lansdowne property was sold some years ago for £33,000. The purchaser, Mr. O'Brien, receives from it an annual income of £2000.

KILKENNY.—In this county there are some large proprietors, one of whom, Lord Besborough, possesses an estate of 17,000 acres, about 2000 of which are let on leases for ever.† Lord Clifton has one of 20,000 acres with the towns of Graigue,‡ and Gowran. Lord Ormond, I have been informed, is the owner of property here to the amount of £32,000. per annum. Lord Mountnorris has four or five thousand acres,§ and Lord Desart, Lord Carrick, Mr. Tighe, and Mr. Bryan, have each from five to six thousand a year. Besides these, there are a great many landholders who own estates of from £1500. to £2000. per annum; of these indeed no county has more. The leases in general are for three lives, and partnership leases are common. The chapter upon tenures, in Mr. Tighe's Survey, ought to be carefully perused by every Irish landlord; the author points out, in a striking manner, the injury which arises from a lease granted on lives for electioneering purposes, and laments that the entails of estates hold forth encouragement to this mode of tenure. As this acute observer has given the substance of Lord Besborough's leases,|| I shall insert what he has said, as it contains, in my opinion, many excellent hints

* Survey of King's County, p. 22.

† Tighe's Survey of Kilkenny, p. 506.

‡ Ibid. p. 587.

§ Tighe's Survey, p. 587.

|| Ibid. p. 420.

and will enable the reader to form some idea of the system, in regard to agricultural economy pursued by his lordship. "Common printed leases, with the usual covenants, merely to secure the rents, are often used. As Lord Besborough's estate is one of the greatest consequence in the county, and as it has been more particularly attended to by intelligent and well-informed agents, it may be proper to recite the heads of his usual leases. Formerly many restrictive clauses were inserted in the tenures on this estate; they have now been reduced to the following:

"The landlord covenants to let the premises as they are particularly measured, bounded, and described in the map or chart annexed, *reserving* to himself and heirs, all royalties, mines, minerals, coals, turbaries, quarries of marble, freestone, and slate; and all woods, underwoods, timber trees, and other trees, now standing or growing on the premises, with liberty of ingress, egress, and regress, for himself, servants, and workmen, to search for, dig, and carry away the same, (except in houses, office houses, gardens, courts or yards) paying reasonable amends for waste or drainage; and also reserving free liberty to hunt, hawk, fish, or fowl, and also reserving full and free liberty, leave, and licence, with his servants, workmen, cars, carts, and carriages, at any time to enter into the premises, and to make or run, or cause to be made or run, *a road thirty feet wide* through the said premises, in any direction which he or his heirs may decree fit or convenient, and to make and erect ditches or fences thereto. The tenant, with these exceptions, is to have and to hold the premises of ———, paying the yearly rent of ———, together with two shillings in the pound yearly for receiver's fees, the rent and fees paid at such place, not exceeding ——— miles from the premises, as the landlord or agent shall appoint or direct, by two half yearly payments of clear rent, over and above all taxes, charges, assessments, impositions, or payments whatsoever, ordinary or extraordinary, charged or to be charged on the premises, by act of parliament or otherwise, quit rent and crown rent only excepted. Then follow the usual clauses for distraining, if the rent is unpaid for twenty-one days, and of re-entry if it is behind for three calendar months.

"And the tenants covenant truly to pay and to maintain, repair, and keep the premises and all houses, edifices, trees, fences, hedges, ditches, plantations, inclosures, and improvements whatever, made or to be made, in good and sufficient tenable repair and condition, and at the end of the demise to yield up quiet and peaceable possession. It is further covenanted and agreed, that the tenant shall also yield and pay over and above the yearly rent and fees before reserved, an addition or increase of ——— sterling, yearly, to be paid with the former rent, in case he shall alienate or parcel out to under tenants, commonly called sub-setting, either by writing or parole, any part of the premises to any person without licence, under the hand and seal of the landlord, holdings not exceeding one-third of the premises let to labourers or cottagers, or tenants at will excepted, it being the true meaning

of the demise that the tenant shall personally occupy the premises, provided always, that it may be lawful for the tenant at any time to sell and alienate in the whole, every part of his estate and interest in the premises, so that the landlord may have in his room *one single tenant* to charge with the reserved rent, it being the intention of the demise, that the farm should not be divided or split into different farms, without the consent of the landlord. It is covenanted, that the tenant shall not sell or carry away, or cause or suffer the carrying away of turf or peat off the farm, under a penalty of ———, upon the performance of which conditions, the tenant is to enjoy and possess the premises without let or hinderance.”*

The result of my own inquiries, when in this county, is comprised in the following remarks, which were made on the spot:

JAN. 22d, 1809. The estates in the county of Kilkenny, were the leases expired, would average at least full two guineas per acre.

MARCH 18th. URLINGFORD.—Mr. St. George is of opinion that the lands in Kilkenny, if out of lease, would let for forty shillings per acre.

JULY 16th. Mr. Henry Tighe estimates the rental of Kilkenny at forty shillings, although there is a great deal of bad land from Callan and Kilkenny to Waterford. This gentleman had an estate near Gowran, consisting of 180 acres; which were let twenty-nine years ago at 17s. 6d. When the leases were within three years of expiration, the tenants resigned them, paid a fine of £1000. and took new ones at fifty-six shillings, for three lives and thirty-one years.

The Rev. Mr. Cornock, of Wexford, let 103 acres, situated at the distance of two miles and a half from Kilkenny, for twenty-one years and a life, at £4. per acre.

Lord Callan has a good estate.

Lord Ashbrook - - - £7000. per annum.

Lord Kilkenny - - - 8000

Lord Besborough - - - - - 17,000 acres.

Lord Clifton - - - - - 20,000

Sir Edward Loftus, a good estate.

Lord Ormond - - - 32,000

Sir John Blundel - - - 5000

Sir William Morris - - - 3000

Mr. Bryan - - - 3000

Lady Ormond - - - 10,000

Sir Wheeler Cuff, a good estate.

The Floods - - - 9000

* It has lately been stated, December 1810, in the public papers, that the tenants have refused to renew their leases when they expire, but at the old rents. The clauses in Lord Ormond's leases I shall consider when I come to treat of religious parties.

Dr. St. George	-	-	-	-	£3000 per annum.
Mr. Tighe	-	-	-	-	6000
Mr. Murphy	-	-	-	-	6000
Mr. Bunbury	-	-	-	-	4000

LIMERICK.—Lord Courtenay's property in this county, though a large portion of it was sold for £200,000. is still equal in extent to 42,000 acres, and produces at present £38,000. per annum, but when out of lease, will bring at least £100,000. Lord Limerick, independently of his property in the city of Limerick, has £6,000. per annum. Lord Clare, a minor, £9,000. Lord Southwell, £10,000. Lord Charleville, £5,000. Lord Sandwich, and the Count de Salis, each £15,000. Mr. Oliver, £9,000. Lord Massie, £7,000. Lord Egremont, £3,000. Lord Adare, £6,000. The Marquis of Headford, £2,000. Sir Edward Harrop, £5,000. Mr. Pigot, £10,000. Lord Kenmare, 3,800 acres; Lords Cork, Dorchester, and Charleville, have each large property in this county; and the case is the same with Sir William Barker; Mr. Creed of Bruff, as a grazier, holds £10,000. per annum. Mr. Lyons of Croom, holds from four to six thousand. In general the leases run for thirty-one years, and three lives. Lord Courtenay's land is let only for years, but the farms, if I may use the term, are *colonizing*, and I am assured by the graziers, that people pay more rent than bullocks without the employment of capital, and therefore the occupiers of large premises take in all the cotter tenants they can collect.

OCT. 10th, 1808. ADARE.—Mr. Quin has a farm out of lease, consisting of 230 acres, one-third arable land, for which he is offered from a solvent tenant £6. per acre. He has on his estate forty-six of Lord Southwell's Palatine families, all protestants, who hold about twenty acres each upon old leases of three lives, and thirty-one years, at the rate of twenty-five shillings per acre. These people are distinguished for their industry; but it is that kind of routine industry exercised without any spirit of enterprise; for though they all live in a comfortable manner, there is no instance of any one of them having ever made a fortune. Formerly their houses exhibited a much neater appearance; at present they have sunk nearly to a level with the cottages of the Irish peasantry.

NOV. 26th, 1808. CASTLE OLIVER.—Land near this place, though in the midst of mountains, lets as high as four guineas an acre.

Mr. Oliver is of opinion, that the present is a perfect corn rent, depending on the price of that article. The farmer lives on potatoes, and sells every part of his produce, so that he considers a year of scarcity and dearth as advantageous to him.

NOV. 28th, 1808. BRUFF.—Mr. St. Ledger says, that twenty years ago his father announced by advertisements, and in every other manner possible, his intention of leasing 400 acres in this neighbourhood, and let the whole on three lives at nineteen shillings per acre. His brother has been offered for a reversionary lease, four

guineas. In this district no consideration is paid to an old tenant, and the highest bidder is invariably preferred.

DEC. 1st. ADARE.—Mr. Quin is of opinion, that timber has increased here in value much more than the rent of land. This gentleman remarked, that the rents of mountain-land had increased in a far greater proportion than those of good land.

NOV. 28th. BRUFF.—Land here brings three, four, and even five guineas per acre. From an under tenant nothing less is taken than five.

NOV. 29th. CROOM.—The country near the road from this place to Bruff, seems to consist of flat, rich, grazing land, without a single tree. This same vein of land extends to Tipperary, a distance of thirty miles, varying in breadth from ten to twenty: if out of lease it would now let for £5. per acre.

Mr. Lyons thinks that the green acres in this county would produce three guineas an acre.

DEC. 2d. GRANGE.—Lord Sandwich has lately granted leases on 775 acres, at the rate of from four guineas to £5. 7s. 6d. per acre.

Did not produce, and particularly butter, sell here for very high prices, it would be impossible for the occupiers of land to pay their rents. There is not in this neighbourhood a single instance of a person, either rich or poor, possessing funded property. Mr. Grady told many people that he would invest their money in the funds for their benefit and use, but the offer had been invariably refused.

LONGFORD.—The Oxmantown estate in this county is very extensive. Sir Thomas Newcomen has £7000. per annum; Lord Longford's estate, which is let much under its value, brings £4000. per annum; Mr. Edgeworth has £4500. per annum, together with Edgeworthstown; and Lord Granard £3000. The leases in general are for twenty-one years and a life, but the tenures for the most part are small.

LOUTH.—Lord Roden has in this county, besides the town of Dundalk, 6000 acres, 4050 of which are let on determinable leases. Mr. Foster's estate, which is situated at Collon and Dunleer, is almost as large. That of Lord Fortescue has nearly the same extent. The estates of the remaining proprietors are worth from about £1500. to £2000. per annum, and the farms are generally large.

AUG. 12th, 1809. LOUTH GLEBE.—John W. Foster sold to Colonel Fortescue, ten years ago, a good house with 300 acres of land annexed to it, for £17,000. and at present 150 acres are let for £500. per annum. Mr. Fitzmaurice let 120 acres for twenty-one years, at £6. per acre, and a fine of £1000. The lessee re-let it for twenty shillings. It is now out of lease, and will bring £3. per acre, and other parts of the county, when the leases are expired, will let for the same.

The average rent of Louth at present is from thirty shillings to thirty-one shillings.

MEATH.—Lord Darnley has landed property in this county to the amount of £12,000. per annum. His leases are for thirty-one years and a life, but his lordship endeavours to confine the tenant to occupancy. The Marquis of Headford has

£14,000. in this county and in Cavan. Lord Lansdowne has 60,000 acres. But his land is let on perpetuity leases. Lord Sherborne has £10,000. per annum. Lord Fingal, £7000. Lord Tarra, £7000. Mr. Corbally has £10,000. but this property not all in fee. The Marquis Wellesley, £6000. Mr. Bligh and Sir Marcus Somerville have each £5000. per annum; and there are a great many proprietors who possess annual incomes of from two to three thousand.

In my opinion there are in this county as many proprietors with incomes not less than £2500. per annum, as would compose two resident grand juries. Cork, Down, and Meath, have a far greater number of wealthy landed proprietors than any of the other counties of Ireland. At present leases here are for twenty-one years and a life, formerly they were for thirty-one years and three lives. Earl Moira had an estate here, which he sold to the late Archbishop Fowler for £62,000. it now produces £4000. per annum, and is daily improving. Mr. Thomson says, that the fee of Meath is chiefly absentee property, and seven-eighths of the answers to his inquiries were to that effect;* but he does not consider, that an estate let for ever, although the head landlord draws a small rent from it, which determines it to belong to an absentee; still the owner of such a lease is in fact the owner of the soil.

JULY 29th, 1809. ABRAAKEN.—Mr. Thomson, who drew up the survey of this county, is of opinion that Meath contains 300,000 acres of green land, which would now let for fifty shillings per acre.

SEPT. 27th. BRITTAS.—Mr. Bligh gets from two guineas to fifty shillings per acre for his estate, but it is let much under value.

MONÁGHAN.—This county in one respect is the very reverse of the preceding, for not only are the chief proprietors absentees, but there are few possessed of good incomes resident within it. The whole land is divided into very small tenures, called in Ireland *holdings*; the largest estates belong to the Marquis of Bath and Mr. Shirley, the latter of whom has 33,000 acres, but both these properties exhibit the most wretched cultivation; fields without hedge-rows, and inclosed only by earthen banks or dykes; land running to waste, which with great truth may be compared to its inhabitants, that is, losing its strength for want of proper nourishment, and existing in a state of the utmost poverty. The people complain loudly of middle-men and bad leases; whether their complaints are well founded I will not take upon me to assert, but I have strong reason to conclude, that there must be some radical evil in the agricultural economy of these estates, since according to every appearance no land can be in a worse condition. Lord Cremorne, Sir Thomas Lennard, Mr. Dawson, Mr. Leslie, and Lord Blaney, have all good estates in this county, but I could obtain no information in regard to the manner in which they are managed. I conversed only with the lower orders, and was obliged to listen to complaints without number; but to

* Survey of Meath, p. 60.

judge from hearing one side of a question would be unjust ; and besides, I found that these people did not possess that knowledge which could enable me to draw conclusions to be depended on, or to form any certain opinion. I traversed the county in every direction, and heard much from the minor tenants of the *dues* exacted by the larger ones as rent ; but I can state in general, that the account given by Sir Charles Coote* accords with the appearance which it presented. " In Monaghan the rent-rolls of large estates will be found from nearly £20,000. to £1000. per annum, and a very considerable part is held in grants from £20. to £500. per annum. The large estates are in no instance resided on by the immediate proprietors, but the lesser ones are almost uniformly otherwise, and are held in grant from the crown since the Scotch colony was introduced here ; and also a considerable share of these lands were gifts to Cromwel's soldiers, many of whose posterity now enjoy so small a tract as does not yield above £20. annual income. Few of the farms on the larger estates are set in perpetuity, and the more general term is twenty-one years and a life, or three lives. Alienation is neither opposed nor permitted, generally speaking, nor is it a matter of that material consequence where leased farms are under the average of ten acres through the country. I suppose, taking the large farms in Monaghan, they would not average twenty-five acres ; nor could the small ones, which are far more numerous, average six acres, so that ten may be the mean rate of the whole county."

The same writer in another part says,† " the beggarly system of extorting duties from tenants is so shamefully reprehensible in this enlightened age, that it is surprising to see such clauses still insisted on in leases. It is not on such paltry considerations that men of rank and fortune should hold their superiority, and if such pitiful dues are beneath them to accept, as poultry, eggs, &c. then why insert them in their leases, which have no meaning, but may be productive of the worst and most tyrannical consequences to the tenant, if a receipt is not regularly passed for his duties as well as his rent, because a penal sum is always inserted to be recovered in like manner as rent, if the duties should not be paid."

MAYO.—This county is one of those which is possessed chiefly by immense land-owners, but there are parts of it, such as Erris, which, like Joyce's Country, and Connamara in Galway, seem to be uncultivated wastes, and in other parts of it there are tracts of " moorland," occasionally covered with water ; the fee, however, still belongs to individuals. Lord Dillon has here a large estate, which produces nearly £18,000. per annum, let on determinable leases, and it appears that it must occupy a very large extent of country, as there are upon it 2100 registered freeholders, who no doubt have a great number of under tenants. When I visited Mayo, I was advised not to attempt crossing this estate to Roscommon ; I, however, experienced no

* Survey of Monaghan, p. 39.

† Page 49.

inconvenience but from the hardness of the roads, and my not understanding the Irish language, which is here universally spoken. As far as I went, I found the farms by no means small. The Marquis of Sligo has £20,000. per annum; Lord Lucan £10,000. Mr. Palmer and Lord Tyrawley have each the same; Mr. Brown has £15,000. Lord Clanmorris £10,000. Sir Neil O'Donnel, Colonel Jackson, and Mr. Rutledge, each £7000. and there are many others who have property of inferior value in various gradations.

Two grand juries might be formed in this county, if so low a qualification as £1000. per annum were admitted. The greater part of the land is let to partnership tenants, and the gentlemen say that they are obliged to adopt this method in order to secure their rent. The general period of the leases is thirty-one years and three lives. The practice of not dividing partnership leases, as they expire, is most pernicious in its effects, and to convince those who follow it, that a better exists, I need only refer to the management of Mr. Ross Mahon's estates in the adjoining county of Galway.

Nov. 3d, 1809. BLOOMFIELD.—The best lands in Mayo bring forty shillings, the worst twenty shillings per acre. A great part of the county is let on the village system, and each village has a certain code of laws established by the inhabitants for adjusting any differences that may arise among them. If this be found impracticable, the whole body apply to the agent, and if his decision be not satisfactory, they appeal to the landlord, provided he be a resident. But this rude system of village law gives rise to continual wrangling, and pertinacious litigation, for trifles scarcely worth a straw; a disposition which seems not to accord with the boasted generosity of the Irish character. But from Dr. M'Parlan's account, published in 1802, it would appear that the village system is on the decline.

The gentry here seem to have a much greater desire to ornament their lands than to improve them by culture. On the immediate sea-coast of this county; there is no limestone, but the islands, like those of Arran to the west of Galway, are all limestone. The barony of Tyrawley contains excellent grazing land for cattle; Kilmain affords good pasturage for sheep; and there are graziers in the county on a very large scale, some of whom hold as much as 3000 acres. The people here in general are averse to the hiring of land in any other way than that of partnership, and if landlords will not grant leases according to the village system, they will not offer any thing. What little corn is raised, except in this manner, is the produce of fields held under the grazier, who thus obtains an exorbitant rent from the cotters. Thirty pounds for four years is the common rent of an acre. Mr. Rutledge remarked, that the most striking rise in the value of land takes place in the neighbourhood of sea-port towns; but wherever a sale can be procured for corn, the value of it finds its way into the pockets of the landlords, and the people must endeavour to procure food in the best manner they can.

QUEEN'S COUNTY.—This county contains some large estates, one of which belongs to Lord De Vesci, who possesses 13,000 acres, including 3000 of bog. The whole of this land is let on determinable leases, and at present would let according to the lowest valuation for £15,000. per annum. Sir Charles Coote, an absentee, has £12,000. per annum. The Duchess of Chandos, £8000. but it consists in the fee of a large income from land which is let for ever, and produces annually £48,000. Lord Ossory has £10,000. Lord Ashbrook, Lord Stanhope, Mr. Parnel, Mr. Henry Strange, Lord Castlecoote, and Lord Portarlington, have all good estates in this county; Mr. Strange possesses one of £5,000. per annum, the leases of which are nearly expired; the premises are small, consisting mostly of from ten to thirty acres: Mr. Wellesley Pole has a large estate, and another in the King's County; were the whole of this property in the Queen's County, it might rank with the best it contains. The new leases here are granted for twenty-one years and a life; Mount Mellick belongs to the Marquis of Drogheda, who has here £4000. per annum.

The minute division of property has given rise to some observations of Sir Charles Coote, which, as they merit attention, ought to be generally known. "In this county there are large estates from £8000. to £1000. per annum in fee, but the very respectable middle class of gentry enjoy their fortunes from perpetuities in lands, granted long since to their ancestors, many of whom have now a better interest than the original proprietor, and may be rated to possess from £800. to £100. per annum. These lands they have since let out to farm, in smaller parcels on a terminable lease, partly set for lives, or for years, or for both; and considering the effects of a limitation, so far they are most certainly beneficial; but in general where it is permitted in an unlimited sense, it becomes the great bar to national prosperity, in as much as it clogs and retards the surest source of wealth, which is the furtherance and improvement of agriculture. This requires but little elucidation to demonstrate, for as population increases, consequently land will be sought for, and the holder prefers a certain profit rent to the risk of manufacturing it himself; his successor is caught by the same bait, till at last it descends to the miserable peasant, to whom it is rated at double its value at a rack-rent, who is without capital to work it, and for the few seasons which he perhaps may hold it, is obliged to till it incessantly for corn crops, till its vitals are exhausted; then it is left during a year of forbearance, and perhaps another in the stages of ejectionment in a slovenly coshier fallow, over-run with weeds, and thus its improvement, had it been in judicious hands and set out at a reasonable rent, is retarded for a length of time. It is curious to observe how opposite are the causes resulting from alienation of land in this country and in England; there it has become the means of the wealth of the nation, and the great cause of the rapid improvement in agriculture. It is worth inquiring why the same cause has so different an effect: it must be considered, that in England vast tracts of land were in the hands of one proprietor, who was of himself unable to

compass the work of so wide a district, and in the disposal of his lands, wisely let them out in parcels commensurate to the wealth and ability of the tenant. The lands being let out at a fair rent, it became worth the tenant's care to bring them from their quondam apparently barren state, to that improvement which they now present; and their farmers are too sensible of the value of their time to work and toil without profit, it having being well understood, that three rents were to be made of the farm, one for the landlord, one for the taxes, labour and all concomitant expences, and a third for the farmer's profit. Thus it was, that the proprietor had but one-third of what his land could actually produce; but he had a solvent tenant, and there the tenant pays not for his improvement; his rent was only raised in proportion to the times of which he enjoyed an equal benefit, or indeed, a much greater than the landlord. Let us now revert to the state of the capital of those peasants who toil unceasingly, and are greater slaves than the labourers they employ; we see their wealth is not sufficient to provide the necessaries, much less the comforts of life. Let us inquire into the situation of the English peasant; it is true he is without capital, consequently he farms no land, nor aims at what is above his reach; we see him comfortable and contented with his situation, and able to provide all necessaries in his sphere from his daily labour, well fed, and well clothed, infinitely more so than many of our freeholders. In England the lands held under old leases are the least improved where they have not been alienated. In Ireland, lands of this description are in the highest state of improvement, and their proprietors are almost universally in true wealth and independence."* These observations contain much good sense, but it is to be regretted, that the author says nothing in regard to the amount of rent, a circumstance which is always of the first importance.

MARCH 19, 1809. Saunders'-Court.—Mr. Saunders had an estate in the Queen's County, consisting of 300 acres out of lease, the old rent, £60. which is now let to the immediate tenants at £560. and a year's rent as a fine.

JULY 13.—Sir Allan Johnston let 100 acres for forty-one years, at £5. per acre. The mansion cost £1500.

Water Castle, near Abbeleix.—An estate of 120 acres let on a lease of sixty-one years, at four guineas per acre. The house cost £2200.

JUNE 29, 1809. The following is given as the measurement of the Queen's County in the map belonging to the grand jury.

* Survey of Queen's County, p. 20.

LANDED PROPERTY, RENTAL TENURES.

	<i>Cult. Land.</i>	<i>Bog and Mountain.</i>
	Acres.	Acres.
Maryborough E - - -	12,314	1175
----- W - - -	14,960	6480
Tinehinch - - - - -	15,500	15,076
Portnehinch - - - - -	18,250	1480
Cullinagh - - - - -	18,324	7930
Stradbally - - - - -	12,560	1200
Ballyadams - - - - -	12,140	2904
Slewmary - - - - -	12,680	7000
Candred of Upper Woods	12,534	10,280
Charuiallagh - - - - -	23,597	1373
Candonough - - - - -	22,079	5102
	<hr/>	<hr/>
	184,938	60,000
	60,000	
	<hr/>	<hr/>
	<i>Total</i> 244,938	

JUNE 29, 1809. The mountains belonging to Lord Portarlington bring very little rent, but are capable of much improvement.

ROSCOMMON.—This county is divided among proprietors who possess very large estates; Sir Edward Crofton, and Mr. French, of French Park, have immense tracts of land, the leases of which run for twenty-one years and a life. The family of the late Mr. St. George Caulfield, Lord Mount-Sandford, Lord Lawton, the second son of Lady Kingston, and Lord Hartwell, have each extensive estates. The appearance exhibited by that of the last-mentioned proprietor, made me particularly anxious to know the manner in which it is managed. I crossed it from Stokestown, going towards Longford, and found, every where, cabins of the most wretched aspect, infamous stone roads, very minute divisions of land, and what usually follows it, a superabundant but miserable population. The picture which I here saw will not be easily effaced from my remembrance, and I could not help calling to mind an expression of a writer whose opinion on agricultural subjects ought to have great weight: “Go to districts where the properties are minutely divided, and you will find, at least I have done it, universally great distress, and even misery, and probably very bad agriculture.” I had no letter of introduction to the noble lord, nor to any of his agents, but I must confess, that to have learnt the system pursued in the agricultural economy of this property, would have afforded me a useful lesson in order to recommend an opposite system, for I do not recollect to have travelled so many

† Travels in France, by Arthur Young, Esq. F. R. S. 4to, vol. i. p. 484.

miles through any estate in Ireland which presented such a scene of desolation; and nothing astonished me so much as the multitude of poverty-struck inhabitants, from whom I could learn very little more than that the estate belonged to "My Lord," whom they loaded with imprecations.

This is another instance of great mismanagement under a resident landlord; but there are some parts of the country in which a very different system seems to prevail, and where graziers, possessing an immense leasehold interest, have in many cases been enabled to become the purchasers of the fee. As their property in the land, from the rise of prices, is frequently much larger than that of their landlords, there are many persons of this description who, with a mixture of freehold and leasehold, have from £1500. to £5000. per annum.

SEPT. 23d, 1809. ROSCOMMON.—Mr. Taafe, seventeen years ago, hired 240 acres, which were let by advertisement for thirty-one years and three lives at fourteen shillings per acre. At present he could readily let it for forty shillings.

Mr. French's father let 400 acres for three lives, at ten shillings an acre. He has now hired it on an expirable lease, at two guineas, and not being likely to renew with his own tenant again, he has broken up one piece of land, from which he has taken two crops of potatoes, one of flax, and six crops of oats, in succession.

SLIGO.—In this county there are some very respectable properties; Mr. Wynne, Mr. Cooper, Mr. O'Hara, Lord Kirkwall, Lord Palmerstone, Miss Ormsby, and Mr. Jones, have estates of from five to nine thousand per annum. Leases here are granted for longer periods than in many of the other counties, the usual term being thirty-one years and three lives, and some are granted for sixty-one years and three lives. A large portion of the county appears to be let to partnership tenants, and this is confirmed by the following remarks of Dr. M'Parlan, who drew up a survey of the county. "Farms, their size is various, from three acres to five hundred, the poorest classes have very small holdings, not only three acres, but sometimes even less; as they advance higher in circumstances, the extent of their holdings upwards to 500 acres, as mentioned, and even above it; not that individuals in general hold farms of that extent, but, that unfortunately the tenures of lands are mostly as yet undivided, and a great number of tenants hold still, in partnership, wide tracts of land, and beside, because to the farms are commonly annexed wide appurtenances of coarse bottoms and mountain."*

"Mode of repairing them, whether by landlord or tenant. Always by the tenant. This is the fourth county I have examined, and in all the four not one instance occurred where the landlord was obliged to repair."

ROSCOMMON.—Mr. French is forty-four years old: when he came of age his father had agreed to sell his estate in the county of Sligo, consisting of 2600 acres, which

* Survey of Sligo, p. 33 and 34.

brought an annual income of £710. at eighteen years purchase. Mr. French refused to join his father in the sale, and the event has shewn that a young man may sometimes conduct his affairs in a more judicious manner than one of superior years, for he now receives from this estate £2000 per annum. A tax is imposed here on every lease, and the consequence is, that many tenants never go to the expence of having a formal one, but hold their land on verbal agreement, telling the landlord: "If your honour will only make a memorandum of the bargain in your book I shall be satisfied." With some proprietors a contract of this kind may be perfectly secure; but the experience of the world sufficiently shews that it is but a very frail tenure, and particularly at a period when, according to the words of an ingenious writer, "the appetite for property becomes headstrong, and must be gratified at the expence of justice and honour."*

TIPPERARY.—This large county, abounding with luxuriant soil, contains landed estates of different sizes, held under various tenures and circumstances. Lord Landaff has a property of 32,000 acres, which at present bring £28,000 per annum. Lord Cahir, in the neighbourhood of the town of that name, has 12,000 acres, the leases of which are fast expiring, and which, when re-let according to the present value of land, will produce £36,000 per annum. About 26,000 acres, which bring an annual income of £14,000, belong to Lord Dorchester.

Lord Haywarden has	-	-	-	£12,000 per annum.
Lord Lismore	-	-	-	15,000
Lord Donally	-	-	-	8,000
Sir Thomas Osborne	-	-	-	10,000
Lord Norbury	-	-	-	8,000
Sir William Barker	-	-	-	10,000

Mr. Bagwell is proprietor of the whole town of Clonmell, together with an immense estate in the neighbourhood. Besides these large estates there are a great many smaller ones of from four to six thousand per annum. The graziers here, as in Roscommon, have leasehold properties of very great extent, and in many instances the fee is so trifling compared with their interest in the soil, that they easily become the owners of it by purchase. I know persons of this description, who in leasehold and freehold property possess incomes of £9000. per annum: two, three, or four thousand a year is very common. Leases formerly extended to thirty-one years and three lives, but as in most other parts of Ireland, they are now reduced to twenty-one years and one life. In some parts of the country, farms occupied for tillage are small, and perhaps it may not be improper to say, that small occupations create tillage, rather than that the latter gives birth to the former. In this county there is grazing land of every description; that of the mountainous districts is let by the lump, and where

* Lord Kaims' Sketches of the History of Man, b. i. sk. 3.

the occupations are very large, the business of fattening cattle is pursued on a most extensive scale. There is here a colony of Palatines; the greater part of those settled in Ireland are to be found in Limerick.

MARCH 19th, 1809. Forty years ago the Palatines on Sir William Barker's property had thirty-two acres each, at 3*s.* 6*d.* per acre. None of them have ever emigrated, or been known to enlist in the army. These thirty-two acres are now divided among six or seven families, who intermarry with each other like the Jews, and live as a distinct people.

OCT. 11th, 1808. CASTLELOUGH.—Nenagh belongs to Mr. Holmes, and contains between two and three thousand inhabitants. Ninety acres are considered here as a large tillage farm. The leases, which are for three lives, begin now to be granted for twenty-one years and one life; but the former have been so customary, that all marriage-settlements permit the owners of land to let it for three lives and thirty-one years.

DEC. 6th.—The high ground-rent for houses in Clonmell, like that at Fermoy, is very extraordinary, being from seventy to an hundred guineas per annum: the lease for three lives.

DEC. 14th. MAREFIELD.—Passed Thomastown, the residence of Lord Landaff, who possesses an unbounded influence in the county of Tipperary. In this neighbourhood I met with some instances of high rent, which appeared to me remarkable, and which the reader perhaps will hardly credit: Mr. Sparrow let a piece of land consisting of twenty-five acres, without a habitation upon it, at the rate of twelve guineas per acre, and another of 105 acres, situated at the distance of a mile and a half, at six guineas an acre. Near Clonmell a farm has been let, on account of local convenience, so high as fourteen guineas per acre; and Sir Thomas Fitzgerald receives for six acres, near Cashel, the same extravagant rent.

Mr Bagwell is of opinion that the green land of this county lets for three guineas an acre.

MARCH 22d, 1809. LITTLETON GLEBE.—I here inspected a farm belonging to one of the Mr. Scullys, the leases of which were within six years of expiration. The occupier was selling off his stock, having let the land to cottage tenants at the rate of £5. 2*s.* 4*d.* in order that they might break it up and run it out in time. The estate belongs to Lord Norbury, and contains some hundreds of acres.

APRIL 4th, 1809. ROSCREA.—Templemor belongs to Sir John Cardan. Land here lets in general at £3. per acre.

TYRONE.—This county is divided chiefly into estates of very large extent. The Marquis of Abercorn, Lord Belmore, Lord Northland, Lord Mountjoy, possess very large tracts of country. But the first-mentioned proprietor has only a life interest, and therefore he grants a lease of years and a life, but under the condition that it does not exceed his own.

The Newtown Stewart estate, consisting of 24,000 plantation acres, is of considerable value.

Lord Belmore grants leases for three lives, and Lord Northland for twenty-one years and a life. In this large county there are many estates of from five to seven thousand per annum, and very few small ones; but the system adopted by the owners of them is very different from that pursued by the proprietors before-mentioned; as the land passes through the hands of several middle-men, in portions of various sizes, from the large territorial possession, embracing many miles of country, to the most minute division possible to be of any utility: except in the mountainous parts, the quantity of twenty acres is considered as a large occupation. The leases granted by Mr. Staples are for thirty-one years and three lives. In this county the system of partnership tenures is common. Mr. M'Evoy, who drew up the Survey of it in 1802, gives the following description of it:* "The size of farms differs very much throughout the county; mountainous farms are generally of great extent, and are seldom divided themselves, or even from each other. It is customary here for several persons to be concerned in one town-land, which is held in common, or *rundale*, as it is usually called, each person paying a certain proportion of the rent, such as a fourth or a fifth, perhaps according as the case may be; this determines the quantity of land each is to cultivate on his own account; but the cattle run in common, and the number allowed to the share of each person is also determined by the proportion of rent. This system is attended with many inconveniences to the landholder, and is the greatest impediment to every kind of improvement. As long as this system exists, there can be no emulation for draining, enclosing, limeing, or carrying into execution any permanent plan for rendering the land more productive, since none of the party have any division which may properly be called their own. If one person should be disposed to improve, another, or perhaps the whole party may be averse to it, and thus the business of improving the farm is dropped altogether."

WATERFORD.—In this county there are some very large estates. The greatest individual proprietor is the Duke of Devonshire, a part of whose land I had an opportunity of inspecting, having crossed it in going from Youghall towards Dungarvon; but I much regret that a regard to truth obliges me to say, in the words of the poet: "*The desolated prospect thrills the soul.*"† I found it in a condition disgraceful to a civilized and cultivated country. It was grazed by a few half-starved cattle; and, if I except the circumstance of its not being overburdened with population, it exhibited every appearance of wretchedness and misery that the mind can conceive; though from its situation, and the nature of the land, it seems capable of being rendered exceedingly productive. The climate and soil are both favourable, and there are sufficient falls for irrigation to be employed with the greatest effect; yet one may

* Survey of Tyrone, p. 90.

† Thomson's Autumn.

travel mile after mile with the painful prospect of seeing the surface of good land drowned under water, which, by the slightest management, and with little labour or expence, might be carried off in drains, to the great benefit not only of the property itself, but of the whole country. To me the sight of fertile acres treated with so much neglect, was uncommonly dismal; it suggested the idea of desolation in a spot where, if the spirit of industry were excited, and proper encouragement held forth, the eye might be greeted with the view of luxuriant meads and fields,

Where Ceres' gifts in waving prospect stand,
And, nodding, tempt the joyful reaper's hand.

I met a few lonely inhabitants who could not speak a single word of English, and, as I was unacquainted with their native tongue, it was impossible for me to obtain any information from them, either in regard to their situation, or to the management of the estate on which they resided. My own observation, however, was sufficient to convince me, that what has been said respecting absentee proprietors, by a very able writer on economical and agricultural subjects, is strictly agreeable to truth, and worthy of the most serious consideration. "It is not the simple amount of the rental being remitted into another country, but the damp on all sorts of improvements, and the total want of countenance and encouragement which the lower tenantry labour under. The landlord, at such a great distance, is out of the way of all complaints, or, which is the same thing, of examining into or remedying evils; miseries, of which he can see nothing, and probably hear as little of, can make no impression. All that is required of the agent is to be punctual in his remittances, and as to the people who pay him, they are too often welcome to go to the devil, provided their rents could be paid from his territories. This is the general picture."^a I regret much that I had no opportunity of becoming acquainted with the system followed in the management of this property, as the exposure of it might serve as a warning to others, and induce them to avoid plans prejudicial to themselves and ruinous to the country.

I am willing to believe, that many of those who have estates in a similar situation would not intentionally do what is morally wrong; but a wide distinction is to be made between positive and negative virtue, and he who neglects to ameliorate the common lot of humanity, where amelioration is possible, cannot be said to be perfectly blameless. We were not born for ourselves alone; and he that thinks he has performed his duty by abstaining from evil, may pass through life without either praise or censure; but his feelings will not certainly be envied by those who conceive that they were called into existence for much nobler ends. Indolence, combined with wealth, will some times prevent men from enlarging their incomes; an addition to which, where the taste is sated by superfluity, and art has been exhausted to supply external embellish-

^a Tour in Ireland, by Arthur Young, Esq. F.R.S. 4to, part ii, p. 59.

ments, could add nothing to their enjoyments, and little to their splendour. But it ought to be remembered, that he who improves landed property renders an essential service to the public; he multiplies industry, which increases the resources of the empire; and, what is of greater importance to a generous mind, he substitutes comfort and ease in the room of indigence and misery; and thus contributes towards extending the general happiness of mankind.

Lord Fortescue has an estate worth £5000. per annum, and lets his land to the highest bidder for a certain term of years. Lord Doneraile has also a considerable estate, the leases of which are granted for thirty-one years and an old life, in order to make a freeholder. The Marquis of Waterford has a large estate in this county, and the property of Mr. Bolton is considerable. The college of physicians at Dublin have £4000. per annum. Mr. Holmes, who resides in England, Mr. Palliser, Mrs. Mills, and Mr. Power, all possess good estates, the general leases on which are for thirty-one years and a life. The divisions of land are in some instances large, and in a few cases produce £1000. per annum. In mountainous districts, the hills are let in sides, but in other places, near rivers, the divisions are small. When at Faithleg, on the 13th of December, 1808, Mr. Bolton gave me the following account of the manner in which land, according to the usual custom, is split into the minutest portions. "In this country, when the eldest daughter of a farmer marries, the father, instead of giving her a portion, divides his farm between himself and his son-in-law; the next daughter gets one half of the remainder, and this division and subdivision is continued as long as there are daughters to be disposed of. In regard to the male children, they are turned out into the world, and left to shift for themselves the best way they can."

Leases are now generally granted for twenty-one years and a life, although most of the existing ones are for thirty-one years and three lives. There are various ways in which the income of an estate may be reduced, when it is suffered to be improperly managed. One of the best estates in this county is held under such a tenure, that it can be leased only for a definite term; but to elude this settlement, both the owner and his son take money from the tenants, and join in the lease: as distress has reduced them to this necessity, it may be truly said, that, instead of directing their own estates, both they and their estates are subject to the control of their tenants.

DECEMBER, 1808. CURRAGHMORE.—The rents in the county of Waterford are paid chiefly by the produce of the dairy, and of pigs. There are here large dairy farmers, some of whom pay £1000. per annum rent; but such instances are few. Green-land lets for forty shillings and two guineas per acre, and leases are granted for thirty-one years and a life, in order to make a freeholder.

DEC. 12th. WATERFORD.—Four fields in the neighbourhood of this place let as high as sixteen guineas an acre: leases at present are for twenty-one years. The

Rev. Mr. Meara, the marquis's agent, is of opinion, that the county, mountain-land included, will average a guinea and a half per acre. He states, also, that one acre in Waterford is worth two acres in Derry.

DEC. 12th. FAITHLEG.—Land under tillage in Wexford and Waterford, and near the mouths of the Suir and the Barrow is worth four, five, and even six pounds an acre. In 1793, Mr. Bolton let a farm of fifty-two acres, in a state of high cultivation, at £4.8s. per acre. The whole system of the occupier has been to obtain from it as much as possible by working it down.

WESTMEATH.—This county has but one absentee possessed of large property, namely, the Marquis of Buckingham, whose income here is £7000. per annum. I am acquainted with no other property exceeding £6000. a year, but it abounds with gentlemen of moderate fortunes, from two to three thousand per annum. It is seen, by records of the year 1641, that not one of the names in the grand juries of that period are to be found in the lists of jurors summoned at the present time. Lord Sunderlin, Lord Longford, Mr. Pollard, Sir Richard Levinge, Mr. Rochford, Sir Benjamin Chapman, and Mr. Daese, may be ranked among those who have the best properties in this county. Leases are now granted for twenty-one years and a life; formerly they ran for thirty-one years and three lives. Lord Longford's leases are for twenty-one years and two lives; those of Sir Richard Levinge for the same number of years and one life. The late Mr. Reynell, of Reynella, let for twenty-one years and two lives.

AUGUST 12th, 1808. ROCHFORD.—Having stopped at the house of a small farmer, he informed me, that the estate on the right of the road belonged to Lord Longford, but that it was in the hands of "a retailer," who let it for only seven years.

AUGUST 13th. Mr. Rochford's leases are for twenty-one years and one life. Having visited a farmer in this neighbourhood, who was called a monied man, as he had £500. at interest in the hands of his landlord, I found that he held thirty-six acres on lease, at two guineas and a half per acre, but lived in a most miserable cabin, little better than a pig-stye, and half buried in the mud.

AUGUST 18th. COOLURE.—Notwithstanding the population of Castle Pollard, which amounts to three thousand, a butcher will not run the risk of killing a bullock until the neighbouring gentlemen have bespoke the whole of it, which they generally do in quarters.

WEXFORD.—There are, in this county, some large proprietors, such as Lord Mountnorris, whose income is £10,000. a year, and Lord Portsmouth, who has the town of Enniscorthy, and a large district around it, producing £8000. per annum.

		£.		£.	
Lord Meath has	-	-	4000	Lord Spencer Chichester	5000
Lord Courtown	-	-	3000	Mr. Groghan	-
					7500

LANDED PROPERTY, RENTAL TENURES.

	£.		£.
Sir William Ouseley	2000	Mr. Tottenham	4000
Sir Brook Bridges	4000	Mr. Lee	6000
Mr. Annesley	6000	Mr. Ram	5000
Mr. Rose	6000	Another gentleman of the	
Mr. Nunn	6500	same name	3500
Mr. Coghley	6000	Mr. Carew	6000
Mr. Alcock	3500	Sir Frederick Flood, and many	
Marquis of Ely	5000	others have very good estates.	

The holdings here are of various sizes, but there is little of that minute division, attended with such baneful effects, which is common in other parts of Ireland; neither are there any fine grazing farms which depend upon the quality of the soil.

A piece of land near Taghmon, consisting of 260 acres, let at 14s. per acre, on leases, eighteen years of which were unexpired, was lately sold at sixteen years purchase.

DEC. 17th, 1808. NEWTOWN BARRY.—Colonel Barry is of opinion that the average rent of the county of Wexford may be from £1. 2s. 9d. to £1. 5s.

DEC. 31st. HIGH PARK, NEAR GOREY.—Mr. Beaumont let one hundred acres not long ago, at £3. per acre.

JAN. 23d, 1809, CASTLEBORO.—In the year 1746, Mr. Carew's father let this estate at the rate of ten-pence an acre for the worst land, and half-a-crown for the best. In 1777, on the expiration of the lease, which was thirty-one years, the same land was let for ten shillings an acre, and at present it produces from £1. to £1. 5s.

Within Mr. Carew's recollection, many large estates in this county were occupied only by cotter tenants, whose industry was barely sufficient to procure them subsistence. They were permitted to reside on the estate, on condition of their labouring for their landlord, and rearing poultry for the use of his table. The uninhabited part of the land was overrun with furze, and employed as pasture for his horses and cows, which were here turned out loose, and permitted to roam about in search of food. The proprietor had very little money to spend; his wants were supplied chiefly from his estate, and the clothes of his family were manufactured under his own roof. This mode of life is exactly that which is seen in the infancy of states, where agricultural labours are confined to the raising of mere necessaries, and where trade and manufactures are unknown. But at present civilization is more extended; estates of this kind are in tillage, and produce a pound or more per acre.

JUNE 11th, 1809. Mr. Armstrong Brown, who resides near Wexford, at a certain period of his life refused to take land at 17s. per acre: when out of lease, he again refused it at 27s. but on a third offer, when the lease was once more expired, he took it at 40s. He has since relet it at 50s. and the tenants are living in comfort.

MARCH 7th. GOREY.—Went to the late residence of Mr. Ram, at the Park, which was burnt during the last rebellion, after the murder of Captain Walpole, who was aid-de-camp to Lord Camden. A farm close to Gorey, belonging to Mr. Ram, has been let at £4. 5s. per acre; and Mr. Beaumont has let one of a hundred acres, in the same neighbourhood, for £3. per acre. Mr. Brownrig, of Winkfield, who dined here, informed me that his father had been lessee of Lord Powerscourt's estate at £40. per annum, and that he had re-let it for £4000. per annum, which; as he lived to a great age, he enjoyed for many years.

WICKLOW. The immense tract of land belonging to Earl Fitzwilliam, which consists of 46,000 acres in the barony of Shillelagh, with his property in other parts, making altogether 66,000 acres, forms the largest estate in the county. The leases are for twenty-one years and a life; and though his lordship is an absentee, his estate, without exception, is the best cultivated of all those I have seen in Ireland. When the leases expire, a preference is always given to the old tenants, if they are inclined to a renewal; the agent, who attends the assizes, rides occasionally through the land at Malton, to examine in what manner the agricultural labours of the tenants are conducted, and as he spends some part of the summer with his lordship; the latter is, by these means, made thoroughly acquainted with the condition of his property, and the measures necessary to be pursued for improving it. The peculiarly flourishing state in which it appears, has been ascribed to various causes: the *talents and integrity* of those to whose management it is intrusted; the opulence of the tenantry, who, for the purpose of commanding votes, were formerly all protestants; the renewal of leases to the old tenants in preference to others; and the size of the farms, which in general are of considerable extent: but it is not improbable that this beneficial result has been the effect of all these causes combined. Where unbounded confidence prevails between the landlord and his agent, and between the agent and tenants, industry will be exerted on the one hand, and encouraged on the other: improvement will advance with a steady pace, and the mutual benefits which arise from a system founded on justice and liberality, will tend to cement the bonds of friendship between two classes of society, whose interests are undoubtedly the same. But whatever may be the cause, the estate of Earl Fitzwilliam in this county, exhibits an appearance that would do honour to any part of Europe; and though I am not inclined to be lavish of compliments, I will not hesitate to say, when I consider the situation of his lordship's Wicklow tenants, that he appears to me to take justice as the guide of his conduct, and to that chiefly I ascribe the admirable state in which I found his property in Ireland. Can he who loves his country and honours humanity, forbear here from exclaiming to many a thoughtless and improvident landlord, "Go thou and do so likewise!" Will not such examples, if incapable of arousing benevolence where benevolence perhaps does not exist, produce some ef-

fect upon that principle of self-interest, which sometimes impels men to do good, when more honourable motives find no room in the breast ?

He who neglects to ameliorate his landed property when he has it in his power, is certainly inexcusable ; for he might do so without subjecting himself to much labour or restraint : and how gratifying would it be to one of those lordly proprietors, if possessed of generous feelings, to hear applied to him, what a great man, now no more, said of our sovereign ; “ Even in his amusements he is a patriot, and in hours of leisure an improver of his native soil.”*

Lord Carysford, Lord Powerscourt, and Lord Meath, have all large estates, the leases on which are, in general, for twenty-one years and a life. The Rev. Mr. Symes, of Ballyarthur ; Mr. Blachford, Mrs. Tighe of Rosanna, Mr. Tighe of Woodstock, Mr. Synge, and many others, have considerable tracts of land. The centre of the county, which is uninhabited, consists of boggy mountains, and belongs chiefly to the see of Dublin. The districts on the sea-coast are very much divided, and abound with villas, to which the citizens of Dublin retire, to enjoy the pleasure of rural views, amidst all those comforts that flow from ease and independence acquired by industry. It appears to me to contain more gentlemen's seats than the same space in the vicinity of London.

JAN. 28th. BALLYBEG. As soon as I entered the county of Wicklow, came to the estate of Lord Fitzwilliam, where there is a house lately built, in which his agent resides. His lordship never changes a tenant, and keeps his woods in his own hand. The houses on his estate are by far the best and the most comfortable I have seen in Ireland.

MARCH 15th, 1809. WICKLOW.—The land in the neighbourhood of the town is of an excellent quality, and lets for from three to five pounds per acre.

JANUARY 2d, 1809. KILRUDDERY.—Lord Meath says, that “ land in the environs of Bray lets for enormous rents, in some places seven guineas, and near Dublin, fifteen per acre.” This place is twelve Irish miles from Dublin.

The register of property which I have given in the preceding pages, is taken from notes written down on the spot during the course of my tour through different parts of Ireland. It forms but a very small part of the list which I have in my possession, and I hope will be found, in general, to be nearly correct. In collecting the information on which it is founded, I never ventured to note down any property on the authority of one individual ; I carefully compared the statements given to me by different persons, and when the accounts agreed, I concluded that they could not be far from the truth.

* Burke's Letter to a Noble Lord on the Attacks made upon him and his Pension. See his works, octavo edit. vol. viii. p. 40, 41.

TENURES.

THE general tenure by which land is held in Ireland, is derived from grants made by the crown on the payment of a certain quit rent, received by the excise collector of the district. Persons invested with estates in this manner, have frequently leased them for ever, or on lives renewable for ever, or the payment of a fine for the insertion of a new life instead of that which has dropped. This, in fact, is the same thing under a different form, as a lease for 999 years. Any intermediate term between that and sixty-one years is so rare as not to be a subject worth consideration.

I place then the original possessors of landed estates, those to whom they were originally granted by the crown, and the lessee of land for ever, or for 999 years, in the same class, considering them as having unlimited power and control over the soil. The leases commonly granted appear to be as follows:

61 years and lives	21 years and lives
31 years and do.	21 years
31 years	

Of clauses. I am acquainted only with one, which is enforced more in Connaught than in any other province of Ireland; but it is far from being general. It is that which binds tenants to work for their landlords at a given rate of wages.* Some are frequently inserted, to oblige them to maintain and repair houses and buildings, of which, perhaps, there is not a stone or a stick remaining; and others, sometimes, to prevent occupiers from breaking up grass land at the expiration of their leases; but to these clauses very little attention is paid. Juries invariably set their faces against them; and as they are contrary to the habit and spirit of the country, the judges even are said to lean towards this common feeling. It is not, however, improbable, that the acquiescence of the landlord more than any thing, is the cause of their being overlooked or neglected: for a landlord, if he sees his tenant making money by dividing his farm, looks forward with anxious hope to the expiration of the lease, when he expects to enjoy the benefits of alienation, mud cabins, and tillage, instead of grass lands: he therefore favours rather than opposes the custom. Hence it happens, that when cases are brought into court, the jury, influenced by the general spirit of the times, come with a determination previously formed, and without attending to the merits of the cause, decide according to the prejudice they have conceived, and give a verdict as it directs them.

There are three subjects connected with the state of property in Ireland, which must necessarily be taken into consideration. These are middle-men, absentees,

* According to Mr. Tighe, this clause is inserted sometimes in Kilkenny. See Survey of Kilkenny, p. 491.

and agents. They are three objects of popular abuse, and I shall probably be blamed for not completely falling in with the tide of common opinion, and adding my feeble voice to the general clamour, in which many join without previous examination. Middle-men are abused by the editor of every newspaper in Ireland; they are reviled, and even loaded with maledictions by the lower orders in all parts of the country; and they are treated by the gentry with that sovereign contempt which is usually shewn to the most worthless and abandoned of the human race. Writers in general, from Mr. Young downwards, have inveighed bitterly against them; and no class of men, I believe, in the empire, have been attacked with more virulence from every quarter. The Edinburgh Review is the only work of authority which has come boldly forward to stem this torrent; to advocate their cause and to adduce arguments in their favour; but though the authors of that journal have handled the subject in a very able manner, and displayed considerable ingenuity in their reasoning, it is merely that of theory in opposition to practice.

To this subject I have paid considerable attention; for, besides collecting materials for the work which I now submit to the public, one of my objects was to inspect two large estates in Ireland belonging to absentees. On this account I was induced to make particular inquiry into the conduct of that class of persons called middle-men, and of the agents to whose management these estates were intrusted. The opinion I am about to give, has not therefore been hastily formed from a cursory view of the question, but is the result of mature reflection, after a minute and attentive survey of some of the largest estates in the island. I am inclined, then, to think, that the letting to middle-men ought to depend in a great measure on the circumstances of the property and the character of the individual into whose hands it is committed. If an extensive tract of country be waste, or nearly in a state of nature, as is the case with that belonging to the Duke of Devonshire in the county of Waterford, could such a tract of land be improved by receiving upon it a number of indigent persons, without capital or skill in agriculture, who could be considered in no other light than as a colony of beggars? Such people, as they increased in numbers, would only add strength to insubordination, and contribute to swell those bands of nightly marauders who infest the adjoining districts, and spread terror and desolation around them. The only tenant for property of this description, would be some man possessed of ready money, who had sons or other connections to settle, and who understood draining the land, paring and burning the soil, laying it down to grass, and other arts of improvement; who had means sufficient to stock it for a number of years; who would lime it on the sod, and then break it up for tillage: and when he had brought it into this state, who would have the best title to reap the benefit of such exertions? Every person possessed of common sense must reply—he, by whose industry and labour the soil has been so much improved. This

being the case, if he divides it into small portions among active sub-tenants, his landlord ought to rejoice in his prosperity, which is so intimately connected with his own, and which in the end will add to his wealth, and be a benefit to the country. Now, let us suppose that the proprietor had parted with his land for the term of the tenant's life, or the lives of his sons and grandsons, and to secure possession in case of death, that a concurrent one is introduced of sixty years. This term being expired, the estate being improved and divided, and the expences of a spirited tenant returned to him, with a sufficient compensation on account of his trouble; (for I should think that the term during which he held the land would be adequate to this purpose, and that the landlord and tenant would now, in point of obligation, be on an equal footing,) such land as the tenant retained in his own occupancy, and which he fairly meant to keep, should be re-let to him for twenty-one years; and if the estate were mine, I should grant leases of the remainder to the immediate occupying tenants whom I found on the property, and for the same period of time. But I shall suppose that the owner of the property, instead of adopting this method, determines to expose the land to a public *cant*, a plan which the arguments of the Reviewers seem to recommend, and that he announces his intention of doing so some time before. In every case where the occupier confides in a renewal of his lease, he will keep his land in a perfect state of cultivation; but when he finds that it is to be offered to the highest bidder, he knows that the only chance he has of obtaining a new lease, is to bring the land to such a condition that few will venture to bid against him; and therefore he converts it into a complete desert, or reduces it nearly to its original state.*

I shall now suppose another case, that a middle-man, such as one of those who abound in every town of Ireland, obtains the lease of this land, by what means is at present of no importance, and that this person takes it without the least intention of ever laying out upon it a single shilling, or of occupying an acre of it. This man re-lets it at a *considerable rack rent*, and whatever success attends the occupiers, the whole fruit of their labour finds its way into the pockets of this petty despot. There are various ways by which persons of this description have it in their power to ruin and destroy the real tenantry of an estate; such as that of binding them by an oath to pay[†] their rent on a certain day, or to drive their cattle to the pound, and it is extremely difficult to counteract this system.‡ I have known estates offered at a fair but highly increased rent to the occupiers,

* Rawson's Survey of Kildare, p. 7.

† Tighe's Kilkenny, p. 424.

‡ JAN. 6th. ABBELEIX.—Lord De Vesci remarks, that the middle-man residing close by, can exact an enormous rent in cases where the real owner, at a distance, would be but ill paid.

who, to a man, refused to take them. They have then been let to one of these "land sharks," as they are called; and I have seen the occupiers, rather than quit, agree to give a pound an acre more than the rent at which they had rejected the same land a few weeks before. This singular change is effected, partly by fear, and partly by persuasion and encouragement. Many advantages are held out by way of lure. One strong inducement is, that the middle-man, not being in want of money, engages to take promissory notes at a long date, in payment of the rent; but these poor deluded people soon find, to their cost, that their confidence has been most shamefully abused; for when the day of payment comes, the former has nothing to do but to drive away their cattle. The pound is in the neighbourhood; and for a few days this business engages the middle-man's attention, and prevents him from loitering about the door of the post-office, where he is accustomed to watch the arrival of the English newspapers during three parts of the year, that he may feast himself with the manna of the day.* Middle-men of this kind are a disgrace to a country; they are real pests of society; as great tyrants in Ireland as the farmers-general were in France; and while they excite the detestation of the honest part of society, they are loaded with curses by the poor, whom they oppress. The first case I have here supposed is not an ideal one; I am acquainted with many such middle-men, and they are as great a blessing as the latter are a curse.†

I have found, however, that to talk of reform in the management of landed estates, is like proposing reform in our political system. "Such things," it is said, "are very well in theory; but will never answer in practice: consider what human nature is before you think of introducing changes, the result of which is at best but uncertain. Your schemes would answer exceedingly well if persons could be found fit to be trusted. No such middle-man as you describe is to be met with." But I have great satisfaction in being able, from my own experience, to produce, in opposition to this popular prejudice, a person whose conduct in this respect ought to be made generally known, and held up as a model for imitation: Mr. Robert St. George, in the county of Kilkenny, on account of the benefit he has done to the country by the active spirit of industry which he manifested in that situation, is entitled to every praise. I have myself been a witness to the exertions he has made to improve the land which he holds, and to better the condition of his sub-tenants. But independently of my feeble commendation, the most honourable testimony has been given in his favour by a gentleman of great

* See *World*, No. 70.

† "The middle-man cannot afford to be so indulgent as the proprietor: he must have his profit rent, which he enjoys at the expence, partly of the occupier, and partly of the proprietor, who thus pays a high agency for the receipt of his income." *Townsend's Survey of Cork*, p. 189.

respectability, who has more particularly described the plans he followed, and the means he employed in the execution of them.* There can be no better proof of the service he has done, than to inspect the adjoining properties, which are still in the same state in which they were many years ago. The contrast is striking, and strongly corroborates my assertion.—Mr. Lloyd, in Tipperary, is another instance; and I am convinced that it is possible to find a number, sufficient to shew that the general abuse thrown out against this class of men is unjust and impolitic, as it tends to increase discontent among the poorer class of mankind, where, perhaps, there is no real cause of complaint, and to add to their prejudices, which ought rather to be lessened. I will readily admit, that the system of middlemen, when carried into general practice, is bad, but great care should be taken to make a distinction between that property which requires the aid of a wealthy intermediate tenant to bring it to a productive state of improvement, and that which might be let by the landlord to solvent tenants without the intervention of others.

With regard to absentees, lists of them were published by Mr. Lawrence in 1694,† by an anonymous writer in 1767,‡ and by Mr. Arthur Young in 1779.§ I might imitate these examples, and give a fourth; but I decline the task, when I consider the nature of absentee property, and how difficult it is to determine what ought really to be comprehended under that denomination. There are, no doubt, a great many proprietors of large estates, such as Earl Fitzwilliam, the Duke of Devonshire, Lord Middleton, Lord Dorchester, Lord Egremont, Lord Courtenay, &c. &c. who may be called absentees in every sense of the word; but there are many included under this head, who invariably spend their summers in Ireland, and, of course, have an opportunity of seeing and examining in what manner their estates are managed by their agents; there are some who make a short trip to Ireland in the course of the year, merely for the purpose of having a pretext to say that they are residents, in order to evade the income-tax when in England; and there are many who, though they do not live on their estates, never quit Ireland, but either reside in Dublin or in some other part of the country. To all these the general term of absentee is invariably applied without discrimination, though it is evident that they belong to classes very distinct from each other, and which, in my opinion, ought not to be confounded. Were I, therefore, to give a motley list of this kind, it would only be holding up to popular abuse a number of noblemen and gentlemen, many of them highly respectable, without presenting any useful information, or ascertaining that which is the chief point to be consi-

* Survey of Kilkenny, by William Tighe, Esq. p. 285.

† State of Ireland, by Richard Lawrence, 1694.

‡ A list of the absentees of Ireland, with an estimate of the yearly value of their estates and incomes spent abroad, with observations on the trade of Ireland, &c. Dublin, 1767.

§ Young's Irish Tour, part ii. p. 57.

dered, the real amount of revenue annually drawn from the country, to be spent among those who have no title to be benefited by it, which, if it could be obtained, would be an object of considerable importance.*

In regard to the management of absentee property, it is but doing justice to say, that I have seen some as well conducted as any other in the country;† but in many cases I have found estates of this kind miserably neglected, and in the most deplorable condition that could be conceived; much, however, in this respect, depends upon the character of the agent employed. The truth is, there are abuses in either case, whether the landlord be a resident or an absentee. Some proprietors who live in England, are as attentive to the interest of their tenants as many of those who reside in Ireland, and there are bad landlords in both classes. Are there not many *buckeens*, a character to which I have alluded in my introductory remarks, among resident land-owners; and would not their absence be beneficial to their tenants, and even to the country?‡

On the other hand a landlord, if he be a virtuous man, and really anxious to promote the general prosperity of those around him, may do a great deal of good by his example; for, as a celebrated moralist very justly observed when conversing on this subject—"A man of family and estate ought to consider himself as having the charge of a district, over which he is to diffuse civility and happiness."§ And on another occasion he remarked that—"a well-regulated great family may improve a neighbourhood in civility and elegance, and give an example of good order, virtue, and piety; and so its residence at home may be of much advantage."|| In this point of view, the residence of a landlord might prove highly beneficial, and particularly in many parts of Ireland where civilization has made so little progress. The ignorant might be instructed and the vicious reclaimed; salutary institutions might be formed for bettering the condition of the poor, and a general taste for a superior mode of life might be diffused, which would tend to banish that indolence, so prevalent where the mind has been familiarized to low ideas, and which is a great check to industry and improvement.

The duties of landlords and tenants are certainly reciprocal; a man of probity will therefore consider himself bound by every tie of justice and honour to watch over the interest of those who toil, on his account as well as their own, and without

* According to a Report of a Committee of the House of Commons, ordered to be printed on the 4th of May, 1804, the amount of absentee property was £2,000,000. per annum. My calculation makes it more.

† Mr. Tighe thinks absentees, in many instances, the best landlords, p. 586.

‡ Sir Charles Coote, in his Survey of the Queen's County, p. 27, speaks of one landlord, whose name he ought to have exposed.

§ Boswell's Life of Johnson, vol. iii. p. 271.

|| Ibid, p. 194. But he admits, "that if a great family be disorderly and vicious, its residence at home is very pernicious to a neighbourhood."

whom his land would be useless and unproductive. But how is it possible for him to discharge this duty if he be absent in another country? How can he listen to their complaints, or through what channel are they to be conveyed to him? The grievances which they suffer must be unknown to him, for he can hear nothing respecting his own affairs but from the mouths of persons whose crooked policy induces them to deceive him, and who often have the art to insinuate themselves so much into his favour by falsehood and flattery, that he places the most unbounded confidence in whatever they assert. Hence, prudence, which requires men to examine the state of their own affairs, and not leave too much to strangers, is lulled into a fatal security, and a door is opened for rapacity to exercise deception on the one hand, and oppression on the other. Careless masters sometimes make bad servants, and when persons of this kind are suffered with impunity to commit petty acts of injustice, they will be tempted to proceed from one step to another, till they at length grow familiarized with iniquity, and become hardened in their crimes. If landlords therefore have estates in another part of the empire, and if the attachments of friendship, alliance by marriage, or other ties and causes, induce them to be absent from Ireland, they ought to be careful to select as the managers of their property, men of known skill and integrity, whose education may raise them above the meanness of being guilty of dirty actions, and whose connexions are of that respectable kind as to afford a pledge, that they will not be exposed to the temptation of injuring their employer, in order that they may provide for necessitous dependants or relations.

As to Irish proprietors, natives of England, who have large estates in both countries, it is not to be expected that they should quit the place of their birth to reside in Ireland. But still, if they possess health, strength, and vigour, they might pay occasional visits to their Irish property, reside a few months among their tenants, and thus become acquainted from actual observation with the nature of their estates, and the condition of the persons who live upon them; or they might send thither some relation or confidential friend who would give them a faithful report of the manner in which they were treated. Were this method adopted, agents knowing that they might be surprised in the midst of their nefarious career; that the tenants might unexpectedly have an opportunity of laying their complaints before their landlord in person, or of transmitting them to him through a sure medium, and that to carry on a system of deception would expose them to danger, might be induced to alter their conduct, to abstain from those illicit practices which disgrace so many persons in that situation, and incline them to pursue the much safer path of rectitude and honour.

An additional argument for English proprietors visiting Ireland, might be drawn from that taste which most men, disengaged from the drudgery of business by their rank and opulence, have for travelling, and the desire of seeing the varied and singular forms under which nature exhibits the beauties of her rural scenery. When

the continent was open to foreign travel, a tour to Switzerland and the Lake of Geneva was considered as a high treat to men of taste and fortune, and the sublime views in these Alpine regions have frequently been themes of admiration to writers both in prose and in verse. But if picturesque beauties in foreign countries are so attracting, why should those at home be neglected? Ireland in point of grand and majestic views may be placed in competition with almost any part of Europe; and the English owner of an estate in that country, by undertaking occasional excursions thither, might combine pleasure with advantage. The Lakes of Killarney, and numerous other places, would amply reward him for his trouble, and the money spent in the course of his tour would be much better employed than if it found its way into the pockets of foreigners. Besides, the presence of English travellers in Ireland, would tend to strengthen the connexion which subsists between the two countries, and by rendering the inhabitants of both more familiar with each other, would contribute to assimilate their manners, and to remove many prejudices inimical to that harmony of sentiment which ought to prevail among people who are subjects of the same government.

We have heard much of the effect produced by attachment to the "natal soil," and some remarkable circumstances are related on this subject, but if we are to judge from what we know to be the fact, it does not appear to have much influence upon some of the natives of Ireland. It has been sarcastically remarked of the Scots, that when they find their way to England, they never think of returning to the barren plains and bleak hills of the north. Might not a person disposed to be satirical make a similar observation in regard to the sons of Erin, who in many instances seem unwilling to return to their native mountains and bogs. That a man of low birth and mean circumstances who emigrates to another part of the empire, and acquires there opulence, and all that consideration by which it is generally accompanied, should be averse to return to a place where he would only meet with the associates of his early days of poverty, does not at all appear extraordinary, because nothing is more common than false pride; but that a man of family, possessed of large property, and deeply interested in the happiness of his native country, should become a voluntary exile from it, cannot be so readily conceived.

Men of fortune and rank who travel into other countries may be divided into three classes: some travel for the benefit of their health; others for the sake of pleasure; and there are some whose sole object is improvement. Those who belong to the first class, exclaiming, perhaps, with the poet—

Bear me, some God, to Baia's gentle seat;
Or cover me in Umbria's green retreat,
Where western gales eternally reside,
And all the seasons lavish all their pride;

will no doubt prefer the mild temperature of a southern climate, to the keen, but

invigorating air of their native plains. Such invalids, if they really be so, are objects of compassion, and it would be too harsh to find fault with them for absenting themselves from a country where their condition would not admit of their making exertions that could be attended with any real benefit to its interests.

As to those whose object is pleasure, while they confine their desires within the bounds of decency and moderation, they may be suffered to enjoy their frivolous amusements in whatever manner they think most conducive to their happiness. If they waste their time, and spend their money in the pursuit of trifles, the heaviest loss will be their own, and as they must return without improvement, they will be exposed among persons of judgment to merited contempt. People of this kind may reside in any country; their presence or their absence will be a matter of very little importance. But the case is different with another species of these hunters after pleasure, who being men sunk in luxury and dissipation, think only of new gratifications, which they seek for in those haunts of profligacy, great cities, and in countries where example gives confidence to vice, and where the ministers of infamy are in waiting to facilitate every indulgence that the most depraved taste can desire. If the property of such worthless and abandoned characters fall into the hands of honest and conscientious agents, the situation of their tenants may be far better than if they were under their own immediate inspection; for they could have no beneficial influence on a neighbourhood, but tend rather to spread the baneful poison of dissipation, in which the lower classes are too apt to indulge, when they find their irregularities sanctioned by the conduct of their superiors, whose vices they are much readier to imitate than their virtues.

As to travelling for improvement, it is no doubt laudable, and to a mind properly prepared for it,* may be a source of much benefit. "In every country whatever," says an ingenious writer, "beside the established laws, the political state of the people is affected by an infinite variety of circumstances of which no words can convey a conception, and which are to be collected only from actual observation."† By studying the manners and customs of foreign nations, a man of sound judgment will become more thoroughly acquainted with human nature, and a knowledge of their laws and institutions will supply him with information which may render him more fit to take a share in the administration of his own. If he employs his time when abroad in searching for improvements, rather than in gratifying vicious habits, and brings with him, when he returns, useful discoveries, instead of ridiculous fashions or frivolous accomplishments, he may be of essential service wherever his influence

* "As the Spanish proverb says, "He who would bring home the wealth of the Indies, must carry the wealth of the Indies with him." So it is in travelling, a man must carry knowledge with him, if he would bring home knowledge." *Johnson, in Boswell's Life*, vol. iii. p. 325. See also *Moore's Travels in Italy*, vol. ii. p. 442.

† *Elements of the Philosophy of the Human Mind. By Dugald Stewart, F.R.S.E.* p. 242.

extends. But to become acquainted with the laws, commerce, and agriculture of one's own country, is as necessary as to acquire a knowledge of the same objects in other parts of Europe. That general information respecting the political economy of foreign nations requisite to every man of rank and fortune, but particularly to those who may be more immediately destined to take a share in the government, or even to hold subordinate situations in the state, may be soon obtained; but to acquire an accurate and minute knowledge of the condition and resources of the British empire, is a work of some time, and cannot be effected without considerable labour and observation. Hence it is obvious, that travelling at home is an object of more importance than is generally imagined;* and yet few think of visiting the different parts of which this empire is composed, though they exhibit a very essential difference both in regard to the nature of the soil, and the manners and customs of the inhabitants. Might not a Briton, therefore, who has been blessed with affluence, and who possesses all the advantages of education, be as well employed in admiring the beauty and convenience of the Bay of Dublin, as in surveying those of the Bay of Naples? And might not one study the interests of his country much better on the banks of the Liffey, or the Shannon, and with less danger of acquiring tainted morals, than on the shores of the Arno or the Tyber?

Some, perhaps, may be inclined to think that I have carried my reflections on this subject to too great a length, but in writing on the state of a country, and the means best calculated to promote its prosperity, it is necessary, besides embracing general views, to take into consideration even those minor causes which have a tendency to advance or retard its improvement. The absence of men whose rank or wealth give them an influence over others of inferior stations, is certainly an object of no small importance, and whether they travel, or reside in any other part of the same dominions, the loss which their country sustains is nearly the same. As Ireland is certainly inferior in point of civilization to many other parts of the empire, it has a stronger claim to the residence of its wealthy proprietors, who, if present, may undoubtedly be much better able to assist in plans for the amelioration of the country, wherever it is practicable. Besides, in a country where insubordination is so apt to prevail, and where laws seem ineffectual to restrain the intractable and obstinate spirit of the common people, the man who could render himself popular by acts of beneficence and kindness, might acquire so much respectability, that his friendly admonition alone would be able to effect what sometimes cannot be accomplished by force and compulsion. The example also of a man of this kind would,

* *Ferme dicam fieri non posse ut vel per dimidium diei, aliquo in provincia patriæ proficiscaris, quin aliquid discas in œconomicis; multa occurrunt primo sane intuitu levia quidem, sed si paullo attentius mentem oculosque adverteris faterebere statim in rem tuam esse, et longe utilissima, qualia passim observare licebit in vario vestiendi, cibi parandi, pecoris pascendi modo ac ritu ut taceam vivendi mores, commercia infinito numero alia. De Peregrinat. intra Patriam Necessitat, Caroli Linnæi Orat. Amenitat. Acad. vol. ii. p. 425.*

no doubt, be of great benefit to a neighbourhood; for as Montesquieu justly observes, "crimes are to be prevented by punishment, but manners are to be changed by example."* Now is there a part of the British empire where the manners of the inferior classes have more need of being changed than in Ireland? A respectable writer of that country† fairly acknowledges, that "the Irish peasant does not much excel the savage in just notions of liberty, or in due respect for the laws and civil institutions of man." Is it not evident, therefore, that nothing could be so beneficial among a populace of this kind as good example? for to talk of their being improved or reclaimed by laws or punishment, is perfectly ridiculous; such an idea could be entertained only by those who have never studied human nature in the various relations of society in which man is placed. Where the mind is not in some degree prepared by education, laws will be made only to be broken, and punishment, instead of amending, will tend only to harden the conscience and irritate the feelings. When the same writer adds, that "the Irish peasant, when treated in an unaffected conciliatory manner, with that kindness he deserves, with that generosity he is ever ready to exercise, with that frankness which allays his habitual suspicions, and with that restrictedly polite familiarity which gratifies his native pride, will seldom fail to endear himself to his patron or his benefactor, and to exhibit a character which upon the whole may be considered as not unworthy of a very high degree of philosophic approbation;"‡ is not this a severe satire on the conduct of landed proprietors in Ireland, who either do not treat the poorer classes with that kindness and affection which would humanize their character, or abandon them to neglect by consigning them into the hands of agents and middle-men, who are not equally interested in their civilization and welfare? Does it not exhibit in the strongest light, the good which might be produced by men of fortune residing among their tenants, and paying that attention to them which their wants might require. On this subject, another respectable writer says, "one of the greatest wants of our rude and ignorant peasantry, is the want of active, industrious, resident gentlemen, to repress their turbulence, relieve their wants, encourage their industry, and humanize their manners. In the article of pleasure, something no doubt must be lost by this sacrifice to utility, but it will be amply compensated by other gratifications. The liberal mind will receive no small degree of satisfaction from the consciousness of doing good, and it behoves gentlemen to consider that their country has a claim to their services, and that they are not born for themselves alone."§ The same author, speaking of the character of the Irish, says, "all these circumstances evince a pos-

* Montesquieu *Esprit des Loix*, lib. xix. chap. 14.

† Mr. Newenham.

‡ *View of Ireland*, by Thomas Newenham, Esq. Preface, p. xviii.

§ *Townsend's Survey of Cork*, p. 574.

session of qualities capable of conferring, under proper regulations, a very considerable portion of social enjoyment. When instruction shall have enlightened their minds, when their slovenly and rude manners shall have given place to a love of order and decorum, and when they shall have known how to value and enjoy the blessings of industry and peace, we may venture to say, that they will have no cause to envy the inhabitants of any country under heaven.*

That the Irish peasantry possess the seeds of every qualification requisite to form a happy and respectable people, cannot be denied; but they stand in need of instruction, and how are they to acquire it, if the country be deserted by men of property and rank, whose more immediate duty it is, each in his district, not only to suggest, but to promote and support every thing that may tend to their moral improvement? To abandon a country as if one were ashamed of it, betrays the weakness of a narrow mind; to leave it, in order to avoid danger from the turbulent disposition of its inhabitants, announces timidity; and to emigrate, because it is poor, and perhaps cannot supply those gratifications which a vitiated and luxurious taste requires, is certainly not very favourable to nobleness and generosity of character. Such reasons are at variance with every principle of virtue and honour. Were there more real patriots among the Irish nobility and gentry, there would be more good subjects among the general population; and if the common people were treated with less neglect, they would certainly be more tractable, and at the same time acquire a greater spirit of industry. But I shall add nothing more on this head; with men of reflecting minds the hints here thrown out will, I trust, have a proper effect; on others no arguments that I could use would produce the smallest impression.

I am well aware that there are many, and persons of great respectability, who maintain that the subject of a free country has a right to spend his income in any place and in any manner that he pleases. I will readily admit that this may be true to a certain extent; but no one will thence infer, that a man of property is by any means justified who spends his income in a manner prejudicial to the general interest of that community of which he is a member. How far legislative interference in cases of this kind would be proper, is not for me to determine;† all compulsory

* Townsend's Survey of Cork, p. 76.

† "By the Graces, as they were called, granted to the Irish, in 1628, by Charles I. soon after his accession, and sent as instructions to the Lord Deputy Falkland, and the council of state, to be observed by them in the administration of the government, it appears, that a tax was imposed on non-residents, and the nobility and undertakers were restrained from quitting the kingdom without licence."

Carle's Life of the Duke of Ormonde, vol. i. p. 81.

"In 1635, a proclamation was issued by the lord-lieutenant, in consequence of particular directions from the king, prohibiting men of estates to depart the kingdom without licence; but the object of it seems to have been to prevent the Irish holding dangerous correspondence with their countrymen in foreign service." *Ibid.* p. 112.—An account of the different acts passed in regard to absentees, may be seen in the Chapter on Revenue.

laws which restrain the freedom of the will in points perhaps doubtful, ought to be avoided, and hence recourse has seldom been had to sumptuary laws, as they have never been of much benefit.

In regard to agents, care should be taken to select men who not only have a knowledge of agriculture sufficient to enable them to manage the estate in such a manner as to be conducive to the interest of the landlord, but who possess sufficient justice and honesty to prevent them from having recourse to means which may injure or oppress the tenants. An agent, to ingratiate himself with his employer, will, no doubt, use every exertion to increase the rental of his estate; if this can be done without imposing too heavy burdens on those by whose labour this increase is produced, he will so far be worthy of commendation; but if he wishes to accomplish his end by contrary means, he not only injures the proprietor, by exposing him to an odium which he does not deserve, but lays the foundation of ruin to his property, and of misery and wretchedness to those who render it productive.

In my opinion, a resident agent is more exposed to the temptation of making exactions from the tenants, as is frequently the case, than one who occasionally visits the estate for the purpose of collecting the rents. The former often descends to the meanness of requiring from these poor people, fowls, geese, or turf, and sometimes the labour of men and cars to assist him in his harvest and turf seasons. Such paltry emoluments, demanded without right, yielded under the impression of fear, and accepted without shame, can be no object to an agent of character, and, in many cases, may subject those from whom they are extorted to considerable inconvenience. I have, therefore, in general found the non-resident agents, who were not under a similar temptation, by far the most respectable. It is proper that agents should be handsomely paid for their trouble; and there can be no objection to their receiving whatever their employer chooses to give them for their service, which is commonly five per cent. on the rent; but improper means of their adding to their emoluments ought to be reprobated, and landlords should use every means in their power to prevent them.

What I found most mischievous in the relationship of agent and proprietor is, that all intercourse between the latter and the tenant is impeded, except through a selfish medium; the agent, in numerous cases, being a creditor of the landlord, whom he therefore has completely under his power and control. This evil, in Ireland, has been carried to the most criminal excess, so that it was found necessary to enact a law which renders all leases from a landlord to an agent invalid. Without a check of this kind, the most flagitious transactions would have been carried on with impunity, as a door was left open to assist the designs of villany, and facilitate, in an uncommon degree, unwarrantable transfers of property.

I must observe, also, that the most bare-faced bribery and corruption are practised by this class of people, without the least sense of fear or of shame. I have known

instances where the first question asked, on a person applying for a lease, was, "And how much do you propose to give to myself?"—Wives, daughters, kept-mistresses, all receive money, and the same infamous system prevails even among some resident landlords, who suffering themselves to be guided by that influence which, if I may be allowed to compare small things with great, has so often proved destructive to states, turn out the best and most improving tenant to make room for some artful and designing knave, who has slipped into the hands of the agent, or into those of some part of his family, according to circumstances, twenty, thirty, forty, or even sixty guineas. Nay, I have known instances where the tenant, after seeing the agent in this manner, could not get his lease executed without having recourse to the proprietor's lady, who was to be moved only by *weighty arguments* of the same kind, and to whom it was necessary for the fleeced tenant to present a similar fee before he could succeed in his application.

The following anecdote, which was related to me by the daughter of an English earl, married to a nobleman in Ireland, is an evident proof that bribery in this country, among tenants, agents, landlords, and their wives, has become systematic, and is considered merely as a sort of political engine, necessary to be employed even in the common affairs of life. Soon after the lady's marriage she accompanied her husband to Ireland, and, on arriving at the family seat, the tenants flocked round it from every quarter, telling his lordship that they wished to have the pleasure of seeing his lady. The nobleman informed her ladyship what the tenants wanted. Her ladyship, struck with the uncouth appearance of her visitors, declined at first to expose herself as a public spectacle before so many men; but, being told that the tenants would be affronted if she did not, she at length consented to gratify their wishes. When she appeared among them, a farmer in a brown wig, and a long coat, or *trusty*, as it is called, went up to her, and, joggling her with his elbow, signified that he wished to speak a few words to her in private. The lady having stepped aside, the farmer said, "I thought, perhaps, that your ladyship might be in want of a little ready money for your pocket, and I have brought you some," at the same time slipping into her hand a piece of paper containing forty or fifty guineas, but adding: "I hope, when my lease is out, your ladyship will speak a word in my favour to my lord." Others had come with a similar intention, but the lady having been bred in England, disdained to receive such presents; and, unwilling to be the means of encouraging so disgraceful a practice, politely rejected the offer. Now it is evident that these people had formed an idea from actual experience, that bribery was an all-powerful engine, which, wherever applied, would always produce its effect. Can any thing tend more than such a belief to degrade the mind, and to render men selfish and dishonest? Such practices, if not checked and discouraged, must sap the foundation of every moral principle; debase the character, and eradicate all generous feelings from the heart. When ideas of this kind are imbibed by

education, strengthened by habit, and confirmed by example, can it excite much surprise that the labouring classes in Ireland should so often forget the ties of morality, disregard the laws, and even set the government itself at defiance. Every proprietor, therefore, who values his own welfare, or the prosperity of the country, will oppose this spirit of corruption; let it be discouraged by every possible means, and let those who give way to it be branded with infamy. No good can be expected in a country where it prevails: it is one of the most destructive of those evils under which Ireland now labours. It is as disgraceful to her national character as it is contrary to her real interest; and, as it is loudly condemned by the united voice of justice and sound policy, I trust that there is patriotism enough among the gentlemen of Ireland to extinguish it, and to wipe away, in an effectual manner, so shameful a cause of reproach.

While in Kildare, during the spring of the year 1809, a gentleman with whom I am in habits of intimacy, and on whose strict veracity I can place full reliance, communicated to me the following circumstance, which, had it been a solitary instance, I should have suppressed; but, as a hundred of the same kind might be produced, it ought to be made known.

My friend being about to go to England, was desired by one of his neighbours to wait upon a gentleman in London, to request the renewal of the lease of a farm. The gentleman received him with much politeness; and, after some conversation on the business, referred him to the agent who resided on the estate. On application to the agent, he immediately said, "You must give so much per annum as the rent, and it will be necessary, likewise, that you should make me a present of £500.—I have been offered £300. already." As a companion to the above, I shall relate a circumstance nearly of the same kind: The late Duke of Leinster, upon the appointment of a new agent for his estate, borrowed of him £20,000. The agent, who was a man of character, being desirous to have it understood—whether or not he was to follow the usual custom, and to receive presents from the tenants, asked his employer in what manner he should act. His grace replied, "Get all you can."

Many agents have sons, or other relations, settled as shopkeepers on some part of the estate to which they belong, and a tenant, unless he chooses to run the risk of incurring the displeasure of these harpies, cannot purchase a yard of tape or a pound of cheese in any other place. Nay, I have known agents, when they had no relations to provide for in this manner, dispose of a shop to a stranger, and exact from him a per-centage on all his profits.

Irish landlords, do not give way to delusion—you who reside on the spot, and who are well acquainted with these scandalous transactions, are sufferers by them, though you are weak enough to imagine that this is not the case. Sums thus exacted, and frequently after a bargain has been made, become most oppressive to the tenant, as are all unexpected demands; but in the end they will fall upon the estate, and the loss

be transferred to you. One estate in the north, which came under my observation, yielded to the English landlord £8000. per annum, and to the agent £2000. independently of the patronage which the latter obtained, to the benefit of his family and dependants. I know another instance, where the leases of an estate of £10,000. per annum being expired, the agent, on the renewal, exacted a year's rent from each tenant, by way of "*lease-money*,"* and thus put at once into his pocket £10,000. There are persons of this description in every county of Ireland, and therefore the remarks of Mr. Townsend on this head† are so valuable, that I think it will be doing a service to landlords to insert them: "The usual mode of letting land does, I confess, appear to me very exceptionable, from the latitude it gives to agents in the article of fees. Long usage has now established the custom, that it seems to be considered rather as a branch of the duty, than as an appendage of the office. It is, however, obvious, that such a practice militates against the interests of the proprietor and the occupier, precluding too often the encouragement which the former may be disposed to shew an industrious tenant, and debarring the latter from the just claims of meritorious exertion. When the agent is allowed a discretionary power of rating his fees, there is always danger that such power will be abused. Men come at last to consider as a right what is only a courtesy, and to believe themselves justified in measuring the scale of merit by the magnitude of the fee.

"It is well known that tenants have been dispossessed contrary to every principle of justice or humanity, in consequence of not coming up to the agent's price; and instances have been related of others, who, rather than lose their farm, have sold their all to purchase the agent's good-will, and by this extortion, have been reduced to the state of bankrupts. These relations may, perhaps, be often exaggerated; but that there is sufficient ground for complaints, where such practices prevail, no person who is acquainted with the general circumstances of the country will entertain the smallest doubt. Perhaps those who know least of it are the very persons whom it imports to know the most. The landed proprietor considers his duty done in the appointment of a man of fair character, and is supposed, I believe with truth, not only to be ignorant that any extortion is practised, but also to think that his affairs are conducted with proper fidelity. But in a matter so essential to the interests of the estate, he should make every provision in his power against undue influence, and endeavour to secure his tenants from the possibility of exaction. Leaving them to a power altogether discretionary, is at best leaving them in a state of danger, and has the appearance of acquiescence in whatever may be the conduct of the agent."

It will, perhaps, be said, it is of no importance to the tenant into what proportions his rent is divided, and if he does give a bribe to the agent or his wife, he

* Leases are generally printed forms, purchased by agents at a small price in addition to the cost of the paper, that and the stamp, ought to form the only charge.

† Survey of Cork, Addenda, p. 18.

only complies with common custom, by which, in many cases, practices of this kind receive a sort of sanction. But no excuse can ever justify what is radically wrong; custom is one thing, and right another. A door ought never to be opened for corruption and rapacity, nor should opportunities be afforded to education to take advantage of ignorance, or to wealth to overawe poverty. By the same mode of reasoning, examples might be produced in favour of every vice, and the general prevalence of profligacy might be adduced as an excuse for the very worst of crimes.

I do not, however, wish it to be supposed, that I mean to include in one general character, all those agents who are intrusted with the management of estates in Ireland. I know that in that country there are many most respectable agents; honourable men, who would as little take a bribe from the hands of a tenant, as they would pilfer a guinea from a banker's drawer. I observed less of that meanness among the non-resident agents, than among those who live in the mansion of an absentee. An agent of the latter description acts in general the part of a corrupt narrow-minded tyrant; and, if his employer is in the neighbourhood, he is, in too many cases, the Justice Gobble of a Sir Giles Overreach.

But the subject is not yet exhausted; and wishing to throw as much light upon it as possible, I shall offer no apology for subjoining what follows: A nobleman who has a large estate in Ireland, sent over an Englishman, known as a person of tried probity, to be his agent, at a fixed salary; this agent was made a magistrate in two counties, but his ordinary income not being sufficient to defray the expence of travelling to attend petty judicial meetings, it was, of course, charged to his employer; the agent was appointed also a captain of a yeomanry corps, and this gave rise to another charge; he resided in the castle, and repairs were necessary, hence a further expence; and to sum up all, a most extensive domain was kept in hand, at a considerable annual loss. In this case what was to be done? The landlord was induced to visit his estate, that he might inquire into the manner in which it was managed. When he saw it, disgusted with the mud cabins which stood so near to his princely mansion, he ordered them to be pulled down, and new ones erected at a greater distance. The tenants surrounded him; requested that a lime-kiln might be built, and assured him that their purchases would repay the expence: a lime-kiln was constructed, but next year the nobleman finding his income much diminished, proposed another journey to Ireland. A friend of mine advised him to remain at home, to put up with the loss, to let the domain for what it would bring; if no tenant offered for the castle to burn it down, and to confine his agent to act as a magistrate at home, leaving the yeomanry corps to find out a new captain. This advice being followed, and the agent kept within his proper sphere, the nobleman's income soon increased; and I have reason to believe that the tenants are not in a worse situation. Circumstances similar to those here related have frequently occurred, and, in every instance, the evil has arisen from the landlord

placing his agent in a situation too near to his own, a situation which cannot be supported by a narrow income. In cases of this kind, the expence must be supplied either by the landlord or the tenants; if the agent is a man of tender conscience, it will fall, perhaps, upon the landlord; but if he be a knave, it will be drawn from the pockets of the tenants. When the attention of an agent is confined merely to letting the farms and collecting the rents, a moderate salary will be sufficient. The owner of this estate was taught by experience what might have been sufficiently obvious to him on the smallest reflection.

The existing leases on estates frequently prevent them from being put in that course of management which their owners could wish, and where they have been granted for a term beyond twenty-one years, and where lives have been inserted, the period is so distant, that it is an object frequently neglected. In the course of the last thirty years, a very great change has taken place in the occupations of estates in the south of Ireland. Mr. Townsend says, "Thirty years ago, all the gentlemen of this and the adjoining baronies, on the north-east quarter, held large tracts of land under the grazing system. The mode is now changed, and they retain only domains of a moderate size, which are much better dressed and cultivated than heretofore. The remaining lands are occupied by farmers who, on large farms, combine pasture and tillage. Estates have hereby risen greatly in value, land now letting from two guineas to three pounds per acre Irish."* There is great room for an extension of this system throughout the rich grazing lands of Ireland, the only fear is the rushing to an opposite extreme, and that instead of the estate being divided into respectable farms, it may be split into the minutest divisions.† "Parliamentary influence is very much looked to in all leases, consequently *every proprietor has an army of freeholders*. The farm-houses, for the most part, are very bad, but they are rather improving, from the general prosperity of the country; the landlord seldom has any thing to do with them."

The extravagance with which many of the higher orders waste their incomes, often reduces them to the necessity of continuing agents, whose venality, dishonesty, and ignorance of the value of land, is perfectly well known to them. In England the duties of this office are frequently divided; the leases are drawn, and the rents received by a respectable solicitor; but the divisions and the amount of rent are determined by a land valuer. The most important point of all, however, is, that the fullest confidence prevails between the landlord and tenant, the latter always being assured, that the tenure, if he chooses, will be renewed to him. The total want of this confidence in Ireland is an evil of the most serious nature, and injurious in no small degree to the prosperity of the country. Mr. Edgeworth, a friend of mine, for whom I entertain a very high respect, is of opinion, that the only thing which

* Survey of Cork, p. 412.

† Ibid. p. 468.

can obviate this evil, is the residence of the owner on his own property. To every opinion of this gentleman I must always pay due deference, but I request him to recollect, that I found this confidence existing between Earl Fitzwilliam and his tenantry, though this nobleman is an absentee. This confidence depends, no doubt, in a great measure on the character of the landlord, and that of the persons with whom he associates. No man possessed more the confidence of his Irish tenants than the late Sir George Saville, and if others would imitate his example, and conduct themselves in a like manner, they would, no doubt, enjoy the same. If a tenant knows that, however diligently he has discharged his duty, he may be turned out of his farm by bribery on the expiration of his lease, and when the landlord is undetermined whether he shall renew to the middle-man or not, the latter is equally undetermined in regard to his sub-tenants; besides, as the insertion of lives on leases occasions an uncertainty in regard to the termination of them, all these circumstances have a very mischievous tendency, and seem to call for the serious consideration of those who are the proprietors of landed estates.

I have endeavoured, on various occasions, to convince an occupier that it was not his interest to run so many crops, and that a greater weight of corn could be raised under proper management in a less number of years, but my logic was of no use; the invariable answer was, "I hold the land only during such a person's life, he is advanced in years, and who knows how soon he may drop." But you will get a renewal: "I can't tell that." But it is most probable there can be no wish to change the tenant: "A high rent will be bid for the land if it be in heart."*

Another great source of evil in Ireland is reversionary leases, which are exceedingly common.† I have often been asked how landlords in England are able to procure tenants so respectable as those who every where astonish an Irishman when he visits this country? Queries of this kind I never found it difficult to answer; a few words were sufficient. In the first place, the system of an English landlord is to continue the old tenants, provided they perform their part as skilful and active cultivators of the soil. The latter have always a well-grounded confidence, that character and industry will procure them a renewal, or at any rate, a preference, in case a competition should arise. In cases where new tenants are admitted, capital, probity, and a knowledge of farming, are essential requisites, without which a lease cannot be obtained. But if a country gentleman be so much indebted to his agent, that he must wink at flagrant acts of injustice, and see, without daring to interfere, an industrious and deserving tenant turned out to make room for a minion who has secured his point by a bribe, no attention can be paid to qualifications of this kind. The

* Sir Charles Coote, in his Survey of Armagh, says, that it is no uncommon thing when the lease of a farm is nearly expired, to destroy all the fences and other improvements, to prevent the rent being raised in the new lease.

† Tooke, in his Survey of Yorkshire, p. 57, has pointed out the evil of leases for lives.

Irish proprietors are fully aware of the superiority of English tenants, and yet these gentlemen let their land to persons without property, as if capital were not necessary in farming; without a knowledge of agriculture, as if corn were a spontaneous production, which required neither labour or skill; and without industry or sobriety, as if activity and steadiness of character were not requisite to make respectable tenants. The whole business of letting an estate is conducted in a manner that must excite the astonishment of an Englishman, who has been accustomed to make the strictest inquiries respecting those who solicit for farms. Regard to present gain, without the least thought of the future, seems to be the principal object which the Irish landlord has in view. The highest bidder, whatever be his character or connexions, is invariably preferred; and if he can pay his rent, no inquiries are made whether he cultivates the land in a proper manner, or ruins and exhausts it by mismanagement.

The principles which form the foundation of that superiority, possessed by the tenants in England, may be readily comprehended from the following short, but pithy speech, made by a son of Sir John Sebright, bart. to his tenants, at an audit dinner. The boy was only eight years old, and his father was absent.

“GENTLEMEN,

“So long as Beachwood estate belongs to a Sebright, I trust it will be occupied by such tenants as you are; and I hope, gentlemen, that if ever you should have another landlord, he will know your value as well as my father does.”

To become sensible of the value of good tenants is the whole secret. It is the value in which they are held by the English landlords that makes them respectable, and renders their own estates productive. I could relate instances of liberality on the part of English landlords to their tenants, which in the Irish would excite astonishment. I have known Mr. Coke, Mr. Western; and many others, behave to them in times of distress, or when in want of money, with the same kindness that a father would to a son.

In regard to Irish tenants, the highest bidder, as I have already said, is always preferred, and it is invariably stipulated, that he must give the proprietor his vote at elections. On this head the tenants are exceedingly tractable; they have no notion of supporting a candidate from any other motive than interest. And when solicited for a vote, their answer always is—“Why, to be sure, and do you think now that I would vote against my landlord?”

It will be perceived that I am a decided friend to leases, being convinced that they are equally beneficial to the landlord, the tenant, and the public, who are in fact involved in one common interest. In England, my opinion has been in favour of twenty-one years as the term; but I am inclined to think, that this point ought to be determined by the nature of the property. In Ireland a great part of the land is in such a state, that it requires the management of an attentive farmer during a

long series of years before it can be brought into common cultivation. This proves the necessity, under certain circumstances, of lengthening the term beyond the usual period; in such cases thirty-one years probably might be a just and reasonable time. In districts which require both money and labour to an amount far beyond the value of the fee, sixty-one years would certainly not be too long; but where the tenant is good, let me strongly recommend a timely renewal; a lease should never be suffered to expire: a landlord and tenant may always understand each other before it comes to an end; and a reversionary lease to the occupier is as beneficial to both parties, as it is destructive when granted to a third.

Very large estates should never be let in such a manner as to occasion an expiration of all the leases at the same time. This enables the tenants to combine; and when a large tract of land belongs to one individual, as is often the case in Ireland, if the divisions are very small, it is almost impossible to transact business with so numerous a body of tenants. Nothing tends so much to induce a landlord to let his whole estate to a middle-man, who is more accustomed to deal with people of that description, and consequently better enabled to endure the fatigue of it. Were my advice followed, landlords would so let their estates as to make the leases expire at different periods.

From the information detailed in the preceding account of the landed property in the different counties, I have endeavoured to draw out an account of the rent per acre of the whole kingdom, distinguishing the rent per green acre from the rent of the total area, but it must be obvious, that without better materials, and a more accurate estimate of the quantity of waste land, nothing like correctness can be expected. It will be perceived by the following table, that I make the average rent of the total area of fourteen counties £1. 4s. 9d. per acre.—The average rent of the green acres of seventeen £1. 18s. 8d. per acre, which upon their total area is £1. 9s. per acre.* Two counties, Antrim and Longford, I have left blank, conceiving that I have not data enough to form a calculation, but they certainly will not average above 30s. or under 25s. per acre; setting them down therefore at 27s. 6d. for the sake of making up an estimate of the island, the average of these three sums will be £1. 7s. 1d. per acre, which upon 12,722,615, is £17,228,540. Irish money, and Irish acres.

* Calculating the difference between the green acres and total area according to Mr. Arrowsmith's opinion at one-fourth.

LANDED PROPERTY, RENTAL TENURES.

Counties.	Green Acres.			Total Area.		
	£	s.	d.	£	s.	d.
ANTRIM						
ARMAGH	1	6				
CARLOW	2	9	6			
CAVAN	1	6				
CLARE	1	17				
CORK. The accounts given to me in regard to this county, and those of Mr. Newenham, published by the Rev. Mr. Townsend, differ so widely, that I find it difficult to satisfy myself in regard to an average. I, however, estimate it at	--	--	--	1	5	
DONEGAL	--	--	--	--	7	
DOWN	2					
DUBLIN. The rent of this county arises rather from situation than the quality of the soil. It cannot average less than	--	--	--	3		
FERMANAGH	1	5				
GALWAY	1	10				
KERRY. The valuation of this county was received from one person, Mr. Herbert, of Carnien. He was long member for the county, and is acquainted with every part of it, which he traversed with a view of assisting a gentleman who intended to make a survey of it, but unfortunately died before he had accomplished his design	--	--	--			10
KILDARE. The ploughed land in this county is the most worn out in the island. It was within the pale, and on account of its political circumstances has been longer under tillage	--	--	--	1	8	
KILKENNY	--	--	--	2		
KING'S COUNTY	1	15				
LOUTH	--	--	--	1	10	
LEITRIM. From riding across this county, I think the mountains much more valuable than those in Donegal. Very little here is totally waste, but still there is very little good soil	--	--	--			13.
LIMERICK	3	8	3			
LONGFORD						
LONDONDERRY. The mountains here are very similar to those of Leitrim, but there is a larger proportion of profitable land. I should think the whole county worth	--	--	--			18
MAYO	1	5				
MEATH	2	10				
MONAGHAN	1	6				
ROSCOMMON. There is a great deal of excellent land in this county; and in the southern part of it, which is very rocky, there are good sheep pastures, worth 25s. The waste lands in the north are so much improved that the county might be averaged at	--	--	--	1	15	
SLIGO contains much waste	--	--	--			15
QUEEN'S COUNTY	2					
TIPPERARY	3					
TYRONE	2			1	6	
WATERFORD	2					
WESTMEATH	2					
WEXFORD. There is here little mountain or bog	--	--	--	1	8	
WICKLOW. It is difficult to state the value of this county. The interior is a waste, but the sea-coast, which abounds with villas, is exceedingly valuable. It ought to be formed into three divisions, and may average	--	--	--			12

To this amount must be added an incalculable rent, for I have no data to enable me to ascertain it, arising not only from the large towns, such as Dublin, Cork, Limerick, Belfast, Waterford, Kilkenny, Clonmell, Drogheda, &c. but that produced by small towns, which on the first view might appear of very little consequence. The rents in some of these places are astonishing. I know moderate-sized houses in Roscrea that let for £200: per annum. Even at Kilrush, which lies as far to the west as any part of Europe, building ground produces a good income, and consequently that arising from houses must be very great. A fear of misleading the public restrains me from assigning any value to the rental of towns in Ireland. I shall therefore leave this point to the judgment of the reader, who, however, must not overlook the difference between rent derived from land, which annually produces a return, and the site of a town which consumes that produce.

With regard to the landed property of Ireland in general, it will be found to be placed under very advantageous circumstances. The landlord has no repairs to make, no land-tax to deduct, and except the agent's fees, his rent-roll is his income. How different from the state of the same kind of property in England. There are here no fines paid to the lord of the manor by copyhold tenures, the titles to estates being derived from a different principle. In Ireland, live and dead heriots are unknown, and fines upon death or alienation can in no instance be demanded. There are here no open-field tenures or lammas-land; none of those immense commons which cannot be inclosed without an Act of Parliament, obtained at a great expence, and the appointment of commissioners. The whole country is inclosed, ready to receive that improvement which the application of industry may give to it, and the tenants in general enjoy tenures which an English farmer would consider as highly advantageous. Some of the latter, indeed, if they could obtain a lease for their own and their son's lives, would, I am convinced, commence their exertions with as much spirit as if they possessed the fee. Besides the absence of poor's rates, the advantages are so striking, that I am surprised that English farmers do not eagerly seek after farms in Ireland.

I had drawn up minutes for the formation of leases in Ireland, under the different circumstances of mountain, grazing, or arable land; but conceiving that the insertion of them would only have swelled to a greater size, a work which I fear will be considered already too large, I determined to suppress them.

Landed estates in Ireland sell at very different rates. In the neighbourhood of Belfast, and thence to Armagh, the common price is thirty years' purchase. In the greater part of the rest of the island it does not exceed twenty; but in the turbulent districts, many estates may be sometimes bought for from sixteen to eighteen. Westmeath and Carlow are the only counties in which I have heard of a great transfer of property; estates are so much entailed that they are not often exposed to sale. The only three large estates which have been sold of late years, are those of Lord

Barrymore, in the county of Cork, purchased by Mr. Anderson, that of Lord Dundas in Sligo and Roscommon, which was sold in lots, and the estates of Earl Moira, which were situated in different parts of the kingdom. What transfers take place are generally made by private bargain, as Irish gentlemen have a particular aversion to advertise their estates for sale by public auction. In this respect, the difference between England and Ireland is peculiarly striking.

CHAPTER VIII.

RURAL ECONOMY.

HAVING treated in the preceding chapter of the nature of landed property in Ireland, the manner in which it is divided, the value of it, and other things pertaining to the subject, I shall now endeavour to describe the manner in which it is employed, whether for the breeding and maintenance of cattle and other animals, or for the raising of corn, which naturally forms two distinct heads.

Large tracts of country, exclusively devoted to the breeding of cattle, as is the case in the Highlands of Scotland, are not to be found in Ireland, and even in places where this system of rural economy is pursued, they are so uncommon, that they appear to have been set apart for that purpose rather by accident than design.

In most of the dairy districts calves are reared, and frequently sold when yearlings, to persons who graze them till they are three or four years old. They are then re-sold to graziers; in order to be fattened, and in many instances where this method is not followed, the male calves are slaughtered at an early age, that perhaps of three or four days, and used at the table as veal.* The cow-calves, however, are preserved and reared for the supply of the dairy.

A mixture of grazing and tillage is seldom adopted, except by gentlemen, and in this respect there is a wide difference between England and Ireland. In the eastern part of England in particular, there are many winter graziers whose farms are nearly all under the plough, but who fatten such numbers of cattle that the supply of the capital during April and May, depends in a great measure upon those which have been fed on turnips in Norfolk, Suffolk, and Essex. The mountains of Ireland, instead of being grazed by their owners or large occupiers, who in that case would annually sell their draught stock, are frequently let on a partnership lease to the inhabitants of a mountain village, each of whom turns out a fixed number of *collops*,† according to his share of the tenure. These collops, for the most part, are cows, goats,

* Mr. Townsend says, that they are often the food of poor housekeepers in towns, p. 221.

† The term *collop* appears to be very similar to that of *cattle gait* in England, when the tenants of a manor have a right to turn out on the common a fixed number of stock.

or geese ; and the only saleable produce of such districts is butter. The want of roads in these mountains is a great impediment to tillage ; grain could not be transported from one place to another without considerable expence, but butter is easily conveyed in panniers, or at any rate on sliding cars, a kind of vehicle without wheels, which is similar to our sledge. The word *collop* is applied to various objects ; a horse is generally a collop, two cows are equal to a horse, and consequently comprehended under the same term ; four yearling calves, or one cow and two yearling calves are a collop ; five goats are equal to a cow, so that ten goats are also a collop, and I believe the case is the same with twice that number of geese. Sheep are rated with goats, but are by no means so frequent, for milk is the chief object, and an ewe does not yield nearly the same quantity as a she-goat, yet now and then sheep are kept also for this purpose.* Some readers, perhaps, may be surprised to hear that sheep are kept on account of their milk, but this custom is not confined to Ireland ; it is common in Garmarthenshire, and I have observed it in other parts of Great Britain.

The northern mountains of Ireland support a few cattle, but they are generally in a famished condition ; and even in the south, where they are much more frequent, some perish through bad food.† In the north I have travelled during a whole day without seeing any other animals than goats, browsing in flocks as they do in Switzerland. The want of cultivation at the bottom of these heights, to insure food in winter, and of proper attention to shades, will sufficiently account for this circumstance. On the coast of Clare I observed shades, consisting of stone walls, built in the form of a T, which were exceedingly well calculated to answer the purpose intended.

It is difficult to estimate the mountain produce of Ireland, for no measurement of such land has ever yet been made, at least as far as came within my knowledge. A mountain is generally let by the side, the bed of some small river often forming the boundary ; but the quality of the soil is for the most part so variable, that its value or susceptibility of improvement, cannot easily be ascertained. The stock kept on a given surface depends on the condition of the occupiers ; if they are wealthy the number is of course greater, but possessions of this kind are often exceedingly small.

The cotters who keep cows in all parts of the kingdom, rear a calf now and then on their landlord's farm. The privilege of doing this is one of the usual modes of payment which are here called "conveniences," and it is by these means that they are enabled to become possessed of cows ; but I am much inclined to think that they are kept to too great an age, a system which occasions much waste of stock, and therefore is very unprofitable. Those who have attended to this subject will readily comprehend what I mean ; but as it is a point on which many who are igno-

* Townsend's Survey of Cork, p. 237 and 250. Dutton's Survey of Clare, p. 129.

† Ibid. p. 312.

rant of it, have ventured to decide, and as such persons inveigh strongly against the use of veal or of lamb, I shall endeavour to shew that their opinions are erroneous, and founded on fallacious arguments. A cow after having produced three or four calves, or a ewe after dropping as many lambs, will consume a far greater weight of food than either of them would do at a much younger age; and after that period these animals fall into a state of gradual decline, so that it is difficult, or rather almost impossible to fatten a very old cow or a ewe. In England this is so well known, that most of those that are kept to a great age, are finally used at the dog-kennel. It is to a knowledge of this circumstance that we must ascribe the annual drafts of ewes by flock-masters. Wherever the practice of keeping animals to a great age prevails, it has a most destructive tendency, and may be considered as producing a great national loss. In the present advanced state of agriculture, it is an evil which could scarcely be expected to exist in any part of the empire. In Great Britain, a cow, after she has brought her owner a few calves, is fattened to supply food to man; and a ewe, when it is thought expedient to separate her from the flock, is placed in the most luxuriant keep, that she may speedily fatten with her lamb, in order that the latter may be sooner taken from her. When she becomes fat, which will be the case if she be continued on the same keep, she will be fit for the knife, and become excellent mutton. Were there little or no demand for veal or lamb, a small part only of this excellent system could be pursued, and I am much afraid from what I have seen, that it is little known and less practised in Ireland. In Suffolk, Norfolk, and the north of Essex, the cow and calf are frequently fattened together, the latter is called a *beefen*; and of late years, the great cow-keepers in the neighbourhood of London fatten their cows while they are in their prime, renewing their stock from the north, and never suffering a cow to waste by age. This method is strictly observed in all the dairies of England. In Ireland, calves, when yearlings, are often collected by jobbers, who carry a great number of them to Connaught, where they are grazed during the course of some years, but without any view of being fattened for the shambles. Many farms are employed for this purpose, but as they generally lie at a distance from the residence of the occupier, he relies entirely on the *wise man*, or herd, who lives upon the spot, and who saves, or rather spoils the little hay collected for their winter's food. In this part of Ireland the grass, in what is termed the mountains,* but particularly in the moory bottoms, remains till winter, when the cattle are fed with it. This I consider as a method extremely advantageous; it is followed in some degree throughout the richer pasture grounds, and I am certain, would in all places, under proper management, turn to good account; but I am inclined to suspect that the pasture is never really eaten down bare once in the year, without which the

* Mountains, or mountainy, in Ireland, is a term frequently applied to uncultivated land.

coarser grasses and weeds, but particularly rag-wort and thistles, get so completely a head, that in consequence of their continually shedding their seed, the land, instead of a fine piece of winter grass, becomes one tissue of weeds. Under this system, cattle, when four years old, are driven to Ballinasloe fair in October, where they are offered for sale in a half-fattened state by some of the graziers, and purchased by others, for the purpose of finishing them, or fattening them into beef. The latter are occupiers of the rich pastures in Limerick, Tipperary, Roscommon, and Meath, which are the chief grazing counties in Ireland. The banks of the Fergus in Clare, some parts of Cork, the Queen's County, Westmeath, a small part of Louth and Kildare, are all in some degree held by persons engaged in the occupation of grazing bullocks. The first winter their cattle are kept upon hay, and are generally sold out some time before the next Ballinasloe fair; but the period of sale depends very much on the markets and the capital of the grazier. From Meath great numbers of fat cattle are shipped alive for Liverpool, many are sold for the consumption of Dublin and the north; but the other grazing parts of Ireland rely upon Limerick and Cork, as beef-markets, where it is sold chiefly for exportation in a cured or salted state. For a detailed account of the manner of curing it, I must refer to the head of national industry, under which I think it may with more propriety be introduced.

Bullock and sheep-grazing are very seldom combined in Ireland; and to this circumstance I ascribe that luxuriant abundance of rag-wort stalks, which are every where seen. The latter animal always bites this plant when in a young state, and therefore it is never to be found in sheep pastures. The want of tillage, which is considered derogatory to the assumed rank in life of a grazier, precludes the production of any other winter food than hay, such as it is; but the great subject of complaint is the total ignorance of that regular system so necessary to be pursued by a grazier, namely, that of keeping his pastures and stock in a due course, which few in Ireland understand or practise. A grazing farm should be divided as nearly as possible into equal shares, every one of which ought to be closely and barely eaten down in succession. Those cattle in best condition should be thinly introduced into the most luxuriant pastures, and as they are driven off to market, their place should be filled up by the next best, and the grass finally consumed by the young and growing stock, which are placed on hard fare, and doing what the English graziers term "working for their living." These should eat up every blade of grass, and render the fields completely bare. When taken from them the fields should be shut up for a few weeks, and in the course of that time they will become clothed with verdure, and throw out young, succulent, and fattening herbage, which, of course, will be used as prime pasture for the fat cattle. If this economical system be not adopted, grazing cannot be carried on with advantage; but I never saw it practised in Ireland except by Mr. Arthur French, of French-

Park, in Roscommon; nor did I ever meet with any person in that country who seemed to understand it, or to have the least idea of the advantages which attend it. The graziers all seemed satisfied that the price of beef had risen in common with that of every other article since the time they hired their lands; and, therefore, while they find themselves gainers, they never think of systems, and pay little attention to any plans of improvement that may be suggested. They conceive that the profits which they obtain are the result of their good management; and without entering into a comparison of what they actually do with what they might do, they pertinaciously adhere to their old practice, and suffer themselves to be so far blinded by prejudice, that they are incapable of perceiving the advantages that might be derived from a change in their principles of rural economy. I have seen tons per acre of rag-wort and thistles thrown into heaps in the autumn, and burnt by the herds, who sell the ashes, which they consider as a perquisite,* and which are used instead of soap by individuals as well as by some manufacturers. A more wasteful system cannot be conceived than to produce these weeds, which yield but a paltry sum to a servant, and are more exhausting to the earth than the growth of grass, which can be employed in the fattening of animals. Meath, in regard to the quality of its pasture land, undoubtedly stands foremost in Leinster, but in consequence of its distance from Connaught, the grazing system which is here followed varies in a considerable degree from that pursued in Limerick, &c.; yet if it lies more remote from the market for purchasing its stores, it has the advantage of contiguity to Dublin, England, and other places, where it can dispose of its fat stock with considerable profit.

As Mr. Thomson, in his Survey of Meath, has published some very valuable remarks on this subject, I shall take the liberty of giving an abridged view of them. From my own observations when I was there in the summers of 1808 and 1809, I think them correct, and they are equally applicable to all the other grazing parts of the province.

This writer quotes the opinion of Mr. Lowther† in favour of winter grass, and in this I entirely coincide with him. Early in May the graziers open the pastures for their summer stock which they intend to fatten; for feeding is their principal object, as land bears too high a rent to admit of its being used to raise stock. The cattle which the graziers intend to fatten are collected from various places, and after being bled, they are turned out till they become fit for the butcher, when they are sold either in the Dublin market or the neighbouring fairs to purchasers from the north, who sell the beef either for home consumption or salt and barrel it for exportation. The slaughtering season commences early in September, after which the Meath graziers

* Mr. Dutton, in his Survey of Clare, says that the ashes of these weeds become the perquisite of the cotter's wives.

† Survey of Meath, p. 218.

rely chiefly on the northern buyers, because they are exempted from the charges of commission, driving, &c. which are taxes that fall exceedingly heavy on their profits.

Many persons fatten from three to five hundred cows in a season, besides bullocks and sheep. These cows are purchased sometimes singly in the country from poor persons who have milked them the preceding summer, and are called "dry cows;" others are heifers, which having missed being in calf, are half fat, and are bought in lots; such of them as are in the best condition are placed on the most forward grass, and when ready for use are sold in Dublin market in the months of June, July, and August, when beef bears the highest price. Many of the more backward heifers are withheld from the bull till August, and reserved for the spring market in Dublin, provided they fatten, if not they are sold in May to dairy-men. A few sheep, generally pets, are occasionally pastured among the neat cattle, but this practice is condemned as injuring the "proof" of the beast, because the sheep rob them of the sweetest grass, and it is the ultimate interest of the grazier to obtain a character for fattening "proof beasts" that will "do well," which is a term used by butchers for an animal possessing a considerable quantity of inward fat. In a falling market this reputation is exceedingly useful, as it insures a ready sale, while those who have not acquired it are obliged to send their cattle again to grass, with the loss of additional keep, and the disadvantage of driving. The northern buyers are well acquainted with the proof of the land of most of the graziers with whom they deal.

Beasts purchased in May are often fattened and sold by Christmas, if not they are fattened in winter with hay, or turned out into old grass; but, perhaps, in a few instances, rape, turnips, or potatoes, are given to them; and there are some distilleries in the county, the owners of which fatten bullocks on the wash and the grains, during their season of work, till the month of May, when they can be driven to the market in Dublin. These animals attain to an uncommon degree of fatness, and are preferred by the butchers on account of their superior weight in proportion to their size; yet the beef, though apparently juicy, is not so well flavoured; it eats dry and the fat melts away either before the fire or when put into the pickling tub.

Those who buy up cattle purchase them at the neighbouring fairs when a year old, at from two to six pounds per head, and keep them during the summer either on land of a coarse bottom or upon ground newly laid down, and in winter upon straw till the month of May, when they are again turned out to grass.

In all the county surveys I have generally found winter grazing and stall feeding strongly recommended, and often by gentlemen who did not seem to be much acquainted with either. But there can be little encouragement for winter grazing in a country where, if I except one city, Dublin, there is little consumption of meat, and where exportation requires beef only at a certain season of the year. Did Ireland abound with large manufacturing towns, there would be plenty of winter grazing without the interference of unexperienced county surveyors. It is the statesman ra-

ther than the statistical surveyor who must apply the proper remedy to this evil. To adopt the plans proposed by the former would be like cutting a canal where there is no trade or commerce to pay the tolls. These gentlemen all recommend the fattening of cattle before the inhabitants have attained to that state of luxury, and acquired those habits which render a large supply of animal food necessary, and before they have become sufficiently rich to be able to bear the expence. Raise the condition of the people, increase their industry by a demand for manufactures among them, and winter fed beef will be abundant. Towns like Liverpool, Manchester, Birmingham, Leeds, or Sheffield, would do more to produce this effect than all the books that can be written on the subject.*

The recommendation of stall feeding as a matter of profit is almost ridiculous; a grazier can make very little by it, and if he intends to turn his cattle out again in the spring, he will find that he has adopted a very bad trade. Housing cattle creates a tenderness which keeps them in a stationary condition for some weeks before they begin to fatten. Good winter grass with plenty of hay, and a shade to which they can retire for shelter whenever they choose, will be of much more service, and cattle treated in this manner will be found much superior to those kept in a state of close confinement. I have seen this method so often tried, and particularly by the Rev. Dr. Henry Bate Dudley, when he resided at Bradwell, in Essex, that I am enabled to speak in the most confident manner on the subject.

The turnip fed beasts of the eastern part of England, are now seldom fattened in stalls but kept in small yards, and are universally sold out when fat in the spring, May or June, a season when there are no contracts for beef at the great export towns of Ireland; so that if stall feeding were pursued while there is no demand for home consumption, the animals must be again turned out, which, as I have already said, would not be attended with a beneficial result. Meat can be cured only during one part of the year; that period is called the "slaughtering season," and while it continues meat is much cheaper, as the offal parts are employed for home consumption.

The Dublin market for cattle is called "Smithfield," and there are persons who sell them alive by commission, as in London; these salesmen allow the butchers twenty-one day's credit.

ULSTER.—There is probably no county in Ireland where beasts are not fattened, yet the number in the whole province of Ulster must be very small. In consequence of its thick population, little of its cultivated land has been suffered to remain in

* "The most natural way, surely, of encouraging industry, is first to excite other kinds of industry, and thereby afford the labourer a ready market for his commodities, and a return of such goods as may contribute to his pleasure and enjoyment." *Hume's Essays*, vol. i. p. 435.

"En un mot, ces états ont besoin que beaucoup de gens cultivent au-delà de ce qui leur est nécessaire: pour cela, il faut leur donner envie d'avoir le superflu; mais il n'y a que les artisans qui le donnent." *Œuvres de Montesquieu*, tom. iii. p. 73.

that state which in England would be termed pasture. Artificial grasses are sown only in patches for the cow, the goat, and the horse, but they are never employed as food for the fattening of cattle or sheep; even potatoes, which might be so readily and beneficially used instead of turnips, are seldom converted to that purpose. The grass of Ulster, which is almost confined to the banks of rivers, or low moist situations, sometimes incapable of drainage, is either cut for hay,* or allotted to the cow of the poor cottier. There are certainly immense districts of mountain land, which in its present uncultivated state can hardly be said to produce grass, if the sour and scanty herbage that covers it can deserve this name; at any rate, it is incapable of grazing animals of any kind.

The accustomed method of grazing in Londonderry, is applicable to all the northern districts of Ireland. Many young cattle reared in the low countries are about April sent to the high rough pastures, and are called the *yeld* cattle, a term which is probably a contraction of the words *a year old*. The nature of the grass regulates the price of summering from 2s. 8½d. to 15s.; cows are tolerably grazed from £1. 1s. to £1. 10s. and on the best land for £2. 2s. The sandy pastures of Magilligan are objectionable, both on account of their wearing out the teeth, and the quality of the mineral water.† The young cattle are housed in November, and fed on barley or oat-straw, but for want of care they are small and ill shapen. Milch cows are also badly managed and harshly treated; they are generally milked during the summer at noon,‡ that they may have time to feed after they are turned out in the morning; a good cow gives six quarts after the first meal, and three after the second; on account of the poorness of their food in winter, scarcely more is obtained on an average than one quart at a meal. The custom of housing the cattle in summer saves them from the heat during the day, but it deprives them in part of the pasture of the early morning. Store cattle are brought from the mountains of Donegal when two or three years old; these are heifers or young bullocks which fatten readily, even on indifferent pasture. A young bullock is called a *nab*; many of these have of late been sent to Scotland, and thence to the English market. The grass of a horse is valued at four *sums* and a half; a *sum* of sheep consists of four ewes with their lambs, or six full grown sheep; twenty geese are a *sum*. The value of a sum of grass differs according to the nature of the soil and the age of the animal. The pasture decreases in value from two guineas in the low lands to 6s. 6d. or to a rate still lower in the mountains; even in the best pastures the cow is herded or tethered, which proves in the most evident manner the

* In Ireland all grass land to which the scythe is applied, is called "meadow," but that which is grazed, "pasture."

† Survey of Derry, p. 207.

‡ This is universally the case throughout Fermanagh.

§ Similar to the collops of the south.

necessity of laying down with grasses and clovers. To give an instance from among a thousand that might be produced of the bad consequences of ignorance and credulity, I shall here observe, that a superstitious notion prevails among the lower classes, that a calf can be defended from diseases by stretching it, when dropped, between two persons, who holding it by the legs, pull it forcibly different ways, then stuff its mouth with dung, and keep it a long time after without food.

DONEGAL being exceedingly mountainous, and the climate cold, as it lies far to the north, and exposed to severe blasts from the Atlantic, produces but few cattle, and of that few only a very small number are fattened. This observation is applicable to sheep as well as to bullocks, and even in the champaign parts of the county no great quantity of beef or mutton is raised. In general the pasture is very indifferent, and therefore engages little attention, the breeding of milch cows, tillage, and manufactures, being the principal objects on which the inhabitants employ their industry.*

DOWN.—This county has been so sub-divided in consequence of its dense population, that it cannot be termed a grazing district, yet Mr. Dubourdieu says,† that though the soil is better adapted to tillage, there are many beasts fattened in it annually, and some of a very large size on the western side, where the soil is a deep loam or clay; and that the low grounds on the banks of the Lagan and the Bann, are esteemed peculiarly wholesome for horses and cattle in spring. The grazing stock generally consists of calves and heifers collected at fairs, or brought by drovers from the breeding counties, whose heifers are excellent both for fattening and milking; bullocks are too heavy for the soil, and are not thought so profitable as cows.

FERMANAGH will not exactly fall under the same description, as I saw in it some excellent pasture lands which were grazed both by cattle and sheep ‡ of a large size. In this county as in Derry, the word *sum* is used in the same sense as *collop* is in some other parts of the kingdom, and a price, which is 50s. is affixed to it. The grazing a horse is a *sum* and a half, and the grazing two cows is a *sum*.

CONNAUGHT.—Although vast numbers of cattle are grazed in Connaught, the fattening of beasts and sheep is very much confined to the rich limestone districts of Roscommon. In some of them I have seen remarkably fine animals, but I believe the distance from a market is a frequent cause of complaint among the graziers in that part of the country.

SEPT. 18th, 1809. ROSCOMMON.—In 1796, Mr. Molloy hired of Lord Lawton

* Survey of Donegal, p. 47.

† Survey of Down, p. 138.

‡ Sept. 2d, 1808. Castle Cool.—Lord Belmore buys wedder sheep in Roscommon in May, at three years old, with their wool, for 45s. each, and sells them out next year at £3. 12s. He also buys heifers from Connaught at three years old in May for twelve guineas, and sells them in November at eighteen. His sheep when fat weigh 30lb. per quarter.

408 acres, eighty miles distant from Dublin, at £1. 6s. per acre, and let them in 1808 for £1256. This farm carries 150 four-year-old bullocks, worth ten or twelve guineas each. It is considered as bad economy to place sheep along with bullocks. This gentleman had 100 wedders in summer, and 200 ewes or hoggits in winter; in May he bought sixty dry cows for five or six guineas a piece, and sold them in October for £3. profit each. Herds are allowed, instead of payment in money, to have eight head of milch cows, five acres of garden, and a quantity of meadow. It is common to eat the fields bare till July, and shut them up till February; some graziers never employ mowing. John Irwin has 1200 bullocks of four different ages, one, two, three, and four years old, that is to say, 300 of each. The herds and common people all wean their calves, and they are then picked up by jobbers, who sell them in scores to the graziers. A herd calculates that he can rear his calf and make 1 cwt. of butter, but in this case his cows lie singly in the best keep. In this county calves are reared by suckling, but kept in separate pieces; if turned out with the cow it is called turned at her foot. The graziers in this neighbourhood buy cattle by sight, and always select those that are thick hid.

SEPT. 18th, 1809.—Dean French found that the best method of curing land on which the cattle are subject to red water, is to cover it with limestone gravel, an operation called *sanding*. Mr. Flanagan, a grazier in a very extensive line, feeds his calves on the best lands along with fat cattle, turns them out into mountain land for two years, and then brings them back; sheep are kept all the winter on fog grass; the best sheep grounds are on a limestone rock, the soil is very thin and they will bear any degree of wet weather throughout the summer. Forty, three-year-old bullocks feed upon 100 acres, and no bullock after being fed on potatoes will thrive on the summer grass; for feeding cattle, boiled potatoes are preferred.

SEPT. 21st, 1809. FRENCH PARK.—At the fair here this day, yearling calves sold at from five to six guineas and a half, three-year-old bullocks at thirteen guineas.

SEPT. 22d.—On a farm belonging to Mr. Carr, I saw some uncommonly fine four-year-old beasts; this gentleman's land carries a bullock per acre and a half, and four sheep to an acre. In winter the herds are never paid any money; they are allowed a cabin to live in, and two or three acres of land, on which they raise potatoes or oats, and keep two cows and a brood mare. In return they are answerable for the stock on the farm, which is no more than a necessary responsibility, as many of the graziers live at a great distance from the land which they occupy. The grazier pays for mowing his hay from 4s. to 4s. 6d. per acre, but it is spoilt by the herd and his family through false economy, because rather than pay for its being made at once, it is left exposed to the rain, until it be repeatedly drenched before it can be stacked.

SEPT. 18th, 1809. FRENCH PARK.—Rode about the domain, which consists of 650 acres. There is here a succession of grazing winter grass without rag-wort or thistles; the former are kept down by the sheep, and the latter have been extirpated

by mowing them. The immediate substratum is a rich loam; below it there is limestone gravel, which is dug up and spread over the land at the rate of two guineas per acre. Mr. French's stock, which is indeed excellent, consists of the long-horned and long-woolled breed. He sells out bullocks at four years old, and sheep at two; they are sent for the most part to Balinasloe, where the former are purchased by graziers from Limerick and Tipperary, and the latter by those of the county of Meath.

The following extracts from Dr. M^lParlan's Survey of Mayo,* will serve to convey an idea of the system which is followed throughout a great part of this province.

"**BARONY OF TYRAWLEY.**—A few veins of excellent ground answer for fattening about the Moy and the Laggan; Deel Castle domain, Gortnar Abbey, Abbeystown, Errew, and some other spots, are of the best quality. In general it may be called a mixture of good upland and moory pasture, which together with boundless tracts of mountain, serve as excellent nurseries for rearing young cattle, and preparing them for the fattening grounds of Roscommon, Munster, and Leinster.

"**BARONY OF BURRISHOOL.**—The grass of the champaign parts is very sweet, in wet weather it is apt to dissolve; there are also immense quantities of mixed and mountain pasture. The bulk of the barony being in tillage, there is, of course, except for the private use of a very few families, no part allotted for fattening cattle of any sort, nor are the lands suited to that purpose.

"**BARONY OF MURRISK.**—Here is very little pasture, the very few good grounds being mostly employed in tillage. The mountainy mixed pasture is what may chiefly be counted on. Most villagers have one or two cows and one horse, beside a few sheep, in proportion to their tenures.

"**BARONY OF CARRA.**—The pasture of this barony must vary as the soil appears to have varied. In some parts, such as the neighbourhood of Ballyhaine and Castle Carra, the people call it kindly and good for rearing young cattle, but not fit for fattening. In the neighbourhood of Barnagee and Partry, is a mountainy healthy pasture, fit only for light cattle and summer feeding. The lower part of Partry is light sweet pasture.

"**BARONY OF CLANMORRIS.**—The pasture here is almost throughout sweet and rich, all fit for rearing; in many parts fit to fatten both sheep and neat cattle of considerable weight, but not so well adapted for the weightiest cows and bullocks, as Roscommon, Meath, and Westmeath.

"**BARONY OF GALLEN.**—The green parts of it, which make about one-third, are a light pasture, fit for rearing cattle from two to three years old, and in some parts sheep.

"**BARONY OF KILMAINE.**—The description given of the barony of Clanmorris is applicable to that of Kilmaine.

“BARONY OF COSTELLO.—The few good grounds which this barony exhibits are of a remarkable quality for fattening, and a return of tallow. Those only make part of one half of the barony, the other half being mountain, and the rest a light, moory, or reclaimed pasture.”

The same author, who was sent by the Dublin Society to survey the county of Leitrim, says only that “the cattle are fed with straw and hay in winter.”* Short as this remark is, I much doubt its correctness, as I conceive that many of the graziers trust to the grass saved in the bottoms, while their cattle are feeding during the summer in the mountains. In many parts of the province, but particularly in Galway, the whole of the summer grass is set apart for winter food, without hay or other artificial provender, and beasts so fed are brought in excellent condition in the month of May to the fair of Balinasloe.

The greatest breadth of fattening land in Ireland is to be found in MUNSTER.—A great number of very fine beasts are finished for sale in the inexhaustible rich marshes called *caucasses* on the banks of the Shannon and Fergus, and in many parts of the counties of Limerick and Tipperary; and the whole of this land is contiguous to the markets of Cork and of Limerick. I am not much inclined to give credit to stories respecting monopoly and combination; but the buyers of beef are few in proportion to the producers. The sub-contractors all act under one head, namely, the London firm, which has entered into an engagement for the season with the victualling board in that capital. This contract, indeed, depends on the continuance of war; but while it lasts, the holders of rich pasture lands all make fortunes. Should a peace take place their situation would be reversed, unless the inhabitants should create a demand by their consumption.

If contracts are made by commercial houses in England, agents attend the fairs in November and December, and generally give good prices. If a peace is expected, as was the case in 1806, the merchants combine, and the graziers are completely at their mercy, and experience not only every kind of gross treatment and indignity from these *great men*, but suffer serious losses by the dishonesty of every person concerned in slaughtering the cattle.† As it is scarcely known in other parts of the kingdom, it may at least be amusing to detail the manner in which the business is conducted. The grazier finding no agent attending the fairs to buy except some trusty friend of the merchant, who reads a letter from Cork or Limerick stating the rumours of a peace, or the expected very low price, is obliged to drive his cattle to one of these markets. After driving them into either of these towns, he waits upon the great man, and with all humility begs to know if he wants any fat cattle. After a good deal of pretended hurry of business, and waiting for a repetition of the question, “he believes he shall not want any more than what he has already engaged; but to oblige Mr. ——— he will endeavour to make room for his cattle. As to the price, it is to be regulated by what any other grazier receives. When

* M^rParlan's Leitrim, p. 39.

† Dutton's Survey of Clare, p. 97.

this is settled, he must drive his beasts to some of the slaughter-houses, many of which are erected for the purpose. He pays for this a high price, and must give also the heads and offals. He is obliged to sit up all night to superintend the slaughtering, and must silently observe every species of fraud committed by the very worst kind of butchers; for, as has frequently happened, if resentful language is used to these fellows, they begin to whet their knives, and put themselves in a threatening attitude. In a slaughter-house at night, and among the horrid scene of carnage around, no small share of nerves is required to support such a spectacle. Next morning, without taking any rest, he must bring his meat to the cutters-up; and here, unless these people are feed,^{*} begins the second part of the fraud he has to suffer. In the first place, they take for their perquisite several pounds of his best beef; and if he has cows, unless they are well paid, they will cut away large quantities of the udder, which they call offal, and which is *the property of the merchant, though he pays nothing for it.*[†] The merchant also gets the tongue; and if the grazier wants a few, he must buy them at the rate of at least three shillings each. The third scene begins at the scales; here another perquisite must be paid, and much good meat is refused, because it happens to be a few pounds less than the stipulated weight of the beast. An appeal then is made to the great man—"he is gone out;—he won't be at home to-night;—he is busy;—he can't be seen." At length, perhaps, he is visible, and when matters are explained:—"Really, sir, I do not wish to take your cattle; the prices I receive in England are so low, that I shall loose by my contracts: suppose you try if you can do better elsewhere; but I will agree to take your beef, though below the weight, if you make the terms lower." The grazier has now no redress, and must agree to any terms. But this is not the end of the business: he then inquires what is to be the mode of payment: bills at ninety-one days are the best he can get. He next applies to a chandler to buy his fat; when this is settled the tanner must be waited upon, and from him as well as from the chandler, nothing is to be obtained but bills at a long date; and as these, in general, have scarcely any capital, if their speculations fail, their bills are of little value. This is but a small part of the gross indignities the grazier has to suffer; he has to transact business totally foreign to his habits of life, consequently is unable to cope with those who from their infancy are used to tricks practised in this business, and therefore know how to avoid them, or to turn them, perhaps, to their own advantage. The price depends, not only on the causes before-mentioned, but on the size of the beast; those of a large size bringing more per cwt. than those that are smaller, which is a premium on large bone; and cow-beef is always lower in price than ox-beef, though they are sent to England in the same packages, and if fat, go as the best, called planters' mess. During the negotiations for peace with France in the autumn of 1806, the expectation, not the hope of a favourable issue, prevented

* Dutton's Survey of Clare, p. 98.

† Ibid. p. 99.

speculations, and determined both buyers and sellers to suspend them until the fair of Ballinasloe in October, or the result of Lord Lauderdale's negotiation should transpire.*

After what is here said it is unnecessary for me to give any farther description of the sale of fat beasts in the South of Ireland; but it is worthy of remark, that this mode ought to render an Irish grazier an excellent judge of cattle. By selling the carcass, the inside fat, and the hides separately, he acquires the experience of the butcher united with that of the grazier. It has been universally stated to me, that the hides of animals are found to weigh lighter, and consequently are of less value, as they advance in age. Hides obtained from animals of six years old, are inferior in weight to those obtained from animals of five years old; and so in succession. This difference deserves notice; but I shall leave it to those who study comparative anatomy or natural history, to account for it.

The whole of the eastern side of Munster and the southern coast of Cork, has no lands fit for fattening cattle. A large portion of the grass land is occupied by dairies. The mountain land of Waterford is grazed by the collop; and the total produce is of little value.

Among some of the large graziers I heard of potatoes being used for fattening cattle. Mr. Going of Tipperary, an excellent farmer, gives them to his cattle in a mixed state. If raw, he found them too loose, and when boiled they were too binding; but when eaten together, each counteracts the effects of the other. Mr. Trench of Cangor-Park, found three stone of potatoes equal to two cwt. of turnips, and sufficient as one day's food for an ox. He has tried the effect of both in a raw state on thirty bullocks.

Mr. Fitzpatrick of Urlingford, in Kilkenny, fattens his new Leicester tup-rams on potatoes, and as he possesses some of the best sheep of this kind in either kingdom. The knowledge of his practice is most important.

Lord Carberry has succeeded in Cork in fattening sheep in the same manner.†

In my opinion, it would be an object of some consequence, if the potatoe were applied more to the use of animals as food, and less to the human race. But I shall discuss this point at full length when I come to treat of the food of the people. It is sufficient here to have pointed out the beneficial use of this root in the feeding of animals.

The fear of swelling this work beyond all reasonable bounds, has led me to transcribe but a very few of the notes which I made during my tour, upon this subject, and which some perhaps might think necessary to shew the detail, but without doing so, perhaps I have said enough to exhibit the general system of grazing pursued in Ireland. It is necessary to add, that in suppressing a great deal of what I had written, I have

* Dutton's Survey of Clare, p. 96.

† Cork Survey, p. 291.

complied with the wishes of some friends who had the goodness to inspect my manuscript, for whose opinion I entertain no small deference. What I have omitted may be considered merely as a repetition of similar modes practised in other parts of the country, and at best must have been very uninteresting to most of my readers. The chief object has been to give general views, for the purpose of shewing the real situation of the country; and I trust that what I have said will be sufficient to answer the intended purpose.

Great encroachments have been lately made on the feeding lands of Ireland, by people who pay more rent for small tenements than could be made according to the grazing system. A cottier tenant hires an acre or two of land, and what he pays enables the original holder to make a greater profit without the employment of capital, the risk of markets, or attention to business, than he could otherwise obtain. All the opulent graziers are now beginning to colonize their lands; and this method is spreading with great rapidity. I observed this mode to be prevalent throughout Limerick and Tipperary, and Mr. Townsend particularly remarks it in Cork.*

Many writers on economics have recommended the adoption of this system as a national benefit; but if my view of things be correct, these gentlemen have been under an error—and one of no small importance.

DAIRIES.

A much greater extent of country in Ireland is covered by dairy than by grazing-farms; large tracts in Kerry, Cork, and Waterford, also part of Kilkenny, Carlow, Meath, Westmeath, and Longford; the mountains of Leitrim and Sligo, and a considerable portion of Fermanagh, being occupied by them.† Many other

* Survey of Cork, p. 412.

† Many ancient nations, before they became acquainted with agriculture, seem to have subsisted chiefly upon milk, and the productions obtained from it:

Lacte mero veteres usi memorantur, et herbis
Sponte sua si quas terra, ferebat ait.

Ovid. Fast. lib. iv. v. 369.

We are told by Justin, lib. ii. cap. 2, that the Scythians lived upon milk and honey: lacte et melle vescuntur:—and the same author, lib. xxiii. cap. 1, says: Cibus his præda venatica potus aut lactis aut fontium liquor erat. Tacitus de Morib. German. cap. 23: Cibi simplices, agrestia poma, recens fera, aut lac concretum: sine apparatu, sine blanditiis expellunt famem. Caesar de Bello Gallico, lib. iv. cap. 22: Agricultura non sudent, majorque pars victus eorum lacte, et caseo et carne consistit. Alluding to the Suevi, he says, also, lib. iv. cap. 1: Neque multum frumento, sed maximam partem lacte atque pecore vivunt. Sallust de Bello Jugurth. cap. 89, gives a similar account of the Numidians: Numidæ plerumque lacte, et ferina carne vebantur, neque salem, neque alia irritamenta gulæ quærebant.—The milk used by the ancients was obtained from various animals besides the cow. Pliny, lib. xi. cap. 41, mentions that of the camel, which is still used

counties produce butter for exportation, but under a different system of management. A great deal is made also on the small tenures in Cavan, Monaghan, and Down, as each occupier keeps a cow, and consumes in his family only the skimmed milk. Throughout the south, the dairies are let to dairy-men who agree to give so much a head per annum for each cow; a method similar to that practised in Devonshire and in South Wales. There are persons, particularly in the county of Waterford, who possess large tracts of land, and keep an immense number of cows on the same plan; and great fortunes have been accumulated by it. But it was more prevalent when the penal laws against catholics restrained them from laying out their property on land; for, having no other resource, they were obliged to employ it in purchasing cows. A cow, to produce milk, requires neither the same quality, nor the same quantity of grass-land as a bullock which is fed for the shambles, and the profit obtained by letting cows at so much per head, is far greater than could be made in the same time by the grazing of bullocks, as the first cost of the former by no means equals that of the latter. In the neighbourhood of some towns the skimmed milk is an article of very great demand. In Cork it sells as high as two-pence per quart,* and it is brought to Carlow from the distance of many miles. In Ulster, where the divisions are small, I found "thick or sour milk," to be much in request; but where there are neither towns nor population, many calves are reared with it, and dairy-men in general rear cows much more than the cotters. The fattening of calves for veal is little practised in any part of Ireland. I have seen more veal in the neighbourhood of Wexford than in all the rest of the country.

The best butter† is made in Carlow; it is sent to Dublin by the canal, and gives to the butter of that capital a very high reputation, on account of which it always bears

used in Arabia: Cameli lac habent, donec iterum gravescant. Suavissimum hoc existimatur, ad unam mensuram tribus aquæ additis. And lib. xxviii. cap. 9: Dulcissimum ab hominis lacte camelinum. The Arabs, according to Leo, lib. ix. consider camels as the most valuable part of their riches: Ex camelis Arabes sua divitias ac possessiones estimant: et si quando de divitiis principis aut nobilis cujusquam sermo fiat, possidere aiunt tot camelorum, non aureorum millia.

* Townsend's Survey of Cork, p. 580.

† Beckmann, in his History of Inventions, says that "butter appears to have been extremely scarce in Norway during the ages of paganism, for we find mention made, by historians, of a present of butter, which was so large that a man could not carry it, and which was considered as a very respectable gift." Vol. ii. p. 416. Yet we are told by some authors that butter was exceedingly abundant, though perhaps at a later period, in every part of the North: Olaus Magnus in Gent. Sept. Hist. lib. xiii. cap. 45, says, Transcurrendo singulas provincias Septentrionalis plagæ a 52 usque ad 64, gradum elevationis poli arctici ubique propter fertilissima terrarum pascua et armentorum abundantissimos greges maximam butyri copiam invenies. The same author asserts, lib. xxi. cap. 4, that even Iceland abounded with butter: In insula Islandia tanta butyri, saliti, ob pecudum multitudinem, et pascuorum ubertatem, reperitur copia, ut non sufficientibus vasis aut tonnis cistas vel capsas ex odorifero ligno confectas, triginta vel quadraginta pedum longitudine, quatuor vero vel quinque altitudine, quotannis pluribus in locis replent atque in domesticorum usum, imo et mercatorum commutationem

couferant

a superior price. Butter of the first quality is exported to England, where it is either consumed, or shipped for the East and West-Indies; the next sort is sent to Spain, and the third to Portugal, the inhabitants of which prefer it in a rancid state, that is, when it has a "strong smell and taste."*

ARMAGH.—Speaking of the dairies of this county, Sir Charles Coote says,† "Although there are no farmers exclusively in this branch of husbandry, yet, in the aggregate, a considerable quantity of butter is sold in Armagh and in Newry markets for exportation. The small firkins in which this article comes to market, prove the very slender stock of milch cows which each proprietor possesses. It must not be understood that the numerous small firkins purchased in Newry are all the produce of this county, perhaps not a fifth will be found to be so. The counties of Cavan, Monaghan, Down, and Tyrone, send a great supply; any of them much more than Armagh, and I can shew two reasons for the assertion. These counties are more extensive, the people are wealthier, and of course live better, and can afford to consume their butter in their own houses. Scarcely any farmer is without a cow; many have two or three, but their pastures are always overstocked. It is generally the wealthiest farmer who sends most butter to market; perhaps he keeps the second cow entirely for profit. Some Belfast buyers employ commissioners at the principal towns to buy butter, which is sent thither by the Newry canal. One hundred weight per cow is considered as the usual produce, but perhaps not above the half of this quantity goes to market. The proportion of milch cows to the size of the farm is, for small farms under five acres, one cow; if exceeding five acres and not exceeding ten, perhaps two, seldom more. There are no extensive dairy-farms in the county."

CARLOW is a great dairy county; in this respect, perhaps the first in Ireland, and the cows are let to dairy-men in the manner already mentioned.

JUNE 15th, 1809. CARLOW.—The superior quality of the butter here arises from a greater degree of cleanliness and attention in salting it. Dairies consist of

conferant. The island of Oeland was also celebrated for its butter: Idem Olaus, lib. xiii. cap. 45. But the best butter of Europe is said to be that of Holland; and Junius asserts that the Dutch cows give thrice times as much milk as the English: Pascui erga agri bonitate cum aliis certare et verticem attollere nobis licet, absit dicto invidia, unde præcipui reditus ac proventus existunt, siquidem è caseis et butyro, quæ exportantur in externa loca, in singulos annos ducenties sestertium cogi putatur, quæ summa ad decies centena caralæorum millia extenditur, præter ea quæ in quotidianum alimentum, quo vix alio bona tenuioris fortunæ hominum pars victuat, cedunt. Tot illa boom armentis abundat, tam læta vaccarum parens ac nutrix est, his copiis quam Britannia longè superior, sive opimitatem et arvinæ ubertatem spicites, sive laxiores capacioresque uberum sinus, qui triplo plus lactis fundunt: sola cornuum celsitudo et vastitas in Britannicis bobus excellit. *Hadrian. Junii, Batav. cap. 15.*

* Strabo says that the ancient Lusitanians used butter instead of oil: *Απὸ γαλαίου βούτυρον χρῆσται.* Lib. iii. edit. Amel. Amst. 1707, vol. i. p. 155.

† Survey of Armagh, p. 229.

from 20 to 50 cows, and during the season produce $1\frac{1}{2}$ cwt. of butter per cow. They are not so much let as formerly, and answer only when the family can do all the labour themselves. Most is made by the offal. Butter-milk is an article of sale in the town of Carlow.

CAVAN, in regard to dairies, is very similar to Armagh.

CLARE.—There are here a few regular dairies, an account of which has been given by Mr. Dutton, but I must observe, that his witty remark in regard to the "black cow" is borrowed from Middleton's Survey of Middlesex.* Regular dairies are few, excepting near Ennis, which sends a considerable quantity of butter to Limerick in firkins or in tubs. In Ennis new milk sells at from *8d.* to *1s. 1d.* the pottle of eight quarts; thick milk, from which the cream has been skimmed, is sold for *8d.* the pottle of fourteen quarts. Some persons, near towns, let their cows to their tenants, whose wives retail the milk; the price is five or six guineas each per annum. It is said that the retailer, with the black cow's milk (water), is able to make of the compound, if the cow be tolerably good, £12. per annum. Sheep's milk is frequently mixed with cow's milk for the Ennis market, and those who practise the deception will not purchase any ewes but such as are likely to assist in filling the pail. The filthy custom of permitting the calf to suck two teats while the dairy maid empties the other two, prevails here and in Galway, so that the dribbling from the calf's mouth falls into the pail.†

CORK.—This county contains a considerable number of dairies, as the city affords a convenient market for the produce. "In general the cows are let out by the year to dairy-men, at a certain price for each, which varies according to the distance from the town, the goodness of the land, and the quality of the cattle. There are, however, many instances of rich and industrious farmers who conduct the business of the dairy themselves; in which case, though the trouble is greater, the emoluments are proportionate, and the general management of the farm very superior."‡

"The number of cows in each dairy is various; few have more than sixty, and the average may be rated at from thirty to forty. Where the farm is duly divided between tillage and pasture, the proper management of a dairy enables the husbandman to cultivate his land to great advantage. In the opinion of the best judges, a farm which keeps forty cows ought to have forty acres of tillage, and so in proportion with the rest. In the general rateage, three acres of middle quality are considered as necessary for the subsistence of each cow; but under a skilful process, where green crops, as rape, vetches, clover, &c. are raised, two are found to suffice. Cow-houses, though of a recent date, are now in general use on all well-established dairy-lands. The same may be said of green crops, concerning the merits of which

* P. 337.

† Dutton's Survey of Clare, p. 129.

‡ Survey of Cork, p. 378.

there are different opinions; but all are good. Many have both clover and vetches; the latter of which is in some places gaining ground. These should be succeeded as food by turnips or potatoes, and rape, a very meliorating crop, which every cattle farmer should diligently cultivate.

“The favourite breed for milk is the half Holderness breed, though it is observed, that the common Irish cow frequently equals them in quantity. The best of these give from ten to twelve pottles per day. The Devon cow milk is the richest, and produces most cream; but she falls short in quantity, never giving more than six pottles, or twelve quarts. The milk is sold in Cork after the cream has been taken from it, under the name of thick or sour milk, for three-half-pence or two-pence per quart, the price varying occasionally, according to the season of the year or the state of the market. A considerable reduction is sometimes produced by a supply of fish, particularly sprats, which are often taken in the river in great abundance. The Cork butter, a great deal of which is the produce of these dairies, has been long celebrated for its peculiar sweetness; of this merit, the kind nature of the pasturage may claim some share; but it is to be ascribed chiefly to care and to cleanliness.”*

“The price of fresh butter in Cork is from sixteen to eighteen-pence per pound. The value of a good milch cow, size from four to five cwt. is from ten to fifteen guineas. As these prices are considerably higher than those of former years, they have rather encouraged the rearing of calves, of which some are bred on most dairies, though the number is not very considerable in any; in the largest dairies seldom more are bred than from six to ten, and from cows of the best quality. For the first fortnight they are fed with new milk, afterwards hay-water and skimmed milk. The fattening of veal is not practised in the neighbourhood of Cork. In places about fourteen miles distant, but chiefly in Imokilly, calves are fed for the butcher: they get plenty of new milk, are kept very clean, and to make the flesh white are frequently blooded. Where great care and attention are used, a calf of ten weeks old will sell at from four to five pounds. As none of the dairies breed cows sufficient for their stock, recourse is had to the neighbouring fairs, in all of which milch cows form a considerable article of trade.”†

Nov. 26th, 1808. CASTLE OLIVER.—Near the city of Cork a good cow will let for sixteen pounds per annum. It is estimated that an acre of land maintains a cow, and that she ought to produce $1\frac{1}{2}$ cwt. of butter. The present price is six pounds per cwt.

DONEGAL.—I know of no dairies in this county.

DOWN in this respect is similar to Cavan and Armagh.

DUBLIN.—The dairies which supply the city are for the most part within this county; but Mr. Archer says, that this depends a good deal on the working of the

* Survey of Cork, p. 580.

† Townsend's Survey of Cork, p. 581.

distilleries, and he calculates, that in Dublin and its vicinity, in May 1801, there were only 1600 milch cows, whereas formerly there had been 7000.* The decrease he ascribes chiefly to the butchers. Cows sell at a high rate, from ten to twenty guineas each, and the same cause enhances the prices of milk and butter. The average produce in summer is eight quarts in twenty-four hours: in winter five quarts.† The cattle are housed during the latter season, and are fed upon hay and grains, if they can be procured. The old Irish breed of cows is extinct, and their place has been supplied by the English and Dutch breeds, and a few from Kerry, which the dairy-men consider less productive in milk, but more advantageous for the butcher. These dairies are by no means managed with that systematic regularity of purchasing green food, or storing grains in pits, as is done by cow-keepers in the neighbourhood of London. The Reverend Mr. Whitelaw considers the cows kept within the city as a great nuisance.‡

FERMANAGH.—This county may be included in the number of those in which dairies are kept.

GALWAY.—Butter is produced here but in small quantity.

KERRY.—The people who inhabit the mountains of this county, pay their rents chiefly by butter.

KILDARE.—Mr. Rawson speaks of a dairy kept in this county for the purpose of fattening veal, a circumstance which I notice merely on account of a subsequent remark, that since the Union the demand for veal has been so much lessened, that a calf which formerly sold for six guineas will not at present bring four.§ As I write for no party, I state facts merely as I find them; but if the reader will turn to my table of prices, it will be perceived that veal has risen in price with other sorts of meat. It is a pity that Mr. Rawson did not state what the market-price was according to weight before the Union.

KILKENNY.—In this county there are a great many dairies, and as I have found Mr. Tighe's remarks on this subject to be very accurate, I shall give an extract of what he has said.|| As the same system is pursued throughout the county of Waterford, and extends to Carlow, his account is of the more importance.

“The most considerable dairies are in the district called the Welch Mountains, in Irish *Sliegh-Brenoch*, and which are supposed to take their name from the family of Welch or Walshe, by whom a large tract of country was formerly possessed.”

“The district of the Welch Mountains belongs to various proprietors, and consists in general of dry land fit for tillage, and inclined by nature to grass, but per-

* I have only Mr. Archer's authority for this diminution and the cause of it.

† Archer's Survey of the County of Dublin, p. 59.

‡ Whitelaw's Essay on the Population of Dublin, p. 59.

§ Rawson's Survey of Kildare, p. 13.

|| Tighe's Survey of Kilkenny, p. 383, et seq.

fectly unimproved, and almost uninclosed; the soil has a loose substratum, well calculated for plantations, and the face of the country is varied by hills, and intersected by small streams adapted to any manufacturing purpose. The chief part is occupied by dairy-farms, and some of the principal of these belong to a family of the name of Ellward; this family consists at present of five branches, who hold among them above 2000 acres, including Knockmeilan, Ballybrishian, and other large town-lands; their houses are small and near each other, and till lately were little better than those of the poorest farmers; but they have now slated them to guard against malicious burning or robbers. The women of the family constantly marry in it, and for this purpose are obliged to buy dispensations at a high price, and if a widow marries a stranger, she loses all except what she brought with her. For one farm of 900 acres, they paid a few years ago a heavy fine, amounting to more than 2500 guineas for a new lease of three lives, or thirty-one years, and £600. a year rent; and this is the mode in which the profits of such farms are applied, instead of being laid out in the improvement of the land, which would procure a constant and increasing return. Each family employs two servant boys at £8. a year, and two servant girls at 15s. a quarter; they scarcely ever want any additional labourers, but when they do, for a particular occasion, they give per day, from 8d. to 10d. or 12d. and food; these are the only hands required in this tract of ground, in which formerly stood one or two villages. They breed neither cattle nor pigs, but purchase at the fairs of Kells, Castlemorres, and other places, and are good judges by the eye of those pigs that will fatten to a great weight. Their attention to pigs is the most remarkable part of their rural economy. They often fatten these animals to 4 cwt. and upwards; they sell every year about 100 pigs of from 3 to 5 cwt. and the largest which they lately had weighed 5¼ cwt. A few years ago they sold in one season eighty pigs at Waterford, that weighed one with another 5 cwt. The pigs are bought in when *slips*, and graze in the fields all the summer, or till they have done growing, when they are put up to fatten in a small house or shed, where they get sour milk and potatoes boiled. Every third day they get a deep clean bed of dry fern, or of straw when it is to be had; the farmers have not themselves a better bed, certainly not so fresh a one. They slaughter their pigs generally at home, and eat the offal, which is the only animal food they commonly make use of. Their incomes are probably not less than £600. or £700. a year. Their stock consisted of 270 cattle, 120 of which were milch cows, and thirteen horses; each family had five acres of tillage; they plough with two horses; their cattle are neither housed nor fed in winter, but turned into waste grass; the cows only that are calving get a little hay; the horses are kept at grass all the year, and get a very little oats and a few potatoes.* Each family puts out about forty or fifty barrels of lime every

* A Danish professor of rural economy who has written a Treatise on the State of Agriculture in Zeland, and Moen, says, "that he never gives to his work-horses any oats in the winter season, but merely hay and potatoes,

year, purchased near Knocktopher. They tried a little marl raised on the farm but did not find it good; in breaking up ground they generally burn it, their course is, 1st oats, 2d potatoes, with dung or manure of some kind, 3d oats, 4th potatoes, with lime or compost, and 5th, sometimes barley; their crops appeared good. They reckon 1 cwt. of butter per cow, a tolerable return, and expect four pottles, one milking with another; they churn every second day, or else three meals together, churning the cream only: the barrel churn is universally used in this district, and will churn 1 cwt. of butter in an hour if it comes well. The milk is kept in flat wooden coolers, called *keelers*, which are preferred for coolness; the cooler is well washed with spring water immediately before the milk is put in; they stand on the ground, the dairies have the natural earth for their floor, no ceiling, no window, no table or shelf, but are tolerably clean; hempen strainers are used, and occasionally tin ones. The widow Walsh has a large farm in this district, holding near 2000 acres, some of it in perpetuity, and has lately built a slated house. The proportion of tillage was twelve acres; the farm on which she resides, called Earlsrath, has 258 acres; stock, 57 cows, 9 pigs, 4 horses; tillage 9 acres, servants 12, children 6: fattens pigs sometimes with oatmeal, generally with milk and potatoes, horses at grass generally, and get a little hay in winter. Two servants, who are paid by two acres for potatoes each, do most of the work on the farm. Smaller farms are conducted pretty much in the same manner; each family has about three or four acres of oats, and two or three of potatoes."

"Small farmers churn once a week, keeping cream in two vessels, and gradually filling the keg which holds 1½ cwt. of butter. They put two stone of salt at 1d. a stone to a keg; four good cows may give half a cwt. of butter in a week. In winter the cream is set near the fire before churning.†

"In the barony of Idagh are several dairies of about forty cows, mixed with tillage farms, and the different pursuits united. In some 1½ cwt. of butter is reckoned a good produce. There are a few dairies near Inistioige, and others dispersed in different parts of the country."

The following is the state of one of the best dairy farms near Rosbercon; it consists of forty-eight acres, twenty of which are meadow and twenty-eight pastures; sixty cows are kept, and the butter of two meals is churned together every day. The milk is poured from the pail into the keeler through a hempen strainer set on a clay floor; the dairy has a window, which in winter is stopped; the keelers are washed in summer with cold water, in winter with warm, and the milk kept covered. A

potatoes, with a little chopped rye-straw. As soon as these animals have eat the potatoes, of which they seem to be exceedingly fond, a handful of chopped rye-straw is given to them for the purpose of clearing their teeth from the pulp of the potatoes which adheres to them. He fed his cows, sheep, and other animals in the same manner." *Almindelig udiigt over Agerdyrkingens Tilstand i Siølland og Møen, of G. Begtrup, Professor i Landøkonomien. Kiøbenhavn, p. 192.*

† Page 339.

barrel-churn, if the butter comes well, makes three-fourths cwt. in an hour; it is afterwards washed with warm water and set in the air to dry; three pigs are kept, and whatever quantity of butter-milk remains after feeding them is carried to Ross in the churn and sold. As soon as the milk is skimmed it is strained, and the curds are given to the pigs, the sour milk is sent to market. The butter as soon as it is made and the whey squeezed out, is salted, and seldom kept many days before it is carried in a cask to Waterford, where the price is higher than at Ross. There is no cow-house on the dairy; the cows get hay in winter in a field. The pigs are fattened with boiled potatoes, and weigh from two to three hundred weight; if in good order at eighteen months, when they stop growing, will fatten if put up for six weeks.

The following are the proportions of a farm near Kilmacow:—There are a hundred acres of land on which thirty cows are kept, and twenty barrels of corn, chiefly wheat, are annually sold. The dairy consists of from twenty to fifty cows.

In Iverk there are some dairies, the average profits of which are about six guineas a cow; these profits are produced by butter sold in casks, by fattening hogs, and rearing calves. A barrel-churn made here but half an cwt. of butter in two hours with hard labour. The hogs are sold at Waterford, where a great part is made into bacon for the Bristol and London markets; the same trade is carried on at Ross. The practice of letting cows to dairy-men, which is common in Munster, is little known in Kilkenny, except at a few farms in Inverk, or in the southern part of the county. In the district of Callan there are a few dairies, and some grass farms in Tullaroan, and parts of Cranagh; the best dairies average $1\frac{1}{2}$ cwt. of butter per cow. Calves here suck the dam for eight or ten days, and are afterwards fed with new milk for a week, and then with skimmed milk heated, until they are weaned.

“The greater part of Fassadenan is occupied by dairies and grazing farms; they vary from twenty to fifty cows; some consist of three hundred acres, and their rents in the poorer part, from twelve shillings to sixteen shillings an acre. The butter is sold in Carlow. The farmers cultivate a little oats for their own use; have bad houses, scarcely any fences, and rushy pastures. Some use the hand-churn, some the barrel; in one dairy the churn is moved round by a horse, which does the work very ill, giving a motion too strong and too uneven.”

One of the principal dairy-farms in the parish of Macullee, consists of two hundred and fifty acres: the stock is forty-five milch cows, ten yearlings, five one-year-old, fifteen calves, often but six or ten; three horses and four pigs. The land in culture is ten acres, between three and four of which are employed to rear potatoes: the rest is let at from seven to nine pounds an acre to poor persons. It is manured by baiting; but no corn is sown. The cattle are housed at night in winter; and the meadows are dunged. Eight beer-quarts a meal is the average of a cow's milking. The farmer sends out for sale to Kilkenny, eighteen dozen quarts of butter-milk four times in the week, three pints to the quart; and two days in the week sends

twice that quantity; three pints are sold for a penny or three half-pence; not quite 1½ cwt. of butter is made per cow. The rent is £1. 14s. 1½d. per acre: The cows in calf are kept all winter upon hay; the *stripers* are either sold off or sent to a separate farm. The cows get the bull at three years old, and are milked to seven, eight, or nine. The price has been nearly doubled since 1790. Milch cows cost twelve guineas. In the best ground of this district one acre and a half of grass is allowed for a cow, and half an acre for hay, but in other parts scarcely three acres will keep a heifer. The system of the dairies in this district differs essentially from that in the southern parts. They find it more advantageous here to sell milk than to keep pigs; seldom have more than a sow and her litter, and the slips are sold off at from six to eighteen months old; as there is no convenient market for pork, cattle are reared by the farmers on account perhaps of their being less conveniently situated for buying and selling at fairs. They cultivate meadows because they are obliged to keep in their cattle, on account of their more exposed high situation and more clayey soil. Their dairies are somewhat dirtier than those in the Welch mountains; the room, which has occasionally a loft, is six or seven feet high: the back of the chimney is often built against the end of the dairy, the floor is of clay, uneven and damp, which they wish it to be. The keelers are piled over each other on the ground, often three or four tier; their strainers are woollen; they are scarcely ever cleaned, and are often covered with hair and other dirt. A sufficient number of vessels is seldom kept. The dairy above-mentioned has thirty keelers. Hay-water is used for rearing calves; sweet milk is given to them for a fortnight, then sour milk; four quarts at a meal, mixed with boiled cabbage. Dairy-keepers sometimes use alum to make the milk coagulate, and to increase the quantity of cream, which renders the sour milk disagreeable, and communicates to it perhaps a pernicious quality. Dairies have no windows, except a hole opened in summer, and stuffed up in winter. The dust and cobwebs are never cleaned from the walls and roof; the floor never washed; the butter is often made up in a dirty manner, and the salt is sometimes of a bad quality. It is from these circumstances that Irish butter, which, when fresh, is preferable to any in Europe, bears in the London market a lower price than any other. Irish butter is in the lowest estimation at London,* as it is almost always heavily salted, and very frequently tastes smoky, fishy, and tallowy, so that very often no more than one tub perhaps in fifty will be found to be good. It is said to be consumed only in work-houses, or by the lowest order of tradesmen. If the Irish farmers wish to recover the character of their butter, and consequently raise its value and increase the demand, they must attend to the first requisite in dairies, which is *cleanliness*. Six pounds per cwt. was a common price for butter in 1800, it fell lately to four pounds, and during the war has varied between that price and seven pounds. Fresh

* See Middlesex Report, p. 339.

butter in 1800 was from thirteen-pence to eighteen-pence a pound. At Kilkenny, in January 1812, it was from one shilling and ten-pence to two shillings.*

KING'S COUNTY.—In this county there are no dairies of such extent as to deserve particular notice.

LEITRIM.—Butter is produced in various parts throughout this mountainous county, and sent to Sligo. Considerable quantities of it are sold by the petty landholders, who do not use it themselves. The county, indeed, is occupied chiefly by persons of this description, and as I crossed it twice, I passed few houses around which I did not observe cows. The owners of them told me that they sent their butter to Sligo; but being distributed in small quantities, the aggregate appears inconceivable, though I apprehend that the case is quite otherwise.

LIMERICK.—The butter of this county is so remarkably bad, that it is scarcely fit to be eaten; but dairies are found here only in some parts.

Nov. 29th, 1808. **BRUFF.**—A great deal of land near this place is occupied by dairies. One acre and a half of grass-land is allowed to a cow, winter and summer; one cwt. of butter, at three guineas per "horn," each cow, is a common price. The dairy-men often wean their calves and rear them on cabbage-water, hay-water, skimmed milk, and mutton broth, which is the most nourishing of all. They are sold to the graziers in the county of Galway, and they are afterwards bought by those of Limerick, who fatten them.

LONDONDERRY.—Some butter is made in the mountainous parts of this county; but the Rev. Mr. Sampson says, that dairies here present very little worthy of notice. He remarks, that in the district next to Derry, "a good deal of butter is made, which, with churn-fulls of butter-milk is brought down from the steep hills on sliding cars, for the supply of Derry."†

LOUTH.—There are no dairies in this county.

MAYO.—The case is the same with Mayo.

MEATH.—This county, though abounding in rich pastures, contains few dairies of considerable extent, and the butter made here is held in very little estimation. Most of the farmers who occupy from eighty to a hundred acres for a livelihood, keep a few milch cows, the produce of which, after supplying the family, is sold; yet, from the want of nourishing green food in winter and spring, they cannot supply the market with milk and butter when it bears the highest price.‡ Those who keep cows in Navan and other places, where wash can be procured, have a constant supply of milk, but of a bad quality, as it contracts a disagreeable taste from this kind of food. On many dairy-farms in the baronies of Dunboyne and Ratoath, the landlord supplies a succession of cows in milk, horses, and land, and the tenant furnishes labour and utensils, besides paying for making the hay used by the cows, for which he gives

* Tighe's *Kilkenny*, p. 393. † Sampson's *Survey of Londonderry*, p. 211. ‡ *Survey of Meath*, p. 229-231.

from £6. to £7. 10s. per annum. Cream only is churned; skimmed milk is mixed with the butter-milk, and sold in Dublin to the hucksters, who retail it to the poor. In other parts dairy-farms are let for about ten shillings per month for each cow. The same system as above being adopted, the butter-milk is retailed to the poor at two-pence per gallon. Few calves are reared on these farms; those they bring up are fed upon new milk the first fortnight or three weeks; they are then gradually brought to hay-water, thick milk, and other substitutes. Very few try flax-seed jelly, which is much used in England. The dairy-cows are housed during night, from December till May, and fed with hay, straw, or a mixture of both. Mr. Thompson remarks, that "prejudice makes many graziers believe that beasts thrive better when they remain unmolested and eat their hay abroad."* Their "prejudice," in my opinion, is founded in truth.

MONAGHAN.—The butter of this county, like that in Cavan, Armagh, and Down, is made by small farmers, each of whom keeps one cow only, consequently they do not fall under any particular system of dairy-management.

QUEEN'S COUNTY.—There are here no dairies.

ROSCOMMON.—The same observation is applicable to this county.

SLIGO.—The dairies here are managed nearly in the same manner as those in Leitrim. Dr. M'Parlan, speaking of their produce, says,† "There are several dairies about Sligo, and the export of butter from that town is very considerable; last year it amounted to upwards of £20,000. This vast increase in the quantity and export of butter, is chiefly owing to an improvement in the manner of making it up; formerly it used to be packed in crocks, lately the country people have been compelled to make it up in well-coopered casks, and this method has improved the quality of the butter."

TIPPERARY.—In this large county there must be dairies, were it only for the supply of the towns; and from the diversity of the soil, I am of opinion that the chief part of the butter is produced in the mountainous districts; but I never saw any of these dairies in the parts through which I travelled.

TYRONE.—There are here no dairy-farms.

WATERFORD.—Mr. Tighe's account of the dairies in the Welch mountains of Kilkenny, will apply to the greater part of the pasture lands in this county, which are appropriated entirely to milch cows.

DEC. 9th, 1808. CURRAGHMORE.—Lord Waterford is of opinion that the farmers here are hoarding money. He has sold seven bullocks for three hundred guineas. The rents of Waterford are paid by dairies and pigs. There are some large dairy-farmers, who pay as much as £1000. per annum; the number of this kind, however, is few. Green land lets at from forty shillings to two guineas. No

* Survey of Meath, p. 231.

† Survey of Sligo, p. 31

wheat is raised in this county. Dairy-cows are let at from seven to eight guineas each, and yield $1\frac{1}{4}$ cwt. of butter. Two acres are allowed to a cow, whether the grass be green or dry. Skimmed milk is sold for two-pence per quart. A year-old calf brings from four to six guineas.

WESTMEATH.—There are dairies in this county, but they are not numerous.

WEXFORD.—In this county there are many dairies. Mr. Frazer, speaking of them, says: "This year a farmer informed me that he made £120. of a dairy of twenty-one cows; but the usual price at which dairy-cows are let, is from five pounds to five guineas each. Dairies are numerous in several parts of the county, and we are informed, that about 9000 tubs of butter are exported annually from Wexford. These dairies, in general, are managed in a very slovenly, dirty manner, and the owners take very little pains to select the breed of their dairy stock."*

WICKLOW.—This county has no dairies.

For the quantity of butter exported from Ireland I must refer the reader to the tables of export, in the chapter upon commerce.

As butter is the second article of exportation, in regard to amount, I have thought it necessary to point out those parts of Ireland in which it is made. From the prevalent custom of dividing land, and every cotter keeping a cow, which enables him to sell some butter, it may be said to increase with the increase of cabins, but not with the increase of population, which is a material difference. It is rather remarkable, that the worst butter is produced from the rich soil of Limerick and Meath.

CATTLE.

The native Irish stock were, in my opinion, all black, for though at present there are very few of that colour, they are universally called "black cattle." I have seen some which were pointed out to me as the remains of the ancient breed; they were narrow in the loins and thin in the quarters; they had short legs, large bellies, and white faces; their horns, which turned backwards, were remarkably wide set, and they had large dewlaps; but this breed is now almost extinct. About fifty years ago, but I am not able to state the exact period, the then Earls of Farnham and Altamont, imported some excellent long-horned stock from Staffordshire, being of the same breed which the celebrated Bakewell afterwards took so much pains to bring to perfection in England. Mr. Waller, of Allantown in the county of Meath, introduced cattle of the same kind nearly about the same period,† and the shape and qualities of this long-horned species are now so completely transfused into the native Irish cattle, as to render their appearance almost the same as that of the pure blood. Of late years, great importations of this original stock have been made by many noblemen and gentlemen; and I entertain no doubt, though individually

* Survey of Wexford, p. 128.

† See Thompson's Survey of Meath, p. 297.

they may have been losers in consequence of the high prices which they paid in England, and the very heavy expence of bringing them over, that their exertions have proved of essential benefit to the public.

The Kerry stock are a distinct breed, but they are not to be procured of the true blood, because the long-horned are now so much dispersed throughout the country, that the breeds have become intermixed. The duke of Bedford desired me to purchase some of this kind for him, but though I rode many miles, and made every possible inquiry, I was not able to find any which I thought free from admixture.

In the south I met with some persons who had imported Devonshire cattle; Lords Bantry, Shannon, and Doneraile, Mr. Hyde, and others, possess considerable numbers of them. Lord Farnham in Cavan, has a herd of them, and from what I have seen of this stock in the north of Devonshire, where they are natives of Exmore, I am inclined to think that they are the best mountain cattle known, and had I any thing to do with mountain estates in the south of Ireland, I should strongly recommend them for general use. At present the quantity of them in that country is so small, that the want of numbers to select from must prevent any great improvement being made in this breed of Ireland. As I have never seen them to the northward, I should be afraid of making an attempt to introduce them into that part of the kingdom, and hence I am induced to conclude that Lord Farnham's herd will answer little other purpose than to form an interesting ornament to his park; an object of some importance to noblemen and gentlemen of fortune, but of very little moment in comparison with the grand object of improving the stock which is destined to supply food to a populous country.

The highland Scotch bullocks, so much praised in England, are the animals which in my opinion are the best adapted to the north of Ireland, and they certainly ought to have a fair trial in that part of the country. Lord Gosford in Armagh has a few Suffolk cows; the late Mr. Reynell of Westmeath imported some of the Hereford breed, and there are gentlemen who have introduced the Tweed side, or Holderness stock of cattle; but all these importations I consider as arising rather from the whim of the moment, or a desire to possess something different from other people, than from a systematic plan formed to ameliorate the breed, or to produce a general and lasting benefit to the public. Were there a sufficient number of any of these celebrated breeds, a fair trial might be made between them and the long-horned; but in the latter, which are already so fully established, the greatest improvement can be made only by importing a good bull; whereas to propagate the former, an enormous individual expence must be incurred in bringing over the cows as well as the bull, and even when this is done the number will be so limited as to prevent their ever being on so ex-

tensive a footing; I conclude, therefore, that the long-horned are the best stock for Ireland.

All good lands are capable of supporting heavy bullocks; but I do not consider these animals as adapted by their size to mountainous countries, for which, in my opinion, a determinate species are necessary. Milk, also, being an object of great importance, must by no means be overlooked in considerations of this kind. The Holderness breed yields, without doubt, the largest quantity of milk, if quantity be the object. This has long been ascertained by the London cow-keepers, and therefore they have no other stock. The demand for these animals, merely to supply milk to large cities, cannot be very great; in Ireland the production of butter is the principal object, and on that account I have reason to think that the Suffolk cow, perhaps, would be superior to all others; but this animal, as is well known, furnishes such bad beef as far to outweigh every advantage that arises from its milk. The Devonshire cows give milk of an excellent quality, but not in great abundance. In their native country they are used in all the dairies; but when I was there I found in each an Alderney, the milk of which was mixed with the entire produce of the dairy; and this, in the opinion of the dairy-men, rendered the whole more productive than if each had been separately preserved. What truth there may be in this remark I will not pretend to say; the force of prejudice is well known, and perhaps this is merely a popular tale, unsupported by facts, and credited without examination.

In Ireland maiden heifers are great favourites with the graziers for fattening, and the quantity of them slaughtered must tend greatly to retard any improvement in the breed, as it is by them that the best stock can be obtained, and generally extended throughout the country.

ANTRIM and ARMAGH.—The cattle here consist chiefly of milch cows belonging to small occupiers who cannot afford to give the usual price for a prime heifer. The stock, therefore, in these counties, is confined to the small stunted breed which at present pervades Ireland.

CARLOW.—As much pains is taken in this county as in any part of Ireland to introduce the best heifers for the use of the large dairies.

CAVAN.—In regard to cattle is similar to Antrim and Armagh.

CLARE.—This county produces some of the best individuals of the long-horned breed to be found in the country.

CORK.—In the mountains towards the south-west part of this county, the Kerry breed of cattle is found; but by frequent crossing with the long-horned, they have produced a small breed, which has nearly the same character. Great part of Cork, like the northern counties, is divided into numerous small tenures, occupied by poor farmers, who buy in stock at a low price, and of course obtain only small heifers which are generally of lighter colours than those found in Ulster.

DOWN.—According to Mr. Dubourdiou's account of the cattle in this county, they consist of the bad sort of the long-horned species, which are to be seen throughout this part of Ireland. "In a country where cattle are kept merely as subservient to the purposes of the dairy, it cannot be expected that any general attention should be paid to the breed; and accordingly 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 ninety-nine cases 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 the cheapest to the best shaped. Notwithstanding this indifference to breed, the long-horned are the most frequent. They are, however, a very distinct variety from the English breed of that denomination, the horns of which grow downwards and thin, whereas those of our breed grow upwards and 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 most 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 to 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."

"In the county of Down the object of keeping cattle, as already mentioned, is milk: in this the farmers are generally successful; the usual quantity of milk for two months after calving being from twelve to twenty quarts per day. The latter quantity is to be obtained only 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 great stock of the country. In the hands of gentlemen some cattle are to be met with of a superior kind."*

DUBLIN.—In this county every breed, I believe, in the island, is collected, besides many from England. As gentlemen who reside in the capital have different kinds of English stock at their villas, I shall not attempt a description of these various breeds, nor offer any observations on the means of improving them. An individual possessing good land, a sound judgment, and large capital, would do more in five years to effect this desirable object than all the writings that could be published in a century.

FERMANAGH.—The small breed of cows, like those in Down, are found in this county.

* Dubourdiou's Survey of Down, p. 194.

GALWAY.—There are excellent long-horned cattle, not only in this county, but throughout some of the neighbouring ones. I think them fully equal to any in England; and, as they form the general stock of the country, a wide field is open for selection, so that there can be no other motive for the importation of cattle from Leicestershire than a desire to follow the fashion of the moment, which causes men sometimes to prefer foreign articles, inferior, or at any rate not superior, to others of the same kind which are to be found at home.

KERRY.—The people who inhabit the mountains of this county, rear the small native breed, which, as already mentioned, are difficult to be obtained pure.

KILDARE has no determinate breed, and the whole county is so much occupied by tillage or bogs, and the divisions of land are so minute, that cattle are an object of very little importance.

KILKENNY.—"The common cattle of this district," says Mr. Tighe, "are a mixture of the Irish breed with some of the long-horned English. A few may be seen of the ancient native stock, or what may be supposed so, whose characteristics appear to be upright horns, distant, dry, bent somewhat backwards, and tipped with black; ears rather large; body black, and face white."*

KING'S COUNTY.—The breed here is nearly similar to that of Kilkenny.

LEITRIM.—The cattle of this county are small, in consequence of their continual exposure to the open air on the mountains.

LIMERICK.—This county produces and fattens a great many of the best long-horned cattle in the united empire.

LONGFORD.—The tenures here being small, and the soil poor and unimproved, the lowest priced cows in general are purchased.

LONDONDERRY.—The breed of this northern county is poor, and in very little estimation. The Reverend Mr. Sampson remarks, that "there are here two varieties of native cows, the one is light in the bone, small in size, extremely active, crooked in the ham, with a good eye and sharp nose, and nice thin neck, frequently turned upwards. This strain is generally black, reddish, or brindled, with some white."†

"Among the cattle not yet long enough introduced to be accounted ours, we have some fine large well-shaped cows, chiefly from Fermanagh and Roscommon. Many of our stock-farmers frequent these fairs, or others resorted to by the owners of these cows and bullocks, which they bring down for their fattening parks. The intermediate markets are chiefly Raphoe, Killigordon, Strabane, or Derry. It sometimes happens that a cow which springs two early is turned to milk, and her calf reared; and it is mostly from such incidents that an improved set of cows are to be found with some gentlemen; however, these degenerate for want of good bulls. In Magilligan, and many other places where the fences are bad, the cattle are housed every night; early in the morning they are turned out, and herded with the sheep."

* Survey of Kilkenny, p. 800.

† Sampson's Survey of Londonderry, p. 205.

LOUTH.—This county is so much occupied with tillage, that it is not necessary to say any thing further respecting the breed of its cattle, than that it is similar to those in the adjoining county of Armagh.

MAYO.—Mr. Lindsey of Tarin, and the Earl of Altamont, father of the late Marquis of Sligo, imported into this county the long-horned English breed. The late Marquis of Sligo adopted the same plan. The consequence has been, that all the cattle here participate more or less in this blood; and as a great deal of the county is grazed by the best calves of the same breed, purchased from Limerick and Clare, a great many fine beasts are to be found in Mayo.

MEATH.—This county, like Mayo, has been so fortunate as to be the residence of noblemen and gentlemen actuated by a laudable desire of improvement. Cattle of the English long-horned breed were imported into it many years ago by Mr. Waller, and afterwards by the Earl of Bective and others, so that some of the best specimens of the breed are to be found in this district, and many beasts purchased at Ballinasloe are here grazed.

MONAGHAN.—Like Cavan, Armagh, and Down, it has only the small dairy cow.

QUEEN'S COUNTY.—The contiguity of this county to Tipperary, is in itself sufficient to account for its possessing some of the long-horned cattle; but there are a few enterprising farmers, who have made very successful exertions to improve the breed.

ROSCOMMON.—In this county there are a great number of very fine long-horned cattle. Mr. French of French-Park has an excellent breed of this race; but they are by no means confined to any individual, for they pervade the whole county; and the remark made in regard to Galway, that the importation of cattle from England can arise only from a desire of copying the fashion of the times, may, with equal propriety, be applied to Roscommon.

SLIGO.—The cattle of this county are nearly the same as those of Leitrim, if I except the long-horned sort belonging to Mr. Wynne, and some bullocks of the same kind which are fattened by Mr. Cooper and other gentlemen.

TIPPERARY.—The cattle of this county are long-horned, and may be ranked with the best in Ireland.

TYRONE.—The cows here belonging to the small tenantry, are similar almost in every respect to those described by Mr. Sampson in the adjoining county of Derry. The account given of them by Mr. McEvoy exhibits a most miserable picture, as may be seen from the following extract: "There is here little variation in the breed of black cattle, and especially among the mountainous parts of the county. They are of various colours and shapes, but generally small, as heavy cattle could not subsist upon the scanty fare of our mountains, being principally young heath or *heder*, a common name for heath with the natives, and a coarse kind of carex grass, which

springs up immediately after burning the heath in spring, which, in many parts of the county, is a common practice, to the great destruction of game, but more particularly grouse."

"The common custom is, with the occupiers of mountainy tracts, to let the grass for the summer season for so much a beast, or by the *sum*, according to the country phrase, to the inhabitants of the low lands: horses from ten to fifteen shillings; cows from five to ten shillings; sheep from one to two shillings. In Glenchordial, between Omagh and Gortin, one of the appendages of the Mountalony Mountains, grazing lets somewhat higher, it being allowed to be the best feeding mountain in the county. At the fall of the season, generally in October, great numbers of the horned cattle are killed and sold in all the county fairs and markets, not by weight, but most commonly by hand or view, at from thirty shillings to three pounds a carcass. By the country people it is called horse beef, because it is carried to market on horse-back. The poorer class are the general purchasers, and three or four of them frequently join in a carcass. Some are brought home and fed upon straw during the severity of the winter. From this treatment we cannot expect any improvement in the breed of cattle, so far as relates to the mountainous land, which composes a great part of the pasture of the country, particularly in the baronies of Strabane and Omagh. Many perish even in the summer months through extreme poverty, and not a few die of disorders, which no doubt proceed from the same cause. No pains are taken to improve the breed of cattle, nor would it answer any good purpose to do so, till a reformation be first made in the mode of pasture, and more bogs be reclaimed, because, in the present state of things, the native cattle are found more certain than stock bought from the southern or western counties."

"Though our milch cows are far from being well shaped, they are in general good milkers, to secure which the people take infinite pains. If a person happens on a bad milker, he sells her again as soon as possible, so continues buying and selling till he finds one to answer. This is not attended with much expence or loss of time, as the fairs are so numerous and convenient throughout the country."*

WATERFORD.—Notwithstanding the great number of cows in the dairies of this county, the breed is as bad as any in the island, which may be ascribed chiefly to two causes. The first is, that the old native breed produce the greatest quantity of milk; and the second, that the breeding counties in the west of Ireland, where the best stock is established, are at a considerable distance.

DEC. 13th, 1808. FAITHLEG.—In the neighbourhood of Waterford, cows let for £16. £18. and even £20. for the season. New milk in winter is four-pence a quart, in summer two-pence. Skimmed milk and butter-milk are half price.

Agreements for dairies are generally made at Christmas, and the farmer en-

* M'Evoy's Survey of Tyrone, p. 58.

gages that the cows shall give three pottles, or six quarts of milk per day; if they do not, he must supply more cows to make up the quantity deficient. The rent is paid between Christmas and Lady Day. A good milch cow is worth twelve guineas. There are persons who possess a hundred cows; and before the catholics were allowed to purchase land, some of them were owners of a thousand. A cow if dry and fat will weigh $4\frac{1}{2}$ cwt. Fresh butter sells in Waterford for two shillings per pound of eighteen ounces. Heath makes better tea than hay for the nourishment of calves. No bull, but heifer calves are reared. The former are killed for veal when four or five days old, and are worth from nine to ten shillings.

WESTMEATH.—Some of the best long-horned cattle are grazed in this county, and all the stock participate in the blood.

WEXFORD and WICKLOW.—In these counties there is no distinct breed of cattle, and the few cows kept are of a very bad kind.

SHEEP-GRAZING.

I do not believe, unless it be in some gentleman's domain, that there is a single breeding flock of sheep in the province of Ulster. Whatever sheep are kept, are tethered together in couples; and so little mutton is used by the people as food, that there is no demand for it except at Belfast, Londonderry, and Newry, the whole population of which, deducting the lower orders and young children, cannot exceed 50,000 persons. Of these, not above one-twentieth part can be consumers of mutton, and, therefore, as the supply necessary for 2500 people, most of whom have sheep of their own, must be very small, we may easily account for the want of flocks in the North.

In regard to sheep bred for fattening, Galway and Clare, in my opinion, rear a far greater number than any other parts of Ireland. There are some large flocks in Roscommon, Tipperary, and Meath,* and a great deal of mutton is fattened in the two latter. The sheep are purchased by the graziers in the same manner as bullocks at Ballinasloe fair. England gets fat sheep from Ireland, and some are sent to Liverpool and Bristol from Waterford, Wexford, Dublin, and Drogheda. But in a country where turnips are scarce, there can be but little winter-fed mutton. Hay and fog-grass are the only food for sheep fattened in that season, and these, if given to sheep purchased in October, and already in a forward state, may indeed do a great deal. To place a sheep cock of hay in the middle of a pasture, is an excellent method, as it supplies both food and shelter.

A greater extent of country is employed in Ireland for the grazing of sheep than

* Oct. 5th. ATHLONE.—I met Mr. Barnes, of Cruetstown, county of Meath, who had been buying two-year-old wethers at Ballinasloe, at 31s. 6d. Places four on an acre, and expects to sell them out next May, at 50 shillings each, besides the fleeces.

for the grazing of bullocks, because the former may be fattened on land which is incapable of maintaining the latter. Roscommon, Galway, Clare, Limerick, and Tipperary, are the great breeding counties; but as the farmers there fatten some sheep, and at any rate sell their stock at a favourable age, and in a forward state of flesh, a good deal of their land is occupied in grazing.

Mr. Thompson, in his Survey of Meath,* has given a very good account of sheep-grazing in that county, and his observations are applicable to the whole of Leinster. "Few of the sheep, in proportion to the number fattened in this county, are natives of it, but may be considered merely as sojourners for a time, as they are seldom kept longer than one year, and not always so long. In the month of October every grazier of any consideration goes to the fair of Ballinasloe, and there buys the stock of sheep he may want for the succeeding year's feeding. At a fair where such a variety is to be had, it may be supposed that each grazier buys what best suits his means of feeding. Such as have rape, turnips, &c. purchase those that approach nearest to fat. On these they are kept as well as possible until spring, at which time they are sold in Dublin at a considerable profit. Graziers who have not any forced food, and who merely feed their winter stock of sheep where their summer stock of black cattle were fed before, bring these more into store order; these they let run on their grounds until they are fat, giving them hay during winter, either at a cock made in the field, or in sheep racks; perhaps in May or June, after shearing, and then sell them in Dublin. Some of them do not fatten until July or August. All, however, if possible, are got off before the succeeding fair of Ballinasloe."

In the whole course of my tour I never met with a sheep-fold; and I saw, only once, within the walls of a gentleman's domain, at Castle Hyde in the county of Cork, sheep feeding on turnips, which were hurdled off.

In the sheep districts of Ireland I thought the shearing and general attention paid to these animals, commonly called "shepherding," were performed as well there as in England. But it is to be observed, that I speak only of the grass counties, where they are superintended by the herds who look after the cattle. In regard to shepherds, such as those who have the care of flocks on the Sussex Downs, and in many other parts of England, none of the kind are ever seen.

Mr. Young, in his Remarks on Sheep-grazing in France,† seems to draw a conclusion that salt given to sheep along with their food is of great benefit to them, and the fact which he quotes from Mr. Collinson, that, when feeding on a limestone substratum, they never eat it, is curious; but in Ireland or England, the vicinity of so large a body of salt-water, as the ocean by which these countries are surrounded may materially alter the case, and render this practice there unnecessary. That animals may require salt on continents, I believe is an undoubted fact, and I remember that an

* P. 225.

† Tour in France, vol. i. p. 432.

observation of this kind was made to me by Mr. Gore, who, a few years ago, was minister plenipotentiary from the United States of America to Great Britain.*

S H E E P.

The native Irish sheep are of a small size, and have a great resemblance to the mountain sheep in South Wales, being covered with nearly as much hair as wool.

* It appears that this application of salt was well known to the ancients. Aristotle says, that salt given to sheep contributes to fatten them, and causes them to yield more milk. Πιάνει δε μάλινα τὸ προβάτον τὸ ποτὸν διὰ καὶ τὴ θερμὴν ἀδιάσει ἄλας διαπινετὴ ἡμερῶν μείδιμον τοῖς ἱκατον γίνεται γὰρ ὑγιεινότερον ἔτω καὶ πισιτέρον τὸ ποίμνιον καὶ ταπολλὰ δὲ ἀλιζόντες δια ταυτο προσφέρουσι, ὅιον ἐν τῆ ἀχρῆσι ἄλας πολλὰς (διψῶντα γὰρ πιει μάλλον) καὶ τὴ μετοπάρη τῆν κολοκύνθη, ἄλας παττοντις τῆτο γὰρ καὶ γάλα ποίη πλιον καὶ κινεμναι δὲ μισθμβρίας πιουσι μάλλον πρὸς τῆ δαλη πρὸς δὲ τῆς τοκεῖς ἀλιζομεται μίξω τα ἔθωτα καθιασι. *Aristot. Opera Erasmi*, Basilix, 1550, fol. p. 506.

It is mentioned also by Virgil:

At cui lactis amor, cytisum, lotosque frequentes
Ipse manu, salsasque ferat præsepibus herbas.
Hinc et amant fluvios magis, et magis ubera tendunt,
Et salis occultum referunt in lacte saporem.

Georg. lib. iii. v. 394.

Pliny says, that if salt be given to cattle and sheep, they yield much more milk, and that the cheese produced from it is better: Quin et pecudes armentaque et jumenta sale maxime sollicitantur ad pastum, multo largiore lacte, multoque gratiore etiam in caseo dote. *Hist. Nat.* lib. xxxi. cap. 7; *Ludg. Bat.* 1669, vol. iii. p. 683.

A Danish writer says that "Salt is an excellent thing, and indispensably necessary for sheep, as it not only prevents diseases, but contributes to strengthen them, and to promote their fattening. He recommends half a firkin to be strewed once a week over the food allotted to every score of these animals, but the day salt is given them they must be prevented from drinking, which might occasion the dropsy."

The same author recommends salt and horse-raddish mixed up with chopped rye-straw, to be given to horses when they are housed to prevent their being attacked by diseases, in consequence of the confinement and change of food.

He states, likewise, that juniper-berries and salt, if given to cattle, will prevent diseases, and contribute to preserve them in good condition. The most convenient mode of administering the salt is, to dissolve it in water, and to besprinkle their provender, whatever it be, twice a week with the brine. See *Samlinger om Agerdyrkning og Landvæsen*, Kiøbenhavn, 1792, tredie hefte, p. 52, 84, 136.

"That sheep are fond of salt," says another Danish writer, "is beyond all doubt; it is equally certain, that to these animals it is a preservative against many diseases; and, if I am not greatly mistaken, contributes in no small degree to render their wool finer. *Description of the Feroe Islands*, by the Rev. G. Landt, London, 1810, p. 331.

A late writer, speaking of the Spanish sheep, says, "When the flocks arrive at the country in which they are to pass the summer, they are allowed as much salt as they will eat, and the quantity for the five summer months is about two pounds and a half for each sheep. The rock salt (*sal gem*) is laid on flat stones, and the sheep lick it as they pass from the fold to their pastures; but when they feed on a chalky, or limestone soil, the quantity of salt is either lessened or withheld: after licking the salt they are usually driven to an argillaceous soil, where, having from their previous regimen acquired a sharpness of appetite, they feed with greater eagerness. *Jacob's Travels in Spain*.

They are thin in the fore quarters, narrow in the loins, and exhibit the same activity as the Norfolk breed. Some of this species are still to be met with, and are purchased from the mountains by gentlemen for their own use. They are not bought till they have attained to the age of three or four years, and when properly fed they make delicious mutton; but the importation of English sheep has long ago altered the general breed, as has been the case in regard to the native Irish cattle. Whether this change was effected by admixture with the Tweed-side, or the Leicestershire sheep, cannot easily be determined, but it is certain that the English and Irish breeds were intermixed long before Bakewell's day, and considering the appearance of the Irish sheep at present, they seem to me to participate in the characters as to wool and carcass of the Romney-marsh species, though there can be none of these in Ireland. The crossing, however, has produced animals similar in every respect; they are all of the polled long-woolled kind, and in the great breeding counties are very large; but when in the hands of the poor cotter tenants, they degenerate to a very small size in consequence of bad nourishment when lambs, and the little care taken to improve the breed. In many parts of Ireland sheep are not kept for the purpose of supplying mutton, but for the sake of their wool; and this article even is not intended for sale, but for the use of the family. It cannot in my opinion be doubted, that there are large tracts in the south of Ireland which would form excellent sheep-walks, and produce as good wool as the Downs of Sussex. Hitherto, the importation of sheep has been confined to a very small number of the short-woolled species; but what Ireland requires is a breed of fine-woolled, and little improvement can be made in these animals till a number can be obtained, sufficient to afford room for selection, for there can be choice only where there is abundance; and hence I am inclined to think that the South Down ought to be preferred, because the Merino are as yet too much dispersed to be of any real service, and the few which have been sent to Ireland will soon be lost, and disappear like a few drops of rain that fall in a summer's day.

The demand for fat lamb throughout Ireland appears to be very small; in the county of Wicklow a little is reared for the supply of Dublin. Mr. Thompson speaks of it in Meath, but not for the early part of the season, and there is no distinct breed, as the Dorsetshire and Wiltshire in England, which are chiefly sought after for that purpose.

ANTRIM AND ARMAGH.—Sir Charles Coote, speaking of sheep in the latter, says, that "very little of the wool which this county produces is exposed to sale, the very slender stock in the hands of an individual being reserved for some domestic use."* This remark, which may be applied also to Antrim, corroborates the observation I have already made, that in this province sheep are an object of so little at-

* Survey of Armagh, p. 231.

tion, that neither the breed nor the method of grazing them, presents any thing worthy of particular notice.

CARLOW.—In this county there are some excellent flocks of long-woolled sheep, and many are fattened for the butcher. This may be readily accounted for by the size of the farms.

CAVAN.—In regard to sheep, this county is similar to Armagh.

CLARE.—A great part of the limestone districts of this county is employed for the breeding of long-woolled sheep, which are sold at Ballinasloe fair. Some flock-masters hold very large tracts of country which are entirely set apart for the grazing of these animals.

CORK.—The male native sheep are found in the mountains of this county, but the flat parts are broken into such minute divisions, as to preclude the possibility of keeping large flocks. The sheep belonging to the small farmers are long-woolled, and of a diminutive size.

DONEGAL.—This county is nearly destitute of sheep; there are a few in the mountains which are almost as fleet as a grey-hound, and I was told by the Bishop of Derry, that in the barony of Inishoen, when the corn is carried home, the sheep of all the different small tenants are allowed to herd together, and to rove about without distinction wherever they can find food. In regard to the breed, it is impossible to imagine a worse.

DOWN.—Mr. Dubourdieu says,* “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 must be young, in most cases being 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 is 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 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.”

DUBLIN.—The farmers in this county have no flocks of sheep.—In the month of June, 1809, the freight of sheep from Dublin to Liverpool was 5s. per score.

FERMANAGH.—The sheep here are few, and even these few are of an inferior breed. There is no such thing to be seen as a flock in any one place.

GALWAY.—Some of the finest flocks in the world are to be found in this county;

* Survey of Down, p. 141.

as these animals are bred by enterprising men who possess capitals sufficient for that purpose, this branch of rural economy is carried on to a considerable extent, and is in a very flourishing condition. Their market for sale is Ballinasloe.

KERRY.—The mountains of this county, like those of Cork, produce a small breed of sheep, which when fattened form excellent mutton, but they are so few in number, that neither the food nor the wool which they supply, can be considered of much importance as a national resource.

KILDARE.—In this county there are a few graziers who exclusively fatten sheep purchased at Ballinasloe, but it possesses no peculiar breed.

KILKENNY.—Mr. Tighe says,* that the pure Irish breed is perhaps not very common in this county, “but there are a good number of sheep in the neighbourhood of Kilkenny town, which have every defect of form that can well be assembled in the animal, according to the modern ideas of perfection. Near Callan are some large sheep, which though tall and big-boned, bring good prices. The farmers shear in the beginning of June, wean the lambs in the middle of July, and shear them in the latter end: it is their practice to milk the ewes for two months, and even three, after the lambs are weaned. They say it does not injure the ewes, who generally breed for five years, and are then fattened. Of the milk, cheeses are made, which are sold to persons who come about for the purpose of buying them, and retailing them in the market of Kilkenny; the cheese weighs about two pounds, and is sold for one shilling by the farmers. In one farm 140 ewes gave six cheeses a day at first, and afterwards four. In another, 60 ewes gave four cheeses a day, two in the morning, and two in the evening. They lie in the press for twelve hours, and are piled in a wooden vessel to dry; they are fit for sale in two days.”

“The breed of sheep is rapidly improving in this part of Ireland, by the exertions of several gentlemen who have introduced some of the best Leicester breed, particularly Mr. St. George, and Mr. Fitzpatrick of Urlingford.”

MARCH 20th, 1809. KILKENNY.—Mr. Fitzpatrick lets sixty tups, which in winter he “makes up” with sliced potatoes and hay. This gentleman thinks the small Scotch dun cattle would answer best in the mountainous lands. His sheep consume 14lbs. of potatoes, and 3lbs. of hay per day. As they fatten, less nourishment is sufficient, for he has ascertained, that a fat animal does not require so much food as a lean one.

KING'S COUNTY.—The account given of sheep in Kilkenny will answer for those in this county, except that there are a few graziers who purchase these animals at Ballinasloe for the purpose of fattening them.

LEITRIM.—The sheep of this county are very much of the native Irish kind; but they are few in number.

LIMERICK.—Some excellent sheep are fattened here; but this is by no means a breeding country like Clare, Galway, Roscommon, and Tipperary.

* Survey of Kilkenny, p. 318.

Nov. 29th. CROOM.—Two-year-old wethers bought at Holy Cross fair in May at from 36s. to 42s. each, can be sold again at from £2. 10s. to £3. without the fleeces, which bring 8s. each.

LONGFORD.—The sheep of this county are few, and of a poor breed.

LONDONDERRY.—The account given of the stock here, by the Reverend Mr. Sampson, accords with the information I received on the subject: "Our best sort," says he, "are bought either in the fairs of the south-western counties, or else at Dervock, to which they are driven by jobbers from those pasture counties. I need say nothing of them. Our own strain is of all shapes and qualities, horned and without horns, coarse wool and fine, almost all are humpy boned and restless. We get a considerable number from the mountains of Inishoen; these are *wag-hins* from seven to ten pounds per quarter. These sometimes fatten in one summer, and when fat are very nice mutton. Several gentlemen are desirous of improving our sheep, but, in general, it is only to fatten for one season; these sheep are brought into domains. I have crossed a neat selection of our own ewes with a strong Connaught ram, the success is prodigious; from one ram of the breed I this year shorn 12½ lb. of fine combing wool, it was weighed as it came off. This fine animal is but two years old; he had horns, one he lost in battle, and my saw balanced his loss. In Ballymullens, near Learmount, sheep were formerly kept in great numbers, at present much fewer can be permitted on account of their inroads into the planting. The breed of sheep has greatly diminished for some years past, which is owing to the increased value of grain, and consequently to the increased attention bestowed on tillage and fencing, to both of which sheep are pernicious. Not long ago one might see hundreds of sheep travelling from farm to farm unnoticed and unowned. Every servant boy in the country who had a few shillings saved, laid it out on a sheep or two, which he let loose on the bounty of Providence and the toleration of his neighbourhood."

"Towards May all these flocks were driven to the mountains. The value of their wool and progeny greatly overpaid the grazing and risk. In the time of snow these depredators, like the locusts of Egypt, devour every thing before them, I have lost at one time two thousand heads of curled kale. The faculty of enduring hunger in these animals is extraordinary; some have been found alive after having been buried under the snow for three weeks; in such distress they derive nourishment from sucking their own wool, or that of their fellow-prisoners. This account I have had from very credible authority: I have myself seen a lamb lost for five days in a ditch under the snow, discovered by the chimney opened through the snow by the ascent of its breath: * a dog, accidentally passing over, gave notice of the con-

* That sheep can exist a long time with little or no food is an undoubted fact. Landt, in his description of the Feroe Islands says, "that the sheep there, when they retire behind the rocks to shelter themselves from

cealment, by which incident the fortunate little animal was dug forth in perfect strength. Formerly it had been a practice to feed the sheep under the hovels of the stack-yard, in which they were folded at night. The scarcity of timber has caused a scarcity of hovels; of course this practice has ceased. At present very few, except gentlemen, give winter fodder, either green or dry. The butchers take our sheep in the open season; lambs come in from June to August, and bring, in general, half a guinea each. I have heard it affirmed, that in lower Magilligan a wether of forty pounds yielded fifteen pounds of rendered suet, and that the hairiest breed of Inishoen, in three years will come to have fine wool. In the low countries, as in Magilligan, and districts where there is out pasture, the sheep kept at home in summer are folded at night in inclosures called falls; these are made by building one sod almost on edge over another, whose obliquity is in a contrary direction. These folds are dug up in the after season, and the sods and bottoms contribute to the manures. Our best mutton purchased at Raphoe and Castlefin comes from Con-naught; it weighs from sixteen to eighteen pounds per quarter, and is generally from four to five years old. Our mountain sheep are mostly killed from three to four years old, weighing from eight to thirteen pounds per quarter. Those who understand the management of sheep buy ewes with their lambs in April; the lambs are killed fat in harvest, the mutton may be sold at from four-pence to six-pence in December, and in Spring from six-pence to nine-pence. Sheep of a good breed couple at about six months old, and those that have twin lambs are preferred by country people. Near Coleraine, on the Antrim side, the sheep are natives; at two years old they sell for thirteen shillings, to be fattened on better pastures."*

LOUTH.—There are no flocks in this county.

the inclemency of the weather, are often covered by the drifting snow in such a manner as to be inclosed by it, and many of them in that state perish. When the storm has subsided and the people go out in quest of their sheep, a good dog can discover by his scent the places where they are buried, and give notice to the owners by his scratching and barking; but if they are not found they must remain in their confined situation; and what to many may appear incredible, they will live in that state for seven weeks, without any other food than the grass of the place they stand upon; and, when that is eat up, the bare earth below it." *Description of the Feroe Islands*, p. 317.

Boate mentions a circumstance, nearly similar, which took place in Ireland in the beginning of the year 1635, during a great fall of snow. A gentleman who resided near Ballineah in the county of Cavan, who had taken great pains to save his sheep from the inclemency of the weather, missed eleven of them. Some days after, having gone out a coursing with his servant, the latter saw, on the side of a distant hill, in the hollow of a rock, part of which was covered by a projecting cliff, something alive and stirring; at first they supposed it to be a hare or a fox, but when they approached they found it was the lost sheep, which being destitute of food, as the whole neighbourhood was covered with deep snow, had eaten all the wool from each others backs; and what is more wonderful, one of them having died, the rest had eaten its flesh, leaving nothing but the bare bones. *Ireland's Naturall History*, imprinted at London, 1652, 12mo, p. 174.

* Sampson's Survey of Derry, p. 215.

MAYO.—A few people here breed sheep, but by no means on an extensive scale.

QUEEN'S COUNTY.—The sheep here are similar to those in the King's County.

JUNE 30th, 1809. QUEEN'S COUNTY.—Three yearlings or one yearling bullock, and one two-years-old, or four sheep, form a *collop*. In mountain districts one guinea is charged for a *collop* during a season.

ROSCOMMON.—Some of the best sheep in Ireland are bred and fattened in this county, which abounds with flocks of the long woolled kind.

SEPT. 23d. Tulsk, Roscommon.—Mr. Taafe is of opinion that rich bullock lands are much injured by being broken up. Of 250 ewes which he possessed, 120 had double couples, but at shearing day there were only 63. His sheep are of a very large breed, and have in them much of the Leicester blood, which has brought them to a handsome shape; his cattle are long-horned. I observed that the sheep of this county are very subject to the foot rot; after they have been dressed their four legs are tied together, and they are then suffered to lie on their side, because by running about on the grass the dressing is displaced. A proprietor who possesses land by a patent from the crown, is called here a "patentee."

SLIGO.—The sheep here, except a few flocks which belong to some of the gentry who have taken great pains to improve the breed, are similar to those of Leitrim.

TIPPERARY.—Like Roscommon, Galway, and Clare, abounds with fine flocks of long-woolled sheep, many of which would do credit to Leicestershire.

TYRONE.—This county being divided into much smaller tenures than Londonderry, the sheep are seen tethered in the same manner as they are described to be in Down, by Mr. Dubourdieu, and in point of breed they are not superior to those in Londonderry.

WATERFORD.—The pasture lands of this county are so much occupied by dairies, that there are scarcely any sheep in it, and the few that are seen are of a miserable breed.

WESTMEATH.—There are here some excellent long-woolled sheep.

WEXFORD has a bad breed of sheep, but they are not numerous.

WICKLOW.—A breed of fine woolled sheep, peculiar to the mountains of this county, exhibit the only traces of a distinct race of short-woolled sheep in the island.

Return of the Number of Sheep and Horned Cattle sold and unsold at the great October Fairs of DUNLO OF BALLINASLOE, for Twenty Years, from 1790 to 1809, inclusive.

Years.	SHEEP.			HORNED CATTLE.		
	Sold.	Unsold.	Total.	Sold.	Unsold.	Total.
1790	59,231	2,700	61,931	7,782	850	8,632
1791	64,227	3,000	67,227	6,562	1,300	8,162
1792	61,120	6,911	68,031	6,858	671	7,529
1793	62,272	6,112	68,384	6,695	1,121	7,816
1794	64,550	2,895	67,445	7,106	231	7,337
1795	65,755	2,492	68,247	6,565	1,431	7,996
1796	68,095	2,456	70,551	5,989	300	6,289
1797	66,948	4,300	71,248	5,804	396	6,200
1798	64,700	9,451	74,151	6,981	700	7,681
1799	74,175	3,762	77,937	5,100	4,057	9,157
1800	67,007	3,379	70,386	5,275	2,474	7,749
1801	57,634	21,618	79,252	5,532	4,211	9,743
1802	75,927	8,571	84,498	6,232	3,512	9,744
1803	53,900	33,782	87,682	6,125	539	6,664
1804	78,843	8,621	87,464	5,339	3,462	8,501
1805	79,988	4,366	84,354	7,101	3,003	10,104
1806	64,222	23,171	87,393	5,158	7,032	12,190
1807	76,154	4,508	80,962	6,172	2,396	8,568
1808	80,453	2,316	82,799	7,951	1,376	9,327
1809	75,338	1,610	76,948	7,622	835	8,457
1810	66,610	21,325	87,935			

W. LE POER TRENCH, Baron of the Fair:

THO^s. RORKE, Clerk of the Customs.

HORSES.

That species of horse distinguished in England by the name of the draught horse, is not found in Ireland, and for this a very good reason may be assigned. The minute division of tillage-land prevents the cultivator from keeping horses exclusively destined for the draught. His horse must carry him to market, draw his small car, and perform every other kind of labour necessary in his agricultural pursuits. In a word, he must, according to the common phrase, be a horse of all-work: some attempts have been made to import the Leicestershire black horse and the Suffolk, and liberal premiums have been offered by the Farming Society, to induce the Irish to improve the breed of these useful animals, but with very little success, as the country is not yet in a state fit for the introduction of any other kind than the small species of the

Suffolk horses. These animals are characterized by strength of constitution, hardiness, and capacity to sustain great labour with little food, and on account of these valuable qualities they seem to be well suited to the small Irish farmers. But it appears to me that gentlemen, in making their selection, have done exceedingly wrong in preferring size and shewy appearance to properties of much greater value. The finest specimen of the Suffolk horses I ever saw, was the celebrated one which I purchased from the late Mr. Blake, of Letheringham in Suffolk. He is well known throughout England by the name of Briton, and many portraits of him have been taken; but the most common and widely diffused is a sketch by Gerard, in Dr. Dickson's Dictionary of Husbandry. Though attached to the stock of this animal as applicable to all farming purposes in England, I should recommend a much smaller kind for Ireland. Horses of the same breed, fifteen hands high, may be found, and would be much better adapted to rural labours, than those possessing the weight and size of that animal. In Ireland there are no stage waggons, no drays with three immense horses yoked to them; every thing is done by one horse carts, and whether we consider the expence of horse-flesh or the tear and wear of roads, this system is very superior to that adopted in England. In the carriage of linen brought from the north, in packages that sometimes weigh as much as 22 cwt. larger horses are required; but I am convinced that the small Suffolk punch would easily perform this work so as to preclude the necessity of having recourse to any other. To make it worth a farmer's while to keep horses merely for agricultural purposes, the minute divisions of land must be abolished, and the whole system of farming entirely changed; do this and draught horses *will be fed*. The expression I have here used may excite surprise in those unacquainted with the present state of Ireland, but it is a certain truth, that the miserable garons which do the work of that country, considering the scanty fare allowed to them, can be said only to exist. If this be the case in regard to small horses, what would be the fate of larger animals which consume a greater quantity of food? They would soon lose their flesh and their strength, and be rendered incapable of performing any work whatever.

There is one species of horse, a native hard-footed Irish hack, which I consider as a most useful animal. This breed are very much used by the linen merchants of Ulster, who ride from market to market to transact their business; these animals seldom exceed fifteen hands in height, but they are very hardy and sure footed.

A large long blood horse, which sells for a high price, is to be found in some of the rich grazing counties. This breed is much reared in Meath, but I observed individuals of it wherever bullocks were fattening.

In Roscommon the horses have acquired a habit of jumping over walls, and in this they are so expert, as almost to exceed belief.

Blood horses are bred in Ireland for racing, and some of them attain to a consider-

able degree of perfection, but as I consider animals destined for this purpose to be of little importance to the resources of a kingdom, I shall not enlarge any further respecting them.

The condition of the working horse in Ireland is altogether miserable. The mares are always worked even while the foal is sucking, a practice which is highly injurious to both, and indeed the whole treatment of this noble and useful animal is exceedingly cruel and barbarous. Mr. Thompson's account of it* in one of the richest counties in the island, namely, Meath, exhibits but a faint picture of the hardships to which it is subjected. "Every farmer," says he, "who holds one hundred acres and upwards, keeps one or two mares which he breeds from, and works to within about a fortnight of the time of their dropping their foals; these he rears, and in the spring before they are three years old, he either sells them in the halter, or works them in his own team, from which time to the day of their death they lead a life of hardship, and often of starvation. Bad feeding and hard working in their youth prevents their growing to the size they would otherwise attain; and bad feeding and hard working keep them in a state of wretchedness hardly to be conceived."

GOATS.

Flocks of these animals are kept in many of the mountainous districts, and by all the cotters throughout the whole country; but they are generally tethered together in every manner that cruelty can devise, to prevent them from straying into the grounds of their neighbours. They produce some milk, but the kids, which are not considered as any rarity, seldom bring the same price as lambs.

Sir Charles Coote gives the following account of them in Armagh: "The milk of this animal, whose food is never taken into account, is equal to one-fourth of a cow's milk, but it is richer, and exceedingly wholesome. These animals are usually confined to the tops of ditches, † where they browse, and in a curious manner. A line of jack-cord is stretched rather slack for the given distance of about ten yards, and confined by a stake or branch at either end, passing through a ring of iron of about an inch in diameter, which is made fast to the goat's horn by a cord passing through a hole drilled through the horn; by this means the goat cannot leave the top of the ditch, and has a pretty good extent to browse on. Goats are numerous, and quite at their liberty on the mountains. When they rear the kid it is allowed to stay with its dam during the day only; the morning's milk is for the use of the family. Many of the poorer families are supplied with the milk they consume, by this most useful animal." ‡

The above description is applicable to Antrim, Cavan, Monaghan, Down, and Louth, throughout which goats are seen around the greater part of the cabins.

* Survey of Meath, p. 323.

† Survey of Armagh, p. 293.

‡ "A ditch," in Ireland, in many instances, means a bank, and it is in this sense Sir Charles Coote is speaking.

In Derry, Mr. Sampson says, "there are no herds of goats in the mountains, but they are found individually among the habitations of the lowland poor. You frequently see the milch goat tied by the head while she browses on the quickset of a neighbour; her owner has no hedge—no land! He has a friend, however, for his little ones, when he has the she-goat. The milk is divided for five weeks with the kid; the kid is sold as venison, and the goat remains the best succour under heaven. Where there are many, the custom is to fold them at night and keep off the kids, then milk them in the morning, and admit the natural client for the rest of the day. In high pastures much must be made of their milk, and their browsing costs nothing."*

In Donegal, Leitrim, Sligo, and Kerry, I frequently saw them in herds on the mountains, and indeed there are few parts of Ireland in which they are not to be found; but the management of them presents nothing singular or different from that already described. Mr. Tighe, speaking of Kilkenny, says, "they are kept by many small farmers, but not in flocks, and a few are found among the dairies in the Welch mountains. The milk of six goats is said to be equal in quantity to that of one cow."†

H O G S.

These animals are in such general request, that they are to be met with in every part of the kingdom. No house, I believe, is without one. They are kept to a considerable age, sometimes to that of two years, and are seldom fed upon corn. Potatoes is the common fare of the hog, as well as of the children, throughout Ireland; but this animal rarely comes to the table of its proprietor as it does in England, because, when fattened, it is sold for the purpose of paying the rent, and it is exported, either as salt-pork, hams, or bacon.

The Irish breed is very tall, long, and narrow-loined. Mr. Astley, of Leicestershire, has introduced his breed into every part of the kingdom, and by crossing, has undoubtedly done much good. On the sea-coast I frequently saw hogs that lived upon shell-fish, which they found by turning up the sand and the mud; but the flesh of animals fed in this manner never takes salt.

The difference between the manner in which these animals are managed in England and in Ireland is very striking. In the latter, none are fed upon clover or acorns, or employed as "shackers," to eat up the offal corn dropped in the fields in harvest, nor are any of them, as already remarked, ever fattened with corn. The breeding sows are generally kept by dairy-men, and in those counties where there are no dairies, I have often been at a loss to account for the number of pigs which I every where saw around me, not being able to discover where they could be bred. But

* Survey of Derry, p. 220.

† Survey of Kilkenny, p. 331.

it is to be observed that the pig is an inmate in every Irish cabin, and remains there for a considerable time: the hog, indeed, is as much a domestic animal in Ireland as the dog, and becomes so habituated to the warmth of the cottage, that he seldom strays far from home; like the goat he is frequently tethered, but never yoked as in England. The practice of tethering animals may be accounted for by the want of fences, and the smallness of the tenures into which land is divided. The horse, the cow, the goat, the pig, and even the geese, are, for the most part, subjected to this restraint, and in general by means of a rope or string fastened round one leg.

In most of the county surveys, to increase the breed of hogs is strongly recommended; but I never knew them to be profitable in England, when kept in any number beyond that which could subsist by picking up the waste grain and acorns, for the moment they were put on a course of feeding, money was lost by them. But as I have never known them to be fed with potatoes, as in Ireland, I am no judge of the profit which might be obtained from them if fattened in the same manner. Hogs will answer for some time upon clover, but only when they can be bought at a cheap market, before harvest, and consequently before the great demand for "shackers," to eat up the offal corn.

In Ireland they are carried to some market or fair, and, in consequence of their living in such intimate familiarity with the children, instead of being the noisy animals which they are with us, they suffer themselves to be easily led, and lie down when required with the utmost quietness.

OCT. 13th, 1808. ADARE.—Limerick. Saw hogs brought into the fair by means of a hay-band fastened to one of the hind legs. They were exceedingly tame, in consequence of their mixing so familiarly with the children in the cottages.

NOV. 29th. CROOM, LIMERICK. Met two droves of hogs going to Limerick. They were two years old, and worth about five guineas each. It is estimated that an acre of potatoes will make a ton of pork.

MARCH 23d, 1809. TIPPERARY. Leessheen.—The hogs here are fattened on dry potatoes, and for the last month get no water. Breeding sows are kept by the dairy-men.

RABBITS.

It does not appear that rabbit-warrens are numerous in Ireland: such as have come to my knowledge I shall mention; but it is probable that there are some others in different parts of the kingdom, with which I am not acquainted. On the northern shore of Donegal there is a warren of some extent, belonging to Mr. Stewart of Horn Head, but it is not inclosed by a turf wall as warrens are in England.*

* SEPT. 11th. ARDS.—The peninsula of Horn Head abounds with rabbits: Mr. Stewart sells the skins for fourteen shillings per dozen; and the warren brings him between five and six hundred pounds per annum. Some cattle are bred on the peninsula.

Mr. Sampson says, "there are two very considerable ones on the east side of the Bann, the least of which contains probably 500 acres, the other about 2000. A very large warren lies in Magilligan; it occupies not less than 1500 acres, and is divided into "the near," and "the far end," a distinction of the situation in respect of Newtown and its neighbourhood.* The value of the warren, taken by the acre, varies exceedingly: in some places an acre will contain rabbits worth £10. whilst in others, 30 acres will not contain so many as will produce £1. The swelling grounds alone are most valuable, because the rabbits will not burrow in low flats. These animals are either consumed in the farmer's household, or, in still greater numbers, exposed to sale through the neighbouring towns and country. The carrier hangs the rabbits over his horse's back, and sells them at from six-pence to ten-pence a couple, skinning or casing them at the same time: for the skins he is accountable to the proprietor of the warren. It is well known that warren rabbits are greatly inferior, as to flesh, to those of domains; but they are superior with regard to the fur. Those in Magilligan, which are fed on the bent and moss, have the longest fur. The same thing is true of all other animals. The sheep of those pastures which are *kindly*, grow fine in the wool. It is affirmed that the coarsest Inishoen or highland sheep will, in a few summers' pasturage in Magilligan, become fine in the wool. From the best information I learn, that the number of rabbit-skins varies from 1500 to 3000, and that the annual yield is about 2000. These are purchased at two different auctions held in Magilligan; persons commissioned by the hatters of Dublin, and sometimes of England, are the bidders. The price fluctuates from eight shillings to twelve shillings per dozen, and in some extraordinary years may be a little above or below. Those of the far end are first auctioned, and their price generally regulates that of the near end. There is a difference in the time of beginning to take the rabbits: the far end commences on the 1st of November, or new style, and the near end on the 12th of November, or old style."†

In the county of Down "rabbits, as stock, are mostly confined to the neighbourhood of Dundrum; the ground there being sandy, is well adapted to them: in Murtoogh they are so intermingled with the other stock, that it would be difficult 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 were to be returned to its former state; for rabbits, like all other animals, are profitable in proportion to the goodness of their

* SEPT. 16th. COLERAINE.—There is a rabbit-warren at Magilligan, near Down Hill; 2500 dozen are caught in a year. The rabbits sell for four-pence a piece; the skins at thirteen shillings per dozen.

† Sampson's Survey of Derry, p. 221.

food. The rabbits in 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.”*

In Meath “there is only one warren of sufficient extent to entitle it to notice. It extends along the sea-shore, from the mouth of the river Boyne towards the mouth of the Nanny river, and belongs to Mr. Brabazon of Morningtown. The rabbits burrow in a heap of sand blown off the sea-shore by the easterly winds, and feed on a salt marsh running parallel to it, being prevented from going on the uplands and corn-grounds by broad drains, which are constantly full of water. They are taken by pass-nets, placed between them and the burrow, on their hasty return from feeding at night, being alarmed by the barking of dogs kept for that purpose.

“They are all disposed of in Dublin market, the skin being generally more valuable than the flesh; and they are sold by the warreners at from one shilling and sixpence to two shillings the pair. I have been informed that this warren is worth, to Mr. Brabazon, three hundred pounds per annum, and the ground so employed is not valued at one shilling per acre. There are many small burrows in ditches and sand-hills throughout the country, but they are not worth mentioning.”†

Mr. Young, in his survey of Lincolnshire,‡ has given a very accurate account of the management and profits of rabbit-warrens; and though I endeavoured to obtain a similar one in regard to Ireland, I was not able to succeed.

HARES.

These animals are frequently confined within the walls of gentlemen's domains, and in this case they always herd together in flocks. The skin of the hare in England is much more valuable than that of the rabbit, but in Ireland it is useless, as the hair obtained from it will not felt; a circumstance the more remarkable, as rabbit-hair in that country answers exceedingly well in the manufacture of hats. I have seen white hares in most parts of the island, but this peculiarity of colour does not seem to arise from climate, as these hares are numerous within the domain walls of Lord Bantry, which stands in a southern situation, and under a climate remarkably mild.

BEES.

The premium offered by the Dublin Society for the preservation of bees in winter, seems to have had no claimant in the county of Armagh, though great emulation prevails among the notable females in that part of the country, in regard to their management of these valuable insects. The bees are suffocated about October, and perhaps three hives out of ten are preserved; a hive sells at from 10s. to £1. 1s.: very little mead is made in the county except for private use. The greatest number

* Dubourdieu's Survey of Down, p. 207.

† Thompson's Survey of Meath, p. 333.

‡ Page 428.

of stocks is produced on the mountains, where the hives are filled so rapidly, in consequence of the facility of making honey afforded by fragrant plants and wild flowers, which abound in these districts, that they frequently have two risers or scaps under them before the stock is taken. The hives often weigh 40 pounds, and sometimes so much as 60. Those who keep bees prevent them from swarming more than a second time by raising the hive.*

An experiment was tried on the recommendation of the Dublin Society, of removing bees to a northern aspect in winter, with a view of preventing them from rambling abroad during gleams of sunshine, but this removal proved fatal to the whole community. Bees thrive remarkably well in the county of Down, though the breeding of them is much on the decline. It does not appear that any peculiar method of managing them is adopted, except by two gentlemen, who uniting humanity with skill, have by an ingenious construction of their hives devised a method of obtaining the honey without destroying the bees. The honey taken from the hives in this manner is abundant and of an excellent quality.

The uncertainty of the seasons, and the severity of some winters, seem to have discouraged the culture of bees in Kilkenny, in which a considerable quantity of mead was made formerly, but at present it is scarcely ever seen. The price of a good hive here is about 11s.; and a hive of honey may be had for 16s. In this part of the country the hive is usually placed upon stones, a method which injures the bees, as it is attended with too much cold in winter, and too much heat in summer. The common way of obtaining the honey is to suffocate the bees, but a simple contrivance for preserving the hives during winter has been adopted by the Rev. Dr. Butler, and deserves to be generally imitated. He ties up the hive in a cloth, with a round board placed under the bottom of it, and suspends it from the cellar-beams in the beginning of October. In this

* Solinus, cap. xxv. says, that in his time there were no bees in Ireland, and that the earth or gravel of that country possessed a noxious quality which was disagreeable to them. *Apes nusquam; adjectum inde pulverem seu lapillos, si quis sparsit inter alvearia, examina favos deserunt.* Bede, *Hist. Gent. Anglicanæ*, gives a different account: *Hibernia dives lactis et mellis insula.* But however this may be, the Danes or Ostmen as they were called, who established themselves in Ireland in the ninth century, were well acquainted at an early period with the management of bees. A Danish writer says, "The celebrated *Jordbog* or *Rental*, furnishes a great deal of information in regard to the state of agriculture in Denmark in the thirteenth century. It is there seen that the farmers of that period cultivated rye, wheat, barley, and oats; that they had a great many horses, cows, swine, and sheep; that the people lived upon butter, cheese, pork, geese, poultry, dried cod, and salmon; there were water-mills then in Denmark; the land was surveyed or measured, and every proprietor knew, in the most accurate manner, his own. There were woods in abundance, which afforded shelter to various kinds of game, and also a great many large swine. On the whole, the land was exceedingly well cultivated, and most of the farmers were proprietors of the farms on which they resided. The people of this period clothed themselves in a sort of coarse cloth (*vudmel*), and their drink consisted of Danish ale and mead. The ale they prepared chiefly with sweet gale (*myrica gale*), and to obtain mead they applied much to the cultivation of bees." *Hist. Stat. Skildring af Tilstanden, i Danmark og Norge, i ældre og nyere tider, ved Rasmus Nyerup, Kiøbenhavn, 1803, vol. i. p. 193.*

state it is suffered to remain till the month of April, when it is taken down, and being exposed in the usual manner, the prisoners are released from their confinement and restored to the enjoyment of liberty and fresh air. Five hives treated in this manner yielded more honey than if they had been subjected to the common management. This method saves the winter food and preserves the insects better than any other. Seclusion from light and noise is essential to the welfare of bees, as it promotes that state of torpidity into which bees, ants, and other insects, fall during cold weather.

The dry hills of the county of Down, covered with heath and odoriferous herbs, are well adapted to bees, and the honey there is highly esteemed for its fine flavour; the combs also are often remarkable for their depth.

Various kinds of bees are found in Derry, among which are the *rufa*, or small field-bee. The great humble-bee, sometimes known by the names of *terrestris* and *subterranea*, and in particular* the *mellifica* or hive-bee, that most active, but ill-requited contributor to the luxurious gratifications of man. Here, as well as in other parts already mentioned, the number of bees kept for profit has greatly decreased within the last twenty years. In the neighbourhood of Aghadowey, the scaps average from 20 to 40 pounds of honey in the comb. The scap is made of twisted wheat-straw, worked together with pieces of split briar. The bees in general swarm; twice or thrice in a season. The first comes off towards the end of May, and the second in about ten or fifteen days after. About the end of July the first casts a swarm; if more follow they are not fit to be kept, and therefore any farther swarming ought to be prevented by raising the hive.

Mr. Acheson is the only person in this district who has made any attempt to abolish the usual practice of suffocating bees, and to substitute in its stead a less barbarous method of obtaining the honey. In place of the common scaps he uses square boxes with panes of glass, through which the work may be seen. The boxes are moveable, and are divided into an upper and lower apartment by a plate of copper, so that the bees above are separated from the honey beneath, while a stick can be introduced to support the comb. This method is simple and successful, having been tried during the course of several years, and as it is recommended by policy as well as humanity, ought to be generally adopted.

In the county of Kildare the same plan has been pursued by Mr. Green at Kilrea, and it is to be hoped that the good example he has set will be followed.

POULTRY.

Barn-door fowls, turkeys, and geese, are reared almost around every cabin in Ireland. The manner in which the last-mentioned bird is stripped of its feathers is a most painful sight; it continually occurs in almost every direction, and considering the number of these animals kept in the country, the sale of feathers must form a very

* Survey of Derry, p. 235.

extensive branch of trade. But I cannot conceive that man, though styled the lord of the creation, has any right to subject these poor animals to torture in the barbarous manner I have seen in every part of Ireland.

The county of Wexford is celebrated "for crammed fowls," and there is a fair at Ballyheague, in that county, kept expressly for the sale of poultry of all kinds. I have known families send thither from a great distance to purchase store fowls.

In the county of Cork there is a fair for the sale of turkeys, which are numerous in Ireland, as the warmth of the cabins, into which fowls are always admitted, is exceedingly favourable to their increase. It renders them more prolific in eggs, and the young, by sharing in the habitation of the family, can be reared with much greater ease.

PIGEONS.

These birds are rather scarce in Ireland, being seldom kept but as domestic favourites. There are here no manorial lords who have a right to a dove-cot, whence pigeons are sent out to the distance of several miles to forage on a neighbour's land. The poor cannot keep them for profit, because their habitations are so low that the pigeons would soon fall a sacrifice to the cats.

PARTRIDGES.

These birds are as plentiful in Ireland as can be expected in an unprotected country; but game in general is so scarce, that it is not worth a poacher's while to take the trouble of going in quest of it, and I never heard of any person of that description in the whole island. Every estate, however, abounds with vermin, which destroy more game than all the murderous guns that are levelled at them.

PHEASANTS.

I saw some of these birds in a coop, at the seat of Lord Bantry, but they were the only ones that fell under my notice while in Ireland. I was told that Lord Roden has abundance of them at Tullamore park, in the county of Down. The want of turnips, the scarcity of corn, and above all, ignorance in regard to the mode of feeding them, will account for their being so few in number, though there are woods in some parts of Ireland of sufficient extent to shelter them in abundance. No place in the British dominions can be better adapted for them than Ballyarthur, and all the islands of Lougherne.

WOODCOCKS AND SNIPES.

In the season, these birds visit Ireland in immense flights. While in that country, I do not think that during several months in the year I ever dined without some of them being at table.*

* If the climate of Ireland be so damp as is said, and the opinion of Celsus correct, the Irish game must be lighter food than that found in drier countries. *Omne etiam ferum animal, domesticum levius: et quodcumque humido celo, quam quod sicco.* *Celsus de Re Medica*, Lugd. 1566, 12mo, lib. ii. cap. 18, p. 81.

T I L L A G E.

The arable land in Ireland is cultivated according to a system very different from that pursued in England; I shall endeavour to describe it; but I apprehend that many of my English readers, if they expect to hear of enlarged plans of farming, or improved modes of cultivation, worthy of the present enlightened state of science and the arts, will be greatly disappointed. In the chapter on property, it has been seen, that in consequence of the village partnership system, which prevails chiefly in the western districts of the country; the petty manufacturing farmers in the eastern parts of Ulster; the equally small sub-divisions throughout the greater part of the southern coast; the large tracts of mountain, or of rich grazing pastures, in many of the counties, and in others, where these are not found, the land occupied by dairies, that little room is left for tillage farmers. There are indeed some small ones in the southern baronies of Wexford, a county which is divided into rather larger farms than are usual in Ireland;* but the principal part of the land appropriated to tillage, is found on crossing the river Barrow to Kilkenny, and pursuing a line of country through Kildare and some parts of Meath and of Louth.

The difference observed in these districts consists not only in the tenures, but in the manner of tilling the earth, in the implements used, and the crops generally raised. The extension of potatoe culture, which occurs under every kind of tenure, would, of itself, occasion an alteration in the management of any land, as the work is performed by each family and not by hired labourers. But that the reader may be better enabled to form an idea of the various modes adopted, I shall endeavour to give a view of them according to the order of the counties in which they are practised, and for this purpose I shall divide the whole country into nine districts.

First District.

The flat parts of the county of Antrim, forming the northern shore of Belfast Lough, the eastern side of Tyrone, Down, Armagh, Monaghan, and Cavan, are all tilled according to the same system. The small size of the holdings,† and in some places the rockiness of the soil, recludes the use of the ordinary means of culture, and therefore a part of the land is dug with the spade,‡ which supplies the place of

* Mr. Bush in his celebrated paper on the population of Ireland, speaking of Wexford, remarks, † that it is one of the most industrious counties in the kingdom."

Transactions of the Royal Irish Academy, vol. iii. p. 144.

Larger farms and "one of the most industrious counties in the kingdom," a union of important facts.

† Mr. M^oEvoy in his Survey of Tyrone, calculates the quantity of land tilled in this county by the population, allowing 4½ acres to each family, p. 35, it must be evident, that so minute a division cannot afford implements and horses for its cultivation.

‡ "The culture is mostly performed with the spade, and in some places by two horses abreast, which is chiefly the case only for potatoes, or with many they only mark out the ridges with the plough, spread the dung

three common implements, the plough, the harrow, and the roller. When the land is dug, the trenches are then shovelled, that is, the earth is thrown from them on the beds, and this method answers the purpose of harrowing, as it covers the seed; and of rolling, as the land is compressed by the weight of the earth. It is hardly possible to state a regular course of crops in a district where the farms seldom exceed ten acres. The quantity of potatoe land is regulated by the quantity of manure which has been collected; the quantity of flax ground, by the ability to purchase the seed, much depending on the value of it at that season; the remainder of the tillage land of the farm is destined to oats, which form a part of the food of the people, and this crop is generally pursued till the soil becomes exhausted, when, according to the usual expression, it is "turned to rest." The cow, the goats, two or three sheep, and the poultry, lie upon it for some years, at the expiration of which it receives the whole manure saved during the course of each winter, and it is then planted with potatoes. Such is the system generally pursued in the district composed of the counties before mentioned. Its chief object appears to be the maintenance of the people, but this, in my opinion, it does not accomplish; and instead of producing a surplus to feed the inhabitants of cities and towns, which ought to be the aim of every statesman; it occasions, on the contrary, a considerable deficiency. If we direct our attention, however, to those whose occupations are too large to be entirely subject to spade-culture, we shall find only one individual now and then who possesses a plough, and few, very few, who have a team to draw it. When this implement is used, three or four neighbours unite their strength, each bringing his horse,* or his bullock, or his milch cow,† and attending himself, lest his poor animal should be made to "perform more than its just share of the labour." Thus I have frequently seen a man, like a Swedish peasant, who attends to flog his neighbour's horse, in order to save his own, when drawing the carriage of a traveller,‡ walking close to the head of his own horse to keep him back, and to prevent him from making greater exertion than he ought.§ In Armagh, a team of this kind consists for

dung on the grass, on which is laid the seed, and throw up the earth from the trench. About three-fifths of their land is under tillage; oats bear a proportion of seventy to one, to all other grain; flax always follows potatoes, and is succeeded by oats. If they sow wheat, it is only after a summer's fallow, and but in small proportion, and the crop by no means repays the expence so well as oats, as the produce is trifling, and the grain impoverished." *Sir Charles Coole's Survey of Cavan*, p. 73.

* M'Evoy's Survey of Tyrone, p. 104.

† Ibid. p. 45.

‡ Acerbi's Travels through Sweden, vol. i. p. 8.

§ "In the province of *Keang-see*," says Mr. Barrow, "nothing is more common than to see a woman drawing a kind of light plough with a single handle, through ground that has previously been prepared. The easier task of directing the machine is left to the husband, who holding the plough with one hand, at the same time, with the other, casts the seed into the drills." *Travels in China*, p. 141.

the most part of two horses, the property of the driver and of the person who holds the plough. But the business of ploughing is so little understood, that few ploughs have either a cat's head or a swill-yard; so that if it be necessary to plough deeper than the implement from its original set will admit, an extra person is in some instances employed to press on the beam; and if it be required to plough shallower, the heel of the implement must be loaded with stones. Most ploughs are accompanied by an attendant with a spade to turn back the furrow, which after the plough has advanced, would otherwise revert to its former bed, and the shovelling of trenches is always practised, whether the plough or the spade has been employed. The use of the roller is unknown.

There are many whose holdings are too small to maintain their families;* and to purchase the necessaries of life in a state fit for consumption is unusual. Some indeed possess only a "dry cot," which is a house without any land; in this case they become purchasers of "meadow," which is an acre or two of grass, sufficient to produce hay for a cow, and sometimes also a horse, the latter being one of the first acquisitions of an Irishman.

The dry cotter, or small occupier of land, purchases also "corn acres," or "con acres,"† a name given to land hired for the purpose of raising a single crop of potatoes or oats. In seed time, or harvest, the whole family turns out, going perhaps two or three miles from their home to cultivate their hired acres. So much per season is paid for grazing the cow and the horse; in summer the pigs and the fowls live on the offal of the potatoes, and the goat browses upon the tops of the adjoining banks. By this system the farmer, who after letting his corn acres, has the remaining ones to till, finds his labour very much lessened. It is not the custom to hire labourers for any rural work; when it becomes necessary to plough, to dig potatoes, or harvest flax, all which operations require more hands than the family can muster, the neighbours assemble and assist each other: this, according to the Irish term, is called "swapping." Under such circumstances, it is not to be expected that any part of husbandry can be performed with much skill or success. Dexterity is required in the labours of farming as well as in the mechanical arts; and those who have ever occupied much land, well know how little benefit can be derived from a workman, who, without possessing either knowledge or practice, attempts only occasional labour. But in the district of which I am speaking, all the labourers belong to this class. Ploughing is merely marking the land with furrows, and even this is executed so badly,

Pliny says, that to open the fertile fields of Byzacium in Africa, it was necessary to wait until the rains had soaked into the ground; after which a little weakly ass and an old woman attached to the same yoke, were sufficient to drag the plough through the soil: *Post imbres vili assello, et a parte altera jugi znu vomerem trahente vidimus scindi. Hist. Nat. lib. xvi. cap. 21.*

* M^cEvoy's Survey of Tyrone, p. 31.

† Dubourdieu's Survey of Down, p. 39.

that I ascribe the produce of corn much more to the spade than to the plough. The seed is put into the ground with the most parsimonious caution; so little also is done at one time, and the ground is so carefully examined, to see that the seed has been equally distributed, that one needs no further proofs of the ignorance and inexperience of the operator. When looking at a party of Irishmen engaged in this occupation, I have often thought how they would stare to see one of our best Essex seedsmen, with his basket suspended before him, throw the seed from both hands, and sow a last or ten quarters of oats in one day, scattering them equally over twenty acres of land, by which means, at three-pence per acre, he can earn five shillings a day. Whereas, on some of the numerous small plots* in Ireland, one may see three or four persons, men, women, and children, employed in sowing a few small ridges, and though their labour, fairly estimated, would amount only to a trifle, scarcely worth notice, they occupy so much time, that to institute any comparison would be truly ridiculous; under such a system it might be expected,† that every noxious plant would be most carefully plucked out, but this is not the case, for the land is seldom fallowed, and when any thing of this kind is attempted, it is performed in so miserable a manner, that it is rather pernicious than useful. The ground, instead of being improved, becomes covered with a thick tissue of weeds, so that any endeavour to clean it is entirely useless, and the most that is done even by those who boast of superior industry, is to cut off the tops of the large weeds, which appear to be more conspicuous than the rest. Wheat is a plant of very modern introduction in Ulster, and there are still parts of it where this grain is never sown.‡ Although it has not yet been brought into general cultivation in this district, it is more frequently found on the sea-coast of Down than in any other place. The harvest is late, but having never been there in that season, I shall refer the reader to a table which I have formed from the best authorities.

* “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 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 at the expiration 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.” *Dubourdieu's Survey of Down*, p. 39.

† July 5th, 1808. Armagh. Moy.—There appears but one determined course, corn or potatoes as long as the land will grow either, and then letting it remain in a state of weeds for some years.

July 6th. Antrim. Brook-hill.—Mowing grass, six shillings per acre. Land in this neighbourhood worth about two guineas. No market for mutton, peas, or beans, which Mr. Watson assigns as a reason for not raising them, and yet this place is within three miles of Lisburn, a town containing ten thousand persons.

Moyallan.—Day-labour, sixteen-pence; women do all the reaping at twelve-pence per day.

July 12th, 1808. Castle Gosford.—The course of crops in this neighbourhood is potatoes, flax, oats, and as long as the ground will bear them. “Powdered out” land worth two guineas an acre.

‡ Sir Charles Coote says, “the whole county of Monaghan has seldom one hundred acres of wheat.”

The corn in general is threshed as soon as it is gathered, and is seldom kept throughout the winter. For this practice various reasons are assigned, but one of the principal is, that as the farms are small, they have no room for a "haggard." The inhabitants being much occupied in the linen manufactory,* are anxious to get their agricultural labours ended as soon as possible, that they may sit down to their looms during the winter, and in order to raise a little ready money they sell as much of their corn as can be spared.† But though some individuals sell corn, this is not the case in general, for I am of opinion, that the district to which I here allude purchases corn from the south. Where oats are so much used as the food of man, it can hardly excite surprise that they are not given to horses, and hence these animals become so weak, that they are incapable of performing any effectual labour. The wheat, whatever quantity of it be raised, is generally "lashed," that is, the grain is knocked out by striking the sheaf across a beam placed above a cloth, spread out on the ground. The sheaf, however, is still reserved to be threshed in the ordinary way with a flail. In this district, as well as in the greater part of Ireland, the corn is threshed on the highways, and is dressed by letting it fall from a kind of sieve, which during a pretty strong wind, is held by a woman as high from the ground as her arms can reach. If the men perform the labour of threshing, the women also do their part, as they universally dress the corn, but in so slovenly a manner, that it is never half cleaned. Besides, it remains exceedingly damp, nor is the

* July 12th, 1808. Gosford Castle.—Labour, during the harvest and peat season, twenty-pence, at other seasons ten-pence. Mowing, three shillings and nine-pence halfpenny per acre.

A farm of ten acres, after supplying the family with milk, sells one cwt. of butter; two acres keep the two cows. Met a common farmer on the road, who said he could not live without lime. He preferred a Nova Scotia lease, (meaning *toties quoties*) that there was a great export of flax to England, owing to the scarcity of hemp. "Clover is a good thing, but I live by the linen manufacture." He farmed sixteen acres and sold one cwt. of butter. "The climate was too cold to save flax-seed."

Sept. 19th, 1808. Antrim. Randlestown.—Soon after leaving Glenarm, on the way to this place, passed over a cultivated country; the general produce, potatoes, oats, and flax. Now and then saw a piece of land liming for wheat. Lord O'Neil has been draining and improving his domain in a very useful manner, and at a very considerable expence.

† The following memoranda, from my journal, will enable the reader to form some idea of the nature of farms in this district, and of the state of the people who occupy them.

Sept. 20th, 1808. Randlestown.—Land about Shane's Castle from twenty-five shillings to forty shillings per acre. Small farms contain generally from eight to ten acres; a few extend to eighty, and even one hundred acres. From this place to Tuam bridge the land is of a poor quality, but all cultivated.

Sept. 21st. Tyrone. Lisson.—Tenures in this neighbourhood very small, rent from thirty shillings to forty shillings per acre.

Sept. 22d. Called at two cabins half-way between Tuam and Randlestown. Two tenements consisting of seven acres; rent £4. A turf-hog £1. 6s. 8d. There were four cows but no horse. Each occupation had a sow, and sowed a peck of flax. In one cabin was a man, his wife, and five children. In the other a man, his wife, and one child, with a mother and an orphan boy bringing up. The men weave cotton in webs 130 yards long, and for an eight hundred, get seventeen shillings and sixpence.

farmer ever very anxious to prevent either of these defects, because it is sold by weight. In this, however, as in many other things, he betrays a surprising degree of ignorance, since it is well known that whatever corn gains in this manner by false weight, it loses in quality. But what is still more extraordinary, and exhibits in the strongest point of view the force of habit, the oat-millers assured me, that from ten to fifteen per cwt. of dirt was always mixed with the oats saved for their own consumption, which they would never be induced to take out. Sir Charles Coote says, speaking of a barony in Cavan,* “Here there is no market for grain at all; the corn is brought to market in meal. Oatmeal and potatoes are the only provisions for sale in any of the markets of the country. If oats are wanted for purchase, the farmers houses are the places resorted to.” And in another place he observes, that “provisions very seldom appear for sale, as the weavers till just land enough to afford them potatoes, oats, and the flax plot. These articles of food, with butter-milk, are their best fare; the butter and the hog are now sent to market.”† And this statement will apply to the greater part of the district under consideration.

Of late years clover has become a favourite object with all these petty farmers;‡ but it is never eaten on the field, being always mown and carried to the cow, which in general is kept under a shed. It is suffered for the most part to stand a year or two, and if it were a durable plant it would be permitted to remain much longer. It is considered of too great value to think of breaking up the land where it grows. The horse participates in this delicious fare, and I have often hailed with much satisfaction the sight of the little patch of clover, so useful in every point of view, which I have no doubt yields to the helpless infant many an additional draught of wholesome milk, and prevents the infliction of heavy blows and imprecations, which would otherwise be bestowed upon the weak and half-starved animal. To raise a crop of peas or beans, except in gardens, is scarcely ever attempted, and I am inclined to think that even the cultivation of barley depends on the vicinity of the illicit distilleries. In Cavan the “corn-kiln,” so common towards the north-west, is every where seen, and its existence is an indication of the dampness of the climate. Sir Charles Coote says, that these kilns are peculiar to Cavan,§ but in this he is mis-

* Survey of Cavan, p. 74.

† Ibid. p. 240.

‡ Sept. 23d, 1808. Dungannon.—Left Money more and took the road to Stewarts-Town, through a cultivated corn country, to Coal Island; on quitting Stewarts-Town the country appeared more under grass. The land immediately about the town very valuable; Lord Northland never lets any at less than one guinea or a guinea and a half per acre. The leases are for three lives.

Lord Northland spays his ewes. Some limestone in this neighbourhood. Labour thirteen-pence a day in summer. His lordship has observed that the flax-seed around him is equal to the foreign.

Sept. 21th. Castle-Blaney.—Land from a guinea and a half to two guineas; leases for two or three lives. The tenures are so small, as seldom to exceed twenty acres.

§ Survey of Cavan, p. 244.

taken, as there are many counties in which the oats, unless previously dried, could not be ground into meal. "Peculiar to this county" says he, "is a semicircular thatched hovel, with a hole to admit the fire below, like the eye of a lime-kiln; in the centre are two beams, over which a hurdle is thrown, and above this is placed a straw mat to spread the corn upon, and to which the heat ascends. Two small apertures are made opposite to each other in the sides of the hovel to draw the air; one of these is always closed when fire is applied."

AUG. 22d, 1808. CAVAN. FORTLAND.—I saw here 160 persons reaping oats for Mr. Maxwell; they were all his tradesmen, the tenants of his brother or his neighbours; but whether he was indebted for this assistance to popularity, or the anxious desire of these poor people to obtain patronage, by conferring an obligation, I could not readily ascertain. The field was of considerable extent, and had first been laid down with rape-seed; the oats were estimated at this time by Mr. Maxwell to produce twenty-five barrels per acre. Under them I observed a capital plant of grass, arising from a mixture of different kinds of seed; namely, one barrel of rye-grass, twelve pounds of red clover, twelve pounds of white, and the same quantity of trefoil. Rode to this place through a country exceedingly uneven, without the appearance of any thing that could properly be called hills. Lost here the limestone substratum, the greater part of the soil not having much staple, over a brown stone rock. The crops of corn were light and the inclosures small; but very little of the land seemed to be under tillage. The rent full forty shillings per acre.

AUG. 24th. CAVAN. FARNHAM.—Flax, meadow, grass, potatoes, and oats, are the principal crops in this neighbourhood, the cultivation of wheat being very limited.

In the county of Cavan population and tillage extend to the very tops of the hills. The fields, which are surrounded by fences, or rather embankments, are small. The chief objects of cultivation are potatoes, oats, and flax, but the land appears to be quite exhausted. Each occupier has a cow or two, and a couple of goats tethered.

On the outside of Mr. Coote's domain, I was struck by the appearance of a good fallow, and on inquiry found that a Scotch farmer had settled there on 150 acres of poor rocky land, which he hired at the rate of thirty shillings per acre.* This man said, that "in the low parts of his tenure there were forty good acres, which would enable him to pay his rent." The price of corn is subject to great fluctuation; oats are sold by the barrel, which is equal to fourteen stone. Last winter Mr. Sanderson paid eight-pence per stone; in May one shilling and sixpence. He observed that flax was raised by the cotters for the purpose of affording employment to

* This is not more than seventeen shillings English, per English acre.

the women ; were a gentleman to introduce it into his course of cultivation he would lose.

AUGUST 13th. ARMAGH.—Came to-day from the neighbourhood of Louth across the Fews Mountains without seeing either wheat, clover, or barley, throughout the whole course of my journey. Goats seemed to be much more common than cows.

AUGUST 19th.—Wheat is threshed here by the women, who, in order to separate the heads, knock the sheaf against a board. This operation is called "lashing."

AUGUST 22d, 1809. ARMAGH.—If oats are short and handsome, the people here say they are "very snod." To cut oats green is called cutting them "glazy."

AUGUST 24th. TYRONE. CLOGHER.—For twenty years past there have not been five acres of wheat in this whole barony. The poor are unacquainted with the taste of wheaten bread, and live only on oatmeal-cake and potatoes. No meat used but at Easter and Christmas.

Worn out corn-land is manured for potatoes ; if a farmer possesses any agricultural knowledge, he sows barley ; but the common run is flax, next oats, then waste : no clover is sown except in gardens, or in very small patches. Within the last fifteen years good land has let at from forty shillings to two guineas. It is poor land which will not bring a guinea and a half. Farms consist of from fifteen to twenty acres.

AUGUST 26th.—The wheat at this time, quite green. On the 27th saw many instances of men watching their cows, which were feeding on the green borders of the small corn-fields.

RURAL ECONOMY.—TILLAGE.

FIRST DISTRICT.

TABLE of the PRODUCE of WHEAT.

Date of Information.	Authorities.	Places.	Preceding State of the Land.	Date of Seed-Time.	Date of Harvest.	Quantity of Seed used per Acre.		Produce.	
						In the Weights and Measures of the Country.	In lbs. avoird.	In the Weights and Measures of the Country.	In lbs. avoird.
1811, Feb.	Rev. Mr. Gooch N.E. Very little sown.	Templepatrick, Antrim	Potatoes	September	August -	2½ cwt.	280	8 Barrels	2240
	Mr. James Watson	Brookhill, Lisburn, Antrim	Fallow, or Potatoes	September	September	4 Bushels -	280	40 Bushels	2800
1811, April 1	Mr. T. C. Wakefield	Moyallon, Down	Potatoes	Sept. to Dec.	September	—	—	—	—
1802, - -	Dubourdieu's Survey of Down, p. 72	- - - - -	Potatoes, Flax, and Lea.	Oct. to Mar. after Potatoes are dug	- - - -	4 Bushels -	280	1 Ton	2240
1811, Feb. 20	Rev. H. Boyd -	Dromore, Down	Potatoes or Fallow	October -	August -	5 Bushels -	350	9 Barrels	2520
1811, - -	George Ensor -	Armagh	Potatoes	November	August -	2 Bushels, or 120 lbs.	120	12 cwt. of 112 lbs.	1344
1804, - -	Coote's Survey of Armagh, p. 183	- - - - -	Potatoes	After digging out	Sept. and Oct.	2½ to 3 Bushels	192	8 Barrels	2240
1811, Aug. 28	Thos. Armstrong	Lisnover, Cavan	Potatoes	Nov. br	September	1 Barrel -	280	8 to 10 Barrels	2520
1811, Feb.	Rev. Mr. Gooch	Castle Blaney, Monaghan	None	grown in	the County.	—	—	—	—
							1782		15,904
						Average Seed per Acre	254	Average Produce per Acre	2272

TABLE of the PRODUCE of BERE.									
Date	Authorities.	Places.	Preceding State of the Land.	Date of Seed-Time.	Date of Harvest.	Quantity of Seed used per Acre.	In lbs. avoird.	Produce.	In lbs. avoird.
1811, Feb.	Rev. Mr. Gooch	Templepatrick, Antrim	Potatoes	October -	August -	2 Cwt.	224	2 to 2½ Tons	5600
1802, - -	Dubourdieu's Survey of Down, p. 80	- - - - -	Potatoes, Flax, and Lea	October to March after Potatoes are dug	- - - -	4 Bushels	224	1 Ton	2240
1811, - -	Geo. Ensor -	Armagh	Potatoes	March	August -	3 Bushels	168	5 Bolls of 10 Rnshels	2800
1811, Feb.	Rev. Mr. Gooch	Castle Blaney, Monaghan	Potatoes	October -	August -	14 Stone -	196	15 Barrels	3360
							812		14,000
						Average of Seed per Acre	203	Average Produce per Acre	3,500

I DISTRICT.—TABLE of the PRODUCE of BARLEY.

Date of Information.	Authorities.	Places.	Preceding State of the Land.	Date of Seed-Time.	Date of Harvest.	Quantity of Seed used per Acre.		Produce.		
						In the Weights and Measures of the Country.	In lbs. avoird.	In the Weights and Measures of the Country.	In lbs. avoird.	
1811. Feb.	Rev. Mr. Gooch	Templepatrick, Antrim	Potatoes	April - -	August -	2 cwt. - -	221	1½ to 2 Tons	3,920	
	Mr. James Watson	Brookhill, Lisburn, Antrim	Potatoes	April - -	September	2 Bushels -	112	8 cwt. - -	896	
1808. Sep. 21	Mr. Staples - -	Lisburn, Tyrone	- - - -	- - - -	- - - -	- - - -	- - - -	8 Bolls of 10 Bushels	4,480	
1802 - -	M'Evoy's Survey of Tyrone, p. 36	- - - -	Potatoes	- - - -	- - - -	16 Stone -	224	10 Barrels of 16 Stone	2,240	
1811. Apr. 1	Mr. T. C. Wakefield	Moyallon, Down	Potatoes	April - -	September	— - - -	— - - -	— - - -	— - - -	
1802 - -	Dubourdieu's Survey of Down, p. 81	- - - -	Potatoes	End of March to beginning of May	September	2½ cwt. - -	290	From 16 cwt. to 1½ Ton	2,576	
1811. Feb. 20	Rev. H. Boyd	Dromore, Down	Potatoes	April - -	August -	4½ Bushels -	252	60 Bushels or 27 cwt.	3,024	
1811 - -	George Ensor -	Ardress, Armagh	Potatoes	May - -	September	2½ Bushels -	140	5½ Bolls of 10 Bushels	2,800	
1804 - -	Cootes's Survey of Armagh, p. 187	- - - -	Potatoes	Beginning of April	September	2 cwt. - -	224	14 Barrels	2,136	
1808. Aug. 24	Rev. Dr. Storey	Clogher - -	- - - -	- - - -	- - - -	- - - -	- - - -	300 Stone	4,200	
1811: Aug. 28	Thos. Armstrong	Lisnover, Tallyhaw, Cavan	Potatoes	April - -	August -	16 Stone -	224	15 Barrels	3,360	
1802 - -	Cootes's Survey of Cavan, p. 100	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	12 Barrels of 16 Stone	2,688	
1811. Feb.	Rev. Mr. Gooch	Castle Blaney-Monaghan	Potatoes	April - -	August -	14 Stone -	196	11 Barrels	2,464	
							1,886		33,784	
							Average of Seed per Acre	209	Average Produce per Acre	2,982

TABLE OF OATS.

1811. Feb.	Rev. Mr. Gooch	Templepatrick, Antrim	Lea, Potatoes, or Oats	Feb. to Apr.	August -	10 Bushels -	490	60 Bushels -	2,940	
	Mr. James Watson	Brookhill, Lisburn, Antrim	Lea and Stubble	April - -	September	5 Bushels -	245	60 Bushels -	2,940	
1808. Sep. 21	Mr. Staples - -	Lisburn, Tyrone	- - - -	- - - -	- - - -	- - - -	- - - -	8 Bolls of 10 Bushels	3,920	
1802 - -	M'Evoy's Survey of Tyrone, p. 50	- - - -	Potatoes, Flax, or Barley	- - - -	- - - -	20 Stone -	280	7 Barrels of 18 Stone	1,764	
1811. Apr. 1	Mr. T. C. Wakefield	Moyallon, Down	Lea, wheat, &c.	March - -	September	— - - -	— - - -	— - - -	— - - -	
1802 - -	Dubourdieu's Survey of Down, p. 85	- - - -	Ground unfit for any other grain	As early in Spring as ground admits	Sep. generally a week after Barley	10 Win. bushels	490	60 Bushels -	2,940	
1811. Feb. 20	Rev. H. Boyd	Dromore, Down	Lea, or Potatoes	March - -	September	7 Bushels -	343	80 Bushels -	3,920	
1811 - -	George Ensor -	Ardress, Armagh	Potatoes	April - -	August -	13 Stone of 16lb.	208	84 Stone -	1,344	
1804 - -	Cootes's Survey of Armagh, p. 189	- - - -	No regular preparation	As early as ground admits	2nd or 3rd week of Sep.	28 Stone -	392	14 Barrels -	2,744	
1811. Aug. 28	Thos. Armstrong	Lisnover, Tallyhaw, Cavan	Wheat and Flax	March - -	September	20 Stone -	280	12 Barrels -	2,352	
1808. Aug. 27	Earl Farnham	Cavan - -	- - - -	- - - -	- - - -	- - - -	- - - -	16 Barrels -	3,136	
1802 - -	Cootes's Survey of Cavan, p. 261	- - - -	- - - -	- - - -	- - - -	22 Stone -	308	12 Barrels of 14 Stone	2,532	
1811. Feb.	Rev. Mr. Gooch	Castle Blaney, Monaghan	Oats, Potatoes, Lea	Feb. to Apr.	August -	20 Stone -	280	11 Barrels -	2,156	
1801 - -	Cootes's Survey of Monaghan	- - - -	Flax	- - - -	- - - -	25 Stone -	350	8 to 10 Barrels of 14 Stone	1,764	
							3,666		31,272	
							Average of Seed per Acre	333	Average Produce per Acre	2,636

I. DISTRICT.—TABLE of the Produce of POTATOES.

Date of Information.	Authorities.	Places.	Preceding State of the Land.	Date of Seed Time.	Date of Harvest.	Quantity of Seed used per Acre.		Produce.	
						In the Weights and Measures of the Country.	In lb. Avoid	In the Weights and Measures of the Country.	In lb. Avoid.
1811, Feb. -	Rev. Mr. Gooch	Temple Patrick	Lea or Oats	April & May	October -	40 Bushels -	2,800	480 Bushels -	33,600
—	Mr. James Watson	Antrim Brookhill, Lisburn, Antrim	Lea and Stubble	April - -	October -	28 Bushels -	1,960	500 Bushels -	21,000
1808, Sept. 21	Mr. Staples -	Lisson, Tyrone	Lea - -	- - - -	- - - -	- - - -	- - - -	250 Bushels -	17,500
1802 - -	M'Evoy's Survey of Tyrone, p. 31	- - - -	Lea - -	- - - -	- - - -	160 Stone -	2,240	80 Barrels of 20 Stone -	25,400
1811, April 1	Mr. T. C. Wakefield	Moyallon, Down	Oats, &c.	Mar. to May	September	—	—	—	—
1802 - -	Dubourdieu's Survey of Down, p. 96	- - - -	Lea - -	Apr. or May	- - - -	- - - -	- - - -	250 Bushels -	17,500
1811, Feb. 20	Rev. H. Boyd -	Dromore, Down	Lea or Stubble	April - -	October -	40 Bushels -	2,800	500 Bushels -	21,000
1811 - -	Geo. Ensor - -	Ardrass, Armagh	Lea - -	1 to 20 May	begin. Nov.	17½ Bushels -	1,225	160 Bushels -	11,200
1804 - -	Coote's Survey of Armagh, p. 191.	- - - -	Lea - -	Mar. to May	Oct. to Dec.	200 St. of 1½ lb.	2,800	2,000 Stone -	28,000
1811, Aug. 28	Tlo. Armstrong	Lisnover, Tallyhaw, Cavan	Lea - -	April - -	End of Oct.	4 Barrels -	2,688	25 Barrels of 6 Cwt.	16,800
1802 - -	Coote's Survey of Cavan	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	60 Barrels of 40 Stone	33,600
1811, Feb. -	Rev. Mr. Gooch	Castle Blaney Monaghan	Lea, Oats	Apr. & May	October	35 to 40 Bushels	2,625	480 Bushels -	33,600
1801 - -	Coote's Survey of Monaghan, p. 69	- - - -	Lea - -	- - - -	- - - -	- - - -	- - - -	40 Barrels of 28 Stone -	15,680
						Average of Seed per Acre - }		Average produce per Acre }	
						19,138		269,380	
						2,392		22,248	
TABLE OF FLAX.									
1811, Feb. -	Rev. Mr. Gooch	Temple Patrick	Potatoes	March or April	July and Aug.	3½ to 4 Bushels	30	50 Stone - -	700
—	Mr. James Watson	Antrim Brookhill, Lisburn, Antrim	Potatoes	April - -	July - -	3 Bushels -	24	Varies much. 4 Cwt. -	448
1802 - -	M'Evoy's Survey of Tyrone, p. 30	- - - -	Oats or Barley	- - - -	- - - -	40 Gallons -	40	—	—
1811, Apr. 1.	Mr. T. C. Wakefield	Moyallon - Down	Potatoes & Lea	April & May	Aug. & Sept.	—	—	—	—
1802 - -	Dubourdieu's Survey of Down, p. 88.	- - - -	Potatoes Barley & Oats	As early as season admits	As soon as Bolls full grown	3½ Bushels -	30	50 Stone of 16 lb.	800
1811, Feb. 20	Rev. H. Boyd -	Dromore, Down	Potatoes, Lea	May - -	August - -	3 Bushels -	24	40 Stone	640
1811 - -	Geo. Ensor - -	Ardrass, Armagh	Potatoes -	Beginning of May	End of July	4 Bushels -	32	6 or 7 Stone of pulled Flax	—
1804 - -	Coote's Survey of Armagh, p. 197	- - - -	Potatoes	Easter - -	Just before it changes colour	30 Gallons -	—	—	—
1808, Aug. 24	Rev. Dr. Storey	Clogher - -	- - - -	- - - -	- - - -	4 Bushels -	32	48 Stone - -	672
1811, Aug. 23	Thos. Armstrong	Lisnover, Tallyhaw, Cavan	Oats - -	May - -	August - -	4 Bushels -	32	56 Stone - -	896
1802 - -	Coote's Survey of Cavan, p. 100	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	80 Stone - -	1,120
1811, Feb. -	Rev. Mr. Gooch	Castle Blaney, Monaghan	Potatoes -	April - -	July - -	4 Bushels -	32	72 Stone - -	1,008
1801 - -	Coote's Survey of Monaghan	- - - -	- - - -	- - - -	- - - -	4 Bushels -	32	—	—
						508		6,284	
						Average of Seed per Acre in Gallons }		Average produce per Acre }	
						30		785	

AVERAGE Quantities of Seed used, and of the Produce per Acre,
of the First District.

	Seed used per Acre.	Produce per Acre.	Proportion between Seed and Produce.
Wheat - - - - -	224 lb. avoirdupois.	2272 lb. avoirdupois.	1 to 10·1
Bere - - - - -	203 ditto	3500 ditto	1 to 17·3
Barley - - - - -	209 ditto	2982 ditto	1 to 14·2
Oats - - - - -	333 ditto	2636 ditto	1 to 7·9
Potatoes - - - - -	2592 ditto	22248 ditto	1 to 9·2
Flax - - - - -	30 gallons	785 ditto	

Second District.

Under this head I comprehend the northern part of Antrim, Londonderry, the north and west of Tyrone, and the whole of Donegal; but I am sorry to say, that tillage here seems to be in a much worse state than in the former district. The greater portion of the surface is covered by mountains, and the produce of these is exceedingly small. Such of the vallies as are susceptible of it are tilled; but many of them, in consequence of their low situation, have been converted into bogs or moors, which are covered almost entirely with sedges and rushes. The mountains exhibit a great difference in their qualities; many of those in Donegal are masses of granite, called emphatically "bad mountain," which throw out no vegetable whatever; whilst those in Derry possess a superiority in this respect, as there is only a small part of them which does not produce something. In many instances the sides of these mountains are let by the lump, and attached to small strips of arable land at their foot; but as population increases, cultivation extends upwards; and every year the inhabitants of this district are becoming more numerous. Like those already described, they are occupied partly in spinning yarn and weaving linen; but on their holdings they also raise some flax. Clover has not yet found its way so far north; and except a little in the neighbourhood of Derry, I know of no wheat cultivated in this extensive county. The only mill in it for the preparation of this grain is at that city, a pretty certain proof that very little is produced. In Donegal it is unknown. I have never seen a crop of it north of Fermanagh, and at that place, on the 26th of August, 1809, it appeared to be so bad and so backward, that I am inclined to think it must be a very unprofitable article of culture. Much has been said in regard to the introduction of winter green crops; and great fault has been found with the Irish for raising successive crops of oats; but are not oats as much the grain of a northern climate as wheat is of a southern, or rice of one

still more exposed to the influence of the sun?* I have been led to these observations by having seen much better crops of oats upon land which had produced them for several years, in the north of Ireland, than I believe could have been produced under a similar system on the best land in Essex;† and the black oat will yield a valuable crop in a climate too northerly for the white one. As to turnips and vetches, however much they may be adapted to the south of Ireland, I by no means think that they would be beneficial in this northern district. The land could never be got into a good state of fallow at a period early enough for the culture of turnips. I may be told, perhaps, that in the same latitude in England, Northumberland, for example, and even in Scotland, the turnip husbandry is pursued with great advantage; but I must observe, on the other hand, that the heavy clouds brought by the westerly winds, which are always bursting over this mountainous part of Ireland, keep the ground in such a continued state of wetness, that I am convinced a good early fallow could not be made. The same cause will co-operate with others to lessen, if not to prevent altogether the benefit arising from vetches, the chief advantage of which is their early growth. Vetches in the county of Donegal could not, in my opinion, be earlier than grass, and when got up would by the dampness of the weather be completely rotten. In such countries the best resource for winter food is fog-grass reserved for this purpose during the summer. On the 11th of September, 1808, I saw the people near Ramelton in Donegal carrying home peas, the straw of which was perfectly black from incessant rains, and I should therefore scarcely suppose that they would ever pay for the expence of threshing. Peas are the earliest crop in England, and in their growth have a great resemblance to tares; on this account I conclude that the latter will never be made to answer any beneficial purpose in Ireland.

Throughout all that country, which is let according to the village system, the course pursued must be the same, and as the fields pass from one hand to another every year, no occupier ever takes the least pains to ameliorate land from which he is certain he will derive no benefit the following season. In such districts the worst management is of course pursued; and improvement will be impracticable as long as the present order of things exists. But that the reader may see how far my observations are just, I shall give the following extract from Dr.

* Mr. Young, in his French Tour, vol. i. p. 308, has traced to a line the cultivation of vines, olives, and maize. The same principle, not so strongly marked, I think applicable to different sorts of corn in Ireland.

† Mr. Tuke, in his Survey of the North Riding of Yorkshire observes, that successive crops of oats will succeed, p. 127.

‡ My opinion in this was strengthened by a visit I paid to Mr. Wynne at Hazelwood near Sligo, in the autumn of 1809; that gentleman had given up the sowing of wheat, as he found it an unprofitable crop in that northern climate. If it could be made to answer at all, it must have succeeded under the care of a gentleman who takes such indefatigable pains to improve his land.

Mr. Parlan's Survey of Donegal,* which exhibits the infantine state of agriculture in that county. "Between Ballyshannon and Leitrim the mode of tillage near the town is with spades, and further up, near Lough Melvyn, with the long Leitrim loy. The potatoes near the town, in planting, are laid on the grass and dung, and then covered with mould. But in the stiff soil of Lough Melvyn the potatoes are dibbled, as they here call it, with a *steveen*. Spade and loy labour they all find more productive than ploughing, of which in this corner there is very little. North of Ballyshannon to Donegal two horses are used to drag a plough. In some places between Ballyshannon and Ballintra, a very bad practice obtains of ploughing lea ground for oats after having rested seven or eight years; they get two crops then, let it rest again, and so on in succession."

In Boylagh and Bannagh the labour is mostly done with the spade, which they find, in common with all others, to be more productive than the plough. The potatoe cuts are generally laid on the manure, and then covered in; but sometimes dibbled with a spade, which is here called *kibbing*. All along the coast of the mountain region through Rosses, the little tillage one sees is done with the spade. And in the district in that line towards Letterkenny, called Cloghanealy, when the mountains shew cultivable spots, the two-horse Irish plough is the mode."

The state of agriculture in the county of Londonderry is very little better. The Reverend Mr. Sampson, in his Survey, has given a minute and excellent account of it; but as it is too long for insertion, I must refer the reader to the work itself. I shall, however, observe, that it does not so much contain a description of the manner of the farming usually practised by the people, as of that adopted by the gentry, whose exertions I greatly admire, though it is of little importance what system of agriculture they pursue, as it has very little influence on the general produce of a country.

SEPT. 1808. LONDONDERRY.—The land adjoining the town is exceedingly good: one of the water meadows held by the bishop has produced five tons of hay per Cunningham acre; some of which sold for £12. and some as low as £8. His lordship this year sold his potatoes at the rate of £30. per acre; and finds that wheat can never be put into the ground too early. He has sown flax for seed, and expects three hogsheads from an acre. In his diocese the renewal fine has been settled at one-fifth of the produce rent, the original rent being very low.

SEPT. 6th. BALLYSHANNON.—Land about this place lets at from five to eight guineas per acre.

SEPT. 8th.—From Ballyshannon to Balintra rent is about thirty shillings; but the land is cultivated in small inclosures. Oats, potatoes, meadow, grass, and flax,

* Survey of Donegal, p. 28.

are common; but wheat is scarcely known. Towards the sea barley is cultivated. The tythe of oats four shillings; of meadow two shillings.

SEPT. 8th. DONEGAL.—The town parks let at £5. per acre; land without the town lets at from fifteen shillings to thirty shillings. The land at St. John's point very good; will fatten a bullock on an acre. Rent of land fit for the plough from ten to twenty shillings. Mountain is let by the lump, and is of little value.

SEPT. 6th. COLERAINE.—Town parks around Coleraine let at £4. per acre; land in the neighbourhood at thirty shillings. Celery grows remarkably well in bog. Mr. Lyle has raised on six and a half Cunningham acres, 32 bolls of barley, 12 Winchester bushels to a boll.

SEPT. 16th. COLERAINE.—Potatoe land from four-pence to eight-pence per perch of twenty-one feet long and nine broad. The people here never manure it; but they use a plough and a harrow. The produce of a perch from a bushel to a bushel and a half.

SEPTEMBER 18th.—The island of Rawlin is much cultivated, particularly with barley.

SEPT. 11th. ARDS, DONEGAL.—There is a sea-weed on this coast called *slaik-marrow*. It grows to an immense size, and is washed up at times in ridges a mile long, and eight or ten feet high. It is dried and burnt for kelp ashes, which sell at from five to fifteen shillings per cwt. It is used also as manure for potatoes, which answers very well for cattle or seed; but they are watery and unfit for the table. The produce of land is reckoned by the stook, twelve sheaves to a stook; and a man can reap fourteen stooks per day. Measurement is made by the Cunningham acre. Barley is cultivated all along the coast; but wheat is never sown. There is no market for it, and the millers complain when any is raised, that it is damp and light in consequence of late sowing. Mr. Althorpe approves much of the fiorin grass; it has the appearance of a most healthy twitch. Eight gallons of flax, at two shillings and two-pence per gallon, are employed for a rood of land.

SEPT. 14th. INISHOEN.—The fences in this barony consist only of grass banks thrown up to mark the boundaries. During summer, children watch the cattle and sheep to prevent them from breaking in upon the corn; but when once it is harvested the sheep herd together in great flocks, and in common with the cattle take possession of the whole country without any distinction. This system arises from the very small holdings.

SEPT. 12th.—The bishop fattens many cattle in winter on potatoes, giving them one stone per day, and half a stone of hay. A grass beast which attains to four cwt. requires from three to four months to fatten. A stone is equal to 14lbs. The price of hay in Derry £4. per ton.

Notwithstanding the general account here given of this district, an exception

must be made in favour of the neighbourhood of Raphoe. I have not been in that part of the country since the winter of 1800, and therefore must avail myself of an extract of a letter from my friend Dr. Beaufort, dated Oakfield, Raphoe, August 10th, 1811.—“When you were at Londonderry, have you ever made an excursion to this part of Donegal? The neighbouring grounds to Raphoe appear to be very good, and the crops hereabout make a THIRD better appearance than I have seen this year in our part of the country,* and are much superior to the corn in Monaghan and Tyrone. It astonished me to see the great progress of agriculture all through this northern region in twenty-two years. The hills, and the steep sides of the mountains, which were then barren and dreary, are now covered with oats, potatoes, and flax; and I find this barony to be remarkably populous.”

* Dr. Beaufort resides at Collon, in the county of Louth.

DUBLIN DISTRICT

II. DISTRICT.—TABLE of the Produce of WHEAT.

Date of Information.	Authorities.	Place.	Preceding State of the Land.	Period of Seed Time.	Period of Harvest.	Quantity of Seed used per Acre.		Produce.	
						In the Weights and Measures of the Country.	In lb. Avoird.	In the Weights and Measures of the Country.	In lb. Avoird.
1811, May 30	Mr. Alexander	Newtown Linnavady, Londonderry	Barley or Potatoes	October	September	—	—	—	—
1802 - -	Sampson's Survey of Londonderry, p. 185	- - -	- - -	- - -	- - -	3½ Bushels of 40 Quarters, weighing 4 Stone 2 lb. each	203	6 to 12 Barrels	2,520
1811, June 10	Major Nesbit	Glentis, Donegal	Potatoes	From 10 Oct. 1 Feb.	Last Week in September	10 Stone - -	140	10 to 15 fold -	1,750
							343		4,270
						Average Seed per Acre	171	Average produce per Acre	2,135
TABLE OF BARLEY.									
1811, May 30	Mr. Alexander	Newtown Linnavady, Londonderry	Potatoes	May - -	September	—	—	—	—
1801 - -	Sampson's Survey of Londonderry, p. 182	- - -	- - -	- - -	- - -	40 Quarters 3½ Stone	49	—	—
—	Ditto, p. 134	District of Maguilligan	Potatoes	- - -	- - -	4 Bushels -	168	3 to 5 Bolls -	2,016
—	Ditto, p. 180	At Dr. Paterson's, near Derry	- - -	- - -	- - -	12 to 14 Stone	182	10 Barrels of 21 Stone	2,940
1811, June 10	Major Nesbit	Glentis, Donegal	Potatoes	10 April -	15 August -	15 Stone - -	210	8 to 12 fold -	2,100
1808, Sept. 11	Mr. Alpbort	Near Ards, Donegal	- - -	- - -	September	- - -	- - -	12 Barrels of 21 Stone, per Cunningham Acre	3,528
							609		10,584
						Average of Seed per Acre	203	Average produce per Acre	2,646

II. DISTRICT.—TABLE of the PRODUCE of OATS.

Date of Information.	Authorities.	Places.	Preceding State of the Laud.	Period of Seed Time.	Period of Harvest.	Quantity of Seed used per Acre.		Produce.	
						In the Weights and Measures of the Country.	In lbs. Avoid	In the Weights and Measures of the Country.	In lbs. Avoid.
1811, May 30	Mr. Alexander	Newtown Lamivady, Londonderry	- - -	April - -	October	-	-	-	-
1801 - -	Sampson's Survey of Londonderry, p. 183	District West of the Bann	Lea -	- - - -	- - - -	From 6 to 8 Bushels of 40 Quarts, weighing 3 Stone 7 Bushels -	295 294	-	-
-	-	District of Magilligan	Barley -	- - - -	- - - -	-	-	2 to 5 Bolls	1764
-	Ditto, p. 158	At Mr. Scott's	- - - -	- - - -	- - - -	From 3 Strikes, or 7 Bushels	294	From 60 to 90 Stooks of about 1 Bushel each	3150
-	-	At Dr. Pater-sou's near Derry	- - - -	- - - -	- - - -	21 Stone -	294	240 Stone	3360
1811, June 10	Major Nesbit	Gientis, Donegal	Potatoes Flax or Lea	15 March	1 September	20 Stone -	280	6 to 10 Fold	2240
1808, Sept. 16	Mr. Lisle	Coleraine, Londonderry	- - - -	- - - -	- - - -	- - - -	- -	8 Bolls	4032
1808, Sept. 22	Mr. Miller	Moneymore, Londonderry	- - - -	- - - -	- - - -	- - - -	- -	8 Bolls	4032
1808, Sept. 11	Mr. Alphort	Near Ards, Donegal	- - - -	- - - -	September	- - - -	- -	16 Barrels of 18 Stone of 14lb. per Cunningham acre	4012
						1457		22,590	
						Average of Seed per Acre } 291		Average of Produce per Acre } 3,227	

TABLE OF POTATOES.

1811, May 30	Mr. Alexander	Newtown Lamivady, Londonderry	- - - -	1 May -	November	-	-	-	-
1801 - -	Sampson's Survey of Londonderry, p. 183	- - - -	- - - -	- - - -	- - - -	24 Bushels of 40 quarts, each weighing 3 Stone	1008	-	-
-	Ditto, p. 154	District of Magilligan	Lea -	- - - -	- - - -	40 Bushels	1680	320 Bushels	13,440
-	Ditto, p. 156	At Fahzn Vale	- - - -	- - - -	- - - -	25 Bushels	1050	From 500 to 350 Bushels	11,550
-	Ditto, p. 158	At Mr. Scott's	- - - -	- - - -	- - - -	12 to 14 Strikes of 2 Bushels -	1092	150 Strikes, or 300 Bushels	12,600
-	Ditto, p. 167	At Mr. Acheson's	- - - -	- - - -	- - - -	- - - -	- -	375 Bushels	15,750
-	Ditto, p. 180	At Dr. Pater-sou's near Derry	- - - -	- - - -	- - - -	16 Measures, or 128 Stone	1792	1536 Stone	21,504
1811, June 10	Major Nesbit	Gientis, Donegal	Moss fallow Lea, or Oats	1 March to 1 June	1 October	120 Stone	1680	8 to 15 Fold	19,320
1808, Sept. 16	Mr. Lisle	Coleraine, Londonderry	- - - -	- - - -	- - - -	- - - -	- -	400 Bushels	16,800
1808, Sept. 22	Mr. Miller	Moneymore, Londonderry	- - - -	- - - -	- - - -	- - - -	- -	250 Bushels	10,500
						8302		121,464	
						Average of Seed per Acre } 1383		Average of Produce per Acre } 15,183	

II. DISTRICT.—TABLE of the PRODUCE of FLAX.

Date of Information.	Authorities.	Places.	Preceding State of the Land.	Period of Seed-Time.	Period of Harvest.	Quantity of Seed used per Acre.		Produce.	
						In the Weights and Measures of the Country.	In Galloos.	In the Weights and Measures of the Country.	In lbs. Avoird.
1811, May 30	Mr. Alexander	Newtown, Lamivady, Londonderry.	. . .	April . .	August	—	—	—	—
1802 . . .	Sampson's Survey of Londonderry, page 135	District of Magilligan,	. . .	. . . . .	. . . . .	4 Bushels .	32	160 Stooks	—
—	Ditto, p. 180	At Dr. Patterson's, near Derry, Glentis, Donegal	. . .	. . . . .	. . . . .	23 to 32 gallons	27½	12 Stooks of 72 lb. each, Scotch'd Flax	—
1811, June 10	Major Nesbit	Potatoes, Barley, or Lea.	Potatoes, Barley, or Lea.	15 May .	1 August	35 gallons 4 Bushels .	35 32	8 Cwt.	—
1808, Sept.	Mr. Lye . .	Coleraine, Londonderry	. . .	. . . . .	. . . . .	32 Gallons per Cunningham acre	32	—	—
1808, Sept. 11	Mr. Alpbort .	Ard, Donegal	. . .	. . . . .	. . . . .	Average Seed per Acre	158 31½	Average Produce per Acre	—

AVERAGE Quantities of Seed used, and of the Produce per Acre, of the Second District.

	Seed used per Acre. In lbs. Avoird.	Produce per Acre, In lbs. Avoird.	Proportion between Seed and Produce.
Wheat	171	2135	1 to 12·4
Barley	203	2646	1 to 13
Oats	291	3227	1 to 11
Potatoes	1383	15183	1 to 10·9
Flax	31½ Gal.		

Third District.

In this district, which comprehends the northern part of Fermanagh, the farms are much larger, and the high lands more productive than in the preceding. The agricultural system pursued is therefore superior, and in the ratio of the greater size of the possessions, which enables the occupier to adopt a more improved mode of management. In this county, as before stated, I have seen wheat growing, though oats are far more general; but a small portion only of the land is employed in tillage.

AUGUST 29th, 1808. BELLEISLE.—Sir Richard Hardinge has an estate in this county, consisting of eighty-one farms, and the tenants on seventy-nine of these are protestants; but at the distance of less than three miles there is an estate of £10,000. per annum, every tenant of which is a catholic. The markets for grain are the illicit distilleries. Near the town of Enniskillen wheat is not cultivated. The hire of labour is one shilling per day; and the rent of corn acres eight guineas per annum; but the spirit of agricultural enterprise possessed by the English farmer has not yet extended its beneficial influence to the great body of the people, who, blinded by prejudice, and unenlightened by instruction, pertinaciously adhere to their old, awkward, and unprofitable operations. They plant potatoes on a lea, twice reversing the lands; and the course is flax, oats, and weeds. They seldom sow clover, and in calculating the most advantageous crop, they always estimate that four stone of barley and six of oats will make a gallon of whiskey.

AUGUST 31st, 1808. FLORENCE-COURT.—Land here will let at present for thirty shillings.

BELLEISLE.—Rode hither from Farnham, and during the whole way met with meadow, grass, oats, potatoes, and flax; but saw only one small patch of wheat.

SEPT. 11th, 1808. CASTLE-COOL.—According to the turf contract at Enniskillen, a *kish* of that article delivered at the barracks costs 1s. 4d. the poor here eat wheaten bread and drink tea; butter is 1s. per lb. beef 6d. mutton the same; veal is very seldom seen; but when sold brings 8d. The price of a turkey is 3s. pork 5d. per pound; salt 10s. 6d. per cwt. Hides sell at 48s. per cwt. Oak is 5s. and 7s. 6d. per solid foot; ash 4s. 6d.: for beech there is no market. Elm is seldom raised; bark sells for £20. per ton; hay £3. per ditto. The farms in the neighbourhood of Florence-Court are very small; they consist of from two to twenty acres, and belong all to manufacturers. Grazing tenures are from one to three hundred acres. Enniskillen market is attended weekly by about thirty or forty farmers from this district, whose circumstances enable them to eat meat daily, and to drink port wine.

AUG. 28th, 1809. FERMANAGH.—The price of labour here to regular tenants is 1s. per day; 1s. 6d. or 2s. are sometimes paid, but the holdings being small, the people are all farmers, and therefore to procure labourers is very difficult.

There are turf-bogs near Clogher, which let at twelve guineas an acre. This day I saw the people cutting oats, but the wheat was entirely green. In Devenish Island land lets for potatoes at ten guineas per acre.

The reason of my including the northern part of this county in a separate district is, the difference it exhibits from the "Black North," and the small farms of the eastern part of Ulster.

Fourth District.

South of Lough Erne, tillage is to be met with at the bottom of the mountains, and the same system seems to be continued, with little exception, throughout Sligo, Mayo, Galway, Clare,* some parts of Roscommon and Longford. Corn-acres, under which term are included lea-lands used for potatoes, are here very common.

Along the sea-coast of Sligo, the soil being much lighter, considerable quantities of barley are raised, and consumed in the illicit distilleries. The mode of ploughing in this district is somewhat different from that which is followed in other parts of Ireland; four horses a breast are invariably used, and, to hasten their progress, a man walking backwards keeps continually beating them on the head. In Roscommon I heard of horses being yoked to the plough by the tail,† but I had not an opportunity of seeing this curious practice. I was, however, assured by Dean French, that it is still common with two-year-old colts in the spring. And the Rev. Mr. Elliot, a clergyman of the established church in Ireland, who has a living at Pettigo, in the county of Fermanagh, said he had seen it in his parish in the spring of the year 1808. These are the only instances I heard of it during the whole course of my tour. Mr. Young says, that when he was in Ireland, in 1779, it was prevalent throughout Cavan.‡ A considerable improvement, therefore, has been made in this respect in the last thirty years.

* Dutton's Survey of Clare, p. 41. "A large portion of the tillage of the county is performed by the spade, especially that on the sides of mountains, or amongst rocks; the unevenness of the surface, and too often the pocket not answering for the expence of a plough and horses; and some of the best corn of the county is produced in this laborious and expensive manner."

† Carte says, the following acts were passed in the session of 1634: "for preventing the barking of trees, the cutting and carrying away corn, and destroying hedges and fences; against the burning of corn in the straw, which else would have served for the fodder of cattle in the winter; against ploughing by the tail, and the pulling the wool off living sheep." *Life of the Duke of Ormonde*, vol. i. p. 79.

‡ The old odious custom of ploughing by the tails of cattle, or using the short ploughs, as they were called, had been forbidden by an act of the state, under the penalty of ten shillings yearly on every such plough; their superiors were little attentive to teach the poor a better method; nor were the king's officers solicitous to force them from their barbarous custom; they contented themselves with levying a penalty, from which they themselves derived the principal advantage, and thus converted it into a regular tax, so oppressive as to become a just subject of complaint. The penalty was therefore taken away, and the above referred to the cognizance of a future parliament." *Ireland's History of Ireland*, 4to edit. vol. ii. p. 486.

‡ Tour in Ireland, p. 179.

Oats are the chief kind of grain cultivated throughout this district, and the quantity raised depends on the demand. Since the late Marquis of Sligo established a town at Westport, the culture of corn has been greatly extended.

In many parts of Mayo, at Kilrush in the county of Clare, the establishment of corn-buyers, who ship oats for Scotland, has proved the means of exciting the farmers to sow many hundred acres that would have been covered only with sour grass, contributing merely to the production of a little butter. In the interior the market depends in a great measure on the illicit distilleries already so often mentioned, and, as rents have risen in proportion to the increase in the prices of corn, landlords have found themselves interested in the continuance of this market, which to a stranger must appear very extraordinary. I have no doubt that these gentlemen would prefer legal stills if they created the same demand; but where these are not established, a market, under any circumstances, becomes an object of considerable importance.

The county of Roscommon is so much appropriated to grass-land as to afford very little room for agriculture, and therefore an account of its tillage may be comprehended in a few words. Whatever there is, seems to be conducted on the same plan; and to exhibit no difference from the method pursued in the rest of Connaught. But it is to be observed, that even here a small part of the produce is sold in meadow or corn acres to the cotter-peasant. A large portion of this district is let on partnership leases, according to the village system. As Dr. M'Parlan's account of the tillage of Leitrim exhibits a faithful picture of the general cultivation of Connaught; I shall transcribe it.* "The mode of culture is with a long narrow spade, commonly called a loy. This machine they prefer to ploughs, and assign many reasons for doing so. The hills, of which nearly the whole county is composed, are very steep, beset with stones, and notwithstanding the soil being generally gravelly, so tough and retentive of wet as to render ploughing objectionable. They also complain of a scarcity of horses; but above all, they assign as a peculiar inducement the abundance of crop produced by the loy culture compared to that of the plough. In some of the more level parts ploughing is in practice, and in some others they unite both, first ploughing, then mincing and dressing with the loy. The soil being in general of the stiff argillaceous kind, wherever it is so, the potatoes are planted by dibbling with the *steven*. In a few places they plant by spreading the cuts on the dung, or green turf, and then digging up the furrows; and in still fewer places near the sea, where the soil is light and friable, they plant the potatoes by drilling with a one-horse plough, particularly in stubble and old potatoe-ground. From the middle of April to the middle of May is the common time of planting potatoes, and very little earlier that of sowing oats, as the coldness, the clamminess, and wet of the soil, require the vegetative inspiration of heat, to be productive. The manner of preparing the soil for oats is censurable, particularly when it is seldom ploughed, but even when prepared with the loy it is seldom sufficiently worked or minced, for, after sowing the seed and

* Survey of Leitrim, p. 25.

harrowing, which the poor people here often do by trailing green bushes along the ridges, the whole banks of those ridges remain unbroken, and the vegetation appears as if the ground had been drilled, or the seed dibbled in irregular ranges."

I have often heard the surveys made by the above gentleman much censured, but they contain some valuable facts, notwithstanding the style in which they are written, and the author cannot be blamed for want of information in regard to things not in existence. Tillage, on an extended scale, is unknown in the district. The establishment of buyers at Westport and Kilrush has done more to increase the production of oats than all the books which have been published, or all the gentleman-farming that has been exhibited.

OCT. 3d, 1808. COOLURE.—The people employed in shovelling the land sown with wheat, which had been previously limed.

OCT. 4th. ATHLONE.—From conversation I had with some of the people, I find that the lands let exceedingly high as they fall out of lease, the rent being from two to three guineas per acre. I saw this day a great deal of land adapted for the culture of turnips. On my way I met with a tenant of the late Lord Ross, a protestant yeoman, who had four children, and occupied twenty-five acres of land, two lives of the lease yet to come. The rent at present is 14s. per acre, and he told me that he buried money every year.

Having noted down at Ballydougall, near Lough Reagh, an account of the produce of a fine piece of land belonging to a gentleman of fortune, who manages it with great judgment, though a small part of it only is under tillage, I shall subjoin it, as it will shew in what manner the rent of land is made under the most favourable circumstances.

OCT. 8th. GALWAY. BALLYDOUGAL.—I saw no live hedges, but the divisions every where marked by fences of stone. The substratum is limestone, almost the whole country is appropriated to grass; potatoes are less common than in other parts. The pastures are grazed by sheep, and let at from two guineas to fifty shillings per acre, which appear to me enormous. The domain consists of 500 acres, 70 of which are plantations. There are in it 360 ewes, of a large, long-woolled, polled kind of sheep, crossed by the Leicester without losing in size. Mr. Burke always sells 50 of his smallest hoggits, and by these means keeps up the character of his flock, as the demand is for large ones. These sheep seem to be endowed with a stamen and constitution superior to the Leicestershire. He has sixteen milch cows, and rears the calves, but sells the steers as yearlings. Of his land, twenty acres only are under tillage. He sells twelve acres of meadow for six guineas an acre, and pays scarcely any thing for labour. His out-goings are only the value of the rent, and the expence of hay-making. This year he sold at Ballinasloe 150 two-year-old wethers, at 50s. each.

He has reclaimed mountain-land by paring and burning, covering it with limestone gravel, and then sowing rape for a crop along with grass-seeds. It now forms good meadow, and enables him to sell "grass potatoe land" which brings six guineas per

acre. At this time the people were all employed in getting in their crop, though Sunday, and some were still mowing their grass.*

OCT. 10th. GALWAY. PORTUMNA.—The tenures here are large, and the pastures employed for grazing both bullocks and sheep. The people were digging up their potatoes.

SEPT. 16th, 1809. ROSCOMMON. FRENCH PARK.—From Boyle to this place I found a limestone substratum covered with grass, and the whole country appropriated to grazing. Dean French lost a bet, that eight ton of hay was not saved on one acre; he says five is the common produce. I saw here a pig, two years old, of great size, which at Christmas would be worth five guineas. The herds at this place pay for losses. Mr. French has land let on lease for 15s. per acre, which he hires of his tenant at two guineas. Tenures are large, yet there is scarcely any tillage. Agents have the most unlimited power over the tenantry, in consequence of the hanging gale which keeps the latter in a continued state of servile subjection, and it is an universal practice with the agents of absentees to receive bribes from these unfortunate and degraded people.

SEPT. 17th. The common course for bringing land here into tillage, is to let it to the poor people for one year, in order that they may plant it with potatoes; it is then let in the same way for flax, and after two or three crops of oats it is allowed to remain at rest till it becomes clothed with verdure. Of late years grass-seeds have been introduced. Putting hay into tramp cocks, is called here, "trunking hay."

SEPT. 18th.—A great deal of flax is produced in this county. Sheep land lets at from 50s. to 2½ guineas; but the very best pasture for bullocks brings 3 guineas. To be capable of supplying food for a bullock per acre, is the criterion which determines grass-land of the first quality. Two barrels of seed-oats, of twenty-eight stone each, but of potatoe-oats 1½ barrels are allowed to an acre. Extensive tillage is here unknown. Dean French has fifty acres let out by the year to the poor for potatoes, at the rate of 6½ guineas per acre, if paid for by Candlemas; but if paid later, at 7 guineas. Wool sells for 24s. the stone.

OCT. 5th. GALWAY. WOODLAWN.—Went to the fair at Ballinasloe: saw the people all the way mowing hay and reaping very short oats. Mr. French finds that one labourer by himself does proportionally more work than a number united; the standard in the latter case being at the rate of the slowest or worst workman.

OCT. 7th. GALWAY.—Lord Ashtown says that the grass does not grow here till August. The average rent of green land in this county is 32s. per acre. The people break up their land to improve it; but in England the farmers, for the same purpose, lay it down. The Bishop of Killmore finds that old turbarry is the land most difficult to be reclaimed. The mountain sheep of a certain district in Donegal are called Dunkernellers; they are as wild as deer.

* They work for their "masters" during the week, and for themselves on Sunday.

IV. DISTRICT.—TABLE of the PRODUCE of WHEAT.

Date of Information.	Authorities.	Places.	Preceding State of the Land.	Date of Seed-Time.	Date of Harvest.	Quantity of Seed used per Acre.		Produce.	
						In the Weights and Measures of the Country.	In lbs. Avoird	In the Weights and Measures of the Country.	In lbs. Avoird
1811, Dec.	Owen Wynne	In Leitrim	Potatoes	September	September	18 Stone	252	160 Stone of 14lb.	2,240
—	—	Hazlewood, in Sligo	Potatoes	September	September	18 Stone	252	160 Stone of 14lb.	2,240
1811 - -	Mr. Mahon	Westport, Mayo	Fallow, or Potatoes	September	November	16 Stone	224	7 Barrels at 16 Stone	1,568
1811 - -	Lord Ashtown	Woodlawn, Galway	Fallow on large, & potatoes on small farms	October	September	14 to 20 Stone	238	7 Barrels of 20 Stone	1,960
1811 - -	Mich. Burke	Ballydougan, Galway	Generally fallow after potatoes, & two crops of Oats	Sep. to Dec.	20th August to 1st Oct.	8 to 10 Stone	126	7 to 10 Barrels	2,380
1811, May 16	Ross Mahon	Castlegar, Roscommon	Fallow, or Potatoes	October	September	14 Stone	196	8 Barrels of 20 Stone	2,240
1811, Mar. 25	Thomas Morony	Ibrickane, Clare	Potatoes	From Octo- to February	15th August to 20th Sep.	20 Stone	280	5 Barrels	1,400
1808 - -	Dutton's Survey of Clare, p. 41	- - -	- - -	- - -	- - -	10 to 20 Stone	210	5 to 9 Barrels of 20 Stone each	1,960
	Do. p. 41	Tridree, Clare	- - -	- - -	- - -	- - -	- - -	8 Barrels	2,240
							1,778		18,228
						Average of Seed per Acre	222	Average Produce per Acre	2,024
TABLE OF BERE.									
1811 - -	Lord Ashtown	Woodlawn, Galway	Potatoes	October and November	September	1 Barrel	224	16 Barrels	3,584
1811, May 16	Ross Mahon	Castlegar, Roscommon	Potatoes	October and November	August	12 Stone	168	16 Barrels of 16 Stone	3,584
							392		7,168
						Average of Seed per Acre	196	Average Produce per Acre	3,584

IV. DISTRICT.—TABLE of the PRODUCE of BARLEY.

Date of Information.	Authorities.	Places.	Preceding State of the Land.	Period of Seed Time.	Period of Harvest.	Quantity of Seed used per Acre.		Produce.		
						In the Weights and Measures of the Country.	In lbs. Avoird.	In the Weights and Measures of the Country.	In lbs. Avoird.	
1811, Dec. -	Owen Wynne -	Leitrim - -	Potatoes	April - -	August - -	18 Stone - -	252	234 Stone - -	3,276	
-	-	Hazlewood, Sligo	Potatoes	April - -	August - -	18 Stone - -	252	234 Stone - -	3,276	
1811 - -	Mr. Mahon - -	Westport, Mayo	Potatoes	April - -	September	30 Stone - -	420	10 Barrels - -	2,240	
1811 - -	Lord Ashtown -	Woodlawn Galway	Potatoes	April & May	September	1 Barrel of 12 Stone	168	15 Barrels - -	2,320	
1811 - -	Michael Burke -	Ballydangan, Galway	One or two Crops of Potatoes	1st of April to 1st of May	September	1 Barrel of 12 Stone	168	From 12 to 18 Barrels	2,520	
1811, May 16	Ross Mahon - -	Castlegar, Roscommon	Potatoes	Mar. & Apr.	July & Aug.	12 Stone - -	- -	15 Barrels of 16 Stone	3,360	
1811, Mar. 25	Thomas Marony	Ibrakane, Clare	Potatoes	Mar. & Apr.	15 Aug. to 20 Sept.	Half Barrel -	224	4 Barrels - -	1,792	
1808 - -	Dutton's Survey of Clare, p. 41	- - -	- - -	- - -	- - -	16 Stone - -	224	12 to 16 Barrels of 16 Stone each - -	3,136	
							1,708		22,120	
							Average of Seed per Acre	244	Average produce per Acre	2,765
1811, Dec. -	Owen Wynne	Leitrim - -	Potatoes	March - -	September	20 Stone - -	280	180 Stone - -	2,520	
-	-	Hazlewood, in Sligo	Potatoes	March - -	September	20 Stone - -	280	180 Stone - -	2,520	
1809, Sept. 13	Charles O'Hara, M. P.	Nymphsfield, Sligo	- - -	- - -	- - -	26 Stone - -	364	18 Barrels of 12 Stone	3,024	
1811 - -	Mr. Mahon - -	Westport, Mayo	Potatoes, Barley, Wheat & Oats	April - -	September	24 Stone - -	336	8 Barrels of 24 Stone	2,688	
1811 - -	Lord Ashtown -	Woodlawn, Galway	Potatoes or Corn	March - -	Sept. or Oct.	24 Stone - -	336	14 Barrels - -	2,744	
1811 - -	Michael Burke -	Ballydangan, Galway	Potatoes or Corn	15 Feb. to 1st of April	15 Sept. to 20th Oct.	- - -	- -	12 to 15 Barrels	2,646	
1811, May 16	Ross Mahon - -	Castlegar, Roscommon	Potatoes or Corn of any kind	March - -	- - -	24 Stone - -	336	16 Barrels in rich Soil, and 10 in poor	2,548	
1809, Sept. 16	Dean French -	French park, Roscommon	- - -	- - -	- - -	- - -	- -	16 Barrels of 14 Stone	3,136	
1811, Mar. 25	Thomas Marony	Ibrakane, Clare	Potatoes, Wheat or Barley	Feb. & Mar.	From 15 Aug. to 20 Sept.	21 Stone or 6 Bushels	294	5 to 6 Barrels of 28 Stone	2,156	
1809, Oct. 21	Sir E. O'Brien, Bar. M. P.	Dromoland, Clare	- - -	- - -	- - -	16 Stone - -	256	8 Barrels of 28 Stone	3,136	
1808 - -	Dutton's Survey of Clare, p. 41	- - -	- - -	- - -	- - -	14 to 28 Stone	294	10 to 16 Barrels of 14 Stone each - -	2,548	
-	D ^o p. 41 - -	Tridree - -	- - -	- - -	- - -	- - -	- -	16 to 18 Barrels	3,332	
							2,776		32,998	
							Average of Seed per Acre	308	Average produce per Acre	2,749

IV. DISTRICT.—TABLE of the PRODUCE of POTATOES.

Date of Information.	Authorities.	Places.	Preceding State of the Land.	Period of Seed Time.	Period of Harvest.	Quantity of Seed used per Acre.		Produce.		
						In the Weights and Measures of the Country.	In lbs. Avoid.	In the Weights and Measures of the Country.	In lbs. Avoid.	
1811, Dec. -	Owen Wynne	Leitrim - -	Lea or Stubble, manured	April - -	October -	20 Cwt. - -	2,240	230 Cwt. - -	22,400	
-	-	Hazlewood, in Sligo	Lea or Stubble, manured	April - -	October -	20 Cwt. - -	2,240	200 Cwt. - -	22,400	
1809, Sept. 13	Charles O'Hara, M. P. - - -	Nymphsfield, Sligo - - -	Out or Lea	April - -	October -	26 Cwt. - -	2,912	10 Bar. of 80 St. to the Bar. el	11,200	
1811 - - -	Mr. Mahon - -	Westport, Mayo	Lea or Stubble, manured	April - -	October -	26 Cwt. - -	2,912	20 Barrels at 10 Cwt.	22,400	
1811 - - -	Lord Ashtown -	Woodlawn, Galway	Out or Stubble or Lea, burned	End of April and May	End of Oct. and Nov.	128 Stone	1,792	20 Barrels of 8 Cwt.	17,920	
1811 - - -	Michael Burke -	Ballydangan, Galway	Lea burned or manured	April & May	November -	4 Barrels of 40 Stone	2,240	From 35 to 40 Barrels	30,700	
1811, May 16	Ross Mahon - -	Castlegar, Roscommon	Lea, dunged, burned or dunged	May - -	October and November	128 Stone	1,792	20 Barrels of 8 Cwt.	17,920	
1809, Sept. 23	Mr. Taaffe - -	Tulsk, Roscommon	- - -	- - -	- - -	16 Cwt. - -	1,792	- - -	- - -	
1811, Mar. 25	Thomas Marony	Ibrakane, Clare	Lea Ground manured Sea-weed	Any time before 1st of June	About October	- - -	- - -	20 Barrels -	26,880	
1808 - - -	Dutton's Survey of Clare, p. 41	- - -	- - -	- - -	- - -	- - -	- - -	12 to 15 Barrels of 128 Stone each	24,192	
-	Ditto, p. 41 -	Tridree, -	- - -	- - -	- - -	- - -	- - -	32 Barrels of 60 Stone each	26,880	
							15,008		222,892	
TABLE OF FLAX.							Average of Seed per Acre	2,144	Average produce per Acre	22,289
1811, Dec. -	Owen Wynne	Leitrim - -	Oats & Barley, or Potatoes	April - -	August - -	40 Gallons - -	- - -	3 Cwt. beckled	-	
-	-	Hazlewood, in Sligo - -	Oats & Barley, or Potatoes	April - -	August - -	40 Gallons - -	- - -	3 Cwt. beckled	-	
1811 - - -	Mr. Mahon - -	Westport, Mayo	Barley - -	May - -	August - -	1 Quart per Perch	- - -	20 Sheafs per Perch	-	
1811 - - -	Lord Ashtown -	Woodlawn, Galway	Potatoes	End of April and May -	Aug. & Sept.	11 Pecks - -	- - -	- - -	-	
1811, May 16	Ross Mahon - -	Castlegar, Roscommon	Potatoes	Apr. & May	August - -	11 Pecks - -	- - -	- - -	-	
1811, Mar 25	Thomas Marony	Ibrakane, Clare	Potatoes	Mar. or April	- - -	8 Pottles to 20 Perches	- - -	About 1 Stone to each Pottle	-	

AVERAGE Quantities of Seed used, and of the Produce per Acre
of the Fourth District.

	Seed used per Acre in lbs. Avoirdupois.	Produce per Acre in lbs. Avoirdupois.	Proportion between Seed and Produce.
Wheat - - - -	222	2,024	1 to 9·1
Bere - - - -	196	3,384	1 to 18·2
Barley - - - -	244	2,765	1 to 11·3
Oats - - - -	308	2,749	1 to 8·9
Potatoes - - - -	2,144	22,289	1 to 10·3

Fifth District.

In this district I comprehend Limerick,* which like Roscommon has very little land in tillage, the greater part of it being a flat grazing country; also Kerry and the south-west and northern part of Cork, taking in the eastern side of the Blackwater and the remainder of the county of Waterford. The whole district produces little corn? but notwithstanding its neglected state, I do not hesitate to say that it is as capable of improvement as any part of Ireland. Had illicit stills been introduced into this country in the same manner as they have been in the northern mountains, the market created by them would have given a stimulus to the industry of the people, and have proved the primary means of rendering the land more productive. The revenue might have suffered in the mean time, but this evil would have outweighed, except in a moral point of view, all its attendant inconveniences. But in making this remark I allude to a market in general, and not to any particular species of demand.

The whole of the southern part of Cork produces a great deal of grain, but the individual quantities are small, in consequence of the land being much divided, as in Ulster; for a particular account of it I must refer to the recent work of the Reverend Mr. Townsend. I did not spend much time in that part of the country, and even had I remained there as long as the gentleman to whose work I allude, I could not have given more information on the subject.

OCT. 13th, 1808. CLARE, BALLYVALLEY.—Labour here is thirteen-pence per day for harvest work; turf digging and mowing two shillings and two-pence; mowing per acre six shillings and sixpence; grazing a cow two guineas. Meadow-land lets for six guineas an acre. Lea for potatoes at from seven to ten guineas. The

* I am aware that, by including Limerick in this district, I class some of the richest land in the island with some of the poorest; but little of it is tilled; and had I not done so I could not have arranged the whole country into districts.

tythes of Killaloe belong to the bishop. A cottier pays to the person who farms them 3s. 4½d. per rood for oats.

OCT. 13th. LIMERICK. ADARE.—The average value of land here is £3. an acre, owing chiefly, no doubt, to its vicinity to the city of Limerick. Mr. Quin let a field of nine acres, adjoining to his residence, at ten guineas per acre for three lives.

The Limerick merchants give the Palatines one penny per stone more than the market price for their corn, which is much better dressed, though their implements are the same as those used in the country. I observed no visible difference in their mode of farming, but they do not, like the Irish, hire lands at any price; and they always attend to a fair division of the produce.

OCT. 14th.—Tillage in this neighbourhood appears to be increasing.

OCT. 16th. KERRY. LISTOWEL.—The land from this place to Tarbert lets at a guinea per acre, I have frequently heard of land being let here by the quarter; that is, a quarter of an acre. The people pay their rents chiefly by the sale of pigs and butter, and by digging turf for the Limerick market. Tythe farmers abound in this part of the country, and the complaints against them are loud and universal.

OCT. 17th. KERRY HEAD.—Came hither from Listowel over much bog, and before I reached a place called the Causeway, passed through a valley some miles in extent, between the Sturk's Mountains, and those which form Kerry Head. The whole is in a bad state of cultivation, but susceptible of improvement; the rents are paid by butter and pigs. The high-ways are impassable for carriages of any kind, and are even bad for horses. Kerry Head itself consists of a pathless mountain, and even near the houses and villages there is scarcely any trace or appearance of a road. The villagers hire large tracts of mountain in common, all being equally bound for the rent, and they take in cattle by adgment from the 1st of May to the 1st of November. A dry heifer is called a collop; ten sheep are also a collop; the price of grazing a collop is 16s. 3d. The price of salt is 2s. 2d. per quart, or 13s. per stone; ten quarts are employed to salt one cwt. of butter; a firkin costs 4s. 4d. and holds half a cwt. The expence of carriage to Cork is 3s. 9½d. per cwt. It is common here for people to borrow money of the merchants to pay their rent on the gale day; for when effects are sold by cant, there is a difference of 15s. or 16s. per cent. between cant price and currency. The Cork merchants require the firkins to be of oak, and the hoops of ash. A dry heifer is called a *shanever*. Shanevers which have had the bull, are taken in about November, and in May are sold as springers. A shanever is bought at 5 guineas, and sold for 8 or 9. The people never kill sheep for their own consumption: a cow on the best ground will produce 1½ cwt. of butter, to which are to be added, "horn money," that is, skimmed milk and a calf, worth together a guinea.

OCT. 18th. TRALEE.—Land in this neighbourhood lets for an enormous rent,

some times as high as 10 guineas per acre, but a large quantity, at a distance from the town, brings only from 3 to 4 guineas. Towards Dingle a great deal of wheat is cultivated and sent to Limerick. More flax is raised there than in any other part of the country; corn to be productive must be sown early; all the barley which grows here is sent to the breweries.

CORK. BANTRY.—Came here from Killarney, over mountains covered with heath and bog, but capable of improvement, which is rapidly advancing; cultivation is every year seen rising higher and higher up the sides of these eminences, which consist of a brown-stone rock. The red deer are confined to the Kerry mountains near Killarney.

OCT. 27th. SEAFIELD.—Widdy Island belongs to Lord Bantry; it consists of 1077 acres of remarkably rich land, which lets for three guineas per acre; a part of the opposite peninsula, towards Berehaven, is the property of his lordship, also being one of the Cromwellian grants. The mountain lands on the eastern side of Bantry Bay let as high as two guineas an acre, even very near the top. The people manure with sea-weeds, and their only mode of carriage is by panniers. In some parts of the bay there are beds of coral; this substance is remarkably heavy, and is dredged for, as it forms a calcareous manure which lasts many years, whereas sea-weed is exhausted in two crops. Lord Bantry has brought over the Devonshire cattle, which answer exceedingly well both in milk and in flesh; the country, on account of the wetness of the climate, being better adapted to grazing than to tillage. The usual price of labour is 1s. per day. Near Glengariff wild bees are numerous among the vines which creep up the rocks, and some honey is obtained from them.

OCT. 28th.—The Dingle Mountains are dry, and pastured to the tops.

NOV. 23d. DONNERAILE, COUNTY OF CORK.—This is a tillage country in which a great deal of wheat is raised, and tythes are taken according to the English acre at from 8s. to 10s. for wheat and potatoes. The present price of the latter is a guinea per ton, by selling at which the person who raises them is a loser. Potatoe land lets for six guineas the English acre.

NOV. 25th.—Rode over good land, where I observed that lime had been employed, and ploughs going with two horses led by a man. The seed was mostly ploughed in; which in the north is called seed following. Saw goats browsing in every direction. When a family is not able to procure a cow, they purchase a goat. The hogs are kept to a great age, and attain to a monstrous size; they are fattened only with potatoes, and are suffered to run about the whole time; they have, however, less inside fat than any hogs I ever saw killed. The people here employ the high-road as a sort of floor on which they pound their straw into muck, and for this purpose it is continually spread out in front of the farm-house.* As the roads are con-

* The same plan is pursued in Cornwall. *Annals of Agriculture*, vol. xii. p. 34.

structed of limestone, a great deal of which is scraped off along with the muck, the whole forms excellent manure.

Nov. 27th. LIMERICK. BRUFF.—Immediately after leaving Castle Oliver, I came into what is called the Golden Vale, consisting of fine rich grazing land covered with rushes, the stems of thistles and rag-wort, the produce of the preceding summer, which must have grown with surprising luxuriance.

Nov. 28th. Bruff-fair, held at this time for black cattle and flax. The cattle are a better and shorter legged kind than those in the county of Cork. Land in this neighbourhood lets for three, four, and five guineas per acre; when a few acres are let to an under tenant nothing less than five guineas is accepted. In the country around Macroom the cultivation of wheat is almost abandoned, and oats have been substituted in its stead.

Nov. 29th. GROOM.—Mr. Creed is reckoned the greatest grazier in Ireland, having slaughtered in Cork this season 800 head of cattle. Mr. Lyons has a farm of 105 acres, which during the six winter months supports 15 bullocks and 65 sheep, but in summer it admits 16 bullocks more; these bullocks weighed each 7 cwt. and cost 13 guineas. Flax land in the neighbourhood of Bruff, Hospital, and Tipperary, lets for £14. an acre. Hemp would grow on the rich caucass ground on each side of the Shannon, which was formerly all covered with that plant. The substratum consists of twelve inches of blue clay, then yellow clay, and an acre of it sown with oats will produce twice as much as any other land.

DEC. 2d. LIMERICK. GRANGE.—The labour of men 1s. of women 6d. and of children 4d. per day. Land is let for flax by the quarter rood, at the rate of £12. an acre. The tythe of wheat and flax 36s.; of barley 14s.; of oats 18s.; and of meadow-land 8s. Dairy-cows produce 1 cwt. of butter each, and £4. horn-money.

DEC. 13th. WATERFORD. FAITHLEG.—Shelly marl taken from the bottom of the river is used as a manure. Mr. Bolton let a farm to-day of 22 acres, much of it rough land and in a bad state, at £6. an acre for 21 years.

DEC. 14th.—Potatoe land lets at from 9 to 10 guineas per acre. A hundred barrels of lime, four bushels to a barrel, allowed to each acre of land; the cost of a barrel 20d. The limestone is brought by water from the western part of Waterford, and culm from Milford.

Apples put into pits like potatoes keep well, but straw destroys them.

In making up butter one-eight part of the weight is salt. In winter cows subsist on furze, potatoe-skins, and the water in which potatoes have been boiled. There is here no limestone, except to the west of the Blackwater; lime is brought from Kilkenny and Tipperary, and costs at the kiln 13d. per barrel of 42 gallons; about 100 barrels used to an acre.

V. DISTRICT.—TABLE of the PRODUCE of WHEAT.

Date of Information.	Authorities.	Places.	Preceding State of the Land.	Period of Seed Time.	Period of Harvest.	Quantity of Seed used per Acre.		Produce.		
						In the Weights and Measures of the Country.	In lbs. Avoid	In the Weights and Measures of the Country.	In lbs. Avoid.	
1811, Sept. 13	James Phelps -	Limerick - -	Potatoes or fallow	In rich Soil Oct. & Nov. and poor Soil as late as 1st February	Begins 8th of August	In rich Soil 16 to 18 Stone, and poor Soil from 20 to 23	238	10 to 12 Barrels of 20 Stone	3,080	
1811 - -	Charles Creed -	Bruff, Limerick	Potatoes	October -	August - -	18 Stone - -	282	200 - - -	2,800	
1811, Apr. 10	Hon. Windham Quin. M.P.	Adare, Limerick	Potatoes	November -	End of Aug.	—	—	—	—	
1806, Nov. 29	Mr. Lyons - -	Croome, Limerick	- - -	- - -	- - -	- - -	- - -	9 Barrels of 20 Stone	2,520	
1808, Dec. 2	Mr. Grady - -	Gange, Limerick	- - -	- - -	- - -	15 Stooe - -	210	10 Barrels of 20 Stone	2,800	
1811 - -	R. T. Herbert	Killarney, Kerry	Potatoes	January -	Middle of September	17 Stone - -	258	140 Stone -	1,960	
1811 - -	Rich. Alworth -	Newmarket, Cork	Potatoes	Latter end of November	August - -	20 Stone - -	280	140 Stone -	1,960	
1811, Aug. 24	Tho. Wallis - -	Waterford -	Potatoes	When Potatoes are dug	Aug. & Sept.	12 to 16 Stone	196	From 8 to 15 Barrels	3,360	
1808, Dec. 9	Rev. Mr. Meara	Currashmore, Waterford	- - -	- - -	- - -	- - -	- - -	6½ Barrels of 20 Stone -	1,820	
							1,705		20,300	
							Average of Seed per Acre	243	Average produce per Acre	2,537
TABLE OF BERE.										
1811, Sept. 13	James Phelps -	Limerick - -	Very little now sown, it does not require so good a soil as Barley	29th Sept. to 1st Jan.	Latter end of July	20 Stone per Acre	280	20 Barrels of 16 Stone -	4,480	
1811 - - -	Richard Alworth	Newmarket, Cork	Potatoes	February	July - - -	18 Stone - -	252	—	—	
1811, Aug. 24	Thomas Wallis -	Waterford -	Potatoes	April & May	Aug. & Sept.	From 16 to 20 Stone of 14 lb.	252	Not much cultivated in the neighbourhood of Waterford	—	
							784		—	
							Average of Seed per Acre	261	Average produce per Acre	4,480

V. DISTRICT.—TABLE of the PRODUCE of BARLEY.

Date of Information.	Authorities.	Places.	Preceding State of the Land.	Period of Seed Time.	Period of Harvest.	Quantity of Seed used per Acre.		Produce.		
						In the Weights and Measures of the Country.	In lbs. Avoid	In the Weights and Measures of the Country.	In lbs. Avoid.	
1811, Sept. 13	James Phelps -	Limerick - -	In good rich soils, sometimes after Potatoes & Wheat	17th March to 8th of May	About 15th August	16 Stone - -	224	16 Barrels of 16 Stone -	3,584	
1811 - -	Charles Creed -	Bruff, Limerick	Potatoes -	14th April -	Beginning of August	20 Stone - -	280	200 Stone -	2,800	
1811, April 10	Hon. Windham Quin, M.P.	Adare, Limerick	- - - -	March - -	Beginning of August	- - - -	- - - -	- - - -	- - - -	
1808, Dec. 2	Mr. Grady - -	Grange, Limerick	Potatoes & Flax	- - - -	- - - -	15 Stone - -	210	13 Barrels of 16 Stone -	2,912	
1811 - -	R. T. Herbert -	Killarney, Kerry	Potatoes	April - -	August - -	24 Stone - -	336	200 Stone -	2,800	
1811 - -	Richard Alworth	Newmarket, Cork	Wheat -	20th April -	Letter end of August	16 Stone - -	252	- - - -	- - - -	
1811, Aug. 24	Thomas Wallis -	Waterford -	Wheat or Potatoes	April & May	Aug. & Sept.	12 to 16 Stone of 14 lb.	196	From 12 to 15 Barrels of 16 Stone - -	3,024	
								1,498		15,120
TABLE OF OATS.							Average of Seed per Acre	249	Average produce per Acre	3,024
1811, Sept. 15	James Phelps -	Limerick - -	In Ground that will not bear Wheat or Barley sometimes after Potatoes	1st March to latter end of April	From latter end of Aug. to latter end of Sept.	26 Stone - -	364	15 Barrels of 14 Stone -	2,940	
1811 - -	Charles Creed -	Bruff, Limerick	Barley or Flax ground	March - -	September -	24 Stone - -	336	280 Stone -	3,920	
1811, April 10	Hon. Wyndham Quin, M.P.	Adare, Limerick	Wheat -	March - -	September	- - - -	- - - -	- - - -	- - - -	
1808, Nov. 29	Mr. Lyons - -	Croome, Limerick	- - - -	- - - -	- - - -	- - - -	- - - -	14 Barrels of 14 Stone -	2,744	
Do. Dec. 2 -	Mr. Grady - -	Grange, Limerick	Wheat & Barley	- - - -	- - - -	24 Stone - -	336	9 Barrels of 24 Stone - -	3,024	
1808, Dec. -	A Farmer on Mr. Desallis's estate	- - - -	Oats 6 or 7 Crops running	- - - -	- - - -	- - - -	- - - -	11 Barrels of 26 Stone -	4,004	
1811 - -	R. T. Herbert -	Killarney, Kerry	Wheat -	March - -	September	20 Stone - -	280	160 Stone -	2,240	
1811 - -	Richard Alworth	Newmarket, Cork	Wheat or Barley	17 March -	September	22 Stone - -	308	198 Stone -	2,772	
1811, Aug. 24	Thomas Wallis -	Waterford -	Barley & Potatoes	Mar. & Apr.	Aug. & Sept.	10 to 15 Stone	168	From 12 to 16 Barrels of 14 Stone -	2,744	
1808, Dec. 9	Rev. Mr. Mcara	Curraghmore, Waterford	- - - -	- - - -	- - - -	- - - -	- - - -	12 Barrels of 14 Stone -	2,352	
								1,792		26,740
TABLE OF OATS.							Average of Seed per Acre	298	Average produce per Acre	2,971

V. DISTRICT.—TABLE of the PRODUCE of POTATOES.

Date of Information.	Authorities.	Places.	Preceding State of the Land.	Period of Seed Time.	Period of Harvest.	Quantity of Seed used per Acre.		Produce.	
						In the Weights and Measures of the Country.	In lbs. Avoidr	In the Weights and Measures of the Country.	In lbs. Avoidr.
1811, Sept. 13	James Phelps	Limerick	In low Lea Lands, in low Ground if rich, without Manure, and frequently after Corn with Manure	From 17th March to 1st June	From the 15th of July to 1st November	192 Stone	2,688	40 Barrels of 48 Stone	26,380
1811	Charles Creed	Bruff, Limerick	Lea	April	October	200 Stone	2,800	1,700 Stone	23,300
1811, April 10	Hon. Windham Quin, M. P.	Adare, Limerick	-	April	November	-	-	-	-
1808, Nov. 29	Mr. Lyons	Croome, Limerick	-	-	-	-	-	40 Barrels of 6 Cwt. or 40 Stone to the Barrel	22,400
1808, Dec. 2	Mr. Grady	Grange, Limerick	-	-	-	-	-	40 Barrels	22,400
1811	R. T. Herbert	Killarney, Kerry	Lea	April & May	October	180 Stone	2,520	1,700 Stone	23,800
1811	Richard Alworth	Newmarket, Cork	Lea	May	November	2 Barrels of 9 Cwt. each	20,16	20 Barrels of 9 Cwt. each	20,160
1811, Aug. 24	Thomas Wallis	Waterford	Lea	March, April, and May	Oct. & Nov.	From 8 to 12 Barrels of 21 Stone	2,940	From 60 to 80, often upwards of 100 Barrels	23,520
1808, Dec. 9	Rev. Mr. Meara	Curraghmore, Waterford	-	-	-	-	-	100 Barrels of 20 Stone	28,000
1808, Dec. 13	Mr. Bolton	Faithleg, Waterford	-	-	-	-	-	100 Barrels	28,000
							12,964		218,960
						Average of Seed per Acre	2,592	Average produce per Acre	24,328

TABLE OF FLAX.									
1811, Sept. 13	James Phelps	Limerick	After Potatoes, or on any rich Soil	From 15th April to 1st of June	Latter end of July	56 Pottles per Acre	-	35 to 40 Stone	625
1811	Charles Creed	Bruff, Limerick	After Potatoes	April	July	52 Pottles	-	52 Stone of 14 lb.	726
1811, Apr. 10	Hon. Windham Quin, M. P.	Adare, Limerick	-	April	August	-	-	-	-
1808, Nov. 29	Mr. Lyons	Croome, Limerick	Potatoes	-	-	-	-	-	-
1808, Dec. 2	Mr. Grady	Grange, Limerick	Potatoes	-	-	128 Quarts	-	112 Stone	1,566
1811	Richard Alworth	Newmarket, Cork	Potatoes	April	July	-	-	-	-
									2,917
								Average produce per Acre	972

AVERAGE Quantities of Seed used, and of the Produce per Acre
of the Fifth District.

	Seed used.	Produce.	Proportion between Seed and Produce.
Wheat - - - -	243	2,537	1 to 10·1
Bere - - - -	261	4,480	1 to 17·
Barley - - - -	249	3,024	1 to 12·1
Oats - - - -	298	2,971	1 to 9·2
Potatoes - - -	2,592	24,328	1 to 9·9
Flax - - - -	-	972	—

Sixth District.

I never had an opportunity of visiting the southern districts of Cork, but to the east of Coolmore. Such notes as I made during my visit in that part of the country I shall subjoin, and I have the less cause to regret not being able to give any observations on the state of agriculture in the other parts, as a very good account of it has been published by Mr. Townsend,* who says that the spade culture is general.† “The principal use of the spade compensates in some degree for the sparing use of the plough, though their preference of that instrument is more the result of habit than of judgment.” And in another place he remarks,‡ “the farmer who has half a dozen of sons, may perhaps, for one or two of them find trades, the rest are provided for by an equal partition of his land; by such means the farmers of this county are for the most part reduced to petty cottagers.”

Nov. 19th, 1808. CASTLE HYDE.—From this place to Mitchel's Town passed over a dreary country, belonging chiefly to Mr. Hyde, and worth from 25s. to 30s. an acre; wheat is sown on lea ploughed and hacked as in Devonshire; when sown it is trenched with a shovel.

Mr. Hyde remarks, that though land lets very high in the neighbourhood of towns, the rental of the county of Cork is much lessened by an immensity of mountain land, which does not produce three-pence an acre, and that even the flat ones at a distance from the towns brings but a very low rent. Mr. Hyde has 100 sheep turned out on turnips, which are hurdled off. In this part of the country the climate is so mild, that there is grass throughout the whole winter, but the springs are backward, and in that season food for stock is scarce.

Nov. 12th. CASTLEMARTYR.—Lord Shannon sowed three acres of land with nine bushels of hemp-seed, and besides the hemp obtained, 36 bushels of seed. His lordship reckons 120 stone of 14lbs. each to the acre.

* Survey of Cork, p. 191.

† Ibid. p. 246.

‡ Ibid. p. 81.

Nov. 16th. **CASTLE HYDE.**—The farmer lets his acre of potatoe-land to the labourer at a fixed price, afterwards he hires the tythe of the proctor, and exacts a second rent from the cotter. Mr. Hyde knows many instances where twenty shillings per acre have been extorted in this manner for white corn, and it therefore appears that middle proctors give rise to an evil which affords great cause of complaint.

Nov. 17th. **CORK.**—The potatoes in this country are dug and collected by Kerry-men, who earn, during the height of the season, eight shillings per week and their board, but as the season draws towards a close, they get only four shillings.

Nov. 18th. **CASTLE HYDE.**—Tythe here twelve shillings per English acre. The proctor makes his bargain in such a manner as to keep pace with the improvements of any gentleman resident in his parish; but a heavy burthen is by these means thrown upon the poor. This difference creates great discontent.

The hogs throughout the whole neighbourhood of Bantry, Cork, Cove, and Castlemartyr, as far as this place, are a miserable long-legged, narrow-backed, ill-shaped breed of animals, and they pervade the whole south of Ireland. Butter firkins are made of American timber, and manufactured at Cork. A considerable quantity of wheat seems to be cultivated in this neighbourhood.

Mr. Fitzgerald lets a dairy at £8. per cow. The potatoes in this part appear to be of a peculiarly dry and good quality; they are of the red apple kind, a sort lately introduced. Two or three barrels per acre are employed as seed.

There are here many orchards, and the people make cyder.

CASTLEMARTYR.—Lord Shannon carries on his agricultural enterprises with great liberality and spirit. I saw here a haggard full of corn, Devonshire cattle, and South Down sheep, all which are marks of improvement.

Nov. 18th. **CASTLEHYDE.**—The late Mr. Hyde gave 600 guineas for the celebrated race-horse Diamond, and after making 2000 by him, sold him for 1000.

Nov. 7th. **CORK.**—In this district hemp does not appear to pay so well as flax; of the latter 1200 tons are raised. It is found that the plants of hemp cannot be too close, as they are thereby prevented from throwing out branches.

Nov. 3d. **CORK.**—Came to this city from Macroom, across a cultivated country, where I was much struck with the difference between it and the mountainous district I had left. Cork lies in a hollow, and the water in general is brackish and bad. There are gates at each entrance, but no police for the preservation of good order has yet been established. A considerable quantity of barley is raised in the neighbourhood; it is purchased by the brewers and distillers in small parcels at a time, but the aggregate is very great.

Nov. 6th. **DOUGLASS.**—I examined some hemp raised on an acre and a quarter of land by Mr. Bernard, and on measuring the stalks found some of them to be 5 feet 6 inches in length; it was the female plant, the male affords the strongest hemp.

VI. DISTRICT.—TABLE of the PRODUCE of WHEAT.

Date of Information.	Authorities.	Places.	Preceding State of the Laod.	Period of Seed-Time.	Period of Harvest.	Quantity of Seed used per Acre.		Produce.	
						In the Weights and Measures of the Country.	In lbs. Avoird.	In the Weights and Measures of the Country.	In lbs. Avoird.
1811 - -	Earl of Shannon	Castlemartyr, Cork	Potatoes	From Oct. to Jan.	September	10 Stone	140	From 5 to 6 Bar.	1,540
1811 - -	Rev.H.Townshend	Clonakilty	Potatoes	Nov. & Dec.	Latter end of Aug. & beginning of Sept.	12 to 14 Stone	182	From 4 to 5 Bar.	1,260
1811 - -	Thos. Newenham	Carigaline, Cork	Potatoes	Generally latter end of Nov. sometimes Oct.	Latter end of August	6 Pecks	- -	Above 4 Barrels of 20 Stone each	1,120
1808, Nov. 10	Col. Fitzgerald	Corkbeg	Clover, Lea	- - -	- - -	- - -	- - -	6 Bags of 20 Stone to the Bag	1,680
1810 - -	Townsend's Survey of Cork, p. 243	- - -	- - -	- - -	- - -	- - -	- - -	5 Bar. to the English Acre	1,400
-	Do. p. 611	- - -	- - -	- - -	- - -	- - -	- - -	5 Do. - -	1,400
						322		8,400	
						Average of Seed per Acre } 161		Average Produce per Acre } 1,400	
TABLE OF BERE.									
1811 - -	Rev.H.Townsend	Clonakilty, Cork	Potatoes	Nov. & Dec.	August	10 Stone	140	4 Barrels of 36 Stone	2,016
TABLE OF BARLEY.									
1811 - -	Earl of Shannon	Castlemartyr, Cork	Potatoes & Wheat	Apr. & May	September	10 to 12 Stone	154	3 Barrels of 36 Stone	1,512
1811 - -	Rev.H.Townshend	Clonakilty, Cork	Potatoes	April - -	September	10 Stone	140	4 Barrels of 36 Stone	2,016
1811 - -	Thos. Newenham	Carigaline, Cork	Potatoes sometimes, Wheat generally	End of Ap. to end of May	Latter end of August	11 Pecks	- -	3 Barrels of 36 Stone	1,764
1808, Nov. 10	Col. Fitzgerald	Corkbeg	Potatoes	- - -	- - -	- - -	- - -	19 Bags of 12 Stone to a Bag	2,996
1810 - -	Townsend's Survey of Cork, p. 611	- - -	- - -	- - -	- - -	- - -	- - -	10 Kilderkins of 12 Stone each	1,680
						294		9,968	
						Average of Seed per Acre } 147		Average Produce per Acre } 1,993	

VI. DISTRICT.—TABLE of the PRODUCE of OATS.

Date of Information.	Authorities.	Place.	Preceding State of the Land.	Period of Seed Time.	Period of Harvest.	Quantity of Seed used per Acre.		Produce.	
						In the Weights and Measures of the Country.	In lbs. Avoird	In the Weights and Measures of the Country.	In lbs. Avoird.
1811 - -	Earl of Shannon	Castlemartyr, Cork	Potatoes in the uplands Wheat and Barley in low lands	March and April	End of Aug. to September	10 to 12 Stone	154	10 Barrels of 14 Stone	1,960
1811 - -	Rev. Hor. Townshend	Clonakilty, Cork	Sometimes Potatoes, generally Wheat and Barley	March and April	September	10 to 12 Stone	154	4 Barrels of 33 Stone	1,846
1811 - -	T. Newenham	Carigaline, Cork	Sometimes Potatoes, generally Wheat	From 1 Mar. to 1 April	Latter End of August	9 Pecks	-	3 1/2 Barrels of 33 Stone	1,610
1808, Nov. 10	Col. Fitzgerald	Corkbeg	-	-	-	-	-	11 Bags of 11 Stone to the Bag	1,554
1810 - -	Townsend's Survey of Cork, p. 611	-	-	-	-	-	-	9 Kilderkios of 11 Stone each Eng. Acre	1,386
						368		8,356	
						Average of Seed per Acre } 154		Average Produce per Acre } 1,671	
TABLE OF POTATOES.									
1811 - -	Earl of Shannon	Castlemartyr, Cork	Lea or Stubble & Fallow	Varies from March to June	Oct. Nov. and Dec.	4 1/2 Barrels	1134	40 Barrels of 18 Stone	10,080
1811 - -	Rev. Hor. Townshend	Clonakilty, Cork	Sometimes old Ground, generally Stubble	May and June	Oct. and Nov.	30 to 36 Stone	462	6 Tons	13,440
1811 - -	T. Newenham	Carigaline, Cork	-	1st of March to end of June	From End of July to End of Decemb.	60 Weights of 21lb.	1260	7 Tons	15,680
1810 - -	Townsend's Survey of Cork, p. 248	-	-	-	-	-	-	7 to 8 Tons Eng. Acre	16,800
- -	Ibid. 611	-	-	-	-	-	-	35 Barrels 18 Stone each Eng. Acre	8,820
						2656		64,820	
						Average of Seed per Acre } 952		Average Produce per Acre } 12,965	
TABLE OF FLAX.									
1811 - -	Earl of Shannon	Castlemartyr	Very little grown in this District, merely sufficient for each Person's use.			-	-	-	-
1811 - -	Rev. Hor. Townshend	Clonakilty, Cork	Potatoes	May - -	July and August	4 Pecks to a 1/2 Acre	-	Each Peck is supposed to produce from 60 to 70lb. of Flax, if good.	-
1811 - -	T. Newenham	Carigaline, Cork	Littlesown in this Parish, generally after Potatoes.			-	-	-	-

AVERAGE Quantities of Seed used, and of the Produce per Acre,
of the Sixth District, by the English Acre.

	Seed used.	Produce.	Proportion between Seed and Produce.
Wheat - - - -	161	1400	1 to 8·9
Bere - - - -	140	2016	1 to 14·
Barley - - - -	147	1993	1 to 13·1
Oats - - - -	154	1671	1 to 10·9
Potatoes - - - -	952	12,695	1 to 13·1

Seventh District.

This district comprehends some parts of Tipperary, together with the Queen's and King's Counties, which, on the whole, produce a good deal of corn that finds its way to Limerick, where there is a considerable market for grain. In this district I observed some of the best farming in Ireland, with much more attention to a systematic course of cropping and keeping the land in good heart; oxen and horses are used for the plow, the former generally preceding the latter; Sir Charles Coote says, that this is done to make them step out quickly:* I should have supposed but for this information, they had been placed before the horses for the purpose of impeding their pace. Near Roscrea turnips are seen, but they are very seldom hoed.

OCT. 10th, 1808. CANGOR PARK, NEAR ROSCREA.—This part of the county of Tipperary has a much greater resemblance to England than any other district of Ireland. I observed hedge-rows and good fallows for wheat, which would have done credit to any country. The rent of land is about forty shillings per acre; ninety acres are considered as a large tillage farm; leases are for three lives, but beginning to be granted for twenty-one years and one life.

The culture of turnips is increasing much in this part of the country, but they are seldom hoed; the land appears to be excellently well adapted for them, and as they are considered, when used for feeding on the land, as the produce of agistment, and not separated from the freehold; this forms a strong inducement to raise them. The cultivation of clover is chiefly confined to gentlemen.

* Sir Charles Coote's Survey of the Queen's County, p. 157.

OCT. 11th. CASTLELAUGH, TIPPERARY.—The barony of Duharra is not limestone, but a rich soil manured with shells taken from the river Shannon, the rent from three to four guineas per acre. I observed here sheep-folds, inclosed with fences made from the roots of bog-deal, split and twisted into cords, which are then worked through each other so as to form a kind of net-work.*

OCT. 12th.—Mr. Parker's father improved a mountain property by dredging up the matter found in the bed of the river Shannon; it consists of marl mixed with small shells of the buccina kind, which, as the level of this lake is 120 feet above the high water mark, must belong to some fresh water species of animal. On the other side of Limerick this manure has become universal in the barony.

OCTOBER 12th. BALLYVALLEY.—The land between Castlelaugh and Killaloe lets, from the foot of the mountain almost to its summit, at a rent of between one guinea and 37s. per acre. Land near the river lets at three guineas.

OCT. 13th. CANGOR-PARK, NEAR ROSCREA.—I observed this day some men carrying stooks or sheaves of oats on their backs to a cock in the field, which they afterwards carted home, and then threshed. I saw one man sowing after a plough; he dropped the seed from a bag, sprinkling it over the ground like flour from a drudging box.

APRIL 2, 1809. LITTLETON GLEBE.—There is much barren mountain to the right, between Fethard and Cashell; but in the neighbourhood of that town the land is exceedingly good. A herd gave me the following account of his expences: Grass for two cows four guineas each, for two heifers three pounds, grass for a pig eleven shillings and four-pence halfpenny, rent of two acres three guineas each, tythe thirteen shillings. He has four boys, to whom his master pays eight-pence per day, besides ten-pence to himself. The ashes of the sulphureous coal called stone-coal are not a manure for land.

APRIL 4th. ROSCREA.—Wheat which grows on a limestone substratum is of a superior quality.

APRIL 5th. GLOSTER.—Mr. Lloyd pays those labourers who are his tenants six-pence a day, and charges them twenty-five shillings a year per acre for their potato-gardens. In some parts of the King's and the Queen's Counties the land is divided, as is often the case between baronies, by what is termed "the fall of the drop:" that is, in mountainous districts, according to the declivity by which the water runs off; in the Queen's County it is to the west, in the King's to the east.

In King's County I met a cabbage-seller who paid fifty-two shillings per quarter

* In some parts of the north of Scotland ropes are made of the same substance, after it has been split into thin slips, rendered pliable by immersing them in water. They are employed chiefly for tethering animals. They are cheap but they soon rot and break. In the same country ropes are made of the roots of heath and of horses' hair; the latter are not injured by wet.

of an acre in the neighbourhood of Mountmellick. He raised sixteen loads of plants, 12,000 to the load, on the quarter.

MARCH 21st. LITTLETON GLEBE.—Rode to an excellent piece of grazing land at Callock, surrounded by stone walls as high as garden inclosures.

MARCH 23d.—Mr. Grady fourteen years ago paid four-pence per day for labour in winter, and five-pence in summer; at present he pays one shilling in the former season, and one shilling and five-pence in the latter. *His own tenants receive only eight-pence.*

LEESHEEN, TIPPERARY.—Sir Thomas Fitzgerald never finds land improved by the stock eating the grass bare, as the grass left serves for manure. He lets meadow intended to produce hay at seven guineas an acre. It is mowed only once a year.

JULY 2d. TULLAMORE.—Bog land is improved here as it is cut out; it produces excellent cabbages, and I saw an admirable piece of wheat raised on land of the same kind.

JULY 3d. DURRAGH, KING'S COUNTY.—A considerable quantity of wheat is produced in this neighbourhood, but very little barley. A great deal of the seed wheat in Ireland is buried, by the practice of shovelling, which the people consider necessary to consolidate the ground, as they have no idea of trampling or rolling it. The tythe of wheat here is eight shillings, of oats five shillings, of meadow four shillings; potatoes and flax pay nothing. The price of labour is one shilling per day. Mr. Stepney is of opinion that the county, without including mountain and bog, would average thirty shillings. Good land brings £3. per acre. When bog-turf burns to red ashes they are far superior to white as manure.

JULY 4th.—Twenty-one years and a life are becoming the usual leases; agents receive for their services 5 per cent. Restrictive clauses lower the price of land. Saw some bottoms in preparation for the plough by liming; it was intended to improve them afterwards by limestone gravel, allowing 160 Scotch cart-loads to each acre. They will then be sown with rape and grass-seeds for the purpose of producing meadow. Such is the inclination of land to cover itself with a natural sward, that when "let out" it becomes thoroughly clothed in the course of three years; and if laid down with grass-seeds, the artificial grasses disappear in the course of that period; and their place is supplied by the indigenous ones, which being smothered in the first instance, do not spring up for some time. This corresponds with the opinion of Mr. Arthur Young, who says, that the introduction of clover-seeds in bad farming is attended with mischief. The indigenous grasses in this neighbourhood are *cynosurus cristatus*, crested dog's tail; *senecio jacobea*, common rag-wort; *alopecurus*, meadow fox-tail; *dactylis*, rough cock's foot; *festuca*, meadow fescue; *poa pratensis*, stock meadow-grass; and *phleum pratense*, Timothy grass; when the ground has a tendency to moor.

JULY 6th. DURRAGH.—Wheat here is generally sown under the plough. Pork in the markets is invariably lower than any other kind of meat. Turnips sell sometimes for ten guineas the acre.

The German regiments when at this place gave their horses sow-thistles and ivy, which afforded them good nourishment.

JULY 7th. TULLAMORE CASTLE, KING'S COUNTY.—Lord Charleville complains of his men being engaged at this time of the year in digging up turf in the bogs: as the business of providing fuel is confined to one season, it takes the labourers from their other occupations, whereas, if it employed them the whole year, it would soon have regular workmen attached to it, in the same manner as collieries, but under its present arrangement, it forms a great interruption to agriculture.

JULY 13th. QUEEN'S COUNTY.—Mr. Doyne's labourers work 240 days in the year at eight-pence per day. It is observed that the catholic graziers are increasing in wealth.

JULY 7th. KING'S COUNTY. DURRAGH.—A labourer of Mr. Stepney has had eleven acres for seven years at £30. per annum. He keeps five cows, one horse, three calves, with pigs, poultry, &c. and sheep to supply wool for the use of his family. Mr. Stepney is of opinion that this man could now take forty acres. He generally lets six or seven acres for "corn acres." Land abounding with limestone gravel is much more readily turned into fallow than clay land.

VII. DISTRICT.—TABLE of the PRODUCE of WHEAT.

Date of Information.	Authorities.	Places.	Preceding State of the Land.	Period of Seed Time.	Period of Harvest.	Quantity of Seed used per Acre.		Produce.	
						In the Weights and Measures of the Country.	In lbs. Avoird	In the Weights and Measures of the Country.	In lbs. Avoird.
1811, July 9	Lord De Vesci	Abbeleix, Queen's County	Mostly sown on Potatoe ground	End of Nov. to the end of June	September	16 to 20 Stone	252	7 Barrels	1,960
1811 - -	William Trench	Cangor Park, King's County	Potatoes	1st Nov. to Decem. 25	September	18 Stone of 14lb.	252	8 Barrels	2,240
1811, Apr. 16	R. H. Stepany	Tuilamore, King's County	Fallow, or Potatoes	Middleof Sep. to end of Nov.	Last week in August & September	16 Stone	224	7 Barrels	1,960
1811, Nov. 16	Tho. Bernard, MP.	Near Birr, King's County	Fallow	October	August	18 Stone	252	10 Barrels	2,800
1809, Apr. 4	Mr. Pym - -	Roscrea, Tipperary	- - -	- - -	- - -	- - -	- - -	8 Barrels of 20 Stone	2,240
1809, Apr. 6	Mr. Goying	Tipperary	- - -	- - -	- - -	15 Stone	210	- - -	- - -
1809, Mar. 20	Mr. Fitzpatrick	Urlingford, Tipperary	Potatoes	- - -	- - -	- - -	- - -	- - -	- - -
1809, July 13	Mr. Doyne	Maryburgh, Queen's County	- - -	- - -	- - -	15 Stone	210	6 Barrels	1,820
1811 - -	John Gayson	Shanbally, near Neasagh, Tipperary	Lea, clover, Fallow, and Potatoes	Oct. Nov. Decem.	September	15 to 17 Stone	224	8 to 10 Barrels of 20 Stone	2,520
1801 - -	Coote's Survey of Queen's County	- - -	- - -	- - -	- - -	- - -	- - -	6 Barrels of 20 Stone	1,680
- - -	Barony of Cullinagh, p. 51	- - -	- - -	- - -	- - -	- - -	- - -	4 to 5 Barrels	1,260
- - -	of Fortnehineb p. 130	- - -	Fallow	- - -	- - -	- - -	- - -	- - -	- - -
1801 - -	— of Timbuech, p. 141	- - -	- - -	- - -	- - -	- - -	- - -	4 to 5 Barrels	1,260
- - -	— of Stradbally, p. 157	- - -	- - -	- - -	- - -	- - -	- - -	8 Barrels	2,240
- - -	— of Stewmargy, p. 177	- - -	- - -	- - -	- - -	- - -	- - -	8 Barrels	2,240
- - -	Coote's Survey of King's County, Barony of Phillipstown, p. 144	- - -	- - -	- - -	- - -	- - -	- - -	7 Barrels	1,960
- - -	— of Cloolis k, p. 46	- - -	- - -	- - -	- - -	- - -	- - -	5 to 6 Barrels	1,540
- - -	— of Ballybrit p. 71	- - -	- - -	- - -	- - -	- - -	- - -	5 Barrels	1,400
- - -	— of Eglis h, p. 93	- - -	Fallow	- - -	- - -	- - -	- - -	6 Barrels	1,680
- - -	— of Garrycastle, p. 103	- - -	Fallow	- - -	- - -	- - -	- - -	5 Barrels	1,400
- - -	— of Coatestown, p. 118	- - -	Fallow	- - -	- - -	- - -	- - -	6 Barrels	1,680
- - -	— of Kilcoursey, p. 156	- - -	- - -	- - -	- - -	- - -	- - -	8 Barrels	2,240
- - -	— of Ballicowen, p. 170	- - -	- - -	- - -	- - -	- - -	- - -	4 Barrels	1,120
							1,624		
							Average Seed per Acre } 222	Average Produce per Acre } 1,857	

VII. DISTRICT.—TABLE of the PRODUCE of BERE.

Date of Information.	Authorities.	Places.	Preceding State of the Land.	Period of Seed Time.	Period of Harvest.	Quantity of Seed used per Acre.		Produce.	
						In the Weights and Measures of the Country.	In lbs. Avoid.	In the Weights and Measures of the Country.	In lbs. Avoid.
1811, July 9	Lord De Vesci	Abheleix, Queen's County	Seldom sown but after Rape and Burnt Lands.	November	August -	10 to 12 Stone	154	14 Barrels	3136
1811 - -	W. Trench	Cangor Park, King's County	Potatoes	1 Nov. to 25 Dec.	September	- - -	- -	20 Barrels	4480
1811, Apr. 16	R. H. Stepney	Tullamore, King's County	Potatoes, or Burnt Moor	November to Feb.	August -	14 Stone -	196	14 Barrels	3136
1811, Nov. 16	Tbo. Bernard, MP	Near Birr, King's County	Potatoes	November	August -	16 Stone -	224	9 Barrels	2016
1811 - -	John Gayson	Shanbally, near Nenagh, Tipperary	Potatoes	Nov. Dec. Feb.	September	12 to 13 Stone	175	12 to 20 Barrels of 16 Stone	3560
1801 - -	Coote's Survey of Queen's County	- - -	- - -	- - -	- - -	- - -	- -	- -	- -
- - -	Barony of Tinehinch, p. 141	- - -	- - -	- - -	- - -	- - -	- -	10 Barrels	2180
- - -	of Stradbally, p. 157	- - -	- - -	- - -	- - -	- - -	- -	16 to 20 Barrels	4032
- - -	of Eglisb, p. 95	- - -	- - -	- - -	- - -	- - -	- -	14 Barrels	3136
- - -	of Garrycastle, p. 103	- - -	Potatoes	- - -	- - -	- - -	- -	12 Barrels	2688
- - -	of Cootes town, p. 118	- - -	Fallow	- - -	- - -	- - -	- -	14 Barrels	3136
- - -	of Gesbill, p. 134	- - -	- - -	- - -	- - -	- - -	- -	14 Barrels	3136
- - -	of Killycoursey p. 156	- - -	- - -	- - -	- - -	- - -	- -	14 Barrels	3136
						749		37,572	
						Average of Seed per Acre } 187		Average Produce per Acre } 3131	

TABLE OF FLAX.									
1811, July 9	Lord De Vesci	Abheleix, Queen's County	Potatoes and some Lea	May -	September	60 Pottles	-	-	-
1811, - -	Wm. Trench	Cangor Park, King's County	None proinced.	-	-	-	-	-	-
1811, Apr. 16	R. H. Stepney	Tullamore, King's County	Potatoes, or Wheat Stubble	May -	August -	A Quart to a Perch	- -	70 Stone of Scotch'd Flax per Acre	- -
1811, Nov. 16	Th. Bernard, MP.	Near Birr, King's County	- - -	May -	August -	A Pottle to a Perch	- -	8 Stone to a Perch	- -
1811 - -	John Gayson	Shanbally, near Nenagh, Tipperary	No Flax sown here for Sale. Every one who can sow a little saves the Seed.	-	-	-	-	-	-

VII. DISTRICT.—TABLE of the PRODUCE of BARLEY.

Date of Information.	Authorities.	Places.	Preceding State of the Land.	Period of Seed Time.	Period of Harvest.	Quantity of Seed used per Acre.		Produce.		
						In the Weights and Measures of the Country.	In lbs. Avoird.	In the Weights and Measures of the Country.	In lbs. Avoird.	
1811, July 9	Lord De Vesci	Abbeleix, Queen's County	Potatoes	Latter End of April & beg. of May	September	From 14 to 16 Stone	210	About 11 Barrels	2464	
1811 - - -	Mr. Trench	Cangor Park, King's County	Potatoes	April - - -	September	- - - - -	- - - - -	18 Barrels	4032	
1811, Apr. 16	R. H. Stepney	Tullamore, King's County	Wheat or Potatoes	March - - -	August and September	14 Stone - - -	196	14 Barrels	3136	
1811, Nov. 16	T. Bernard, M.P.	Near Beri, King's County	Potatoes	April - - -	August - - -	12 Stone - - -	168	10 Barrels	2240	
1809, Apr. 4	Mr. Pym	Roscrea, Tipperary	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	15 Barrels of 16 Stone	- - -	
1809, Apr. 6	Mr. Goying	Tipperary	- - - - -	April - - -	- - - - -	8 Stone - - -	112	- - -	3360	
1811 - - -	John Gayson	Shanbally, near Nenagh, Tipperary	Potatoes	April and May	September	12 to 14 Stone	182	12 to 20 Barrels of 16 Stone	3386	
1801 - - -	Coote's Survey of Queen's County.	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	9 Barrels of 16 Stone	- - -	
- - -	Barony of Cullinagh, p. 51	- - - - -	Potatoes	- - - - -	- - - - -	- - - - -	- - - - -	8 to 10 Barrels	2016	
- - -	of Portneilinch, p. 130	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	12 Barrels	2688	
- - -	of Tinehinch, p. 141	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	16 to 20 Barrels	4032	
- - -	of Stradbally, p. 147	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	16 Barrels	3384	
- - -	of Slewamary, p. 177	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - -	- - -	
1801 - - -	Coote's Survey of King's County.	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	10 to 12 Barrels	2464	
- - -	Barony of Clonisk, p. 46	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	10 to 12 Barrels	2464	
- - -	of Ballybrit, p. 71	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	14 Barrels	3136	
- - -	of Eglisb, p. 83	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	12 Barrels	2688	
- - -	of Garrycastle, p. 103	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	12 Barrels	2688	
- - -	of Coolestown, p. 118	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	8 Barrels	1792	
- - -	of Geshill, p. 134	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	12 Barrels	2688	
- - -	of Philipstown, p. 144	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	14 Barrels	3136	
- - -	of Kilcoursey, p. 156	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - -	- - -	
							Average of Seed per Acre	868	Average of Produce per Acre	54,210
								173		2,847

VII. DISTRICT.—TABLE of the PRODUCE of OATS.

Date of Information.	Authorities.	Places.	Preceding State of the Land.	Period of Seed Time.	Period of Harvest.	Quantity of Seed used per Acre.		Produce.		
						In the Weights and Measures of the Country.	In lbs. Avoird.	In the Weights and Measures of the Country.	In lbs. Avoird.	
1811, July 9	Lord De Vesci	Abbeleix, Queen's County	Mostly Lealand and some Potatoe-Land	March and April	September	From 24 to 28 Stone	364	12 Barrels	2552	
1811 - -	Wm. Trench	Cangor Park, King's County	Mostly various	March -	September	- - - -	- -	14 Barrels	2744	
1811, Apr. 16	R. H. Stepney	Tollamore, King's County	Wheat, Lea, or Oats	Middle of Feb. to middle of April	September	28 Stone -	392	12 Barrels	2352	
1811, Nov. 16	Tho. Bernard, M.P.	Near Birr, King's County	- - -	March	August	21 Stone -	294	14 Barrels	2744	
1809, Apr. 4	Mr. Pym - -	Roscrea, Tipperary	- - -	- - -	- - -	- - - -	- -	15 Barrels of 12 Stone	2520	
1809, Apr. 6	Mr. Goying -	Tipperary	- - -	- - -	- - -	18 Stone -	252	-	-	
1811 - -	Mr. Gayson -	Shanbally, near Nenagh, Tipperary	Stubble or Lea	March and April	September	18 Stone -	252	12 to 20 Barrels of 12 Stone	2520	
1801 - -	Cooote's Survey of Queen's County	Barony of Cullennagh, p. 51	- - -	- - -	- - -	- - - -	- -	11 Barrels of 14 Stone	2156	
- -	- -	- of Portneinch, p. 130	Potatoes	- - -	- - -	- - - -	- -	8 to 10 Barrels	1764	
- -	- -	- of Tinchinch, p. 141	- - -	- - -	- - -	- - - -	- -	8 Barrels	1568	
- -	- -	- of Stradbally, p. 157	- - -	- - -	- - -	- - - -	- -	12 Barrels	2352	
- -	- -	- of Stewmargy p. 177	- - -	- - -	- - -	- - - -	- -	14 Barrels	2744	
1801 - -	Cooote's Survey of King's County	Barony of Clonlisk, p. 46	- - -	- - -	- - -	- - - -	- -	10 Barrels	1960	
- -	- -	- of Ballybrit, p. 71	- - -	- - -	- - -	- - - -	- -	8 to 10 Barrels	1764	
- -	- -	- of Eglisb, p. 93	Wheat	- - -	- - -	- - - -	- -	12 Barrels	2352	
- -	- -	- of Garrycastle, p. 103	Wheat and Flax	- - -	- - -	- - - -	- -	10 Barrels	1960	
- -	- -	- of Cootestown, p. 118	Lea	- - -	- - -	- - - -	- -	12 Barrels	2352	
- -	- -	- of Warrenstown, p. 127	- - -	- - -	- - -	- - - -	- -	14 to 16 Barrels	2940	
- -	- -	- of Gesbill, p. 134	- - -	- - -	- - -	- - - -	- -	12 Barrels	2352	
- -	- -	- of Philipstown, p. 144	- - -	- - -	- - -	- - - -	- -	11 Barrels	2156	
- -	- -	- of Kilcoursey, p. 156	Potatoes and Oats	- - -	- - -	- - - -	- -	13 Barrels	2548	
- -	- -	- of Ballicowen, p. 170	- - -	- - -	- - -	- - - -	- -	8 Barrels	1563	
							1534		47,770	
							Average of Seed per Acre } 310		Average Produce per Acre } 2,965	

VII. DISTRICT.—TABLE of the PRODUCE of POTATOES.

Date of Information.	Authorities.	Places.	Preceding State of the Land.	Period of Seed Time.	Period of Harvest.	Quantity of Seed used per Acre.		Produce.	
						In the Weights and Measures of the Country.	In lbs. Avoird	In the Weights and Measures of the Country.	In lbs. Avoird.
1811, July 9	Lord De Vesci -	Abbeleix, Queen's County	Stubble & some burnt Land	May - -	November -	12 Barrels -	3,360	80 Barrels -	22,400
1811 - -	William Trench	Cangor Park, King's County	Various -	1st to 12th of May	1st of Nov. to 25th Dec.	—	—	—	—
1811, April 16	R. H. Stepney -	Tullamore, King's County	Generally Oats, sometimes Lea -	Middle of April to end of April - -	October -	240 Stone -	3,360	60 Barrels of 32 Stone -	16,880
1811, Nov. 16	Thomas Bernard M. P.	Near Birr, K. County	- - -	- - -	October -	8 Barrels -	2,240	From 80 to 100 of 24 Stone to the Barrel -	30,240
1809, April 9	Mr. Pym - -	Roscrea, Tipperary	- - -	- - -	- - -	10 Barrels -	2,800	120 Barrels of 21 Cwt. -	21,600
1809, July 13	Mr. Doyne - -	Maryborough, Q. County	- - -	- - -	- - -	6 Barrels -	1,680	80 Barrels of 20 Stone -	22,400
1809, Oct. 10	Mr. F. Trench -	Sopwell Hall, Tipperary	- - -	- - -	- - -	48 Stone -	-	100 Barrels of 20 Stone -	26,000
1811 - -	John Gayson -	Shanbally, near Nenagh Tipperary	Lea burnt, or dunged Stubble	April, May, June	November -	7½ Barrels of 24 Stone	2,520	80 to 110 Barrels of 3 Cwt.	35,280
1801 - -	Cootes Survey of Queen's County, Barony of Cullinagh, p. 51	- - -	- - -	- - -	- - -	- - -	- - -	80 Barrels of 20 Stone -	22,400
- - -	- of Maryborough, p. 95	- - -	- - -	- - -	- - -	- - -	- - -	100 Barrels -	28,000
- - -	- of Portneinch, p. 130	- - -	Lea manured	- - -	- - -	- - -	- - -	50 Barrels -	14,000
- - -	- of Tinchinch, p. 141	- - -	- - -	- - -	- - -	- - -	- - -	60 Barrels -	16,800
- - -	- of Stradbally, p. 157	- - -	- - -	- - -	- - -	- - -	- - -	100 Barrels -	28,000
- - -	- of Slewmary, p. 177	- - -	- - -	- - -	- - -	- - -	- - -	120 Barrels -	33,600
1801 - -	Cootes Survey of King's County, Barony of Kilmoursey, p. 156	- - -	- - -	- - -	- - -	- - -	- - -	40 Barrels of 40 Stone -	22,400
- - -	- Barony of Ballybrit, p. 71	- - -	- - -	- - -	- - -	- - -	- - -	60 Barrels of 20 Stone -	22,960
- - -	- of Philipstown, p. 144	- - -	- - -	- - -	- - -	- - -	- - -	40 Barrels of 20 Stone -	11,200
- - -	- of Garrycastle, p. 103	- - -	Lea dunged	- - -	- - -	- - -	- - -	50 Barrels of 40 Stone -	16,800
- - -	- of Cootestown, p. 118	- - -	- - -	- - -	- - -	- - -	- - -	50 Barrels -	14,000
- - -	- of Warrenstown, p. 127	- - -	- - -	- - -	- - -	- - -	- - -	60 to 70 Barrels -	18,200
- - -	- of Geshill, p. 134	- - -	- - -	- - -	- - -	- - -	- - -	60 Barrels of 24 Stone -	11,160
- - -	- of Ballicowen, p. 170	- - -	- - -	- - -	- - -	- - -	- - -	40 Barrels of 20 Stone -	11,200
						Average of Seed per Acre }	15,960	Average Produce per Acre }	469,520
							2,260		22,358

AVERAGE Quantities of Seed used, and of the Produce per Acre,
of the Seventh District.

	Seed used per Acre, In lbs. Avoird.	Produce per Acre, In lbs. Avoird.	Proportion between Seed and Produce.
Wheat - - - - -	232	1857	1 to 8
Bere - - - - -	187	3131	1 to 16
Barley - - - - -	173	2828	1 to 16
Oats - - - - -	310	2265	1 to 7
Potatoes - - - - -	2660	22358	1 to 8
Flax - - - - -	—	—	—

Eighth District.

Wexford and a part of Wicklow form another distinct district, which has for its markets the towns of Wexford and Enniscorthy. In the baronies of Bargie and Forth, farming is pursued under a system different from that generally adopted in this part of Ireland. Beans are introduced into the common course of cultivation, but the mode of treating them is little understood, the hoe being never used, and they are sown in the broad-cast way, whereas they ought to be planted by putting two or three seeds into one hole.

In this district I include the southern part of Wicklow, as it sends its corn to the market of Enniscorthy.

DEC. 17th, 1808. **NEWTOWN-BARRY.**—Came to this place from New Ross, over a country which exhibited light land worth about one guinea per acre. Limestone is brought hither from a considerable distance, and large quantities of it are used. The expence is estimated at three shillings per barrel. Furze is employed for hedges as well as for fuel. A great deal of wheat is raised here, and the ploughs commonly used are constructed in a better manner. They have a short beam, but are furnished neither with a cat's-head or swill-yard. Paring and burning are practised.

DEC. 20th. **ENNISCORTHY.**—The awkward and rude manner in which the people here plough, is very extraordinary; one man holds the plough, another leads the horses, and as there is no swill-yard, a third presses on the beam to keep it down; yet the rents are enormous.

DEC. 21st. **WEXFORD.**—In this neighbourhood I heard of threshing by task-work, at the rate of eight-pence per barrel of fourteen stone, for barley and oats; twelve-pence for wheat, twenty stone to the barrel and fourteen pounds to the stone. Fresh butter sells for one shilling and four-pence per pound of eighteen ounces. Salt butter has only sixteen ounces to the pound.

DEC. 23d.—The course of crops in this neighbourhood is, 1st, potatoes; 2d, barley; 3d, oats. Marl occasions an expence of about £3. per acre. The cultivation of clover begins to increase. The common price of labour is nine-pence and ten-pence; but in harvest two shillings per day: children get four-pence or six-pence, and they all find employment, as there are here so many gentlemen who reside on their estates. The tenures are small, and potatoe acres are sold as in the north. There are here no corn acres; and, in my opinion, to this may be ascribed the superiority of the poor in this part of the country. The cotters hire horses and drill their potatoes. Wages one shilling and a penny per day. A cow will produce £10. per annum.

Mr. Harvey has sold turnips which were retailed out in Wexford for £19. per acre. At Carmore, in the barony of Forth, 800 acres pay £400. per annum tythe. Beans are much cultivated here but they are never hoed. The land is improved with marl and sea-sand. In Forth twenty barrels of barley per acre are a common crop.

JAN. 23d, 1809.—Mr. Carew remarks, that if a farmer have an extraordinary year in consequence of high prices, he lays by his surplus profit, without increasing his expenditure except for a little more lime and grass-seeds.

JAN. 27th. CASTLEBORO.—It is a common clause in leases here, that the tenants must rear poultry for the use of their landlord.

JAN. 28th. KYLE.—It appears that the small farmers are much more easily induced to alter their old system and adopt new improvements than the farmers in England.

FEB. 1st. WEXFORD.—Crossing the Leicester with the native sheep has done much good in this part of Ireland. Mr. Harvey's tenants by these means have obtained a race much superior to his real Leicester breed.

JULY 9th. WEXFORD.—Potatoes are as much the food of the people here as rice is in the East Indies, and a failure of them would be as fatal as a scarcity of that grain has sometimes been on the banks of the Ganges. The beans in the barony of Forth are remarkable fine, but the people have no notion of cleaning them. Flat lands, which are sometimes flooded, are called "inches."

FEB. 28th. WEXFORD.—The Rev. Mr. Radcliffe at Enniscorthy is employing irrigation with great success on the land around his domain. Mr. Dawson has watered some meadows to as much advantage as I ever observed; he remarks that the water must always be kept alive, and that it becomes exhausted by running over too much land. For this reason he has two main cuts in the meadow, and inundates the lower part of it by new water from the second cut.

MARCH 1st.—Mr. Symes transplants peas and beans about the middle of March.

MARCH 7th.—Hay, taking an average of the last seven years, has been sold at Enniscorthy for £5. per ton.

TINEHALY, WICKLOW.—Before I reached this place, I observed that the mountains were cultivated nearly to the tops. Grain is sent to Enniscorthy market on the old narrow-wheeled cars, which carry 12 cwt. each, but they destroy the roads.

MARCH 7th. HIGH PARK, NEAR GOREY.—Rode to this place through Wicklow Gap, by Little Limerick, across a mountainous country generally cultivated. There is no limestone, but abundance of furze which grows spontaneously, and at this time the people were burning it in all directions. The farm-houses around Gorey exhibit a remarkably neat appearance, which Mr. Beaumont ascribes to their having been erected since the rebellion. At that time great numbers were burnt, and those since built are constructed in a superior manner, as they consist of stone walls covered with slated roofs.

MARCH 8th. GOREY, WEXFORD.—The mountain near the gold mine is covered with excellent herbage. I observed at a considerable height up its sides that water issues from it in great abundance, and might be employed with advantage to irrigate a large tract of mountain land.

MARCH 13th. WICKLOW.—The land around the town is exceedingly good; Mr. Price says he always raises spring wheat, which answers so well on this coast that his land has produced fourteen barrels per acre, each barrel twenty stone of fourteen pounds.

The farmers improve their land with sea-wrack, and after it is exhausted by crops they “turn it out to meadow,” that is, leave it to the exertions of nature.

MARCH 14th.—Saw a ploughing match at Wicklow on an uneven piece of land, the animals being guided by reins. The bullocks, however, were slow and the horses weak.

JULY 17th. WEXFORD.—Clover is commonly cultivated here, and potatoes are drilled. Lime-kilns are always constructed on the side of the road; the limestone is brought from Carlow or Kilkenny. In the barony of Forth the farmers for the most part raise horse-beans, and their usual course is beans, potatoes, barley, and then beans again. A farmer began here with one acre and now holds fifteen. He has reared eleven children, and given portions of forty guineas to each of his two daughters; he commenced his agricultural career twenty-three years ago, and at first went to work at the rate of three shillings per week. He has built a house, paid eight, now ten guineas rent; keeps two horses, two cows, two pigs, and a plough, but never uses a roller. This year he has nine acres of pasture, one acre of potatoes, one of hay, three of barley, and one of wheat. He uses some of his barley and pork, but sells his wheat and beans, and never expends any thing for labour.

His family subsists chiefly on potatoes. "We let the pig in," said he, "after we have eat potatoes for our dinner," in order that it may feast on the offals. Pork here is called "the meat." This farmer uses four or five barrels of barley in the year, to supply him with beer against *patterns* and Christmas. He manures with seaweed and marl. Bean-stalks or furze supply fuel, and the horses are never fed with corn. Half an acre is ploughed per day; the barns are small and have floors made of clay. Farmers and their families all go to bed regularly in the middle of the day, and recline for about an hour.

JULY 19th. CANE, WEXFORD.—Called upon a farmer who occupied seven acres of land, including one half of the surrounding roads. He pays forty-seven shillings per acre and four guineas tythe. He keeps two horses, one cow, and two sheep, to supply his family with wool, and has one acre in meadow and the rest in corn. His family consists of five persons; he informed me that he buried some guineas every year. It is customary here to send clover-seed to an oat-mill to be ground after it has been cobbled.

Mr. Cornock is of opinion that the catholic tenants are better than the protestant; they are more industrious, live harder, and pay a greater rent; but the latter, when they hold a tenure of as much as forty acres, are the best.

VIII. DISTRICT.—TABLE of the PRODUCE of WHEAT.

Date of Information.	Authorities.	Places.	Preceding State of the Land.	Period of Seed Time.	Period of Harvest.	Quantity of Seed used per Acre.		Produce.	
						In the Weights and Measures of the Country.	lbs. in Avoird	In the Weights and Measures of the Country.	lbs. in Avoird.
1811 - - -	Wm. Harvey	Kyle, Wexford	Lea, or Potatoes	November	September	Above 12 Stone	168	From 5 to 7 Barrels	1,722
1811, May 31	Rev. R. Ratcliffe	Enniscorthy, Wexford	Fallow, Lea Oat-Stubble, Marle Potatoes-Ground dugged	September Oct. Nov.	August	16 Stone	224	7 Barrels of 20 Stone	1,960
1811 - - -	Mr. Graham	Near Arklow, Wicklow	Fallow	October	August	12 Stone	168	6 to 8 Barrels	1,960
1801 - - -	Fraser's Survey of Wicklow, p. 71	- - -	- - -	- - -	- - -	- - -	- - -	8 Barrels	2,240
1807 - - -	Fraser's Survey of Wexford, p. 92	- - -	Potatoes	Oct. & Nov.	-	-	-	-	-
						560			8,082
						Average of Seed per Acre	186	Average Produce per Acre	2,020
TABLE OF BARLEY.									
1811 - - -	Wm. Harvey	Kyle, Wexford	After any Crop	April - -	August and September	From 18 to 24 Stone	294	From 7 to 10 Barrels	1,964
1811, May 31	Rev. R. Ratcliffe	Enniscorthy, Wexford	Marle, Lea, Oat-Stubble, potatoe ground dugged	April - -	August - -	16 to 18 Stone	238	10 Bar. of 16 St.	2,240
1811 - - -	Mr. Graham	Near Arklow, Wicklow	- - -	April - -	September	20 Stone	280	10 Barrels	2,240
1809, June 9	Rev. James Syms	Ballyarthur, Wicklow	- - -	- - -	- - -	1 Barrel	224	16 Barrels	3,584
July 17	A Farmer in	Forth, Wexford	Beans and Potatoes	- - -	- - -	2 Barrels	448	13 Barrels of 16 Stone	2,912
1801 - - -	Fraser's Survey of Wicklow, p. 71	- - -	- - -	- - -	- - -	- - -	- - -	12 Barrels	2,688
1807 - - -	Fraser's Survey of Wexford, p. 92	- - -	Beans	- - -	- - -	- - -	- - -	12 Barrels	2,688
						1,484			18,316
						Average of Seed per Acre	296	Average Produce per Acre	2,614

VIII. DISTRICT.—TABLE of the PRODUCE of OATS.

Date Information.	Authorities.	Places.	Preceding State of the Land.	Period of Seed Time.	Period of Harvest:	Quantity of Seed used per Acre.		Produce.	
						In the Weights and Measures of the Country.	lbs. in Avoird	In the Weights and Measures of the Country.	lbs. in Avoird.
1811 - -	Wm. Harvey Kyle	Wexford	In general Lea	March - -	Aug. & Sep.	About 20 Stone	280	From 7 to 10 Barrels	1,666
1811, May 31	Rev. R. Ratcliffe	Enniscorthy, Wexford	Lea, Bar- ley, or Potatoes	February -	August -	From 20 to 24 Stone	308	12 Barrels of 14 Stone	2,352
1811 - -	Mr. Graham	Near Arklow, Wexford	- - -	March - -	September	35 Stone	490	13 Barrels -	2,548
1809, June 9	Rev. James Syms	Ballyarthur, Wicklow	- - -	- - -	- - -	2 Barrels	392	20 Barrels -	3,920
1801 - -	Fraser's Survey of Wicklow, p. 71	- - -	- - -	- - -	- - -	- - -	- - -	13 Barrels -	2,548
							1,470		13,034
						Average of Seed per Acre	568	Average Produce per Acre	2,606
TABLE OF POTATOES.									
1811 - -	Wm. Harvey Kyle	Wexford	Stubble	April & May	November -	7½ Barrels	2,520	40 or 50 Barrels	15,120
1811, May 31	Rev. R. Ratcliffe	Enniscorthy, Wexford	Stubble of any kind Lea, Oats,	March - -	November -	6 Barrels of 24 Stone	2,016	40 Barrels of 24 Stone	13,440
1811 - -	Mr. Graham	Near Arklow, Wexford	- - -	March - -	November -	10 Barrels	3,360	100 Barrels -	33,600
1809, Jan. 23	R. S. Carew	Castleboro, Wexford	- - -	- - -	- - -	- - -	- - -	80 Barrels of 20 Stone	22,400
							7,896		84,560
						Average of Seed per Acre	2,632	Average Produce per Acre	21,140
TABLE OF FLAX.									
1811, May 31	Rev. R. Ratcliffe	Enniscorthy, Wexford	Potatoes	April - -	August - -	160 Pottles -	- -	8 Cwt.	896

AVERAGE Quantities of Seed used, and of the Produce per Acre
of the Eighth District.

	Seed used per Acre in lbs. Avoirdupois.	Produce per Acre in lbs. Avoirdupois.	Proportion between Seed and Produce.
Wheat - - - -	186	2,020	1 to 10·9
Bere - - - -	—	—	—
Barley - - - -	296	2,614	1 to 8·9
Oats - - - -	368	2,606	1 to 7·3
Potatoes - - - -	2,632	21,140	1 to 8
Flax - - - -	—	896	—

Ninth District.

The corn produced in the northern part of Kilkenny, Kildare, the cultivated parts of Westmeath, Meath, and Louth, finds its way to Drogheda and Dublin; the former of which is the largest corn-market in the kingdom. The wheat, however, forms an exception; as it is sold in general to the different flour-mills, which in this district are numerous. Wheat enters into the common course of crops; but the fallows are every where bad. The farms here are much larger than in other parts of the country; and farming is pursued according to the English plan, but in a very slovenly manner. It is customary to work oxen intermixed with horses, and the former are placed first, that the pace of the latter may not exceed that of the slower animal. Six are generally yoked together, three pair deep, with a plough that would disgrace the most unskilful workman that ever undertook to construct an implement of the kind. Fallows are never ploughed more than thrice; and so far from the land being really tilled by heavy harrows and good rollers, the former are used only in seed-time, and the latter are totally unknown. Clover has been introduced into this district; but under the bad system of sowing it upon land exhausted and covered with weeds.

JUNE 30th, 1808. Between Dublin, and Dundalk, I observed excellent wheat; but the rest of the land seemed to produce only weeds. The fallows here are bad, and there is no specific stock.

JULY 25th. SLANE.—Mr. Jebb does not get more than half an acre ploughed per day. He has tried the following course: first fallow, then oats and clover; a second ploughing, and then wheat shovelled, which produced a great crop of ten barrels an acre. After this he found that the land became remarkably wild. Had he followed the common husbandry of the country, the course would have been fallow, then wheat, oats, oats a second time, weeds, and then potatoes, after manuring with dung. But the most beneficial would be fallow, oats, clover, oats again, potatoes, and then wheat. This gentleman objects to potatoes on a large scale, on account of their requiring so much labour. Tares here do not answer; they grow

too luxuriantly, and lie so much on the ground that they become rotten. Clover, however, stands up well. The clergyman in general gets but one-third of his due. Mr. Grainger has obtained a lease of his tythe on all the adjacent land, for less than three shillings per acre.

JULY 20th, 1808. COLLON.—The county cess one shilling and sixpence; church-rate three-pence per acre. Went to a farm belonging to Mr. Keirnan, agent to Mr. Foster, whose sheep are a mixed breed of the Leicester and South Down. Louth is not a breeding county. In the parish of Louth the tythe of wheat amounts to twenty shillings an acre. There are 9000 acres which pay £1100. per annum in tythe. This gentleman's pastures abound with thistles and rag-wort, which are suffered to attain to their full size before they are cut. They are then burnt and the ashes sold. His fallows are ploughed five times; but a roller is never used, shovelling being employed in its stead. He occupies 250 Irish acres, which in the map make only 170, and has 140 head of cattle; about twenty acres are in fallow. He uses four horses in a plough; and at this season has no sheep; but in winter he feeds some, which he parts with in spring. He was manuring his land with lime, 100 barrels of which, each weighing $2\frac{1}{2}$ cwt. at one shilling per barrel, he allowed to the acre. This process he employs once in twenty years; he keeps ten labourers in winter, and eight in summer; pays ten-pence per day wages, and in harvest two shillings for land, flax he lets at two guineas per rood.

Rents in this neighbourhood about two guineas per acre. A guinea per acre is paid for ploughing; but it is difficult to get half an acre tilled in this manner in a day. Neither chalk nor heavy clay land is met with in Ireland.

JULY 26th. MEATH. NAVAN.—The corn in the neighbourhood of this town is remarkably good. I heard of eight acres of wheat near this place which cleared £357. Boys can earn two shillings and nine-pence per week; women four shillings, and men ten shillings.

The system of the farmers in this district is exceedingly injurious, by which they exhaust their land, instead of keeping it in good heart. Tythe for oats from four to six shillings; for wheat eight shillings.

JULY 28th. MEATH. KELLS.—Tythe for meadow-land from five to nine shillings; of oats from six to thirteen; of wheat and flax from ten to thirteen.

Mr. Jebb turns the flax swarths by the hand.

Potatoes in the county of Meath are not subject to tythe. The land-owner pays the tythe of corn acres; but the real amount of it is seldom demanded. The arch-deacon of Kells has taken from Mr. Newcomen one guinea per acre for the tythe of meadow.

JULY 29th. MEATH. ALLENSTOWN, near NAVAN.—Mr. Waller has 1300 acres of land in his own occupation, which is wasted with thistles and rag-wort. At this time the people were employed in pulling flax and hemp.

Mr. Gerrard of Gibstown, has 1400 acres of the finest grazing land that can be imagined; but it was covered with thistles and rag-wort, which were growing with more luxuriance than I conceived to be possible. They would have amounted, I believe, to several tons per acre. He permitted his labourers to mow them when nearly ripe, that is, after they had shed their seeds, to produce another crop the year following. These people burn them and sell the ashes.

JULY 31st. On the farm of Mr. Hopkins, near Athboy, in Meath, I observed thistles, rag-wort, and docks, flourishing in the most extraordinary manner. Lord Darnley does not allow under-tenants on his estate.

AUG. 11th. WESTMEATH. HIGH PARK.—Sir Richard Levinge keeps some large bony, capital, blood mares for breeding. Much land in this neighbourhood might be improved by sinking the beds of the rivers and draining swamps. The lakes into which all the rivers run, are 180 feet above the level of the sea; but their basons being of rock, until they are blasted, nothing can be done.

Lough Owell contains 1783 Irish acres. Sir Richard Levinge grants a twenty-one year's lease without a life, and in this acts very judiciously.

AUG. 12th. WESTMEATH. RENNELA.—The rent of land here from two guineas to fifty shillings per acre. Leases for twenty-one years and two lives. The stock of the late Mr. Renel is still preserved and in excellent condition; it consists of Hereford cattle and Leicester sheep. The land now occupied by his executors amounts to about 200 acres, the remainder having been let during the minority of his son. One farm of 230 acres is let for £600. per annum. Land near the house lets for £3. and at a distance for about fifty shillings per acre. The plantations, for the most part about twenty years old, are in a thriving condition. Visited a farmer in this neighbourhood, and obtained from him the following account: he occupies forty acres of an estate which contains a hundred. With the name of the owner he is unacquainted, but he knows that he lives in the King's County, and has let the whole estate at forty-eight shillings per acre, to some person who resides at a distance. This man has hired forty of the worst acres at about fifty-two shillings. The rest of the farm is let out in corn acres, which average about six guineas. His stock consists of three horses, six cows, three cars, one plough, and one set of harrows. He employs one labourer, but gives him no wages, because he is paid by conveniences, such as grass for his cow, together with meadow-land and corn acre, in which he raises flax and potatoes. He keeps one man-servant, wages £5. and has four daughters, who fill and spread muck and drive the plough. Threshing is performed by the whole family; and when that work is going on, money is raised by oats to pay the rent, and also by the three cars working on the roads in summer, at two shillings and eight-pence halfpenny per day. A great deal of these forty acres is moor-land, incapable of being ploughed, and producing little or no grass.

AUG. 12th. ROCHFORD.—Mr. Rochford and Mr. Robinson both have fields of spring wheat. Bere is cut and in shocks.

AUG. 15th. From Mullingar to Coolure the divisions between the fields consist of earthen banks, without furze or any other plants growing upon them. The cattle turned into them are all fettered with hay-bands to prevent them from straying beyond the boundaries. Observed people spreading flax all the way. Parsnips and carrots grow most luxuriantly on Admiral Pakenham's bog.

AUG. 16th. The harvest universally begun, and the people at work in the fields. In reaping, one woman is attended by two men. Potatoe-oats forwarder by three weeks than common oats. Black oats superior, both for meal and for straw, but they find no sale at market.

Visited a tenant of Admiral Pakenham, who farmed 108 acres under an old lease, at a rent of twenty shillings per acre, with his own life and that of his brother included. He had fifteen acres of oats; one acre of bere, seven of fallow, four of potatoes, and eighty-one of meadow. His stock consisted of fourteen cows, thirty ewes, eight horses, eight calves, six cars, three sets of harrows, one plough and harness for eight horses, worth one guinea each. He employs on an average throughout the year eight men, to whom he pays sixpence-halfpenny per day with their board; but in all probability they do not work above 200 days each. He sells 140 barrels of oats at the average price of fifteen shillings per barrel; twenty barrels of bere at eighteen shillings; thirteen stone of wool at eighteen shillings; thirty lambs at sixteen shillings; two horses at twenty-five guineas each; five bullocks at £7. 10s. besides poultry. He pays no taxes, but a county cess of one shilling and three-pence, per acre. He is an old man; has made a fortune, and can give his daughter £2000. yet she was feeding the pigs dressed in a linsey gown, without shoe or stocking. She had been taught to read, write, and cast accompts, at one of the common schools. The occupier had built a good farm-house, the Admiral finding timber and slates, but it was only one story high.

AUG. 17th. COOLURE.—Observed people sowing rape, and was told that this was the best season for it. Saw at the seat of Lord Longford three and a half acres of flax, the seed of which cost £15. It was sown upon cut-out bog, which had been allowed to rest some time, and was afterwards prepared by paring and burning, at the expense of £1. 11s. 6d. per acre. It was then ploughed three times, each ploughing valued at fifteen shillings. The crop was sold standing for £12. per acre. Five acres of hemp were sown upon land pared, burned, and ploughed at the same expense as the former; the pulling cost one pound per acre; watering, spreading, and drying, twenty-five shillings; taking up and tying in bundles, seven shillings and sixpence. But while I was there the process was carried no farther. The male plant seems to ripen much sooner than the female. Saw carrots on land pre-

pared in the same manner. A crop raised according to this plan, produced last year 224 cwt. per acre, and equal in weight to potatoes.

AUG. 18th. COOLURE.—Rode to Fore, through a country covered with hills' but cultivated to the very tops. The harvest at this time was general throughout the country. Labour is performed for the most part by the day; if four men with two women following to bind, reap an acre, it is called a good day's work. I heard of little being done in the task way: when labourers are paid in this manner they receive from nine shillings and nine-pence to eleven shillings and four-pence half-penny per acre. The women were carting turf, and in general they work as much out of doors as the men. The price of labour is various. Gentlemen, who supply their labourers with land, cabins, &c. pay them only ten-pence per day the whole year round; farmers, when they employ them, give them sixpence halfpenny a day and their victuals. The cultivation of turnips is coming fast into use among gentlemen.

AUG. 20th. COOLURE.—The rent of corn acres here six guineas. Marny's land, referred to by Mr. Young, in his *Tour in Ireland*,* now lets for fifty-five shillings per acre, and the sub-tenants let part of it at eight guineas for potatoes. Cows here, when they have first calved, give so much milk for two months after, that they are milked three times a day. Houses are thatched by putting on a layer of heath, and then another of straw.

SEPT. 25th. COLLON.—Came this day from Castle Blaney, and within five miles of Ardee saw some good fallow, with clover, and a wind-mill, three things very uncommon in this part of Ireland. The fields were large and well divided; and many stacks of corn in the haggard. I observed two pieces of clover reserved for seed. The land at Collon appears to be cold and heavy.

SEPT. 27th. MEATH. BRITTAS.—Rode to this place from Collon, over a well cultivated district, where I saw some good fallows. The enclosures were large, and surrounded by earthen banks and live hedges. I observed a great deal of young quicksets lately planted, and I have no doubt that in a few years the face of the country in this respect will be very much altered. Around the mansion there is rich grazing land which has never been ploughed. Mr. Bligh gets from two guineas to fifty shillings an acre for his estate, but it is much under-let.

SEPT. 27th. MITCHELSTOWN.—The land around Kells appears to be very fine. Sir Benjamin Chapman, at whose house I called, was from home; but I learnt that he occupies an extent of land, which if let would bring £6000. per annum. The quantity of rouen grass was uncommonly great. I remarked that Meath is a low, flat, and rich country.

OCT. 29th. WESTMEATH. COOLURE.—Walked over Lord Longford's park,

* Page 49.

where I saw much bog reclaimed, but it has this inconvenience, that after a few years it returns again to heath. Land which has this tendency, though almost level, is called mountain. Lord Longford pays his men eight-pence a day throughout the whole year; and on the 1st of December, if they have conducted themselves properly during the preceding twelve months, he adds two-pence more for *every day they have worked*; but this additional payment is gratuitous, and depends on his lordship's pleasure. By these means a small bank is created, which is attended with the best effects, as it is employed to purchase the little comforts of life for these poor people, who, if they received their wages weekly, would spend a great part of them perhaps in whisky. On his lordship's farm I saw some pretty good turnips. The farm-yard is most magnificent. Hemp was not yet scutched. I observed that young clover thrives remarkably well under flax. The hay now making is called "woodcock hay."

APRIL 25th, 1809. DUBLIN.—Straw in Dublin is sold by the cart-load, of 4½ cwt. for eight shillings and sixpence. Labour within four miles of the city is ten shillings or twelve shillings per week.

MAY 18th. Dublin is supplied with early produce of every kind, potatoes, poultry, &c. from the county of Wicklow. The soil and the climate being both favourable, contribute to the production of corn, every kind of which is of the best sample. Very little wheat, however, is raised in this neighbourhood.

JUNE 14th. CARLOW. BROWNHILL.—Land, where ferns grow, produces good potatoes. Mr. Brown let some of this kind lately for two crops, at £8. per acre.

JUNE 15th. CARLOW.—The best grazing land is in the county of Carlow; lets for from 3. to £3. 10s. per acre. Onions and cabbages are raised near the town in great abundance. This county produces barley of the best quality in Ireland, and a larger quantity is sown than in any other part; but a great deal of it is brought hither from the county of Wexford to be sold as Carlow barley.

Seed wheat six shillings to eight shillings per stone. Straw two shillings per cwt. Hay from fifty shillings to seventy shillings per ton. The red lammas wheat is always sown in this neighbourhood. The threshing of barley costs ten-pence per barrel; of oats eight-pence: taking up an acre of drill-potatoes twenty shillings; if they have been planted according to the lazy bed method, forty shillings; what are called drill-potatoes are nothing else than those which have been planted in rows. The wedder sheep of this county are sent to market when two years old; the average price is £1. 12s. 6d. Lambs are fed during winter on common pasture, and when a year old are put on good grass, after shearing day. Four sheep of the Irish breed are a collop; but five of the English. Three collops are assigned to two acres of the best land.

In this part of the country there is no task work or extra labour after the usual

hours. The best labourer earns no more than the worst. The farmers here use cast iron socks. From sixty to eighty barrels of lime, each containing four bushels, are allowed to an acre. The bushel, which is heaped, is equal to sixteen inches square, and ten and a half inches deep, with planks two inches in thickness. Sheep are very fond of ragwort when young, and if turned out into a field where it grows, will keep it down.

JUNE 20th. KILDARE. KILKAYE.—Saw people employed in sowing turnips. I observed also good spring tares, and that the use of clover seed is increasing. Mr. Green formerly sowed 21lbs. when he bought the seed, but as he now saves his own seed, he sows 24lbs. Here, as well as every where else in Ireland, laying lands to grass is attended with great facility. Any kind of clay is manure for a bog. It appears that fog grass is the most beneficial. If sheep be suffered to go into water meadows in summer, they acquire the rot; but in winter, and till the month of May, no effect of this kind is produced.

The farms in this neighbourhood are large, 300 acres in tillage being very common; but the capitals employed are so miserably small, that to name them would fill the English farmer with astonishment. The fallows also are bad, and the few ploughings they get are ill executed. The houses are miserable hovels, and the sheep are scabby: scarcely any thing is paid for labour, and the whole system pursued is as wretched as can possibly be conceived. It is only doing justice, however, to a meritorious individual, to mention, that this observation is not applicable to Mr. Green but to his neighbourhood.

JUNE 21st. KILKAYE.—Four bullocks plough about a quarter of an acre a day. The agricultural implements used here are hardly worthy of that name.

JULY 14th. BORRIS.—Every person who can beg, borrow, or hire a horse, drills potatoes. In the drill sets, five barrels are used. One advantage attending the drill method is, that they grow to a more equal size. Colonel Gore digs them up, as he cannot take them entirely out with the plough. Mr. Cavanagh had ten barrels of wheat from half an acre, which yielded 11 cwt. of flour. The red kidney potatoes are accounted the best. The common rate of labour is one shilling per day. In winter the poor live on potatoes; those who are able, keep a cow, and those who are not, buy skimmed milk; if they have not the means of purchasing potatoe acres they hire land.

JULY 15th. CARLOW. GOWRAN.—Three roods of land produced 560 bushels of carrots, which were preserved in river sand. Mr. Cavannagh estimates the expense of a plough with two horses and a man, at five shillings per day. Two days are required to plough an acre. His course is lea, oats, oats, oats, potatoes, barley, clover, and oats again. He is the only person in this neighbourhood who has any clover. One hundred barrels of lime, at two shillings and sixpence per barrel, are allowed to an acre. It is a poor floor which has not a *beneen* (pig) upon it. Rails are made of gra-

nite, which he splits by means of a wedge. A mower will scarcely cut a quarter of an acre a day. Mowing costs eight shillings and eight pence per acre. A bad weed, called fairy-flax, grows here; it is of an indigestible nature, and when eaten by sheep, forms balls in the stomach which occasion their death.

JULY 24th. CLOGHRENNAN, near CARLOW.—The use of clover seems to be much increasing in this neighbourhood. Sixty barrels of lime are allowed to an acre of land.

JULY 28th. Great improvements are taking place here in the habitations of the poor. The price of labour in harvest is from one shilling and sixpence to two shillings; at other periods ten-pence. A butcher at Mychil now kills five or six sheep per week. Fifteen years ago there was no butcher in the place.

JULY 27th. CARLOW.—I had some conversation with a farmer, Mr. Collier, who cultivated this year 3 acres of wheat, 3 of barley, 2 of potatoes, and 13 of oats. He keeps four milch cows, four young heifers, two horses, three pigs, and drills potatoes, a method which he greatly prefers. He plants only six or seven barrels. Rent £8., tythe £6. or £7. His farm consists of fifty acres; he never employs labourers, but at busy times. He keeps in his own family seven or eight workmen, who are allowed ten-pence a day and their victuals, with meat on Thursdays or Sundays.

In "match-making," the parties often differ for a cow or a sheep.

There are some good fallows in Kildare, but the fields are over-run with hemlock and ragwort.

JULY 29th. CASTLE BROWN.—Fifteen bushels of bere are allowed to an acre as seed. No barley is raised, as it requires a lighter and smarter soil. The farmers purchase dry cows in the spring, and sell them out before Christmas, whether fat or lean. The general price is £4. or £5. a piece. In spring there is a very material difference between the butcher's and the slaughtering price. Last year, Mr. Brown bought dear cattle in November for £20. each, cleared £10. by feeding them on turnips, from improvement in quality rather than in weight.

IX. DISTRICT.—TABLE of the PRODUCE of WHEAT.

Date of Information.	Authorities.	Places.	Preceding State of the Land.	Period of Seed Time.	Period of Harvest.	Quantity of Seed used per Acre.		Produce.	
						In the Weights and Measures of the Country.	In lbs. Avoird.	In the Weights and Measures of the Country.	In lbs. Avoird.
1811 - -	Rev. N. Herbert	Carrick-on-Suir, Tipperary	Potatoes	From Sept. to December	From 15th August to 1st Sept.	10 Stone - -	140	From 8 to 10 Barrels	2,500
1809, Jan. 19	John Power -	Kilfaine, Kilkenny	- - -	- - -	- - -	- - -	- - -	8 Barrels of 20 Stone	2,240
1809, Mar. 20	Mr. Fitzpatrick	Uringford, Kilkenny	Fallow	- - -	- - -	- - -	- - -	5 Barrels of 20 Stone	1,400
1811, May	Wm. Robertson	Kilkenny - Survey of Kilkenny, p. 178	Fallow, or Potatoes	Oct. or after, Potatoes	Aug. & Sept.	18 Stone - -	252	7½ Barrels -	2,100
1802 - -	Mr. Tighe, M.P.	- - -	Fallow, or Potatoes	- - -	15th August to 10th Sept.	16 Stone - -	224	6 Barrels -	1,680
1809, June 27	Rev. Robt. Rochford	Cloghrennan, Carlow	- - -	- - -	- - -	18 Stone - -	252	7 Barrels of 20 Stone	1,960
1809, July 14	Mr. Cavannagh	Borris, Carlow	- - -	- - -	- - -	20 Stone - -	280	8 Barrels -	2,240
1809, July 27	Mr. Cornwall -	Mychil, Carlow	- - -	- - -	- - -	16 Stone - -	224	8 Barrels -	2,240
1811 - -	R. M. Fishborne	- - -	Generally after dry Fallow, or dunged Potatoes	From 1st September to 21st Dec.	10th Aug. to 20th Sept.	From 24 to 26 Stone of 14lb.	350	From 5 to 11 Barrels	2,240
1811, Mar. 25	John Green -	Kilkaye, Kildare	Fallow	Beginning of October	Sept. - - -	15 Stone per Acre	210	7 Barrels of 20 Stone	1,960
1809, Dec. 29	Wogan Brown	Castlebrown, Kildare	- - -	- - -	- - -	- - -	- - -	5 Barrels -	1,400
1807 - -	Rawson's Survey of Kildare, p. 4	- - -	Fallow	- - -	- - -	20 Stone - -	280	- - -	- - -
1811 - -	Isaac Weld, George Evans	About Dublin, Portrave, Dublin	Potatoes, Potatoes, Clover, Lea, Summer, Fallow	October From 1st Oct. to 1st Dec.	August Middle of Aug. to mid. of Sept.	20 Stone - -	280	7½ Barrels of 20 Stone	2,100
1811, May 13	Archer's Survey of Co. Dublin p. 26.	- - -	Fallow	- - -	- - -	16 Stone - -	224	7 Barrels -	1,960
1801 - -	Dutton's Observations on Survey of Co. Dublin, p. 26.	- - -	- - -	- - -	- - -	- - -	- - -	8 Barrels -	2,240
1811 - -	Robt. Thompson	Near Navan, Meath	Potatoes	Sept. or early in Oct.	Sept. - - -	1 Barrel - -	280	12 Barrels -	3,360
1811 - -	Gust. Lambert	Bean Park, Slane, Meath	Fallow, Potatoes, or Oats	Oct. and November	Sept. and October	18 or 19 Stone	260	7½ Barrels -	2,100
1811 - -	Mr. Grainger -	Causestown, Meath	Fallow, and Potatoes	Sept. Oct. & till the beginning of November	Latter end of Aug. to Sept.	20 Stone - -	280	7 Barrels -	4,760
1811, Feb. 27	Wm. Hopkins -	Athboy, Meath	Fallow	October	September	18 Stone - -	252	8 Barrels -	2,240
1811, Dec.	Mr. Stratton -	Dundalk, Louth	Potatoes, or Clover Lea	November	Latter end of August	20 Stone - -	280	- - -	- - -
1809, Aug. 2	Rt. Hon. I. Foster	Collon, Louth	- - -	- - -	- - -	1 Barrel of 20 Stone	280	9 Barrels -	2,520
1808, Aug. 14	Adm. Packenham	Coolure, Westmeath	Fallow	- - -	October	1 Barrel - -	280	10 Barrels -	2,800
1806, Aug. 1.	Mrs. Renneil's Bailiff	Rennela, West Meath	- - -	- - -	- - -	- - -	- - -	12 Barrels -	3,360
						Average of Seed per Acre	4.64	Average produce per Acre	49.420
							257		2,353

IX. DISTRICT.—TABLE of the PRODUCE of BERE.

Date of Information.	Authorities.	Places.	Preceding State of the Land.	Period of Seed-Time.	Period of Harvest.	Quantity of Seed used per Acre.		Produce.	
						In the Weights and Measures of the Country.	In lbs. Avoird.	In the Weights and Measures of the Country.	In lbs. Avoird.
1811 - -	Rev. N. Herbert	Carrick on Suir, Tipperary	Potatoes	December	1 August	18 Stone	252	16 to 18 Barrels	3808
1802 - -	Wm. Tighe, M.P. Survey of Kilkenny, p. 202	- - -	Burnt Ground.	- - -	- - -	- - -	- - -	13 Barrels	2912
1811, May	Wm. Robertson	Kilkenny	Potatoes	- - -	- - -	10 to 12 Stone	154	12 to 14 Barrels	2912
1811 - -	Rich. Fishborne	Carlow	Potatoes, and Fallow Potatoes	From March to Nov.	From 20 July to August	15 Stone	210	16 Barrels	3584
1811, Mar. 25	John Green	Kilkay, Kildare	- - -	Latter end of October	Early in September	16 Stone	224	17 Barrels of 16 Stone	3808
1809, Aug. 17.	Wogan Brown	Castlebrown, Kildare	- - -	- - -	12 August	1 Barrel	224	16 Barrels	3584
1811 - -	Robt. Thomas	Navan, Meath	Not used	November	September	- - -	- - -	- - -	- - -
1811 - -	Gust. Lambert	Beau Park, Slane, Meath	Fallow	- - -	- - -	- - -	- - -	- - -	- - -
1811 - -	M. Grainger	Causestown, Meath	Fallow or Potatoes	Oct. & Nov.	July	24 Stone	356	16 Barrels	3584
1811, Feb. 27.	Wm. Hopkins	Athboy, Meath	Fallow or Potatoes	Oct. & Nov.	August	20 Stone	300	16 Barrels	3584
						Average of Seed per Acre		Average Produce per Acre	
						1680		27,349	
						241		4,357	
TABLE OF FLAX.									
1811 - -	Rev. N. Herbert	Carrick on Suir, Tipperary	Lea and Potatoes	1 April -	26 August	40 Pottles per 1/4 acre	- - -	16 Stone per 1/4 Acre	896
1811 - -	Rich. Fishborne	Carlow	Scarcely any sown—not worth notice	April - -	According to the Season	A Pint to a Perch	- - -	Not known in this County	- - -
1811, May	Wm. Robertson	Kilkenny	- - -	- - -	- - -	A Pottle to 60 square Yds.	- - -	- - -	- - -
1811, Mar. 23	John Green	Kilkay, Kildare	Lea or Potatoe Land	Middle of April	August	2 Pottles to a square Perch	- - -	4 1/2 lb. of good Flax per Perch	- - -
1811, May 15.	George Evans	Portrave Dublin	Little sown	- - -	- - -	- - -	- - -	- - -	- - -
1811 - -	Robt. Thompson	Navan, Meath	Barley	May -	August	A Bushel per Rood	- - -	12 Stone per Rood	672
1811 - -	Gust. Lambert	Beau Park, Slane, Meath	Potatoes	May - -	August	7 Bushels	- - -	- - -	- - -
1811 - -	M. Grainger	Causestown, Meath	White Corn or Potatoes	April and May	July - -	10 Pottles per Rood	- - -	14 Stone per Rood	784
1811, Feb. 27	Wm. Hopkins	Athboy	Potatoes	April and May	August	6 Bushels	- - -	- - -	- - -
1802 - -	Thompson's Survey of Meath, p. 176	- - -	- - -	- - -	- - -	21 Pottles per Rood	- - -	240lbs. per Rood	960
						Average of Seed per Acre		Average Produce per Acre	
						3,312		844	

IX. DISTRICT.—TABLE of the PRODUCE of BARLEY.

Date of Information.	Authorities.	Places.	Preceding State of the Land.	Period of Seed Time.	Period of Harvest.	Quantity of Seed used per Acre.		Produce.	
						To the Weights and Measures of the Country.	In lbs. Avoird.	In the Weights and Measures of the Country.	In lbs. Avoird.
1811 - -	Rev. N. Herbert	Carrick-on-Suir, Tipperary	Wheat -	May - -	September	22 Stone - -	308	12 to 14 Barrels	2,912
1808, July 15	Mr. Gore - -	Gowran, Kilkenny	- - -	- - -	- - -	8 Stone - - -	- - -	20 Barrels -	4,480
1802 - -	Wm. Tighe, M. P. Survey of Kilkenny, p. 198 -	- - -	Wheat -	April - -	- - -	1½ Barrels -	308	10 Barrels -	2,240
1809, June 20	Rev. Rob. Rochfort	Clogrennan, Carlow	- - -	- - -	- - -	- - -	- - -	12 Barrels of 16 Stone -	2,688
1809, July 14	Walter Cavanagh	Borris, Carlow	- - -	- - -	- - -	12 Stone - -	168	18 Barrels -	4,032
1809, July 27	Mr. Cornwall -	Mychil, Carlow	- - -	- - -	- - -	16 Stone - -	224	15 Barrels -	3,360
1811 - -	R. Fishborne -	Carlow - -	Potatoes & Wheat	April & May	Latter end of July, Aug. & September	14 Stone - -	196	16 Barrels -	3,584
1811, Mar. 25	John Green - -	Kilkaye, Kildare	Tornips -	April - -	September	11 Stone - -	154	13 Barrels of 16 Stone -	2,912
1811, May -	Wm. Robertson -	Kilkeenny -	Wheat -	April & May	September	14 to 20 Stone	238	12 to 16 Barrels -	3,136
1809 - -	Rawson's Survey of Kildare, p. 4.	- - -	- - -	- - -	- - -	16 Stone - -	224	- - -	- - -
1811 - -	Isaac Weld - -	About Dublin	Wheat -	- - -	July & Aug.	- - -	- - -	- - -	- - -
1811, Aug. 13	George Evans -	Portrave, Dublin	Generally after Potatoes	From end of April to 1st week in May	Beginning of September	From 16 to 20 Stone	252	12 Barrels of 16 Stone -	2,688
1801 - -	Archer's Survey of Dublin, p. 26	- - -	Oats - -	- - -	- - -	14 Stone - -	196	9 Barrels -	2,016
1802 - -	Dutton's Observations on Do. p. 26	- - -	- - -	- - -	- - -	- - -	- - -	12 Barrels -	2,688
1811 - -	Robert Thompson	Navan, Meath	Potatoes	March - -	End of Aug.	1 Barrel - -	224	20 Barrels -	4,480
1811 - -	Gust. Lambert	Beau Park, Slane, Meath	Potatoes and Oats	April - -	October -	16 Stone 1 Barrel	224	13 Barrels -	2,912
1811 - -	Mr. Grainger -	Causestown, Meath	Wheat or Potatoes	End of March to beginning of May	Latter end of August & September	20 Stone - -	280	12 Barrels -	2,688
1811, Feb. 27	Wm. Hopkins -	Athbny, Meath	Potatoes & Wheat	April - -	September	16 Stone - -	256	16 Barrels -	3,584
1811, Dec. -	Mr. Stratton - -	Dundalk, Louth	Wheat or Potatoes	May - - -	Beginning of August	16 to 20 Stone	252	- - -	- - -
1809, Aug. 2.	Rt. Hon. J. Foster	Collon, Louth	- - -	- - -	- - -	1½ Barrels -	308	15 Barrels -	3,360
1808, Aug. 17.	Adm. Packenham	Coolure, Westmeath	- - -	- - -	17 August -	- - -	- - -	20 Barrels -	4,480
						3,812		58,240	
						Average of Seed per Acre } 258		Average produce per Acre } 3,255	

IX. DISTRICT.—TABLE of the PRODUCE of OATS.

Date of Information.	Authorities.	Places.	Preceding State of the Land.	Period of Seed Time.	Period of Harvest.	Quantity of Seed used per Acre.		Produce.	
						In the Weights and Measures of the Country.	In lbs. Avoird	In the Weights and Measures of the Country.	In lbs. Avoird.
1811 - -	Rev. N. Herbert	Carrick-on-Suir,	Barley	March and	September	2 Barrels	392	12 to 14 Barrels	2548
1811, May	Wm. Robertson	Tipperary Kilkeony	Wheat, Barley, or Potatoes	Feb. and March	Sept. and Oct.	16 to 28 Stone	295	8 to 16 Barrels	2352
1802 - -	Wm. Tighe, M.P. Survey of Kil- kenney, p. 202	- - -	Various	March	Fortnight af- ter Wheat	- - -	- - -	9 Barrels	1764
1809, Apr. 20	Rev. Rob. Roch- fort	Clogrenuan, Carlow	- - -	- - -	- - -	- - -	- - -	16 Barrels of 14 Stone	3136
1809, July 27	Mr. Cornwall	Mychil, Carlow	- - -	- - -	- - -	1½ Barrels	295	20 Barrels	3920
1811 - -	R. M. Fishborne	Carlow	Lea gener- ally after other Corn	March to May	1st Aug. to 24th Oct.	24 Stone	336	16 Barrels	3136
1811, Mar. 25	John Green	Kilkaye, Kildare	Wheat	March	September	23 Stone	322	13 Barrels of 14 Stone	2608
1809, Dec. 29	Wogan Brown	Castlebrown, Kildare	- - -	- - -	- - -	- - -	- - -	11 Barrels	2156
1807 - -	Rawson's Survey of Kildare, p. 4	- - -	Wheat	- - -	- - -	28 Stone	392	- - -	- - -
1811 - -	Is. Weld	About Dublin	Wheat	- - -	July and Aug- ust	- - -	- - -	- - -	- - -
1811, May 13	Geo. Evans	Portrave, Dub- lin	Wheat	March	September	3 Barrels of 14 Stone	392	From 7 to 8 Bar- rels of 14 Stone	1470
1809, April 29	Mr. Grierson	Near Dublin	- - -	- - -	- - -	- - -	- - -	12 Barrels	3920
1801 - -	Archer's Survey of Dublin, p. 26	- - -	Wheat	- - -	- - -	2½ Barrels	490	10 Barrels	2548
1802 - -	Dutton's Observa- tion on Ditto, p. 26	- - -	- - -	- - -	- - -	- - -	- - -	14 Barrels	2744
1811 - -	Rob. Thompson	Navan, Meath	Barley	March	September	2 Barrels	392	24 Barrels	4764
1811 - -	Gust. Lambert	Beaupark, Slane Meath	Always fol- lows on the Wheat crop	March	September	30 Stone	420	16 Barrels	3136
1811 - -	Mr. Grainger	Causedtown, Meath	Lea, Potatoes, or Wheat	March and April	August and September	3½ Stone	441	13 Barrels	2608
1811, Feb. 27	Mr. Hopkins	Athboy, Meath	Wheat, Bere, Barley, Potatoes, or Lea	March	September	28 Stone	392	16 Barrels	3136
1808, July 25	Mr. Cusack	Telltown, Meath	- - -	- - -	- - -	- - -	- - -	24 Barrels	4764
1802 - -	Thomson's Survey of Meath, p. 165	- - -	- - -	- - -	- - -	1½ Barrel	241	19½ Barrels	3822
1811, Dec.	Mr. Stratton	Dundalk, Meath	Lea or Po- tatoes	March	Beginning of September	1½ Barrel	294	- - -	- - -
1809, Aug. 2	Rt. Hon. I. Foster	Collon, Louth	- - -	- - -	- - -	2 Barrels of 14 Stone	392	15 Barrels	2940
1806, Aug. 17	Adm. Packenham	Coolure Louth	- - -	- - -	16th August	1½ Barrel	294	16 Barrels	3136
1803, Aug. 13	Mrs. Rennel's Bai- liff	Rennela, West- meath	- - -	- - -	- - -	- - -	- - -	18 Barrels	3528
						5780		64,356	
						Average of Seed per Acre } 361		Average Produce per Acre } 3065	

IX. DISTRICT.—TABLE of the PRODUCE of POTATOES.

Date of Information.	Authorities.	Places.	Preceding State of the Land.	Period of Seed Time.	Period of Harvest.	Quantity of Seed used per Acre.		Produce.	
						In the Weights and Measures of the Country.	In lbs. Avoird.	In the Weights and Measures of the Country.	In lbs. Avoird.
1811 - - -	Rev. N. Herbert	Carrick-on Suir, Tipperary	Lea	April and May	October	9 Barrels of 21 stone each	-	60 to 70 Barrels	19,110
1809, Mar. 20	Mr. Fitzpatrick	Urlingford, Kilkenny	-	-	-	-	2,646	120 Barrels of 2½ cwt.	33,600
1811, May	Wm. Robertson	Kilkenny	Fallows, dunged, or lea burnt	May & June	October and November	-	-	-	-
1802 - - -	Wm. Tighe, M.P. Survey of Kilkenny, p. 216	-	All the dung of the co. besides other manures goes to raise potatoes	-	-	¾ for a drilled acre, 10 planted with spade, and 12 with the plough	1,323 2,940	50 Barrels	14,700
1809, June 20	Rev. R. Rochfort	Clogrenan, Carlow	-	-	-	-	-	70 Barrels of 24 Stone	23,520
1809, July 14	Mr. Cavanagh	Borris, Carlow	-	-	-	8 Barrels	2,352	-	-
1809, July 27	Mr. Cornwall	Mychil, Carlow	-	-	-	10 Barrels	2,940	65 Barrels	21,846
1811 - - -	R. M. Fishborne	Carlow	Lea, or fallow dunged	March, to the middle of June	October and November	12 Barrels of 24 stone	3,456	Uncertain	-
1811, Mar. 25	John Green	Kilkay, Kildare	Oats, or lea manured	March and April	October	10 Barrels of 20 stone	2,800	75 Barrels of 20 stone	21,000
1811 - - -	Is. Weld	About Dublin	Grass	Feb. March, and April	Early potatoes in July	-	-	-	-
1811, May 13	George Evans	Portrave, Dublin	After Oats, well manured or Lea	March, April, and May	November	10 to 12 Barrels of 20 stone	3,600	60 Barrels of 20 Stone	13,800
1809, Apr. 29	Mr. Grierson	Near Dublin	-	-	-	-	-	25 Ton	56,000
1811 - - -	Rob. Thompson	Navau, Meath	Lea	May	October	48 Stone per rood	2,688	10 Barrels per rood of 48 stones each	26,880
1811 - - -	Gost. Lambert	Beaupark, Slane Meath	Grass without manure	May	October and November	10 Barrels	2,800	80 Barrels	22,400
1811 - - -	Mr. Grainger	Casestown, Meath	Lea, or after White Corn with dung	15th April to end of May	October	8 Barrels	2,240	70 Barrels	19,600
1811, Feb. 27	Wm. Hopkins	Athboy, Meath	Old Lea, or dunged ground	April & May	November	170 Stone	2,380	160 Barrels	72,600
1809, July 25	Mr. Cusack	Near Navan, Meath	-	-	-	12 Barrels	3,360	-	-
1802 - - -	Thompson's Survey of Meath, p. 182	-	-	-	-	-	-	80 Sacks containing about 22 Stone	24,640
1811, Dec.	Mr. Stratton	Dundalk, Louth	Lea or any Crop manured	-	-	4 Bushels	-	-	-
1809, Aug. 2	Rt. Hon. J. Foster	Colloo, Louth	-	-	-	8 Barrels of 21 Stone	2,352	60 Barrels	23,520
1808, Aug. 10	Earl of Granard	Westmeath	Lea	-	-	160 Stone	2,240	600 sacks of 24lb.	16,400
1808, Aug. 13	Mrs. Rennels, Bailiff	Rennela, Westmeath	-	-	-	-	-	1000 Stone of 24lbs.	24,000
						Average of Seed per Acre	39,597 2,639	Average of Seed per Acre	433,816 27,113

AVERAGE Quantities of Seed used, and of the Produce per Acre, of the Ninth District.

	Seed used per Acre in lbs. Avoirdupois.	Produce per Acre in lbs. Avoirdupois.	Proportion between Seed and Produce.
Wheat - - - -	257	2,353	1 to 9
Bere - - - -	211	3,494	1 to 16:10
Barley - - - -	246	3,235	1 to 13
Oats - - - -	361	3,063	1 to 8:10
Potatoes - - - -	4,639	27,113	1 to 1:10
Flax - - - -	-	824	

In the GENERAL OBSERVATIONS at the end of this chapter, I have formed in one table the results of the nine districts, and brought the lbs. avoirdupois into Irish and English measure.

AGRICULTURAL CAPITAL.

In treating of the capital necessary to agricultural improvement, although we may be desirous of coming to accurate conclusions, yet we shall find ourselves liable to considerable uncertainty, much depending on the nature of the soil, and on other adventitious circumstances. It may not, therefore, be in my power to afford the reader that satisfaction, which he desires. Many writers with the best intentions would have considered themselves authorized to fill up in an authoritative tone blanks, which a fear of misleading has induced me to leave open; but I should be sorry to lay down data from which erroneous opinions might be formed; and I am convinced that in the views I have taken of the subject my errors are on the safer side. I have suppressed a considerable part of the information I collected; and I must even acknowledge that the matter retained is not sufficient to illustrate the point completely.

In whatever manner land may be managed, the capital required must be estimated from fixed and invariable principles. If a person takes any given quantity into his own hands, the expense of stocking, and every charge incurred up to the time that his receipts enable him to go on without further disbursement, would form the capital employed. But I shall suppose that in addition to this, he has erected farm buildings, drained, fenced, enclosed, or embanked different fields, or laid out money in any way whatever for the improvement of the estate. This money ought to be classed under another head; it is like money expended in purchasing so much more freehold property and adding to his territorial possessions. In this case a calculation ought to be made of the value of the principal so sunk for a number of years, and the whole should be added to the rent as a surcharge. To point out a thing which is so obvious, may to some appear superfluous; but I have seen so many instances of gentlemen improving their landed property, who charged the money laid out to

the expenditure of a year, and then asserted that they had lost by their farming, as convinces me that they were entirely ignorant of this simple and evident truth.

I know that to many it is difficult to be comprehended, and that this is frequently the case in Ireland. Hence arises the benefit of middle-men of property, who ought always to be introduced when an estate is susceptible of improvement, and the owner incapable of bearing the expense with which it is attended. Under such circumstances a middle-man can most beneficially effect what could not otherwise be accomplished; and the imposition of an increased rent on his tenants is only a measure of justice, which enables him to recover, within the term of his lease, the capital expended and the interest arising from it during its existence. The worst thing in regard to middle-men in general is, that like the sub-tenants, they are persons without any capital; and when this is the case an estate cannot be afflicted with a greater evil.

The capital employed in grazing must be entirely regulated by the number of beasts which the land will sustain. On the rich *caucass* lands on both sides the Shannon and Fergus, the best lands in Limerick, Roscommon and Meath, where an acre is capable of grazing a bullock, the capital may be easily calculated; and at the present rate of store beasts the current price of a beast with the annual rent will give the capital required per acre.

In the dairy districts, as the cost of cows is much less, the capital required on these lands cannot by any means be so large. Sheep lands, in my opinion, may be stocked with as small a capital as any. Very little pasture is capable of fattening more than four sheep per acre, which at thirty-five shillings each, is £7. an acre, independently of rent. This is the whole expenditure, as far as I am acquainted; the herd makes the hay, is paid for his trouble by what are called conveniences, and the occupier is not any thing out of pocket. On the contrary, by selling a little meadow or corn acre potatoes, he has, probably, when he comes to balance their accounts, money in hand.

In regard to tillage land in Ireland, I find it impossible to form any estimation, though I am perfectly aware, that the capital ought to be equal to the following items:

1st. A year's rent; but in general none is paid till the first crop is threshed out.

2d. A year's labour, which is all done by the family.

3d. Seed corn of various descriptions; but this is often obtained upon credit from shopkeepers, and when paid for, the money is frequently borrowed at the rate of a shilling interest per month for each pound.

4th. Implements: so few, however, are used, and those employed are so bad, that the value of them amounts to a mere trifle.

5th. Horses: animals of this kind, of whatever quality, purchased.

6th. Cows: these, in all probability, have been reared on the premises of a landlord, under that kind of indulgence which is called a convenience.

Hence it is seen, that an Irish farmer may be said to commence without any capital. He has not to pay taxes or poor's rates; the county cess he discharges by labour, that is, by working with his car on the roads; and as he begins his agricultural career in want, and continues it amidst poverty, it may readily be conceived, that cultivation under such untoward circumstances must be wretchedly bad. If his family be industrious, he will sometimes save a little money, and perhaps bury in the earth a few guineas, some of which at a future period, are probably released from their confinement to portion one of his daughters. To attempt any calculation of the capital required under a system of this kind, would be as ridiculous as to endeavour to ascertain what quantity of water might be conveyed from one place to another in a sieve.

So little has this subject been considered in Ireland, that it is not mentioned in any of the county surveys, the authors of which seem to have taken it for granted, that capital, to an Irish farmer is not at all necessary.

In this respect there is a very striking difference between the manner of occupying land in England and in Ireland. At the present prices, it is calculated that ten pounds per acre as capital, is required by every farmer in England* upon entering on his farm; and few would think of taking land unless they could shew their landlords that they either possess sufficient property, or can borrow it for such time as it may be wanted. But setting aside every consideration of landlord and tenant, it is necessary to bear in mind the difference between a country where productions are created chiefly by capital laid out upon horses and implements, and consequently obtained in part by machinery, and a country where productions are raised chiefly by the hands of man. On the former, taxes fall lightly; they are paid by the owners of property: on the latter, they are an oppressive burden, because they fall upon personal exertion, and deprive the poor of the chief part of those gratifications, to which their labour entitles them. Under the term taxation I include every contribution towards national defence, which a government requires of its subjects, for if they cannot pay in money they must by personal service, and thus the evil becomes incalculably great.

It is to the capital employed by British farmers that I ascribe that matchless state of prosperity which has enabled England to bear up against the heavy burden of its national debt; against its immense circulation of paper currency; against a hostile combination of the chief powers of the continent, having at their head the greatest captain of modern times; and when I perceive a contrary system encouraged in Ireland, I cannot but deprecate principles, the aim of which is to create numbers of people

* Mr. Burke, who wrote some years since, says, "a farmer who cultivates 1200 acres, cannot proceed with any degree of safety and effect, with a smaller capital than £10,000. *Burke's Thoughts and Details on Scarcity*, vol. iv. of his works in quarto, p. 270.

rather than effective strength; and sufficiency of food rather than super-abundance of produce. With the capital engaged by English farmers, a greater quantity of wheat, barley, and other grain, is produced, than in Ireland or France by a greater number of people, and upon a greater number of acres. Thus the real wealth of the country is concentrated within sight and within the reach of its own exertions.

FALLOWS.

Mr. Kirwan says, and I cannot refer to better authority, that "fallowing is the principal operation by which exhausted lands are restored to fertility. Its use, he says, seems to consist in exposing the roots of vegetables to decay, by which means food for a fresh growth is prepared; the atmosphere also deposits carbonaceous substance on earth long exposed to it."* But whatever benefit may arise from this process with the implements generally used in Ireland, it is impossible that fallows can be effectually made, without a heavy harrow, without a roller;† and without a plough, the share of which has a wing, it is ridiculous to attempt any thing of the kind. The wing or fin of the ploughshare is, indeed, the greatest deficiency; it should always be as wide as the heel of the plough; and in making fallows, I found it essential to increase the width of it every time it was laid, as the land was "got to pieces." This is the only way to destroy weeds, and particularly thistles; but much must depend on the ploughman, who, if master of his business, will always attend the blacksmith to give directions for laying the share in a proper manner. It is to be observed also, that wrought iron shares are very superior to cast iron ones, as the latter cannot be altered.

In Ireland three tilts, such as they are, go for a fallow; in the best cultivated parts of England eight are required, and the second tilt, or crossing the fallows, is generally made by taking a deep hold of the ground. In any other part of the course I never found deep ploughing answer; but in making a fallow, it is of great importance that the plough should penetrate to as great a depth as the soil will admit. Mr. Dutton's account‡ of an Irish fallow is, I am sorry to say, too correct; and as I wish to give Irish authority for the fact, I shall transcribe it:—"According to the slovenly mode of fallowing in the county, and I may add the greater part of Ireland, it has not the intended effect of destroying weeds; but with respect to perennial weeds, that propagate by the root, a quite contrary one, as it only divides the roots and increases them, for few ever think of pick-

* Annals of Agriculture, vol. 23. p. 93.

† Mr. Townsend says, that no common farmer in the county of Cork possesses a roller. *Survey of Cork*, p. 248.

‡ *Survey of Clare*, p. 52.

ing them off, and annual, and biennial weeds are permitted to ripen their seeds before the ground is ploughed. The proper period for this operation is when the young weeds are an inch or two high; when they are either turned into the ground and become a trifling manure, or are exposed to the sun and air, and by that means destroyed. It is not uncommon in this county, as well as in the county of Dublin, to see thistles, docks, rag-weed, and other pernicious sorts in full seed before they are turned in by the plough, or rather left with their heads sticking up between the furrows, where they come to maturity."

In regard to fallows in Kilkenny, where they are more attended to than in any other part of Ireland, the following account is given by Mr. Tighe.*—"Some stubbles near Gowran do not get their first ploughing till June, and that is often a very partial one, merely opening the tops of the ridges and turning them down towards the furrows, the greater part of the ground remaining unstirred. In this state they lie for three or four weeks, until it may suit the farmer's convenience to go over them again, after which it is well if they receive a cross-ploughing before autumn, or previous to seed time; the two first ploughings are sometimes reckoned sufficient. This can hardly be called fallowing; the summer weeds are left growing, very partially covered in the furrows, where they often shed their seeds before the second ploughing. Some stubbles in the neighbourhood of Kilkenny had not got their second ploughing until the end of August, previous to which most of the weeds whose seeds were brought near the surface by the first ploughing, had vegetated and gone to seed. The best farmers graze their stubbles only until Christmas, and give them first a ploughing before the end of January; they cross-plough in spring, and never sow wheat but after three earths."

Mr. Thompson does not think a fallow complete, unless it has had four tilts,† and he seems to consider it right to manure after the first ploughing in spring.‡ But this system can be viewed in no other light than as affording manure to weeds. Dr. Davy, in his concluding lecture at the Board of Agriculture, spoke of fallows in terms of the severest reprehension. No person can entertain more respect, nor would it be less than the truth, were I to say, veneration, for science and true scientific principles, than myself. Nor is it possible for any one to be a greater admirer of the manner in which the ingenious professor explained the different processes connected with his subject. It is, therefore, with diffidence and regret that I take the liberty of differing from such high authority.§ But it has ever yet been found, that the most

* Survey of Kilkenny, p. 180.

† Survey of Meath, p. 145.

‡ *Ibid.*, p. 145.

§ Colonel Wilkes has given an account of the benefit of fallowing in a country exposed to a most burning sun, where the land is ploughed seven times in the season for this purpose. *Wilkes's History of the Mysore*, p. 209.

specious theories of the greatest philosophers, have not in all cases corresponded with practice; and experience, which is sometimes superior to the arguments furnished by the rules of logic, has invariably proved to me that land when well fallowed will produce most corn. Assertions of this kind are, in general, received without much examination; but I freely confess I am much dissatisfied in stating an effect, unless I can at the same time account for its cause; and so far from being led away by the nonsensical cry of, practice! practice! I scarcely wish to see it applied to the rustic who holds the plough. It is theory, exemplified and confirmed by practice, that can effect any thing important or useful.

TRENCHING LAND.—The Irish term trenching has a very different meaning from the same expression in England. Trenching in Ireland is to form the land into beds, and shovel out a deep trench between them, throwing up the earth in beds on each side. This is done to all land, whether ploughed or dug, whilst the crop is growing. The trench, as far as I could judge by the eye, occupies nearly one-fifth of the surface, and is dug so deep as to bring up a great deal of dead soil; it occasions also a very heavy expense, at least eight shillings per acre. But this system, however bad, is attended with some advantages; where the knowledge of letting off water is so imperfect, it keeps the land dry, and this effect is of so much importance as to make up for the loss of surface.

The Irish argue in favour of this practice from the mechanical principle of compression; but I entertain great doubts of the truth of this position. If we take the weight of a cubic foot of earth at one cwt., a cubic inch and a half, the usual quantity, will weigh on each square foot no more than one-eighth of a cwt., or 14lbs. Now, this pressure on each square inch can only be the 144th part of 14lbs. or nearly one-tenth of a pound, which is about two ounces; whereas the difference in the weight of the atmosphere, as shewn by the barometer, amounts sometimes to two pounds on a square inch.

This calculation, which was suggested to me by Mr. Edgeworth, accords with my own experience in regard to the inutility of the roller for the purposes of compression. The roller is beneficial for the breaking of clods and smoothing the surface, where the scythe is afterwards to be applied; but to compress land thoroughly, as I have so often found it necessary to do in order to guard against the ravages of the wire worm upon the light soil in Essex, or to consolidate it for the growth of wheat, a plant which always flourishes most in lands subjected to rolling, experience has convinced me, that the best method is to cover it with animals, bullocks, or sheep, according to the season, and the nature of the ground. This practice was recommended to me by my friend Mr. Ellman of Sussex, whose opinion I consider as no mean authority, and therefore entitled to respect.

PLOUGHING.—This part of agriculture in Ireland is performed in the most

wretched manner possible. I have already adverted to it in the section upon tillage, and therefore it is not necessary to say much farther upon the subject. I have introduced it merely that I might have an opportunity to congratulate the country on the importation of so many Scotch ploughmen, who have been introduced by the fashionable rage for farming which prevails at present among the gentry.

BREAKING CLOUDS.—The want of a roller obliges the Irish farmer to break the clods by manual labour, which is employed throughout every part of the kingdom. For this purpose a stick, somewhat like a hurling bat is used; and in Cork, according to Mr. Townsend, a spade.* “In Kilkenny, if rain has preceded the ploughing, the land remains in clods, which are sometimes broken with mallets, or with hurling-sticks which have a large crooked head.” †

DRILLING.—This mode of sowing corn has been strongly recommended in most of the county surveys, but by gentlemen, I am certain, who have never practised it. The more I consider the subject, the more I am convinced that whether by broad-cast, drill, or dibble, if a sufficient plant of corn be obtained, it is of no importance by what means the seed is put into the earth. In regard to horse-hoe culture, the advantages of which are so much extolled, I have tried it for many years, and always found that it earths up the weeds as well as the corn in the rows; and as it renders it more difficult to get these weeds out, I am convinced that it is attended with more harm than good. As to depositing the seed at an equal depth, this may be done as well by good ploughing; in short, the longer I followed this practice the more confident I became that it does not possess any solid advantages. One crop, which is not used in Ireland, I should always put into the ground with the drill, I mean peas; but as these have little connexion with the present work, it is needless to say any thing farther on the subject. It is the general opinion that seed is saved by drilling; this, however, I must controvert; for I have found by long experience that to make drilled corn succeed, requires as much seed as broadcast.

Mr. Tuke remarks, that in Yorkshire, a luxuriant crop which covers the earth is always the most beneficial. ‡

Dr. Beaufort, at Collon, in Louth, gave drilling a fair trial, but without success.

DIBBLING. After the remarks I have made on drilling, it is not to be expected that I should say much in favour of dibbling. This, perhaps, may appear surprising to those who know that I once received a medal for having planted, by this process, 572 acres of wheat in one season. The medal was awarded without my laying claim to it; and I readily embrace the present opportunity of stating, that I lament ever having accepted of it: I should have been much

* Survey of Cork, p. 194.

‡ Tuke's Survey of the North Riding of Yorkshire, p. 10C.

† Survey of Kilkenny, p. 182.

better pleased with my own conduct, had I rejected this honorary mark of distinction till I had determined, to my own satisfaction, that the plan was beneficial, and fit to be generally adopted; for I consider my acceptance of the medal, without being convinced of the utility of the system, as a kind of tacit recommendation to the public of a process which I had not sufficiently examined: I continued for many successive years to dibble a quantity of wheat; and the result of my experience is, that the first object, on all soils which I have farmed, is to obtain a thick plant; and on bean eddishes or fallow, I found it as easy to do this by the hands of an experienced seedsman, as by the dibble or the drill. With regard to clover leas, it appeared to me, that one row dibbled on each furrow, which in Essex is called half a plant, and half the usual quantity of seed thrown by the hands of a good workman fell between the furrows, by which a plant was obtained on the furrow and between them: and this is the method which experience has proved to me the most beneficial. The grain is less liable to mildew, comes to harvest earlier; in wet seasons, stands up much better than a thin crop, and yields invariably more corn to the acre.

WHEAT. It will be seen, by the observations I have already made, that the general culture of this plant is not of very long standing in Ireland, whether owing to a change of climate, or what other cause, I know not; but there are certain accounts of its cultivation in former times, in a more northern degree of latitude than that to which it is now accustomed.* Boate speaks of it in Connaught in his time,† in a partial course of cultivation: it is a plant which thrives best upon a dry soil and in dry seasons,‡ and its produce is increased by calcareous manures.§

Of the Sort. The red Lammis appears to be the kind most in use. The samples which fell under my notice I thought exceedingly bad, and all the accounts I was able to collect, from Mr. Jebb, of Slane, Mr. Connolly, of Dublin, Mr. Hewitt, of Cork, and many others, served to prove, that it is of an inferior quality, owing chiefly to bad harvesting. Besides, the single circumstance of its being screened and kiln-dried before it is ground, would establish the fact beyond all contradiction. About two years ago, the cultivation of Egyptian wheat was quite the fashion: it began among the gentry, and the accounts published respecting it were truly ridiculous; but it never answered, and is now entirely neglected. Revets I met with in Kildare and the King's County, but this is a sort of wheat by no means in general use, as it yields little flour to its weight. Spring wheat grows well near the sea-coast of Wicklow. I met with it on the lands of Mr. Rochfort, and of the Rev. Mr. Robinson, in Westmeath; but I heard no accounts of it which could in-

* Let the reader consult some facts from historical data of this circumstance in Scotland, referred to by Aiton, *Treatise on Bogs*, p. 4.

† Boate's *Nat. Hist. of Ireland*, p. 102.

‡ Townsend's *Survey of Cork*, p. 242. *Survey of Kilkenny*, p. 188.

§ *Survey of Cork*, p. 242.

duce me to believe that it is likely to answer. Mr. Dubourdieu speaks otherwise of it in the county of Down,* as does Mr. Dutton in Clare.†

In regard to the course in which it is cultivated, I shall refer my readers to the tables following the different districts. By these it will be seen, that it is generally sown either after potatoes or a fallow; a system which, in England, would render the crop what the farmers call "frothy," that is, produce a great deal of straw and but little corn.

The period of sowing, after potatoes, must be regulated by the time when the preceding crop is taken from the ground. When sown upon fallows, there can be no reason why it should not be got in in season. Too early sowing may be equally hurtful, as it will tend to generate weeds.

The quantity of seed used will be seen in the same table. In many places, an evident waste of seed is observed; but I am no advocate for sowing thin, as I have frequently experienced the justness of the following remark of Mr. Christy, who sows five bushels per Irish acre:‡ "I am in the practice of sowing," says he, "five bushels on an Irish acre, which is considerably thicker than is done in this neighbourhood. I have long been of opinion, 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."

Harrowing, rolling, and hoeing wheat in the spring, as practised in England, are, generally speaking, unknown in Ireland. A farmer of that country would consider his land spoiled if a person should walk over it, as he is completely ignorant, that in all light lands wheat is a plant which thrives best when the earth is fully consolidated, and there is very little land which will not bear compression.

Diseases. *Burnt ears, the smut, the red-gum, and the mildew,* are distinct diseases to which this plant is subject, but by the farmer in Ireland they are all comprehended under the general name of smut. I never yet heard that burnt-ears have been traced to their real cause, or that any method has been discovered to prevent them. I am of opinion that they are by no means so injurious as is supposed: they never hurt the sample, and I have raised many productive crops of wheat in which burnt ears were abundant. The smut may be guarded against by steeping the seed, a process which is generally practised in Ireland. Sir Charles Coote, in one of his surveys, recommends it in a dry season;|| that is the very season in which it is most dangerous to adopt it. The long immersion of the seed in water induces vegetation, which, in a dry season, will endanger the plant, if committed to a soil not sufficiently moist to accelerate its progress. In a wet season, as it begins to grow from the moment it is put into the earth, no danger will arise from the previous incli-

* Survey of Down, p. 78.

† Dubourdieu's Survey of Down, p. 77.

‡ Survey of Clare, p. 37.

|| Survey of Armagh, p. 183.

nation it has received to vegetate, during the process of steeping. I mention these observations, because I have seen many crops lost by steeping in a dry season.

I saw mildewed wheat in Fermanagh, but it was not a general complaint, as it frequently is in many districts of England. A worm, which I never heard of before, is mentioned by Mr. Tighe, who speaks of it in the following manner: "There is another evil to which wheat is often exposed in this county, called the red or yellow worms, which generally attack it in a dry season. The first step towards curing a disorder, is to trace it to its source, and this has been done with regard to these worms in a most diligent and satisfactory manner, in the Linnæan Transactions. As wheat in a dry season is better in quality, and more abundant in produce, upon the whole, this evil is not so generally felt, and farmers, on seeing these worms in summer, sometimes say "it is a good sign." Their depredations are often partial; in the year 1800, they caused great damage in this district, though it was not universal; many farmers, when they came to thresh their corn, found the quantity in a moderate stack to fall below their calculation; the grain, indeed, which remained, was of a superior quality, but one third of it had been probably destroyed. Having observed these insects with attention, I found that nothing could be more accurate than the representation and account given in the Linnæan Transactions by Mr. Marsham and Mr. Kirby:† the worms are the larvæ of a small fly, *tipula tritici*, who lays her eggs within the flower during the month of June: wheat sown early seemed to escape better: a variety, therefore, that flowered early, would have an advantage in this case: the small fly, during the day, attaches itself to the stem, and comes out in the evening about sun-set. Wet seasons, though otherwise injurious, diminish greatly the number of flies and prevent most of the survivors from laying their eggs; the worms, therefore, are never numerous but when fine weather attends the florescence of the wheat; and the evil is less regarded, as it is counter-balanced by many advantages. The larvæ have providentially a mortal enemy, the *ichneumon tipule*, who pierces the worm and lays her eggs within the body, which becomes the nidus of a new benefactor, instead of a tipula, so noxious to mankind. I have often seen the ichneumons busily piercing the worms, nor will they quit the ear if pulled and brought into a house, but suffer the operation to be closely examined; so intent are they on the great object of their life, the care of their offspring. The larvæ which escape, as well as those of the ichneumon, do not become flies until the succeeding spring. They are generally called yellow worms in the younger, and red worms in a more advanced state; from three or four to twenty or thirty of these little animals may be seen in one flower; they are usually in the upper part of the ear, sometimes but one grain, sometimes but three or four are

* Survey of Kilkenny, p. 188.

† See vol. iii. p. 242, vol. iv. p. 224, and vol. v. p. 96.

injured by them, sometimes a third part, or even half the ear; their heads are always near the germ, and it is upon that they seem to prey and not upon the pollen; the germ injured by them does not grow; though when only one or two appear in the flower, the seed will grow partially, one lobe being of the usual size, while the other is very small, and the skin often blackened at top; by opening the vessels that supply the seed with nourishment, they probably exhaust the juices that would have fed the germ, without devouring the germ itself; as the wound once opened, and kept in that state, continues to afford them the juices of the plant. It is remarkable that the stamina remain much longer in such flowers than in others where they shrink and fall off as soon as they have discharged their pollen; here they remain, though somewhat shrivelled, and seem to retain their pollen; probably, the insects who deprive the interior parts of the flower of nourishment, by opening the vessels destined to convey it, at the foot of the germ, deprive them at the same time of their stimulus to action. In some grains appeared a mouldy substance amongst which the worms lay. Wheat suffers most from them when easterly winds prevail in May and June. The cause of the disorder being known, intelligent farmers, when they are sensible of the evil, will probably find a remedy.—Early sowing may be a preventative to this as well as other evils. But if wheat suffers in dry seasons, wet ones are still more injurious, washing the pollen from the anthers, and preventing it from exploding, causing the growth of *uredo frumenti*, or blight, of the red gum, and other parasitic plants."

For the time of harvest, and the quantity produced, I must once more refer to the tables. I never in Ireland heard of "flagging wheat in the spring," which is a technical term used to express shearing the flag off this plant with a sickle, previously to the ear arising. This is a proof that the crops are never abundant,* as the above practice has been taught by necessity in various parts of England.†

Markets.—The general market for wheat, except at Drogheda, is some neighbouring mill. I scarcely know an open market where a farmer can meet with a competition of buyers, and in many of the out-ports the merchants purchase at their own prices. A remark of Mr. Connolly on this subject I have subjoined in a note, although it is not new.‡ Flour cannot be imported into Ireland, though it may into

* Mr. Townsend remarks, that in Cork the acreable produce is not great, a heavy crop being seldom seen. Survey of Cork, p. 243.

† Young's Survey of Essex, p. 326.

‡ Dublin, May 17th, 1809. Mr. Connolly says, "the importation of flour from America ought to be stopped, and the Irish miller would then have that trade. Many mills were erected in Ireland in consequence of inland bounty, or bounty paid by the mill, and mills were built also in distant parts, in order to obtain the greatest bounty; but all these mills are half idle, although the quantity of flour consumed in the country has increased in an extraordinary degree.

England. I am well aware that Mr. Charles Callis Western, the member for Maldon, had it once in contemplation to moot the question in the House of Commons for the benefit of the English as well as the Irish millers.

BARLEY is by no means a plant of general cultivation in Ireland. This is to be ascribed to its produce not forming a part of the food of the people, and to the land being better adapted for oats. I have seen a great deal of land which, though in high condition, would not yield barley either in quantity or of a good quality, and yet was capable of producing most luxuriant crops of oats. I have observed, also, on the other hand, light soils, that never seemed to become exhausted by barley, which they threw out in heavy crops, of an excellent sample. This is a fact well known to every English farmer of the least experience, but it was difficult to establish it before the committee of the house of commons, who recommended the prohibition of this grain in distilleries. It has often appeared to me extraordinary, that men of the greatest talents will sometimes suffer themselves to be led away by erroneous opinions, even when very strong proofs are laid before them that they are wrong. Some gentlemen proposed the raising of oats, instead of barley, on the fine light lands of England; others recommended spring-wheat; but the most ridiculous opinion offered to the committee was by a gentleman, for whom, when living, I entertained the highest respect, and in whose talents, on many subjects, I always placed the utmost confidence. I allude to the late Mr. Fordyce, the Surveyor-General of Crown-Lands, who conceived that the land which produced barley for the distilleries might be employed to raise hemp for the use of the navy. I should as soon expect that it would bear rice or cotton. This absurd proposal, however, has little to do with the present subject: Mr. Fordyce's paper is printed in the Appendix to the Report of the West India Committee, of the Session 1807—1808, and to it I refer such of my readers as may wish for more minute information respecting it.

The quality of the Irish barley is an object of importance, and, on that account, deserves some farther consideration. Mr. Connolly, an eminent brewer of Dublin, and a gentleman of great intelligence, who malts his own barley, assured me, that when made into malt, it does not yield within twenty per cent. of the saccharine principle which is found in the English malt. As hogs are fattened with potatoes, inferior barley is never used for that purpose; the distillery, therefore, seems to be the great market for the consumption of this species of grain, and so completely established is the illicit distillation of whisky, that it is converted chiefly to that purpose.

As to the course in which it is cultivated, a reference to the tables will shew that it generally follows potatoes; and, in my opinion, this system is good. In England, barley is always sown after a turnip fallow, and the spade culture, in taking up potatoes, goes a great way towards assimilating the process; shovelling, or throwing up the earth from the trenches, while it covers the seed, contributes to consolidate the soil.

Accidents to which it is liable.—The wire-worm is an enemy to barley in Ireland as well as in England; but in the former it is called the “cut-worm;” and the wetness of the climate after the middle of July, cannot fail to injure the sample in harvesting, which will, perhaps, account for Mr. Connolly’s remark. All the barley, however, which I saw, was a thick-skinned, dull-coloured grain. The extract I have already given from Dr. M’Parlan’s Survey of Donegal* will shew, how much barley is introduced in the course of cropping on the sea coast of that county. The Reverend Mr. Sampson speaks of barley in Derry;† but still it is on the sea-coast; and I have observed that the growth of it in Antrim is confined to the same part; for in the interior of these counties I never saw or heard of it. Mr. Dubourdieu mentions it as generally cultivated in Down;‡ and he advises “steeping” the seed in dry weather, a practice, he says, recommended “in a letter to the Bath Society.” A letter of this kind ought not to have been published, unless supported by the name of some established cultivator of barley. I have in the course of several years past been in the habit of seeing the best barley countries in England, and until I came to the above passage of Mr. Dubourdieu’s work, I never knew an instance of this process being recommended. While Mr. Dubourdieu relates facts, his work is most valuable; but when he speaks in favour of practices not confirmed by experience, I do not consider it as entitled to the same commendation.

In Louth barley is seldom sown, and Mr. Archer says, that the case is the same in the county of Dublin.§ In Kilkenny, Mr. Tighe mentions it as a crop following wheat;|| but Mr. Rawson, in the Survey of Kildare, does not so much as name it; and I may add, that it is not known on the western side of Wicklow. Some barley is produced on the eastern coast, which exhibits the best corn samples of any part of Ireland. The county of Wexford, and particularly the baronies of Bargie and Forth, produce barley in abundance. The town of Wexford is celebrated for the number of its malting-houses; but when I was there none of them were at work, in consequence of the distilleries having been prohibited from using corn.

In the south of Ireland “barley is cultivated nearly in the same proportion as wheat, each occupying the land occasionally, according as the quantum of price influences the views of the farmer. The greatest part of the barley is bought upon commission for the Cork market; the rest goes to Bandon and Cloghnikilty, in which towns there are now extensive breweries.”¶

In Connaught little barley is cultivated, except on the northern coast of Sligo, and

* P. 32.

† Survey of Derry, p. 129.

‡ Survey of Down, p. 58.

§ Survey of Dublin, p. 12.

|| Survey of Kilkenny, p. 198.

¶ Survey of Cork, p. 232.

in a few baronies of Mayo. "In the barony of Costello, the greater part of the land is employed for potatoes and oats; formerly, this was a great barley county, but the prohibition against malting which prevented the gentlemen from taking barley from their tenants in payment of rent, has completely stopped the culture of that article, and materially hurt the tillage of this barony, as before that act the tillage was double as much as now."*

BARONY OF TYRAWLEY.—"On the sea coast potatoes and barley are the common succession; sometimes, but rarely, one crop of oats succeeds the barley. In the interior of the barony two crops of oats succeed the potatoes, or else 1st potatoes, 2d flax, 3d oats."†

BARONY OF MURRISK.—"Round the sea coast, 1st potatoes, 2d oats, 3d flax, and then left to retrieve by time."‡

CARLOW.—Of all the interior counties is the only one which produces this kind of grain. The whole of the preceding account proves, therefore, that the raising of barley is regulated rather by the markets open for it, than by the quantity of soil adapted to it. The breweries,§ and large licensed distilleries of Cork, form one grand market, and the malting-houses in Wexford create a demand in that county. The canal from Carlow conveys it to Dublin, and in the north it is consumed by the illicit distilleries.|| According to Mr. Dutton, what is produced in Clare is used chiefly in the private stills which abound in every part of the county.¶ The water in the marsh-lands of Norfolk does not, as I have been informed, answer to wet barley intended for malt; and I mention this circumstance, as some part of the defect in the Irish malt may be owing to the water which has been used.**

BERE.—I observed this grain in Kildare, Meath, Westmeath, and Longford, also in the north on cut out hogs; but it is a species of corn which is by no means generally cultivated. Its ripening at an early season must no doubt be its chief recommendation.

RYE.—I never saw a crop of this grain in any part of Ireland.

* Survey of Mayo, p. 30.

‡ Survey of Mayo, p. 31.

† Ibid, p. 31.

§ Townsend's Survey of Cork, p. 409.

|| "But the farmers of this county are remarkably fond of barley crops, as they are always a ready money article, indeed they are often bought up by the private distillers several months before they are reaped; this temptation frequently supersedes every other solid advantage." *Survey of Tyrone*, p. 32.

¶ Survey of Clare, p. 35.

** Nov. 3d, 1808! Cork.—A quarter of barley, in England weighing about 50lbs. per bushel, or 4 cwt. sells, according to the last-mentioned returns, for forty-eight shillings. In Ireland it is sold by the barrel, which weighs 36 stone of 14lbs. each, or 504lbs. now forty-one shillings, screening and drying add 10 per cent. still it is a great deal cheaper, but on weighing a bushel it contained 48lbs.

At Beamish and Crawford's brewery, it is found that Irish barley does not make so good malt as English.

Mr. Connolly malts all his own barley; in Carlow, milling requires a double operation, as it is necessary that all corn should be kiln-dried and dressed.

MESLIN.—This is a mixture of rye and wheat, and forms a favourite crop on land lying within reach of Drogheda market, where it finds a very ready sale. The farmers maintain that it will yield more per acre than either of these kinds of grain singly. I have so often had occasion to remark the obstinacy with which farmers adhere to their old prejudices, that I cannot help ascribing to a bias of the like kind, the idea of the *advantage* supposed to arise from a mixed crop of these two kinds of grain, though they do not ripen at the same period by three weeks.

Meslin is cultivated in the north of England, where it makes better bread than wheat alone, as the rye-meal prevents the flower from growing stale; but the same object might be attained with more advantage by mixing the corn before it is ground, rather than in the seed bag.*

OATS.—This kind of grain is of much more general cultivation in Ireland than any other, because in consequence of its forming a part of the food of the people, a market for it every where exists. I cannot speak from established facts, but as far as I have seen and heard, I should conjecture, that throughout the whole kingdom there are ten acres of oats for one of any other species of corn. Oats follow every thing, potatoes, flax, wheat, barley, and are sown year after year in succession, till the soil becomes so exhausted, that it is incapable even of returning the seed.

For the quantity of seed used, I must refer to the tables at the end of each district.

Accidents to which crops are liable.—As there are no fens in Ireland exposed to floods and inundations like those of England, which produce such large quantities of oats, the crop is not subject to accidents of this kind as with us. In Ireland, however, *burnt ears* among oats are very common.

Sort used.—Of late years the potatoe oat has come into general use; but in the mountainous districts, the black oats still continue to be the favourite sample. It is by much the best variety of this species of grain; but an important note in Dutton's Survey of Clare,† evidently shews that the Irish oats, bulk for bulk, are not equal in weight to the English, which, if of a tolerably good sample, weigh in common 44lbs. per Winchester bushel.

I shall here take occasion to remark, that new oats make the best oat-meal, as is confirmed by some of the English surveys. ‡

* Tuke's Survey of the North Riding of Yorkshire, p. 118. Bailey's Survey of Northumberland, p. 56.

† He weighed a bushel of Polish oats, and found it equal to 39½ lbs. whereas a bushel of very good common oats of the country weighed only 33½ lbs; a small quantity of Mr. Blood's new oats were equal to upwards of 44lbs. Survey of Clare, p. 42, note.

‡ May 10th, 1808.—A barrel of oats, weighing 33 stone at 14lbs. to the stone, or 462lbs. were sold this day at from thirty-two shillings to thirty-five shillings. If screening and drying be added, the price will be increased ten per cent. In England a quarter containing 8 bushels each, equal to 39lbs. making altogether 314lbs. sells for forty shillings. Mr. Connolly says, that the millers in Ireland who grind oats for meal are the best judges of this kind of grain. The buyers of horse corn prefer a thick skinned short oat which does not yield much meal.

‡ Marshall's Yorkshire, vol. ii. p. 21. Tuke's Survey of the North Riding, p. 126.

BEANS.—In the baronies of Bargie and Forth, in Wexford, as I have already stated in describing the tillage of that district, beans are cultivated, but in a very slovenly manner. The farmers “consider them as a preparation for barley, and they now generally lay down their lands after beans with barley, clover, and grass-seeds. Beans are not now so general a crop as formerly; they complain that being liable to be full of weeds, the soil is exhausted instead of being ameliorated, and particularly where the crop of beans fails they never have good barley the next year, because the weeds become predominant.”*

GLEANERS.—I never saw gleaners in Ireland, but I was told in Cork that the practice of gleaning was followed on the southern coast of that extensive county. An instance also was related to me of an Englishman, who, had been presented to a valuable living in that diocese, exacting the tythe from the gleaners. I hope, for the credit of the cloth, that there was no foundation for this anecdote, which I am unwilling to believe, unless I had the most positive evidence of its truth. But if any circumstance of this kind, so disgraceful to the sacred character, ever took place, I should consider it as nothing short of robbery; and I would advise those who may be inclined to refuse this paltry boon to indigence, to reflect on the following lines of an elegant poet, whose benevolent sentiments cannot be too often quoted:—

Be not too narrow, husbandman! but fling
 From the full sheaf, with charitable stealth,
 The liberal handful. Think, oh grateful think!
 How good the GOD OF HARVEST is to you;
 Who pours abundance o'er your flowing fields;
 While these unhappy partners of your kind
 Wide-hover round you, like the fowls of heaven,
 Aud ask their humble dole. The various turns
 Of fortune ponder; that your sons may want
 What now, with hard reluctance, faint, ye give.

Thomson's Autumn.

That this practice is not common in Ireland is to be ascribed to the smallness of the divisions of land. The corn is cut very low, and as the object of the farmer and his whole family is to get in as much as possible, not a single head almost is suffered to drop.†

* Fraser's Survey of Wexford, p. 79.

† The learned Judge Blackstone observes: “also it hath been said, that by the common law and custom of England, the poor are allowed to enter and glean upon another's ground after the harvest, without being guilty of trespass: which humane provision seems borrowed from the Mosaical law. Levit. chap. xix. v. 9, and chap xxii. v. 22. Deut. chap. xxiv. v. 19, &c.” But his editor in a note says, “two actions of trespass have been brought in the Common Pleas against gleaners, to try the general question, viz. whether such a

RAPE.—It is cultivated for seed in the King's and Queen's counties, and also in some parts of Tipperary. It is sown on the low moory bottoms, after paring and burning.

POTATOES.—It is rather extraordinary, notwithstanding the great use made of potatoes and their general cultivation, that considerable difference of opinion prevails in regard to the nature of this valuable root, and the country from which it was brought. Some have called it the *sisarum peruvianum*,* but the Linnean name by which it is known at present is *solanum tuberosum*. A Danish author says, that it was brought to Europe in 1586, by Sir Francis Drake, who gave it to the botanist Gerrard; the latter planted it in the neighbourhood of London, and sent some sets to Clusius in Holland, whence it was afterwards spread throughout all Europe.† Another Danish writer, Professor Begtrup asserts, that it was brought in 1565 from Santa Fé in New Spain, by Captain John Hawkins.‡ But, however this may be, it appears probable that it was introduced into Ireland by Sir Walter Raleigh, and planted in the gardens near Youghal, where Sir Walter had an estate.§ But no proper instructions seem to have been given to the person by whom it was cultivated, for when it grew up pretty high, he attempted to eat the apple, which he took to be the fruit of the plant; finding it unpleasant he thought his labour lost, and paid it no farther attention; but digging up the earth some time after, he found the roots spread to a great distance, and from these the whole country was gradually supplied.||

There is reason to believe that potatoes were generally cultivated in Ireland before they were introduced into England,¶ and even here they were long known before

right existed; in the first, the defendant pleaded, that he, being a poor necessitous and indigent person, entered the plaintiff's close to glean; in the second, the defendant's plea was as before, with the addition that he was an inhabitant legally settled within the parish: to the plea in each case there was a general demurrer. Mr. J. Gould delivered a learned judgment in favour of gleaning; but the other three judges were clearly of opinion that this claim had no foundation in law; that the only authority to support it was an extrajudicial dictum of Lord Hale; that it was a practice incompatible with the exclusive enjoyment of property, and was productive of vagrancy, and many mischievous consequences.' *Blackstone's Commentaries*, vol. iii. p. 212. fourteenth edit.

* Campbell's Polit. Survey of Great Britain, vol. i. p. 246.

† Samlinger om Agerdyrkning. Kiøbenhavn, 1792, Andet Hefte, p. 218.

‡ Almindelig Udsigt over Agerdyrkningens Tilstand i Sieland og Moen. Kiøbenhavn, 1803, vol. ii. p. 188.

§ Moryson's Itinerary, part 11. p. 5. *Ody's Life of Sir Waller Raleigh*, p. 147.

|| Smith's Nat. and Civil Hist. of Cork, vol. i. p. 128. Ben Johnson, in his play called *Every Man out of his Humour*, mentions potatoes as a great rarity at the time he wrote.

¶ Dr. Campbell says, they were introduced into Ireland in 1610, and did not reach Cantire in Scotland, till about a century and a half after, which, considering the vicinity of that province to Ireland, is rather singular; they came first from Ireland into Lancashire, where they are still very much cultivated. It was, however, forty years before they were generally planted about London, and they were considered as rarities, without

they became common. Some kind of authority even seems to have been necessary to bring them into general use; for we are told that at a meeting of the Royal Society on the 18th of March, 1663, a letter was read from Mr. Buckland, a gentleman of Somersetshire, recommending the culture of potatoes in all parts of the kingdom to prevent a famine. This was referred to a committee, and in consequence of their report, Mr. Buckland received the thanks of the society; such members as had lands were entreated to plant them, and Mr. Evelyn was desired to mention the proposal at the end of his *Sylva*.*

Potatoes, like oats, are to be met with in every part of Ireland, and in many places where the latter are not sown; but they vary as much in quality as in quantity; the former depending as well on the soil as on the manure, seed, and climate. It is to be observed also, that they differ in weight, weighing much more when first taken up than at a later period of the season; but the most striking features in the cultivation of this sort are: 1st. that they exhaust all the manure of the farm;† 2d. that they are never produced without manure,‡ or are planted upon lea or maiden land, which is most frequently burned.

Of the Soil.—Potatoes, produced on a calcareous soil, I have always found to be the best; those sown on "mountain land," when first brought into a state of cultivation, are decidedly the worst, and in Ireland are commonly called "cattle," or "black potatoes." In that country, as in England, they are seldom planted without manure, which is considered almost as necessary to their production as seed.

Time and manner of planting them.—For the period at which potatoes are put into the earth in different parts, I must refer the reader to the table added at the end of each district. Apparently, there are but two distinct methods of planting, the drill and the lazy bed. The former method consists merely in planting them in rows, on which account the above term is applied to it. This practice has been adopted by the gentry, and is one of the beneficial effects produced by their becoming farmers, as it introduces the use of the plough instead of culture by the spade. The land is ploughed into small ridges, between which the sets are laid; and the ridges which are split, falling down on both sides form a new ridge over the plants. This system is daily gaining ground in all parts of Ireland, and is by no means confined within the domain walls of the gentry. The "lazy bed" method is the old plan of

without any conception of the utility that might arise from bringing them into common use; at this time they were distinguished from Spanish by the name of Virginia potatoes, or *battatas*, which is the Indian name of the Spanish sort; the Indians in Virginia called them *openank*. *Campbell's Polit. Survey*, vol. ii. p. 95. note.

* Birch's Hist. of the Royal Society, vol. i. p. 207-213.

† Tighe's Kilkenny Survey, p. 216.

‡ M'Evoy's Tyrone Survey, p. 111.

producing them in wide ridges, having on each side deep trenches, out of which the soil is thrown on the beds. There are various ways of planting potatoes on this system. According to the first, the manure being spread out on the intended ridge, the potatoe sets are deposited, and the earth being thrown upon them from the trenches, it covers the whole ridge; in this case, one-third nearly of the land is wasted in trenches; a second way is to dig up the earth and to drop the sets, the land being previously manured; trenches are then made, but not of such depth as in the preceding case. A third way, is, after digging the land, to drop the sets behind a *loy*, or sort of long spade, which is forced into the ground, and as the *loy* is removed, the sets fall into the vacancy it has made; a fourth method, is to plant the potatoes with a dibble; and to throw earth over them from the trenches, by which the ground is formed into beds; one advantage of this method is, that the plants when they first shoot up are preserved from the frost, as the shovelling is always repeated whenever they break through the ground. Mr. Townsend says, that "the best time for this operation is in the evening, when the plants close their leaves, which in the middle of the day they had unfolded to the sun. The peasants are often seen taking advantage of this circumstance."*

Mr. Dutton gives the following account of the manner of planting potatoes in Clare.† "In some parts of the county the ground is manured and formed into a ridge in the usual way, and the potatoes planted with a long dibble, that a man thrusts into the ground with his foot; he is followed by a child, or a woman, who drops a potatoe into the hole; sometimes the potatoes are dropped at the usual distance on the surface, and put into the hole by the man who dabbles. Frequently after manuring the ridges, or the second year after burning, a man forms a deep cut with a spade, which he throws forward, at the same time making an open cut to receive the potatoe set that he has ready in his hand, from a stock usually carried in an apron before him. On drawing out the spade the cut closes on the set; after both of these methods, the potatoes are second spitted or shovelled in the usual way."

The drill method pursued by Mr. Christy, an eminent farmer in Down, is thus described by him in the Survey of that county.‡ "The land designed for the crop is ploughed before winter, and remains in that state till the spring corn and flax are sown; it is then harrowed well, cross ploughed, and harrowed again, and the root-weeds, if there are any, are carefully gathered off each time with a close weeding harrow. When the land is thus made fine, it is laid out in shallow drills, at three feet distance, by the double mould-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

* Townsend's Survey of Cork, p. 197. † Survey of Clare, p. 36. ‡ Survey of Down, p. 98.

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 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 dung-hill, 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 into 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 mould-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 the 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 till 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 mould-board, that, 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; previously to which, 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 mould-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 the drills at a distance not likely to hurt

their roots, deepening the furrow and raising the mould, 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."

As the remainder of this ingenious gentleman's observations are well worth notice, I shall give them, in order to complete this subject:

"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 mould-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 used in the family should have the eyes taken out; and by these means I expect in the spring a large quantity of seed of the best kind, as I esteem those taken from large roots preferable to those from small ones."

Seed used.—The lazy-bed method requires more seed than the drill; Sir Charles Coote says, that when the latter is employed, half the quantity of seed will be sufficient, and this opinion accords nearly with the information I received in the whole course of my tour, the proportion being, according to some, as 12 to 20.

Of the sort.—The potatoe is a plant which, when propagated by seed, throws out such uncommon varieties, that it is almost impossible to describe them. Hence it happens, that though a sort may be excellent one year and generally employed for seed, there is no certainty that it will continue good, or that a totally different kind, and perhaps one before unknown, may not be produced in the course of a few years. Many names, therefore, have been given to potatoes, according to their nature and qualities, Sir Charles Coote, who complains of the sort used in Armagh, says: "In Munster, such potatoes would not be stored for the food of man;"* but it is not improbable that this inferiority is to be ascribed to the soil. In Down, Mr. Dubour-dieu could enumerate twenty or thirty different kinds.†

Diseases.—The potatoe, in common with all bulbous roots, is found by experience to decay after a certain number of years, "ranunculus in twenty-five years, anemone

† Survey of Armagh, p. 193.

† Survey of Down, p. 102.

in fifteen, and hyacinths in twenty-six years;”* at the end of which period no art or pains can preserve them; in the potatoe, this natural decay is called the curl; it is of course common in Ireland as well as in England; Mr. Dubourdien states, that it does not occur so rapidly in potatoes which grow on turf bogs. “Turf bogs and moory grounds,” says he, “seem to possess the quality of preserving potatoes from degenerating, as well as that of throwing out considerable crops; and in this county, where those soils are frequently used for their culture, the curl is little known, and many applications are made for a change of seed from other parts where this advantage is not known.”† In this statement, Mr. Dubourdiou must, I think, be mistaken; for although turf bogs may preserve this root longer than other soils, their final degeneracy cannot be prevented.

Mr. Tuke, in his Survey of the North Riding of Yorkshire, adverts in a particular manner to this disease in potatoes, which is so common in that part of the country; and remarks, that he never found it to take place, when potatoes brought from America, which, in fact, is an introduction of a new stock, were used as sets.‡ I must here observe, that the failure of potatoes in the course of a few years is occasioned, in all probability, by the common practice of cutting for sets the smaller or inferior stock; a method directly the reverse of what is pursued in the cultivation of other vegetables, the best being always chosen for the purpose of propagation. I have heard that those who use the best potatoes for sets, have not so much reason to complain of the degeneracy of the plant; and this opinion is confirmed by Mr. Christy.¶

Taking up.—According to the lazy-bed method, this is always done by digging over the land, and gathering them into baskets; those which have been planted in rows are, for the most part, turned up by the plough; but even in this case, the same expense is incurred of gathering them into baskets, and as many are left in the ground, I much doubt whether this plan is attended with advantage.

Preserving them.—The method of preserving potatoes depends very much on the quantity; in general they are stored up by the poorer classes in their cabins, and sometimes are left piled in the fields where they grew. This practice is much more frequent in the south than in Connaught, and other parts of the north. Sir Charles Coote mentions one plan, which, in my opinion, is worthy of attention. “Turf bogs,” he says, “are remarkable for yielding excellent crops of potatoes, and soil good for preserving them, for which reason, a potatoe-pit, lined with turf, is esteemed preferable to straw; the surface sod, which has the soft grass and herbage well withered and dried, is the best for this purpose.”§

The advantage of this method is confirmed by the account of the Rev. Mr. Dubourdiou, who says, potatoes are “generally kept in heaps in the fields where they

* Madox's Florist Directory, p. 91.

‡ Tuke's Survey of the North Riding of Yorkshire, p. 151.

† Survey of Down, p. 105.

¶ Survey of Down, p. 103.

§ Survey of Armagh, p. 196.

are covered sufficiently deep to prevent frost from penetrating to them. Straw is often placed next to 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 put on. Turf-bog resists the rain and frost better than any other covering.*

In regard to the means of preventing the bad effects of frost, the observations of Mr. Townsend seem of some importance:—"It may be useful," says he, "to know, in case of being surprised by a frost, that the safest way is to let them remain in the ground until it is past. Much of the injury done in the year 1807 arose from digging them in the frosty weather. Very few of those which were allowed to remain suffered much injury. An effectual mode of preservation is, to add fresh earth from the trenches; if this cannot be done, it is better to do nothing."†

JULY 24th, 1808. MEATH. KELLS.—The seed, rent, and labour, for an acre of potatoes, cost £12. The expense to plant them, £1. 11s. 6d.; and to take them up, 1£. per acre.

AUG. 10th, 1808. Calculation of the expense of an acre of potatoes at the seat of Lord Granard, in Westmeath:

	£.	s.	d.
Rent of an acre of land	6	6	0
Planting with a plough	1	0	0
Hoeing twice with a plough	0	16	0
Taking up by thirty men	1	10	0
Seed, sixteen stone	4	0	0
Total expense	£13	12	0

But if planted with the spade, £1. more must be added.

The produce on the above acre equal to forty sacks, of twenty stone to the sack.

AUG. 12th, 1808. WESTMEATH. RENNELA.—Expense attending an acre of potatoes:

	£.	s.	d.
Ploughing	0	15	0
Shovelling	0	8	0
Children for dropping	0	1	0
Hoeing	0	1	0
Taking up by thirty men	1	10	0
Seed	4	0	0
Rent	6	16	6
Total expense	£13	11	6

Produce of the above acre, 50 sacks of 20 stone per sack, and 21lbs. to the stone. If sown in drills, the quantity of seed used is less, in the ratio of 25 to 40lbs.

* Survey of Down, p. 106.

† Survey of Cork, p. 198.

SEPT. 11th, 1808. FERMANAGH. CASTLE-COOTE. Expense of an acre of potatoes at this place.

Rent	£. s. d.
Seed, four barrels	8 8 0
Digging and planting	1 0 0
Shovelling, by eight men for a day	4 4 0
Taking up, forty men one day	0 8 0
	2 0 0
Total expense	<u>£16 0 0</u>

OCT. 9th, 1808. GALWAY. LOUGHREA.—Mr. Burke has reclaimed mountain land by paring, burning, and then sowing it with grass seeds. It is now good meadow. Sells "grass potatoes" at 6 guineas per acre, which is lea land, prepared for the cultivation of them by ploughing. Though Sunday morning, the people were universally employed in carrying in their crop, and in mowing grass. Tythe of potatoes taken here at six, seven, and even ten shillings per acre, collected, also in kind, and "canted" on the premises.* The tythe of flax as much.

DEC. 2d, 1808. TIPPERARY. GRANCE.—Potatoo land lets here for from eight to ten guineas per acre. The tythe from 12s. to 14s. Forty-two men dig an acre; twelve girls and eight boys are sufficient to plant it; twelve men are required to shovel it; twelve women are employed to weed it; and the potatoes are dug up by thirty-eight men. Forty barrels are considered a good crop.

DEC. 24th. WEXFORD.—If potatoes be taken up too early they want consistence, and do not come to that degree of hardness which conduces to their preservation.

JAN. 23d. 1809. WEXFORD. CASTLEBORO.—Potatoes answer best in drills, and require only one-third of the usual manure. This method is now universally adopted. In Munster, better crops are obtained by burning than by any other process. Potatoes grow here in land which has been limed, without any dung.

MARCH 1st, 1809. WICKLOW.—The people employed in planting potatoes on lea ground, in beds. After the dung is spread out, the sets are deposited; trenches are then made, and the earth dug up from them is sufficient to cover the beds. Potatoes planted in this manner are never injured by the frost. Early potatoes are much cultivated in this county near the sea-coast, as the frost and snow there are seldom of long duration. Mr. Symes plants his potatoes early in April. The poor people do not plant till May, never beginning till a certain Saint's day.

APRIL 3d, 1809. TIPPERARY.—Mr. Grady says that the tythe of potatoes in Connaught is sixpence for an enclosure, whether large or small. No tythe is paid for hay. A difference is made between corn put in by the spade, and that cultivated by the plough; the tythe of the former belongs to the rector.

* That is, sold by public auction.

April 4th. KING'S COUNTY. FANCROFT, near ROSCREA.—Mr. Pim thinks the drill as productive as the common method. The potatoes are larger, but not so dry. The land, however, is left in a much better state. Potatoe land lets here at ten guineas an acre.

KING'S COUNTY. CASTLE BERNARD.—Expense attending an acre of potatoes.

	£.	s.	d.
Rent	10	0	0
Digging and trenching, by ten men	2	0	0
Weeding	0	5	0
Planting, by ten girls	0	5	0
* Taking up, by forty men	2	0	0
Seed, 3s. 4d. per barrel	1	13	4
Total expense	£16	3	4

APRIL 24th, 1809. Dr. Brown is of opinion that potatoes are much better food for cattle than turnips. In this I coincide with him.

MAY 20th. Mr. Blachford has raised 172 barrels of potatoes to the acre, each barrel 20 stone of 14lbs.; but they were weighed immediately when taken from the ground. Mr. Ensor says that potatoes lose in a little time one quarter of their weight by drying.

JUNE 4th. WICKLOW.—In this county, the south side of the potatoe-ridge is generally dug first, as it is found to produce much sooner than the other side.

JUNE 15th. CARLOW.—Potatoes on this side of the Barrow are of a superior quality; and it is remarked that old worn out ploughed lands give the best. The case is the same with land, the substratum of which is calcareous. They are planted here in the lazy-bed way.

JULY 9th. KING'S COUNTY.—Mr. Stepney estimates that bullocks of 7 cwt. eat eight stone of potatoes per day. He prefers giving them in a boiled state. They are not profitable food for pigs.

JULY 6th. Parboiled potatoes are preferable; the labouring poor say they go farthest when the *bone* is left in them. A man with his wife and four children, from four to fourteen years of age, will eat two stone of them per day. Mr. Stepney last year had two acres and a half of potatoes, which fattened four bullocks; maintained eighteen pigs; produced seed for four acres this year; and supplied his own family, consisting of twenty persons.

JULY 13th. QUEEN'S COUNTY.—Mr. Doyne's bailiff, says that he can produce by the drill method, with a limited quantity of manure, double the crop of potatoes that he can in the lazy-bed way—but that he can even exceed that amount, if left unlimited as to manure in the latter method.

* Mr. Tighe calculates forty men to take up an acre of potatoes. *Survey of Kilkenny*, p. 221.

AUG. 22d, 1809. ARMAGH. ADDRESS.—Drilled potatoes do not answer in low, flat lands, subject to floods, which render the potatoe sour and good for nothing. In these lands, the lazy-bed method is the best. Drilled ones are called “*shauks*.” lazy-beds, “*Rig*.”

SEPT. 13th. SLIGO. NYMPHFIELD.—The drill method is employed here by gentlemen, but the lazy-bed way is followed by the poor.

OCT. 11th. KING'S COUNTY. CANGOR PARK.—Mr. Trench gravels on the sod, then pares and burns; and, after this preparation, ploughs, and plants his potatoes.

FLAX.—This plant is cultivated throughout almost the whole of Ireland, except Wexford and Wicklow, where it is scarcely known. The part where it occupies the greatest extent of ground is Ulster, and though the quantity produced is very large, as will be seen by turning to the head Linen, in the chapter on manufactures, the total sum arises from the united production of numerous small patches.

The course. Flax seems to be sown in Ireland when the land is in a fine tilt; an object of much more importance than any consideration of the crop which grew the preceding year. In Armagh it invariably follows potatoes,* but in Down it is frequently sown after oats or barley.† Mr. Young observed, that in Flanders, the seed put earliest into the ground produced flax capable of being spun into the finest thread.‡

Quantity of seed used, and the sort.—For the quantity of seed I must refer to the tables at the end of each district. Few people ever think of saving seed for their own use, but rely chiefly on that imported from the Baltic, and from America. Certain regulations have been made in regard to its sale; and inspectors are appointed to affix a mark to such seed as seems capable of growing, and to condemn the rest, which can be sold only for making oil. In my opinion, the best inspector is the purchaser; for, under the present system, there is no end to the litigation and disputes which it occasions. Clover is equally important, and perhaps much more so to England than flax seed is to Ireland, and if government should appoint inspectors to determine for buyers the quality of their purchases, it would be telling the English farmers that they did not understand their business. The difficulty of communication with Riga, and the non-intercourse act of America, obliged the flax growers in Ireland to depend upon their own crops for seed; and the result has been, that in 1809, the saving of seed was nearly as general as was formerly the practice of gathering the flax before the seed was ripe. The seeds of flax grow within a seed-vessel in the same manner as the pips of an orange within that fruit; and it is wisely ordered, that the seed ripens much sooner than the seed-vessel, as it enables the farmer to pull it at an earlier period than it apparently admits, because the seed-vessel may be dried by artificial means. “But sometimes it is necessary to pull it before that period, if it begins, according to the usual term, to fire, that is, when there are

* Survey of Armagh, p. 197. † Survey of Down, p. 88. ‡ Young's Tour in France, vol. ii. p. 67.

oblong blackish spots upon the skin, which cause the flax to break off in the dressing, at the places 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 by these means is rotted. This accident is by most farmers attributed to lightning.*

To produce good flax with a saving of seed. The very large bounty offered by the linen board for flax-seed saved by stacking the flax was a most erroneous measure, as a much greater loss arose by drying the flax, which, consequently, broke off in the dressing, than the value of the seed produced. It certainly shewed, in the clearest manner, the great folly of bounties: what man, or set of men, can make laws to regulate the seasons or the nature and qualities of soil? A demand is the great legislator, by which the production and sale of articles must be directed, and to which they may safely be intrusted. An idea is prevalent that Dutch seed produces more flax on a cold soil, and that the American is best adapted to lighter land. "When it is intended to save the seed, it is necessary that the flax should be allowed to stand until the boles are completely filled, and the seed assumes in the inside a brown colour, which increases until it has the same hue as the foreign. After this, it stands in stooks till 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 seeds. 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 strip off the boles, which are then bruised. By this operation the seed is freed, and it is afterwards cleaned by winnowing. The flax produced from that which stands until it is ripe is reckoned harsher and coarser than that which is pulled green; but this, I imagine, is owing rather to ignorance in handling it than to 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."† Those who save it in a green state, pursue a similar method, but with this difference, that instead of stacking it, and taking off the boles when dry, they are stripped off while green, and afterwards dried and threshed.‡

I entertain no doubt in regard to the truth of the prevailing opinion, that flax, when permitted to remain for a crop of seed, is injurious to the land. When pulled merely for the flax, there would be sufficient time in many seasons, and in some parts of Ireland, to sow turnips after it; but the want of implements and an adequate strength of cattle to be applied to the ground the moment it is cleared, preclude in all probability any attempt of this kind.

In England, flax in any state is considered as a great exhauster of the soil.§

* Survey of Down, p. 91.

† Ibid.

‡ Survey of Meath, p. 178.

§ Tuke's Survey of the N. Riding of Yorkshire, p. 109.

Mr. Christy, of the county of Down, endeavoured by experiments to ascertain this fact, and found the result to be otherwise, but his observations were made only from an inspection of the crop which followed.* Mr. Christy will, no doubt, allow that there is no return of straw, and that this will deteriorate the whole succeeding course of crops. Hence arises the evil, rather than from an immediate exhaustion by the crop itself. Lime does not seem to be a manure suited to flax; for land which has been subjected to it renders the flax harsh, and causes it to peel badly.†

Mr. Young, who extended his indefatigable labours to the culture of flax, as well as to other objects of Agriculture, remarked at St. Amand in the Netherlands, that flax came into course only in twelve or fifteen years; but in Austrian Flanders once in seven or eight years.‡ In Ulster, where it forms so considerable a part of the cultivation, it certainly occurs in the course much oftener.

Of the seed. It appears difficult to account for that difference of seed which is observed in the same plant. The greater part of what is called American seed is shipped from New York. That brought from the Baltic is shipped chiefly at Riga. Of the latter the following account is given by a late writer on commerce§ “The linseed from hence, which is a particular and superior sort, is very much esteemed for sowing. Of this the Dutch every year take large quantities. It mostly comes from Livonia, Courland, and Lithuania. In autumn, before the shipping season closes, being the growth of the same year, what remains behind is called *over-sowing linseed*, expressive of its laying over the winter; and is not taken as sowing seed, but is sold for crushing, and is the best quality for that purpose.”

Of late years Dutch seed has been imported into Ireland, but very sparingly; that formerly brought was probably saved in Flanders.

Mode of Culture. Flax is sown on beds or ridges in the same manner as grain, but the earth taken from the trenches is not always shovelled over them. It is of great importance that the land should be in a clean state, and that the weeds be carefully plucked out; but the generally backward state of agriculture in Ireland, does not admit of so much labour. Under the head manufactures, I have referred to the process to which flax is subjected after it has been pulled; but I must here remark, that the plough has very little to do with the culture of flax, the land destined for its reception being for the most part prepared with the spade.|| In some places, I have seen sticks used to prevent its being beat down by the rain in wet seasons; but this is not universally the case, nor are beans sown amongst it for this purpose¶ as in Flanders.

* Survey of Down, p. 90.

† Survey of Meath, p. 171.

‡ Tour in France, vol. ii. p. 67.

§ Oddy's European Commerce, p. 140.

|| Survey of Armagh, p. 197.

¶ Young's Tour in France, vol. ii. p. 68.

Time of harvest and quantity produced. The time of harvest is very much regulated by the intention of the owner to save seed; if he means to save it, the flax is kept longer on the ground, in order that the seed may attain to maturity. In regard to the quantity, it depends in a great measure on the quality of the soil. One acre of the rich land in Limerick will produce a much greater weight than almost any in Ulster. The average rate will be seen by inspecting the tables.

Diseases. Black specks, called *firing*, are common on this plant.

Markets. The markets for flax, in every state of manufacture, are much more numerous in Ireland than those for grain. Abundance of buyers are always ready to purchase it both in large and small quantities, for home consumption as well as for exportation, or to job with it from one market to another. In this respect, flax has an advantage over every other object of cultivation in that country. During the session of 1808-1809, parliament voted £20,000, to encourage the saving of flax seed by bounties, and I believe that this large sum was granted without any objection. This certainly is one way of distributing public money, but I must observe, that a more useless one could scarcely be imagined. A twentieth part of the sum, demanded for the purpose of promoting any undertaking of real utility, would no doubt have excited an host of opposers.

JULY 11th, 1808. LURGAN.—Two tenants of Mr. Douglas saved their own flax seed for twenty years, and it completely answered.

MAY 17th, 1809. DUBLIN.—Mr. Ensor says, that, in the neighbourhood of Newry, twenty-four shillings per acre have been taken as the tythe of flax, and two guineas for meadow land. In many parts of Armagh, there is a modus of sixpence for as much flax, be the quantity great or small, as may be raised.

AUG. 24th, 1808. COLLON.—The following is the expense of an acre of flax made into yarn, as stated by Mr. John Keirnan.

	£.	s.	d.
Rent	4	4	0
Ploughing and sowing	1	10	0
Pulling	1	2	9
Watering	0	8	0
Taking up and spreading	0	15	0
Taking from the ground	0	5	5
Drying	0	12	0
Hackling with breakers	0	17	0
Scutching, by fifty men	2	10	0
Hackling	0	16	8
Spinning 400lbs.	10	0	0
Total expense	23	0	10

AUG. 6th, 1809. LOUTH.—The climate of this county is not favourable to the raising of flax seed. As it may injure the flax, seed is imported from countries where it is of little value.

AUG. 18th. ARMAGH. ADDRESS.—Foreign flax seed has turned out so badly, in consequence of its being old, that many said to-day, they “preferred their own seed.” When flax is stacked, in order that the seed may be threshed out in the spring, it becomes very harsh, and requires more labour before it can be brought to a state fit to be manufactured. The merchants are unwilling to purchase linen made from flax of this kind; which they say does not bleach so well. Those who raise flax in small quantities, work up what they produce in the course of three months, and then purchase that which has been raised in Connaught. They consider flax as a doubtful capricious crop, on which little dependence can be placed. In Clelands parish, near Newry, twenty-six shillings per acre are paid as tythe of flax, but the farmers often get twenty-four stone from a bushel of seed. Thirty years ago a great deal of seed was saved. Land, which has been laid down six or seven years, produces excellent flax, if the preceding crop has been potatoes. When rippled according to the present practice, the bole instead of being dried in the natural way is dried by art. Mr. Ensor’s lodge-keeper sowed two pecks of seed, and obtained four stone of flax, besides three pecks of seed; but this neighbourhood produces poor crops, as the land is exhausted by tillage.

AUG. 22d, 1809. CAVAN. FORTLAND.—I observed that the flax after having been steeped, is tied up in sheaves, and formed into cocks like hay. The rent of land here is from £3. to £5.

ARMAGH. ADDRESS.—The following account of the produce of some lea land was communicated by Mr. Ensor: The rent of flax land is eight guineas per acre. The expense of ploughing and shovelling sixteen shillings; seed, three bushels, at three guineas per bushel, nine guineas; weeding per English-acre, five shillings; pulling four shillings per bushel, four bushels to the acre; watering thirteen shillings and four-pence; a man and a horse three shillings; taking out three shillings; spreading six shillings and eight-pence; lifting and carrying home six shillings and eight-pence; drying and beetling depends on the price of turf. Two cubic yards is allowed to a gauge, two double gauges to dry an acre; one stone of flax employs a female two days to dry it. Scutching employs six women to three stone. Hackling is ten-pence per stone. Produce, twenty stone hackled, at the present time, worth sixteen shillings per stone; last year, the highest price was thirty-two shillings, the lowest eight shillings; average price ten shillings and six-pence. Mr. Nicholson sold one acre and a half for twenty-five guineas and a half, and half an acre, English measure, for eight guineas.

AUG. 24th, 1809. TYRONE. GLOCHER.—Dr. Story sold an acre for £38. 19s. but it was at six months’ credit. Could not sell it for any price at ready money.

He gave £25. for a hogshead of American seed, which ought to contain seven bushels and a half. Dutch seed has yielded sixty-four stone per acre. The want of ready money is the cause of many strange anomalies in Ireland.

Flax being of so much importance to Ireland, the following particulars respecting it in other countries, may be useful both to the farmer and manufacturer: Storch says, that "in some parts of Russia as much land is occupied by that plant as by corn of every kind. The best flax and the largest quantities of it are raised in the governments of Vologda, Pskove, Novogorod, Riga, Mohilef, Twer, Polotsk, Viatka, and the districts on the Volga, the Oka, and the Kama. In some provinces, as those on the Kama, the Russians cultivate the beautiful *Wallachian flax*; which was first introduced by some Polish colonists. On that river it grows to the length of seven spans, and produces finer yarn than the common flax. Some successful attempts have lately been made in the government of Catherinaslof with *Italian flax*; the seed was brought from Bologna, and it thrives so well that the stems rise to the height of more than five *arschines*, or about eleven feet eight inches, English measure. Both the common and Siberian flax grow wild in Russia; the latter in the northern Urval Steppes, and the former on the Volga, at Zarazin, and other places."*

"Petersburg procures its best flax from Novogorod and Pskove: and Riga obtains it chiefly from White Russia, and the neighbourhood of Marienburg in Livonia. Good flax ought to be clean and white, though, indeed, there is some exceedingly grey; it ought also to be neither flaky nor rough; but woolly and soft, and to have a proper length. The longest is from thirty-five to forty-two inches. In Russia, it is divided into three sorts; the first sort is of twelve heads, the second of nine, and the third of six; so many heads form always a bundle. Each bundle, which at Riga weighs in general a *liespfund*,† must be inspected by a sworn sorter, who determines its quality. The refuse, or tow, is tied up in heads also, and sewed into mats, but this is not common. The greater, part of the Russian flax goes to England and Scotland; where, however, it is not all consumed, some of it being exported to other countries. A great deal of Russian flax is sent also to Portugal and Italy. It appears, taking a mean of three years, from 1793 to 1795 inclusive, that Russia exported flax annually to the value of 5,270,000 rubles."‡ The value of the flax-seed exported every year amounts to more than a million of rubles.§

Professor Symonds, who has written an interesting account of the culture of this plant in Italy, describes it as always sown there after clover.||

* Historich—statistisches. Gemälde des Russischen Reichs, vol. ii. p. 322.

† A *liespfund* contains from fourteen to sixteen pounds.

‡ Storch, ut supra, vol. viii. p. 141.

§ Ibid. vol. ii. note, p. 601.

|| Annals of Agriculture, vol. ii. p. 215.

HEMP.

Many years ago hemp was cultivated in considerable quantities on the caucass lands in the county of Limerick,* but for what reason it was given up, I have not been able to learn. In the years 1808 and 1809, great exertions were made to introduce it into general culture; for which purpose bounties were offered by government, or what is the same thing, by the linen board, and 300 quarters of seed distributed gratis. I saw it growing and harvested, but always by amateurs, if I except that raised by Mr. Besnard, an eminent manufacturer near Cork. It has been the opinion of many, that the bogs in Ireland are peculiarly well adapted for the production of this plant. At Pakenham Hall, the seat of Lord Longford, I saw a luxuriant crop upon *reclaimed* bog, and I am inclined to accord generally with this opinion.

The quantity of land sown with hemp, as returned by the several inspectors to the linen board in the year 1808, was as follows:†

	Acres.	Roods.
Dublin - - - - -	45	- 2
Louth - - - - -	21	- 1
Meath - - - - -	18	-
Kildare - - - - -	33	
Westmeath - - - - -	13	
The King's County - - - - -	11	
Tipperary - - - - -	40	- 3
Galway - - - - -	4	
Newry District - - - - -	9	
Cork - - - - -	38	- 3
Monaghan - - - - -	5	- 1
Clare - - - - -	7	- 1
Limerick - - - - -	39	- 3
Armagh - - - - -	13	- 3
Tyrone - - - - -	11	
Cavan - - - - -	4	
Antrim - - - - -	4	
Down - - - - -	4	
	<hr/>	
	323	- 1

* The caucass lands consist of a very rich silt, and this agrees with the opinion of Mr. Young, who says, "I have seen very fine hemp growing on good sands;" confirmed by Mr. William Cottnam Tonge. *Annals of Agriculture*, vol. xxiii. p. 2, who has written an excellent essay upon its cultivation, which is printed in the above work.

† Appendix to the Linen Board Report, p. 111.

In the year 1809 a smaller quantity was sown, and in 1810 still less. English cultivators were sent from Cambridgeshire and Suffolk, to instruct the persons who raised hemp, but in many instances the proposed plan did not answer. Some part of the land, I have no doubt, was sown, by gentlemen, from an opinion that it was an object of great national importance to encourage the production of this article. In England there are few leases which do not prohibit its cultivation, as it is believed that it does material injury to the soil; but no idea of this kind had been suggested when I was in Ireland, although I entertain no doubt of the fact.

Wherever hemp is met with in England it is always in small patches, which are cultivated by cottagers, who bestow all their manure on the land it is about to exhaust. I have been more particularly attentive to the produce of hemp in Ireland, in consequence of an erroneous opinion prevalent in England, that the navy might rely upon it for a full supply of that necessary article. A late writer has expressed an opinion of this sort, but it is evident he was very little acquainted with the state of that country.* When the amount annually paid by Great Britain for foreign hemp is taken into consideration, no one can doubt that it would be a great national benefit, were it possible to reclaim the immense bogs in Ireland, and employ them in raising that plant. It is, indeed, the opinion of many, whose experience is entitled to respect, that their fertility is almost inexhaustible, and that the only difficulty is the expense which would be required to bring them into a proper state of cultivation. Hopes, indeed, may be entertained, but there is a wide difference between hope and reality. Still, however, it is some gratification to a patriotic mind, to flatter itself with the idea that our sea-girt empire at a future period may derive a sufficient supply of hemp from the bogs of Ireland; and I am happy in being able, from a conversation I had with Mr. Young on the subject in January 1811, to say, that his opinion is in favour of this probability.

In the present situation of things the bounties have failed; one cause of which is the difficulty of obtaining them. The poor find so many certificates necessary, and so many oaths are required, although indeed they cost them nothing, that they often wish the bounties at the devil, and sometimes those who have offered them. The best bounty would be a fixed and liberal price, to be paid in every county town for hemp, if only of a tolerable quality.

Mr. Besnard has made some experiments on the culture of this plant, which I shall detail in his own words; but I cannot agree with him in the opinion he has conceived of its not deteriorating the land, for I am convinced that it carries with it the most nutritive parts of the earth, and as it returns nothing in the form of manure, it proves a general exhauster of the soil.

“ In reply to your favour of the 24th ult.† I shall with great pleasure communi-

* Oddy's European Commerce, p. 568.

† His letter is dated Cork, February 23, 1811.

cate to you the result of my experiments in cultivating hemp, and also such information as I have received relative to that plant. In the year 1808, I sowed $1\frac{1}{2}$ acre English with it; the ground had produced the year before a crop of potatoes, and had been manured in the usual way. The hemp was excellent and yielded 5 cwt. 2 qrs. of long and 2 cwt. of short, besides tow, &c. all good in their kind. The quantity of seed was not in proportion to the ground, as I devoted the crop to experiment. A part of this field was allowed to seed, *without pulling the male hemp* when ripe, in order that the seed might not be injured. In another part the male was pulled first, the female left to seed; and in another, the male and the female were both pulled *green*, that they might produce fine hemp. Notwithstanding all these disadvantages, and my want of experience in every process, the crop, allowing £6. per acre for the rent of the ground, brought a clear profit of £20. per acre. This I state as a fact, having kept an accurate account of all the expenses. The seed was excellent, and according to the quantity of ground devoted to it, had given the proper produce as set down by writers on the subject, and as I learned from different hemp-growers in England. In 1809, I raised, in the same ground without manure, another crop of hemp. This crop was nearly as good as the former, but not quite so long, and by letting it go fairly on, it *paid better* than the first. In 1810, I put into the hemp-field, *without manure*, potatoe-oats, and had a most abundant crop. This year I propose trying in the same ground, without manure, another crop of oats. I followed up this succession of crops to ascertain what the ground could do, as it was the general opinion here that the land was so much exhausted by hemp, as to require high manuring before it yielded another crop. This I find not to be the fact; and I am fully convinced that hemp may be cultivated with greater profit than any corn crop, provided skill and conveniences be at hand. Many persons in this country have raised hemp with equal success as to the *crop in the ground*; but most of them, from want of experience and conveniences, did not derive that profit from it which they expected or might have had; and this, I fear, has prevented others from cultivating this plant. In 1808, Lord Shannon raised hemp with great success; it was purchased by our house, and made into cordage along with Petersburg hemp. We found it stronger than the latter, but from the mode of handling not easily manufactured. In 1809, Counsellor Wagget, Recorder of Cork, laid down three acres with hemp, which, in the hands of a person who *looked for profit*, would have paid uncommonly well. This hemp I purchased, and it is now manufacturing into sail-cloth to be laid before the Navy Board. In 1808 and 1809, I went several times to Limerick, and purchased the greater part of the hemp raised in that county. I visited most of the hemp farmers, and viewed their crops in every stage; I invariably found the crop good *on the ground*, but altogether mismanaged in saving and cleaning. Several, to my knowledge, did not get half produce, and they as-

cribe this to the *nature of the crop*; but the whole was owing to inexperience. In most cases I found that they suffered it to ripen too much, which destroyed both the hemp and the seed. In every instance the ground did its duty, but the farmer did not. In no country is there better land for hemp and flax than in Limerick and Tipperary; and, as far as I have been able to learn, a sufficient quantity of it might be spared to cultivate a very considerable supply of this article. Were it possible to shew a few examples of English industry and perseverance, the happiest effects, in my opinion, might be produced. From observation and inquiries, I firmly believe that nothing short of ocular demonstration could bring about a change of system, and convince the farmers that they do not pursue the proper mode of cultivating this plant to advantage. If government be serious in their desire of encouraging the production of hemp here, I would recommend their establishing a few English farmers, conversant in every branch of its cultivation, and provided with all the necessaries they might require. I should propose giving to these persons a few acres of land in a *proper county, rent free*, for a certain time, on condition of their raising nothing but hemp. By steadily pursuing their own plans, and shewing what profit may be derived from a proper mode of cultivation, their example would soon be followed by the farmers in Ireland. In September 1809, I visited the Isle of Ely, and spent some days there with persons who cultivated hemp. On inspecting their hemp-fields, I did not find them superior to those in Limerick; but when I followed up every process, and observed the care taken in separating each kind and applying it to its proper use, I could not help lamenting the ignorance of my countrymen, who, possessing the most suitable ground, do not make one-third of the profit it is capable of yielding. The hemp and flax which are cultivated in the neighbourhood of Wisbeach, are *superior to any foreign article* I have ever seen; and that I might be able to shew the farmers here samples of a proper description, produced by *care and attention*, I purchased a ton of different qualities which I selected myself, but unfortunately it was lost on its passage over to this country. I have made it a rule to purchase at its full value, all the native hemp offered to our house for sale, as the whole annual quantity amounts only to about ten tons; and, on every occasion, I shall be ready to promote the cultivation of this article as far as my humble abilities and means will permit."

The hemp used in Great Britain is imported chiefly from Russia, where it is every where cultivated, and forms the staple commodity of that extensive empire. It is prepared there in the usual manner, and is steeped in such quantities by the peasants in the ponds, lakes, rivers, and streams, that the water becomes corrupted, and does much injury to the fisheries. Hemp grows wild also in great abundance, especially on the Terek, and among the Uralian mountains. In Siberia it is less common; but it is found on the Volga, and particularly in places where towns formerly

existed. The Cossack and Tartar women pull it in autumn, after it has shed its seed; and it is employed in different ways, not only by them, but also by the Baschirians, Barabinses, and other tribes.*

The best hemp comes from the Ukraine, White Russia, and those provinces which formerly belonged to Poland. That, however, of the Ukraine from Staradub, Karatschef, &c. being the longest and strongest, is considered as the best. As soon as it is brought to any of the staple towns, it is deposited in public warehouses, where it is completely cleaned and sorted, after which it is formed into bundles, each weighing about four *schiffsfund*.† The bands tied round it are always of the same quality as the article itself, and the different kinds are distinguished by their number. At Petersburg, and other Russian staple-towns, the hemp is divided into three sorts, called first, second, and third, without including the refuse or tow. In Riga other names are used: the first sort is called clean hemp, and is bound up with ten bands; but *Druyan*, the second sort, or that next in quality to the clean hemp, has only eight bands; and the third sort, if from Poland, has seven bands, and if from Livonia, six. The tow, *tors*, besides five bands, is tied round, at Riga, with a kind of yarn called *kabelgarn*. For many years past no common, but hackled tow, has been exported. None but clean hemp is purchased for the use of the British navy; but France takes only the second and third sorts, though clean hemp was formerly sent sometimes to Brest and Toulon, for the use of the dock-yards.

The business of sorting hemp, since the time of Peter the Great, has been established on a regular footing, and the laws respecting it have been lately enforced with great strictness and severity. At Petersburg there are twenty-four sorters for hemp and flax, and four for hemp and flax-tow, one half of whom are Russians, and the other half Germans. The hemp, as soon as it arrives in that capital, is conveyed to public sorting houses, where it is sorted. Sorters also travel from Petersburg in winter, to the principal lading places in the interior of the empire, in order to sort the hemp before it is put on board the barks, by which it is conveyed to its destination. No one, however, is compelled to have his hemp sorted in this manner; but it is done in order to lessen the cost to the Russian merchants, as cleaning and sorting at Petersburg are attended with greater expense. Formerly, the price of hemp was much dearer at Riga than in the capital, because more strictness was observed in the sorting; but, at present, this difference has almost entirely vanished. The mode of sorting hemp at Riga was introduced by one of its magistrates, named Berens. The hemp is marked by a piece of board affixed to it, which is inscribed with the names of the seller, the sorter, and the two binders, and also with letters

* Hist. Stat. Rumäde des Russischen Reichs von H. Storch, vol. ii. p. 323.

† The *schiffsfund*, when applied to articles transported by sea, is equal to 280 pounds; but applied to those conveyed by land, it is equal to 320.

which denote its quality. The tow is sorted by public sorters also, and at Riga, it is marked with a key.

Russia exports hemp annually to the amount of about 8,474,000 rubles.*

The finest hemp is said to be cultivated in Montserrat, and Bologna,† where it excels every other kind in length, whiteness, and strength. An important paper upon the manner in which it is managed, will be found translated into English, from the essay of an Italian, at p. 439, of the 16th vol. of the Annals of Agriculture. In the watered lands of Catalonia, it forms a predominant crop.‡

It is said by a French author, that the cordage and sails of a first-rate man of war demand 180,000 lbs. of rough hemp.§ In the year 1783, the naval consumption of hemp in France was 400 millions of pounds weight.|| M. Lazowski, during his tour in Switzerland, has minutely the manner in which hemp was saved in that country; his observations I should insert, were they not already printed in a work in general circulation, the Annals of Agriculture, vol. 9. p. 264; in the 14th vol. of which work, p. 359, will be found a paper “on the mode of cultivating and dressing hemp, by the Abbé Brulles, printed by order of the Lords of the Committee of Council for trade and foreign plantations.”

INDIGENOUS GRASSES. A small octavo volume, containing the Linnæan, English, and Irish names of the indigenous grasses of Ireland, has been published by Mr. White, of the Dublin Society’s Botanic Garden, at Glassnevin, to which I shall refer the reader for more minute information than is to be found in the list of plants which I have formed. There is one kind, however, the *agrostis stolonifera*, growing in most soils, the fame of which has been so much extolled in Ireland, as to render it necessary to say a few words respecting it. This plant, which every cultivator in England would, if possible, extirpate from the face of the earth, has been strongly recommended by Dr. Richardson, who ascribes to it a great many wonderful properties, and asserts that it may be made into hay at Christmas. But notwithstanding he attractive qualities which it possesses for the cattle in Ireland, in England they will never touch it, unless when actually starving; and, therefore, I am induced to think that there may perhaps be something peculiar in the Irish air which occasions this difference. Dr. Richardson, indeed, has found some admirers of his system, and lords and ladies have united to sign certificates in its favour; but I must observe, that the culture of this plant forms one of the bad parts of the Irish husbandry. The *agrostis stolonifera*, or fiorin grass, as it is called, has long been in use in Tyrone.¶

* Storch, ut supra, vol. viii. p. 134.

† Annals of Agriculture, vol. ii. p. 216.

‡ Ibid. vol. viii. p. 243—246.

§ Recherches sur la Houille d’Engrais par M. de Laillevault, tom. ii. p. 8.

|| Recueil de Mémoires sur la culture et le rouissage du Chanvre, Couronnés ou approuvés par la société Royale d’Agriculture de Lyon, 8vo. 1787. Paris, Perisse.

¶ M’Evoy’s Survey of Tyrone, p. 72.

In Galway the poor constantly cut it and put it into the ground, chopping it in with a spade at the time when they sow their oats. It was tried by the Duke of Bedford on his bog at Priestly, but without success. It has answered for sea walls, where its roots run and bind them together; but this is the only situation for which it is adapted. I have seen a road made across a bog with lime-stone, where the fiorin was indigenous. This I have observed in Ireland, and also in Westmoreland.

Dr. Richardson seems inclined to deceive himself into the opinion, that fiorin is the *poa trivialis*, found in some of the best water meadows of Wiltshire; but in that county, hay is made in June, out in the open fields, and not before drawing-room fires and bed-chamber stoves. It is also housed as soon as it is fit to be carried home; and instead of being rendered sweeter, as the Doctor says, is the case with the fiorin, by remaining out for weeks in the open air during rainy weather, or by being immersed in water, it would, by such treatment, be completely spoiled. The Reverend Gentleman, who has endeavoured to attract notice by his pompous and elaborate account of this weed, is, I have no doubt, a respectable member of society; but he had better not wander into meadows and quagmires, which when disturbed, throw out in Ireland as well as in England, a deceptive light, called an *ignis fatuus*, or, in the language of the vulgar, *Will wi' the wisp*, that often leads the simple rustic a mazy dance of many a fruitless mile, over hedge and ditch, till he is heartily tired and exhausted. But to speak seriously. Dr. Richardson is not the discoverer of this grass, for it is evidently the bantling of Mr. M'Evoy,* and the Rev. Mr. Sampson.† Dr. Richardson has adopted it as his own. In consequence of so much having been written upon it, I should not be surprised to hear of some serious attempts to turn it to account, or that application is made to Parliament for a remuneration on account of this wonderful discovery. But the mania respecting the fiorin grass does not seem in Ireland to have spread towards the south; for the Rev. Mr. Townsend, in his Survey of Cork,‡ says that there “it is generally rejected by the cattle, sheep, and horses;” and he adds, that “it is a mischievous couch, difficult to be eradicated in arable land.” I am unacquainted with either of the Reverend Gentlemen above-named; but I know that Mr. Townsend has produced a practical work which does him much credit; in every line it exhibits the stamp of truth; and were I entirely ignorant in regard to the properties of the *agrostis stolonifera*, I should place full confidence in his opinion.

LAYING DOWN LAND TO GRASS.—This is seldom done with seeds, but in most places nature is suffered to clothe the fields by its own spontaneous exertions; a plan, however, reprobated by most county surveyors, who recommend clover, rye-grass, trefoil, and other seeds to be sown in abundance. But I am convinced that they are as ignorant of the subject as the persons whose system they condemn, since they

* Survey of Tyrone, p. 72.

† Survey of Derry, p. 199.

‡ Appendix, p. 160.

universally praise those who throw seeds upon land, exhausted by many successive crops of corn. Had they first prescribed cleaning the land, and then sowing it with proper seeds, they would have displayed much more judgment. No attempt should ever be made to convert land into grass, but after a perfectly clean fallow. The grass seeds should grow up under some other crop, which may afford them shade without smothering them. I have no doubt that flax would answer exceedingly well for this purpose; and red clover, in particular, ought never to be sown by itself as a grass to form a permanent coat. Being a biennial that grows with great luxuriance, it may answer for the first two years; but afterwards, till the indigenous grasses, which are choked for some time, spring up, the land will remain a mere blank, and of course throw out abundance of weeds. I have always found it the best method to allow a piece of grass to stand till the seeds are perfectly ripe, and then to thresh them out on a sail-cloth in the field. By these means the seeds of the indigenous grasses of the soil and the climate are obtained, and these are the proper kinds to be sown.* It is, however, to be remarked, that land in Ireland reverts to pasture with almost incredible facility; if it be once cleaned and left a few years to itself, it will in most places become clothed with luxuriant herbage; and this fact will account for the negligence of those, who, to use their own expression, "turn it up to rest."

HAY-MAKING.—Grass in Ireland, soon after it has been cut, is formed by the hand into "lap-cocks," each of which is equal to the quantity that a woman can twist round her arms in the shape of a muff, and then deposit on the ground. This is an excellent plan at the season of the year in which hay is made, as the air forces its way through the hole from which the arm has been drawn, and contributes to the drying of the grass. After lying several days on the ground, and, in general, being thoroughly drenched by the autumnal rains, it is put into a "tramp-cock," which is very large, and cattle are then frequently turned into the meadows, where these cocks are standing. In this state the grass becomes heated, and at length it is carried to the hay-yard, where it is formed into ricks; but as the bottom and outside of the cocks, which consist of dry rotten grass, making no inconsiderable part of the whole, is mixed in the heart of the rick, it again heats, and hence its good qualities, if it possessed any, are destroyed. The greater part of the hay, therefore, in Ireland, is not better than sweet oat-straw, if it has been carefully preserved. Though I have stated that hay remains out till Christmas, I do not mean to say that winter is the usual time of the hay-harvest. The common season is September. It is a generally received opinion that the climate of Ireland is so moist, and the grass so succulent, that hay will not succeed, and that it cannot be made at the same period, or in the same manner as in England. But a single fact established by incontrovertible evidence, is

* On this subject consult Marshal's Rural Economy of Gloucestershire, 2d edit. 1796, vol. i. p. 157.

worth a hundred opinions hastily conceived, and propagated without due examination. In the summers of 1808 and 1809, I saw at the seat of Mr. Foster, at Collon, large ricks of hay, which had been made in a manner similar to that pursued in England, and thatched in by the 15th of July each year. I saw the same thing at Hazlewood, the seat of Mr. Wynne, near Sligo; and both these gentlemen are in the constant habit of saving their hay in this manner. Mr. Edgeworth has for some years effected the same without any loss.

In the west of Ireland, a great part of the hay is made on land liable to be flooded. I have seen some in tramp-cocks in the county of Limerick, floating about in the month of December. Mr. Dutton remarked the same thing in the county of Clare.* The observations of Mr. Townsend on late hay-making in Ireland, are well worth attention;† and he partly accounts for it in swampy grounds, the draining of which he recommends as a remedy.

In some parts of Ireland, I have observed that the farmers cart the hay home, and put it into tramp-cocks close to their cabins, where it stands till towards the end of the year, when it is formed into ricks.

Mr. Dutton gives a curious account of the sale of hay in the county of Dublin; and were proper attention paid to his remarks, in regard to trussing it for sale as in England, much of that fraud which he mentions would be prevented. His remarks being important, I shall transcribe them: "Hay is very much injured in this country, by the careless manner of making cocks, and permitting them to stand too long in the field. It is not unfrequent to see upwards of a foot, at the bottom of the cock, quite spoiled by this neglect. To some of our great hay-farmers this is no loss, as all the bad and refuse hay of the farm, if not reserved for cows, which deserve the sweetest and best hay, is lapped up in the inside of each load of hay and conveyed to Smithfield. The frauds that are practised in loading hay for this market, call loudly for redress. It is a very common practice with many hay-farmers to shake a little fine hay on the ground; then a quantity of bad is shaken warily over this, and lapped up and loaded for market. In the market the farmer's man stands with a handful of hay, drawn from some part which has not been *doctored*; therefore the buyer should previously examine the inside of each roll. It is very probable this is the reason that the English method of sending hay to market in trusses has not been practised in Ireland, as it would immediately shew the part which is bad. It is perfectly ridiculous to say, we are not used to the mode; it was practised some years, but was not long enough persisted in to establish it. If gentlemen would *determine* to adopt it, and not be persuaded by their *handyman* to desist, it would become in a short time as common here as in London."‡

* Survey of Clare, p. 128.

† Survey of Cork, p. 201. "When cut late, as the general practice here is, the ranker weeds have already perfected their seed, and of course receive no injury from the scythe."

‡ Dutton's Remarks, p. 7.

That such a system as this should exist, will appear very extraordinary to those who are acquainted with the manner of managing hay in the neighbourhood of London. It might be supposed that a capital, like Dublin, would create a demand sufficiently extensive, to render it worth while to the farmers in its vicinity, not only to be honest, but to acquire more intelligence and skill in the art of hay-making. The process described in the English County Surveys is most excellent,* and deserves imitation; but it is to be recollected, that turf-cutting, a business highly necessary where fuel is scarce, interferes very much with hay-making in Ireland.

MEADOWS.—In Ireland all grass-land which is not grazed, is called "meadow," and a crop of hay is sold as commonly as a crop of corn. Corn acre meadow is an usual expression in this country, and arises from the state of society, which affects cultivation as well as every thing else. Persons who occupy only a small quantity of land, or who, in many instances, hold no land at all, purchase meadow at an exorbitant rate; and an anxious desire to get from the land the utmost of what it can produce, makes them forego every advantage of season; so that they never apply the scythe as long as they entertain the smallest hope that another blade of grass will spring up. The quantity rather than the quality of the hay is their grand object, and hence the season of hay-making is deferred to an uncommonly late period. In many parts of Ireland, "the wood-cock hay" is not made till Christmas. When mown, the scythe is made to cut almost into the earth, in order that a single stalk may not be lost. Mr. Tighe, in his Survey of Kilkenny, assigns a new reason for not putting hay into ricks earlier, which never occurred to me till I read his work.† "Tillage-farmers, particularly in the wheat district, are often without any meadow, and are obliged to purchase hay from a distance, at the rate of from six pounds to eight pounds an acre; from fifty shillings to five pounds is the price of the worst meadowing, and of the best ten pounds; it is common for gentlemen to sell the grass of their domains for this purpose; such land is often kept many years without manure, and sometimes gets a coat of compost, made from old ditches, or earth and lime, but seldom any dung. The purchaser generally endeavours to cut the grass as late as possible, and also in cutting, to mow the sod as low as he can; both practices are highly injurious to the land; the roots of the grass are not only exposed, but it is doubtful whose conduct is most to be wondered at, that of him who sells off his ground the produce, which by being used upon it would be productive of much greater profit, as well as service to his farm by manure; or of him who goes to the distance of some miles to purchase that dearly which he might have had easily at home for less trouble and expense than the draft may cost him. He is

* Marshal's Sketch of the Vale of London, edit. 1799, vol. i. p. 40. Middleton's Survey of Middlesex 1798. p. 237.

† Survey of Kilkenny, p. 363.

often obliged to draw the hay home very late in the season, the seller keeping it in cocks in his field until it is paid for."

Harrowing and rolling meadows, the former to spread the dung over the land, and the latter to compress all inequalities, that the scythe may glide smoothly over it, are in England thought necessary;* but as far as I have been able to learn, they are not known in Ireland.

The enormous price at which meadow-land sells in Ireland, is an object which perhaps deserves the consideration of the agriculturist, and may be of some importance even to the political economist. Does it not shew the latter that the minute division of land prevents that course of cultivation, which would produce beef, mutton, butter, milk, &c. without resorting to a system that must reduce the poor to indigence, and waste in a useless manner labour, capable, if properly directed, of rendering the people comfortable and happy. I have been told that this system is followed, because it is profitable, and in order that the land-owner should not be at the mercy of overseers, labourers, and pilferers; but such reasons are certainly not worthy of a remark.

CLOVER.—The cultivation of clover in Ireland is as yet partial; but the use of it is becoming more general. Throughout the west and the north-west counties it is scarcely known, and in no part does it enter into the course of crops as in England, where it is considered as having an important influence in regard to the future production of grain. Even in those places where it is used, it is sown at the end of the course; a period at which it would be better to follow the old plan, for by sowing clover on exhausted and foul land, it will neither be cleaned nor improved.† I saw only two instances while I was in Ireland of clover being saved for seed. I was informed by Mr. Green of Kilkaye, county of Kildare, that he was in the habit of saving his own seed, and I heard in the county of Wexford that this was not an unusual practice. Mr. Newenham says, that there are not 5000 acres sown with it in the whole island;‡ an assertion to which I give full credit, and which seems to be confirmed by a remark of Mr. Townsend, that clover is seldom cultivated by common farmers, but on a small scale and in a very inconsiderable quantity.§

SHAMROCK.—This plant has a resemblance to the white Dutch clover, though the Irish claim it as a native production, peculiar to their island. Where the subsoil is of a calcareous nature, it certainly flourishes with a luxuriance of which any country might justly be proud, and, therefore, I shall not say any thing to the contrary.

ONIONS.—These form a part of Irish cultivation in the immediate environs of the

* Marshal's Minutes of the Southern Counties, vol. i. p. 38. edit. of 1799.

† Mr. Townsend, in his Survey of Cork, p. 202, has given very erroneous advice on this subject.

‡ Survey of Cork, p. 280. See also p. 231.

§ Natural and Political State of Ireland, p. 314.

town of Carlow, whence they are hawked about for sale through a considerable part of the island. Near Ennis, in the county of Clare, I found the same thing, but not carried to so great an extent.

HOPS.—I never heard of hops being cultivated in Ireland; but Sir Charles Coote speaks of an attempt made in the King's County, which was attended with success.*

FURZE.—This plant is very common in the southern parts of Ireland, where it is used for fuel,† and also in Cork and in Wexford. I saw it in Waterford; and besides growing wild, it is cultivated on wide banks and head-lands as an article of sale. The tender nature of this plant, which is injured by the frosts of a northern climate, will account for its being confined to the south.

The French furze, *genista spinosa major*, grows much higher than the Irish, *genista spinosa minor*, which is a dwarf plant in comparison of the former. A small quantity of furze seed is exported from Cork, and Mr. Young found a similar exportation at St. Pol de Leon,‡ in France.

FARM-YARDS AND OFFICES.—Except those belonging to the gentry, there is nothing in Ireland worthy of the name. In the county of Cork, the farmers, "by way of saving ground, erect their houses often upon the margin of a public road, in the channel of which a great part of their manure is washed away; and on the same principle of economy, they grudge a few perches to the use of a farm-yard."§ Even in Kilkenny, a county more occupied by tillage farmers than any other, the case, according to Mr. Tighe, is nearly the same; and I am convinced from what I have often seen, that it is perfectly correct. "A decent house let to a common farmer, becomes in a year little better than a pig-sty. The houses of rich farmers are generally far inferior to their means, and are such as exempt them from window-tax, and often from hearth-money; but the greatest failing is in the offices; the barn is generally a shed to thresh on, with no floor, but the natural soil; the stable a hovel; a cow-house is often not to be found; no yard is appropriated to pigs; the corn stands alone to mark the farm; a shed to protect the implements of tillage was never thought of; the richest farmers always leave the plough and harrow in the corner of the last field they tilled; such parts of harness as may not consist of gads or sugans, is secured in the house; and with the smaller farmers, if the car does not stop some gap, called a gate-way, it may lie against the ditch or on the dung-hill. The offices are sometimes covered with potatoe stalks, which form a very bad thatch."|| Gardens to a farm-house are seldom seen.¶

BARNs.—I know of no buildings in Ireland similar to the numerous ones of this kind, every where found in England.

* Survey of the King's County, p. 60.

† Townsend's Survey of Cork, p. 379.

‡ Tour in France, vol. i. p. 363.

§ Townsend's Survey, of Cork, p. 205 and 207.

|| Tighe's Survey of Kilkenny, p. 412.

¶ Townsend's Survey of Cork, p. 210.

THATCHING.—If practice can make men perfect in any art, this work ought to be well performed in Ireland; for the wretched manner in which it is executed in that country, renders constant reparation or renewal necessary.* By the straw being badly threshed, the grains which are left amongst it, of course vegetate, and the roof often exhibits the appearance of a corn field. A considerable proportion of the straw produced in the country is consumed in thatching. In some parts where the soil is rocky, and straw on that account scarce, the covering laid upon the roof of the cabin is so thin, that it does not last above a year or two at the most.

FENCES.—The Irish fences consist generally of earthen banks, without any thing growing upon them, or in the lime-stone districts, of stone walls built up without cement. In many instances these walls are constructed of stones picked out of the land, or of fragments of rock, which rising above the surface, are blasted for this purpose by means of gun-powder. Quickset hedges are also coming into use; but though they have considerably increased within my remembrance, it cannot yet be said that they are generally adopted. In consequence of the great scarcity of wood, and other fuel, paling is seldom seen, the poor being thereby strongly tempted to steal it for firewood. If a gentleman erects any thing of this kind, it disappears in the course of a little time, and I believe I may safely assert, that there is not a single park paling in the whole island. Noblemen and gentlemen's domains are always surrounded by stone walls, which for the most part are so high, as to prevent persons from getting over them. Hence they form a kind of safeguard against the pilfering habits of the people.

In the south of Ireland, including Cork, Waterford, and Wexford, furze is sometimes planted on those banks, which serve as fences or hedges, but for the most part they are entirely bare. "The general nakedness of the land," says Mr. Townsend,† "arises in a great measure from the customary mode of fence, into which nothing of the tree kind is admitted. Still more rare is their occurrence in a detached state on any part of the grounds, except the immediate vicinity of a house. The difference between this country and England is so great in this respect, that to an Irish eye, every English farm appears like a gentleman's pleasure-ground. Our common enclosure is a bank, (vulgo ditch) from four to five feet broad at bottom, tapering to the top, and rising to the height of five or five and a half feet. It is formed of earth dug from trenches at either side, and sometimes with stones. When well covered with furze it makes a very close and warm hedge, affording a little fuel for the house and good winter food for horses. To keep it in proper order, it should be cut every fourth or fifth year at farthest. Too frequently, however, the most material part of the fence is neglected, and the bank is either suffered to remain quite bare, or but poorly provided with furze plants."

* Townsend's Survey of Cork, p. 207.

† Ibid. p. 212.

GATES.—The most appropriate term for this head would, I believe, be gaps. The landlord never erects gates, and of course his example is followed by the tenant. The car, with the shafts turned upwards, frequently supplies the place of a gate; and in the stony counties, the farmers pull down a part of the wall when they have occasion to enter into their fields, but they seldom remember to build it up again. Where gentlemen erect gates, they are of iron and hung upon stone pillars. The latter are easily obtained in a country so abundant in rocks, but an iron gate is a matter of more importance, and sometimes costs from three to five guineas. In England I have seen a light oak gate, which according to the account of workmen who had known it for a long period of time, was forty years old. The present cost of one of these common five-barred oak gates, which every son of Nimrod boasts of having topped, is fifteen shillings. Such gates, however, in Ireland, if they stood till winter, would be converted into fuel to warm the poor cottager and his cold-struck family.

EMBAKMENTS.—This term is applied to works constructed for the purpose of protecting low lands from being inundated by the sea or flooded by rivers, which when swelled, in consequence of heavy rains, overflow their banks, and sometimes lay the whole adjacent country under water. Embankments, therefore, are of two kinds, according as they are applied to the former or to the latter. Of the first kind I observed none in Ireland, and after having seen so much of embankments on the coast of Essex, I was not a little surprised to find that they had not been introduced into that country, where they might be easily employed, and with great advantage, on various parts of the coast. I remember standing on the top of the hill at Paradise, in the county of Clare, and looking at many hundred acres on the banks of the Shannon, and the Fergus, which by adopting this improvement might be rendered very productive to their owners. On leaving the hill, I examined the shore; and was fully convinced that some of the finest land in the country, which is here shamefully neglected, might, with a little labour and expense, be converted to the most useful purposes. Lord Egremont possesses a large property, susceptible, were these means employed, of being greatly increased in value. Mr. Tighe speaks of an embankment in Kilkenny, from the Suir and the Nore, which was constructed by Colonel Axtel, an Englishman, a hundred and fifty years ago.* Similar improvements were made in that county about sixty years ago.† The Rev. Mr. Sampson mentions an extraordinary increase of rent in Londonderry, arising from the same sort of management.‡ I know of no other works of this kind in Ireland; and when I reflect on the many proofs I have seen of the infant state of agriculture, and the arts connected with it in that country, I am more and more convinced of the need which the Irish have of instruction on these subjects, in which they appear to be so very deficient. Why cannot the Irish profit by the examples of the

* Survey of Kilkenny, p. 372.

† Ibid. p. 373.

‡ Survey of Derry, p. 450.

English, the Dutch, and even the people of Denmark?* In England and Holland, but particularly in the Duchy of Holstein, the art of embanking has been carried to a considerable degree of perfection; and a learned professor of the University of Kiel has written an express treatise on the subject.

DRAINING RIVERS, LAKES, AND MOORS.

This is one species of improvement, which in Ireland might be carried to a very great extent; but it is scarcely ever thought of, and I never heard an instance of its being attempted. The large lakes of Lough Nea and Lough Erne might certainly be in part drained by blasting the rocks at their outlets, which prevent the water

* The English embankments in Lincolnshire,* Norfolk,† and Essex,‡ and the dykes erected by the Dutch along their coast, to prevent the country from being inundated by the sea, are well known. Dykes similar to the latter have been constructed in the Duchy of Holstein, great part of which is exceedingly flat, and exposed to the like danger. These embankments consist in some places of a kind of argillaceous earth; but in Holstein, where the bottom is softer and more sandy, the inner part is constructed of strong wattle-work, and the outside, or face, is covered with blue clay and earth. Next to the land they are almost perpendicular, but on the sea side they form a gentle slope, and on the summit are flat. They are about nineteen feet in height, and so broad at the top that a carriage, and in some places two, can pass along them. At Eyderstadt they are from eighteen to twenty-four feet in thickness. Like the highways, they are furnished with gates, which can be shut when necessary, because in winter every person has not permission to travel upon them. Sometimes there are apertures in the dykes through which the water can be let in or out, according as may be necessary. These dykes begin near Tondern, and extend along the whole coast to the mouth of the Elbe, near Altona.

As the sea in some places throws up large quantities of mud, new land is thus formed, and when it attains to a certain degree of consistence, it is enclosed by a new dyke. A piece of land of this kind is called a *koog*, and as the embanking of it is attended with considerable expense, certain privileges are granted to it by government. The first vegetation which the mud throws out is glass-worts, *salicornia herbacea*, L. which contributes to render it more solid. If the tide no longer rises over it, this plant is followed by meadow-grass, *poa maritima*, and the acute carex, *carex acuta*. The soil being now pretty well matured, it soon becomes clothed with different kinds of plants, and the white clover at length makes its appearance, which is a sure sign that the land is fit for embankment. Considerable spots of land are gained from the sea in this manner, and Thaarup speaks of one Des Mercieres, who, by embanking a piece of mud on the coast of the island Pelworm, made a clear profit of 60,000 rix dollars. I shall refer those, who may wish for farther information on this subject, to Thaarup's *Versuch einer Statistik der Dänischen Monarchie*, vol. i. p. 186. Niemann's *Handbuch der Schleswig-Holsteinischen Landeskunde*, vol. i. p. 235, and Medel's *Indenlandske Reise. Kiøbenhavn*, 1803. Part ii. p. 64.

J. N. Tetens, professor of philosophy and mathematics in the university of Kiel, undertook in the years 1778, 1779, and 1780, a tour along the sea-coast of Holstein, Germany, and Holland, from Hoyer in Jutland, as far as Flanders, in order to examine the embankments and dykes, and make himself acquainted with the manner in which they are constructed. An account of this tour was afterwards published with the following title: *Reisen in die Marschländer an der Nordsee zur Beobachtung des Deichbaus*. Leipzig, 1781. 2 vol. 8vo. with plates.

* Young's Survey of Lincolnshire, 2d edit. p. 307.

† In the Annals of Agriculture, vol. iii. p. 353, is an excellent account of this embankment.

‡ Young's Survey of Essex, vol. ii. p. 253.

from rushing towards the ocean. The Shannon, in some places above Limerick, spreads out into sheets of water, which may be called inland seas; Lough Derg, which forms a part of this river, near Clare, extends many miles each way, and is situated at the height of 120 feet above the level of the sea. By removing the rocks, therefore, which dam up the water, the whole bason might be emptied at once; and of course a similar effect would be produced on the many lakes above it, were the rocks between them removed in the like manner. The lakes in Westmeath are all capable of being drained. Lough Carib, in Galway, I have seen only at a distance; I cannot, therefore, speak with any degree of certainty in regard to its susceptibility of this kind of improvement. If the proposed system of drainage could be carried into effect, it would be attended with great national benefit; the only obstacles in the way, as far as I know, are the eel and salmon fisheries,* and the income derived from mills; but these could be easily valued, and might be purchased by a cess imposed on every acre of land reclaimed. An act of parliament, framed on a principle similar to that of the Commission of Sewers in England, would at once accomplish this object, to which there certainly could be little opposition, the argument arising from the sacred nature of private property being entirely removed by the above plan of purchase; and if a few individuals should suffer some inconvenience, or even loss, these would be far counterbalanced by public advantage, which has always a prior claim to attention. Not only might large tracts of land, which are at all times covered with water, be converted into corn fields, but immense districts, which are inundated only at wet seasons, might be freed from accidents of this kind. If those facilities for drainage in Ireland, presented by natural situation, were turned to advantage, there is no doubt that lands, which in the present state of things must remain marshes and bogs, might be reclaimed and made conducive towards increasing the sum of the national industry.† There is a sort of land, forming an intermediate kind between bogs and that covered by water, which in Ireland belongs to the class called moors. Some of it is to be found in the neighbourhood of all these inland lakes; and were the water intercepted, or properly directed according to circumstances, it might not only be prevented from doing injury, as is the case at pre-

* Survey of Clare, p. 156.

† A considerable work of this kind was accomplished a few years ago in Denmark, by draining a lake called Soeberg, which formed a part of the royal domains, and covered an area of above 3000 English acres. The bottom, for the most part, was mud, and the depth of the water from eight to ten feet. The water was drawn off by a drain half a mile in length and twelve feet deep, cut in the year 1794 and 1795, under the direction of Major Reckes. The expense of the drain and cross-drains amounted to 12,000 rix dollars. The land thus recovered is enclosed by an earthen fence and ditch, and has hitherto been used only for hay. In 1799 it produced 131 rix-dollars; but in 1802 it brought an income of 4468. In the latter year, cleansing the ditches and other expenses amounted to no more than 490 rix-dollars. *Almindelig udsigt over Agerdyrkingens Tilstand i Sjælland og Moen af G. Begtrup, Professor i Landoekonomie, Kiøbenhavn, 1803, 8vo. vol. ii. p. 289.*

sent, but might be employed to convey moisture and fertility to the lower lands, which stand in need of such assistance. The fall required for this purpose is very small, as I have observed from the practice of Mr. Gayson.

RECLAIMING MOOR-LAND.—Moor-land consists of low flats, saturated with water, the soil of which is not of such a nature as to make them assume the qualities of bog. Lands of this kind must in the first instance be drained, and as in Ireland they occupy many thousand acres, great part of Mayo falling under this description, they of course present themselves as a striking source of national improvement. Sir Charles Coote in his Survey of the King's County,* has described the plan pursued by two gentlemen to reclaim land of this sort; but I much doubt, whether it be equal to the system of irrigation which I saw pursued in that neighbourhood upon bog, by Mr. Gayson of Shanbally, near Nenagh in Tipperary. There can be no moor without water, and the only thing necessary to convert snipe grounds into rich meadow, is to throw it over the surface, instead of suffering it to saturate the soil.

WARPING.—In the county to which I have adverted in speaking of embankments, I learned, that when the marshes on the banks of the Shannon and Fergus, are occasionally flooded, in consequence of spring tides, the water never does injury to the land, and I was even assured, that to those parts under tillage, it was of benefit. This circumstance brought to my recollection a process in Lincolnshire called warping,† which, in all probability, might be employed with equal advantage in this part of Ireland. If I be correct in my opinion, the Earl of Egremont possesses a mine of wealth in his estates, which are washed for miles by the Shannon and Fergus. A further account of warping will be found in the 37th volume of the Annals of Agriculture, p. 385, where an essay is translated upon the subject from the Italian of the Signore al Leonardo Zimenez.

MOUNTAIN IMPROVEMENT.—So little are either Englishmen or Irishmen acquainted with the modes of cultivation in other countries, and the means sometimes employed by industry to overcome the obstacles presented by nature, that with them the sterility of mountains is almost proverbial; but this, like many other popular opinions, vanishes before the test of examination. In South America‡ and Syria|| land is cultivated so great and at such various heights, as to render the difference of climate at different altitudes as perceptible as in different degrees of latitude. Those who have visited Switzerland, must have seen and admired the vines planted on the mountains of that country, in terraces of earth, supported by parapet walls. The same system is pursued in

* Page 45.

† Young, in his Survey of Lincolnshire, 2d. edition, p. 313, describes this system.

‡ Humbolt's Polit. Essay on New Spain, English version, vol. iii. ch. 10. p. 11.

|| Volney's Voyage en Syrie, &c. 3d. ed. tom. i. p. 313.

the Pyrenees.* From Coblantz to Baccharach the hills on the Rhine are all beautifully improved, terraced, and planted with vines;† and in the province of Catalonia in Spain, some of the mountains are terraced in the like manner for olives.‡ Near Bolsano in Italy, declivities are made with parapets to support the earth.§ The case is the same near Nice for olives and corn.|| In China, this mode of cultivation is partially adapted;¶ and in Nepaul, it seems to be employed in a very superior manner.**

In some parts of Ireland this kind of improvement has been introduced, and excites no small interest. I have been astonished, in some places to see the rocks cleared, and earth brought from a considerable distance to form the staple for a plantation of potatoes. Many of these minute operations of husbandry, however, are the effects of a dense population, the great benefit of which seems doubtful. The chief object is the improved cultivation of such mountainous tracts as are not too steep to require manual labour.

In the improvement of mountains there are three things which require some consideration, though in general little or no attention is paid to them. The first is the altitude; for there can be no doubt that at different heights, there is some difference of temperature which, though not perhaps great at small elevations, will still be perceptible, and sufficient to produce a sensible effect on the production and maturity of vegetables. The experiments on this subject seem as yet too few to establish any general result: but having been made by scientific men, they are the more worthy of notice, and when more are collected, may lead to some practical conclusion. Professor Playfair says, that the temperature diminishes one degree for about 300 feet of elevation †† Heberden, on the other hand, found that the depression is one degree for each 190 feet.‡‡ According to Mr. Six, in cloudy weather, there is little difference in the temperature at different heights; but in clear weather the lowest station is coldest at night and hottest in the day. When the heat is below 40°, there is little difference in the day-time. In general the difference is one or two degrees, and sometimes 40° at night. One curious remark is, that the ground is sometimes one or two degrees colder than the air a few feet above it.§§

* Le Roy Memoir sur les travaux, qui ont rapport à l'exploitation de la culture dans les Pyrénées, 4to. Paris 1777.

† Burnet's Travels, Harris's Collection, vol. ii. p. 636.

‡ Young's Tour in Catalonia, inserted in Annals of Agriculture, vol. viii. p. 217.

§ Wright's Travels, vol. ii. p. 495.

|| Smollet's Travels, vol. i. p. 342.

¶ Barrow's Travels in China, 568. Osbeck's Voyage to China, vol. ii. p. 291.

** Kirkpatrick's Nepaul, p. 63.

†† Edinburgh Transactions.

‡‡ Philosophical Transactions, 1765. p. 126.

§§ Ibid, 1784, p. 428. 1788 p. 103.

Another thing to be considered is exposure. The face of a hill or mountain looking towards the south, will certainly enjoy a greater degree of warmth, and be more favourable to vegetation than one which looks directly north, and which, of course, must receive less benefit from the vivifying influence of the solar rays. The sides of a mountain, also, which is turned from the prevailing winds of the country, will, in some measure be different from one, the aspect of which is in a contrary direction. The third and last thing is the steepness or declivity of the hill,* which, according to its angle of elevation, will require more or less labour to be brought into a state of cultivation.

I trust I shall be forgiven the intrusion of these general remarks upon a subject so intimately connected with national improvement; for there is no part of rural economy which has a stronger claim to the serious consideration of the proprietors of estates in Ireland. In that country there are many thousand acres of mountain land, which are left nearly in a state of waste, maintaining a few wretched half-starved cattle;† but it is necessary to observe, that in regard to their improvement, much must depend there, as in other countries, upon the nature of the mountain, as to climate, soil, and situation. Under the term soil, I include sub-soil as well as the upper stratum; and by situation, I mean contiguity to water and fuel. I cannot believe that improvement will be effected in all mountain estates by adhering to the same principles, or pursuing one uniform plan of operations. In the north and north-west, I could scarcely discover traces of any attempt being made to produce a change in the state or appearance of the Irish mountains; but on proceeding to the south I was agreeably surprised to find that this system was pursued upon a grand scale by Mr. French, of French Park, in the county of Roscommon, and I found that the improvements made were in part the effect of superior population.

SEPT. 19th, 1809. FRENCH-PARK. ROSCOMMON.—Rode this day to see some experiments lately made in the mountains. Mr. French lets his land rent free for the first seven years, and allows the tenants timber to build cabins. If his land in the course of that period have been brought to a state of cultivation, he grants a lease for the life of the improver, at the rate of fifteen shillings per acre. This land, though called mountain, is not so in height; it is covered with a stratum of bog soil of various thickness, which produces a most luxuriant heath. Where the bog is deep it is cut out for fuel, and the same process is then pursued as on the rest of the land.

* Mr. Kirwan says, that the direction of most mountains is from east to west; and that the south and south-east are the steepest. *Irish Transact.* vol. viii. p. 37.

Mr. Bergman says, that the western flank is the steepest, and the eastern the gentlest, in those mountains which extend from north to south. *Bergm. Erdekloet*, vol. ii. p. 187. Buffon states the same thing of the Cordilleras, vol. i. p. 181.

† Mr. Townsends's account of the "hirelings," in the southern mountains, is not much better, *Survey of Cork*, p. 312.

Where it is not more than twelve inches deep, the immediate sub-soil is a hard clay, called by the Irish *lack-lea*; but the poor, I believe, give it the name of *flag*; like all other kinds of clay it is not permeable to water; and this, perhaps, will account for the bog which is above it. The bog and *lack-lea* are dug up into ridges; the latter extends to the depth of about six inches, and its substratum is limestone gravel, which is ultimately thrown up and spread out over the land. All this is done in the course of one summer, and the following spring the ridges are inverted, and the land for two successive years is planted with potatoes. It is then sown with oats, and laid down with grass-seeds. I saw some patches, which had been subjected to this course, clothed with a very good sward. Mr. French proceeds in this way on a very extensive scale. Some of the land he is improving on his own account, in order that he may plant it with trees, and according to the calculation he has made, it will cost him four pounds per acre. I forgot to mention, that the heath-bog, and *lack-lea*, in digging, are both turned in together. The sight of these labours were to me highly gratifying, as they afforded a proof how much might be effected on the thousands of acres I had seen of the same kind of land during the course of a few months before.

The most important operation in this improvement is the digging, which is carried to the depth of eighteen inches; twelve of these consist of soil so impregnated with water, that it produces nothing but bog, and therefore it offers little resistance to any force applied to it. The other six inches are of a very different nature; the stratum they form prevents the water from sinking into its natural bed; and by these means the soil at the surface is completely spoiled. The soil, however, below these affords on the spot most excellent matter for the general amelioration of the whole. In such land, improvement may be effected at a very trifling expense, if the bog or top soil were ploughed by a common two-horse plough, furnished with a share remarkably sharp to cut the roots of the heath, the horses being shod with wooden shoes, as is common in Cambridgeshire, or with pattens, as used at Chat Moss in Lancashire; these animals would easily walk over bog-land of so little depth as that to which I allude. After this I would use another plough drawn by horses lengthways, in the same manner as when land in Suffolk is ploughed for carrots, which is called double furrowing; the horses in the second plough might be shod in the common manner. By this process the *lack-lea* would be turned up with great ease and expedition; but unless I saw it tried, I cannot determine whether it would require the chisel-pointed sock, so frequently applied to the turn-wrest plough in Kent, or the long pointed share which is found so useful in getting up the flints in Hertfordshire. By two ploughs employed in this manner, the land might with great ease be thrown into high ridges, which would allow the whole to drain. Much attention, however, would be required in laying out water-furrows to carry off the water at the surface, and in digging ditches to convey it finally from the estate. Ac-

ording to the present system, this land is brought into cultivation by the hand of man in a very slow manner; whereas, if horses were applied under judicious management, more might be effected in a week, than is done in a whole summer. The expense, also, including the keep of these animals for a year, with the cost of ploughs, and proper buildings to put them under, would in the end be less. I never saw a spot so totally useless, yet so capable of producing a large rent, as the land I examined at this place. I do not, indeed, consider it as very different from a quarter, at least, of that which I observed in Connaught; but having had an opportunity of exploring the depth of the various strata, I have accurately ascertained, that by a proper application of the common knowledge of agriculture, astonishing improvements might be made throughout the whole country.

But least I should have said in this account too much in favour of mountain population, I request the reader to attend to the following, which I copy from Dr. M'Parlan's Survey of Leitrim, and of the truth of which I entertain no doubt: "drive swarms of unfortunate beings to barren skirts, and into the black bogs and mountains, where eventually they must reclaim them or die—it does, no doubt;—but under what circumstances? In these bogs they reluctantly throw up a braal-like hovel, and spiritless and comfortless, unexperienced and untaught, they dig, and work out a half-starved existence, while the wet and filth of the half-open, half-thatched hovel, produce colds, rheumatisms, fevers, &c. Two-thirds of the family obtain the wished-for grave, and the remaining third, squalid, emaciated, and disabled by consumptions and rheumatisms, wander out the remainder of existence in beggary and pain. I speak from facts to which I have been too often a witness."* This is the account given by an Irishman; and can any increase of rent obtained by a landlord be set against such an accumulation of human misery? Irish landlords, read it; and consider it well, before you call colonies of mountain beggars, mountain improvement. No: if mountains can be improved, if rent is to be increased, without contemning the happiness of our species; to effect the one without the other, is ungenerous; but to accomplish both at the same time you must know something of the means, and of those enlightened principles which create them.

In Kerry and Cork, it is evident that climate has a very powerful effect, as a great deal of butter is produced in the mountains; but in Waterford, it occurred to me, that the amelioration of such land is not to be effected by a very great population; and I was confirmed in this opinion when I visited Mr. R. St. George, the great improver in the county of Kilkenny. This gentleman has found that the only means of making this land productive, is to get rid of the people. As his principle was curious, I wrote down the heads of his system; but having found, since my return to England, that an account of his improvements has been given by Mr. Tighe.†

* M'Parlan's Survey of Leitrim, p. 83.

† Survey of Kilkenny, p. 283.

I shall transcribe what he has said, being convinced that I can neither add to it, nor render it better by any alteration I could make. "When old worn-out *cosheers* come into the hands of a good farmer, he will be obliged to fallow in general, to destroy weeds. For the following hints on the mode of reclaiming such grounds, I am indebted to Mr. Robert St. George. "If manure is to be bought in town at a convenient distance, the improvement may be easy and cheap, by ploughing and turning out a sufficient quantity for drill-potatoes, turnips and rape, in broadcast and drill, supposing the land to have been in poor stubbles: other parts in worn-out *cosheers* may be fallowed regularly, and the same course as the former fallowed in the next year; liming with a hundred barrels, and laying all down with wheat and barley; the potatoe land answering well for wheat, the turnip and rape ground for barley and grass seeds, harrowed in with a light harrow and rolled."

"If a worn-out cold clay on a slate, or over strong loamy gravel, is the subject, I would fallow for a year, and destroy all weeds; then lay on from one hundred to two hundred barrels of roach-lime to the acre; plough it in lightly in a month or two after; mix it with the soil with a scuffler, or a harrow, sowing such a crop, of barley, or oats, as the situation of the land points out; or, as the object is to improve and not to exhaust, sow rape with grass seeds and a few pounds of white clover to the acre, feeding sheep on the rape as soon as the grass begins to cover the ground. I would put a layer of putrefied dung on all exhausted land, if possible to be got; as lime will, with its assistance, serve the land much more than without it, particularly on light gravelly soil. If old ditches are to be had, turn them with the spade, and shovel into such form as the plough can fallow them, for a year at least, mixing them with roach-lime and dung (without the latter the old ditches may in general have better stood for shelter); laying out this compost on the new laid down ground, after mowing the first crop, will serve the land much. Much manure may be made on all farms, particularly where the enclosures are small, by cleaning, dykes, and by ploughing the head-lands adjoining the walls and ditches, about twelve feet wide, ploughing the roach-lime thick; and, if convenient, dunging them in some time after, when the lime has been slacked by the clay: in meadows, or corn fields, these may be planted with potatoes, with a line in rows, hoeing them into drills at three feet and a half distance; an easy and profitable mode of fertilizing and mixing the head-lands: in other cases they may be fallowed, and the sheep will like to lie on them; the clay and the lime will assist in keeping their feet from lameness. Cast this out in winter, and slope the head-land to the ditch; the shelter will attract the stock to the head-land, and the plough will carry in more clay, which in time will enrich it again, and the same course may be pursued.

"The following is the system which Mr. St. George has pursued in his farm of Belief. Having taken this land into his hands mostly in a worn-out condition,

except a small part in old ley, his practice has been fallowing a part (not having any manure on entering on the farm, and the land being over-run with couch grass) and laying it down with one crop of corn, barley, and oats, two bushels of rye graas, and ten pounds of red clover to the acre. Other parts in rather better condition, though still very poor cosheers, have been ploughed up evenly, and let out with rye-grass seeds, on one ploughing and harrowing, and are to remain so till it is convenient to put them into a regular course of tillage. This practice pays well for the expense of ploughing and seeds, by feeding a few stock, where before there had been but about one-fourth in quantity of the worst kind of food: a part of the poorest and dirtiest was limed on the surface, then trench-ploughed, to prevent the air from coming at the weeds, the lime putrefying them and converting into manure; then let out with rape and grass seeds to feed sheep. Some head-lands have been limed and dunged, and potatoes planted in drills, the dykes scoured, and the banks of the ditches thrown in, which, when sufficiently rotted, will be turned out on the surface to assist the rye-grass. Some of the old ley ground has been ploughed lightly, or floated, burned, the ashes spread, ploughed and harrowed in for turnips and rape, which, as they are drawn off and eaten, is ploughed deep into ridges of four feet, to remain so for the winter: in March it is scuffled across, and then ploughed into drills of three feet, dunged in the intervals; the drills reversed or split with the horse-hoe, or double mould-board plough; a light roller run over the top lengthways, flattening the tops of the drills, to prepare it for dibbling the cabbage plants: when the plants have taken root, a narrow mould-board plough takes off some clay at each side of the drills, going as near the plants as possible without hurting them: in some time after, as the weeds appear, or the more forward state of the plants require it, the horse-hoe should again be applied to mould them. This practice is pursued four times, or as often as the state of the ground, or appearance of weeds, may demand during the summer. In other parts of the same land borecole, or Scotch kale, have been planted, with the double furrow plough, at two feet and a half between the rows: the furrow being first opened, boys and girls are placed at regular distances to lay down the plants in the furrow, at two feet asunder, which are covered by the plough with the next sod, the boys and girls still proceeding to lay down the plants immediately after the plough; one attending the seed-bed in the same field, to take up the plants, another person conveying them in bundles. This crop has succeeded well, without any manure, hoeing it once, by running the horse-hoe up the centre, to mould each side, being in August. Other parts of the same land have had drilled potatoes, being hoed four times; but he prefers preparing any poor stubble, by ploughing it in the winter, and dunging the drills for potatoes. After these, three crops of turnips, cabbage, and potatoes, the ground is laid down with barley, rye-grass, and clover."

Mr. St. George at first proposed to adopt this course, which would an-

swer well on good ground: first, part oats, part beans or barley; second, potatoes, turnips, cabbage, cde and manured carrots, with dung; third, wheat in the potatoe ground, barley in the rest; all laid down with red clover and rye-grass in April: but finding the land too weak to give good grass after these crops, he prefers burning for turnips and rape, to feed sheep; then dunging for cabbages and drill potatoes; next year sowing turnips in drills with a seed-sowing barrow, tied to the roller in the Northumberland manner; and letting the ground out next season with rape, rye-grass, and clover for sheep, instead of sowing barley; all ameliorating crops. In other fields, where there is not a sod to burn, being clover leys of two or three years old, he ploughs up for oats, and harrows in rye-grass along with them; in some he sows horse-beans and vetches under harrow. The bean and vetch land, as soon as the crop is off, is fallowed for the winter, and let out in April with rape, rye-grass and clover, to feed sheep in summer. This he finds a good method of refreshing light ground, besides making summer-keep for sheep, in soil which otherwise would give very little after two years, when the clover dies, and the land grows husky."

In Wicklow, I found mountain covered with furze and ferns, under which very fine herbage was concealed; and of course, the first operation necessary was to burn these plants. Much might be done in such places by irrigation;* and there can be no doubt, that many parts of the Irish mountains are susceptible of it to a great extent. In this county I visited a spirited improver of mountains, the Rev. Richard Symes, at Ballybeg, near Tinehaly; a tenant, whose exertions do credit to Lord Fitzwilliam's Wicklow farmers. This gentleman has brought sour land into high cultivation, and shaded it with screens of thriving wood; but he resides upon the estate of one of the most liberal of the Irish landlords, whose character and conduct secure to him the renewal of his tenure; for without this confidence I cannot imagine that Mr. Symes would have been justified to his family, in laying out so large a property in reclaiming the estate of another. Such persons are so rare in Ireland, such landlords so seldom to be met with, that whenever they occur, they cannot be too often mentioned, and held up as examples. The placing of stock upon these districts, is a question which will depend much upon the judgment and capital of the occupier. Were I to lay down any general system, I should recommend confining the people to the lower districts of the mountains, and improving the other parts, so as to produce food for the consumption of the inhabitants of their bases.

Mr. Townsend, in his Survey of Cork,† gives a very pleasing account of the improvement of mountain land in that county; and though it is obvious, that better

* Mr. Young has enlarged upon this in a paper inserted in the fortieth volume of the Annals of Agriculture, p. 599.

† Survey of Cork, p. 591.

plans might in many instances be adopted, it must be allowed that Mr. Roche has made very laudable exertions to promote this great object; and that for what he has done, he is entitled to no small praise. In the greater part of the island I observed extensive population, and at the same time, spade culture, the produce of which is potatoes, rising rapidly up the mountains. This system is the means of creating rent; but is rent every thing? I entertain serious doubts in regard to the advantage with which it is attended; and an attentive consideration of the memorandum which I made at French Town, convinces me, that a method much better, both for the landlord and the public, might be adopted. The surveys of the four northern counties of England, Northumberland, Cumberland, Westmoreland, and the North Riding of Yorkshire, by Cully, Bailey, Pringle, and Tuke, should all be consulted by gentlemen who are desirous of improving their mountain estates in Ireland. By these reports, it appears, that wheat will not ripen in our climate at an altitude of 600 feet above the level of the sea;* and grain, of no sort, at 800; but this is a mistake; at Badenach, in Scotland, grain ripens at the height of 1500 feet.† These gentlemen speak of the great benefit which arises from paring and burning, and from not exhausting the land by a succession of corn crops, but letting it return as soon as possible to good herbage.‡ These facts are of great importance to be known in a country, where the principle of every system is to exhaust with potatoes. In the general report on enclosures,§ drawn up by the Board of Agriculture, there are some very valuable remarks upon this subject. Mr. Young wrote a paper upon it,|| which is divided into roads, lime-stone, draining, watering, enclosing, planting, application with mere enclosure, cultivation, paring and burning, liming, tillage, course of crops, arrangement of the farm, &c. &c. Let the minister of Ireland, who wishes to raise the condition of the country, procure leave from its author to print this paper, and generally distribute it; and if people will not read it, unless Parliament had paid a large sum for it, then let him propose a remuneration of £10,000. to the gentleman who wrote it, and it will be found an extraordinary *cheap purchase* for the country; for I do not doubt, if it could be made to attract public attention, that it would produce an annual benefit of many times that sum.**

* Tuke's Survey of the North Riding of Yorkshire, p. 4.

† Rev. James Hall's Travels in Scotland, vol. ii. p. 391.

‡ Confirmed by Mr. Young. *Annals of Agriculture*, vol. xl. p. 595; and by the observations of Waller, an Italian traveller in Switzerland. Vide *Lettere odeporetiche, di Angelo Gualandris*, 8vo. 1780. Venezia.

§ Lond. 1808. p. 24. This report, though printed, was never published: it contains important documents connected with the cultivation of waste lands.

|| *Annals of Agriculture*, vol. xx. p. 353.

** I have been led to make this remark, from a recollection that the Report of the bog commissioners, which has cost the public £10,000. has arrested attention, without establishing a fact, worth placing upon record; whilst the Treatise of Mr. Aiton, which can be purchased for 3s. abounding in most useful information, has fallen stillborn from the press.

DRAINING.—*By under drains* to carry off the water which issues from beneath the soil. I have heard many accounts in Ireland of such means being used, but I am sorry to say, that I never had an opportunity of observing them practised. Mr. Thompson speaks of a method pursued in Meath, which being to me entirely new, I shall give it in his own words: "Some have adopted the expedient of sinking in the bottom of their drain, at certain distances, perhaps, every third perch, a sort of well, of the same breadth as the drain, quite through the stratum of yellow clay, which they fill up with round field stones to the level of the bottom of the drain, and then stone the whole as if no well had been sunk. Through this well the water confined under the yellow clay, finds a vent; and rises to the level of the bottom of the drain, and is then carried off. These wells are found to answer every purpose of draining, as well as if the drain were sunk equally deep throughout the whole length."*

By water furrows, to take off the water which remains at the surface. The manner in which corn is cultivated in beds, and the deep trenches which are dug in forming them, obviates, perhaps, the necessity of making such furrows, which I never saw used but in the county of Meath. The greatest enemy to land is stagnant water; and to get rid of it is a primary object with every experienced farmer; but this part of the agricultural art is little practised, and less understood in Ireland.

IRRIGATION.—The necessity of improving the soil, in order to raise subsistence, not only for man, but for domestic and useful animals, has at all times engaged the attention of agriculturists; and afforded occupation to ingenuity, as well as industry. Among the means devised for this purpose, irrigation seems to claim peculiar notice; and, therefore, we find, that in all warm climates, in particular, where the sun, during the absence of rain, may parch the earth, and burn up the herbage, it has been practised in every age. According to Polyænus, Semiramis, queen of Babylon, was celebrated for the pains she took to have the lands of her extensive dominions fertilized by irrigation.† Montesquieu says, that, "when the Persians were masters of Asia, they permitted those who conveyed spring water to any place which had not before been irrigated, to enjoy the benefit of it for five generations; and as a number of streams have their origin in Mount Taurus, they spared no expense to convey water from it. At present, water, though it is not known whence it comes, is to be found in all their fields and gardens.‡"

In China, the irrigation of lands is reduced to a system, and is considered as a leading principle of agriculture.§ The irrigation, however, in Lombardy, is, per-

* Survey of Meath, p. 267.

† On a column erected to preserve the remembrance of this princess, the following words, among others, were inscribed: Ποταμὸς ἡγάγκασα ζῆν, ὅπου βολοίμι· ἰβυλόμι· δι' ὅπου σοιθίμι. Τῶν ἀκαρπῶν ἰδιὰξαι σπαρῖσθαι· ποταμοῖς αὐτῶν ἰμιζᾶ ἰμοῖς. *Polyæni Stratagem.* lib. viii. c. 26.

‡ *Oeuvres de Montesquieu*, tom. ii. p. 132. For the above facts he quotes the tenth book of Polybius.

§ Lord Macartney's Embassy to China, vol. ii. p. 479.

haps, the greatest exertion of the kind ever made in the world, and certainly the first undertaken in Europe after the decline of the Roman empire. "To convey the water," says Mr. Young, "canals have been constructed in various parts, and by means of sluices, formed in them, refreshing streams can be distributed all over the fields at a certain price, which is paid by those who derive benefit from them. It is sold by the week, the hour, the half hour, and down to a quarter; but it is sometimes also contracted for by quantity. Between Milan and Lodi, the canals are not only more numerous; but are conducted with the greatest attention, skill, and expense. For the most part of the way, there is one canal on each side of the road, and sometimes two cross ones are thrown over these on arches, and pass in trunks of brick or stone. A very considerable one, after passing for several miles by the side of the highway, sinks under it, and two other canals, carried in stone troughs eight feet wide; and at the same place, under a smaller, which is conducted in wood. The variety of directions in which the water is carried, the ease with which it flows in contrary directions; the obstacles which are overcome, are objects of admiration. The expense of these in the twenty miles from Milan to Lodi is immense.—"I cannot but esteem the twenty miles," says Mr. Young, as affording one of the most curious and valuable prospects in the power of a farmer to view. We have seen some undertakings in England that are meritorious; but they sink to nothing in comparison with these great and truly noble works. It is one of the rides which I wish those to take, who think that every thing is to be seen in England."*

In Spain, also, and particularly in Valencia, the currents of large rivers, and the waters of all the smaller streams, are employed for the purposes of irrigation, and to facilitate the conveyance of the water, tunnels are formed through mountains and hills; and aqueducts, draw-wells, and cisterns, are constructed with great labour and expense.

In regard to the mode of irrigation in general, a very strict order and regulation are established. Every parish, every proprietor of an estate, and every farmer, has his day, his hour, and his minute, when the water comes to him; and after the expiration of his time, he is obliged, upon pain of incurring a heavy punishment, to let it flow off again.†

Among the many contrivances for watering the land in this country, the most remarkable are the *pantanos*,‡ or great reservoirs, formed in various places, such as Alicant, Elda, Elche, &c. One of the largest *pantanos* is that of Alicant. It is half a league in circumference, and was originally nothing but a natural ravine, surrounded partly with calcareous rocks, and partly with a lofty elliptical wall. It is in general twenty feet deep, but in many places fifty, and is replenished by a great

* Tour in France, vol. ii. p. 178.

† Fischer's Picture of Valencia, p. 42, 43.

number of rivulets or small streams, conducted thither for the purpose, from the neighbouring mountains.

To make this water useful for irrigation, an aperture has been left in the wall at the foot of the rocks, the flood-gate of which may be placed higher or lower, according to the state of the water. To this aperture the water is conducted by a channel which is hewn out of the rock, and communicates with the pantano. The stream of water obtained in this manner is immediately divided into four canals, and, as usual, employed by means of a number of lateral branches. Each field that receives this water is obliged to pay a considerable contribution, the annual amount of which is estimated at eight thousand piastres.

The pantano, when seen from the neighbouring rocks, exhibits the picturesque appearance of one of the small lakes of Switzerland. Around it, on every side, rise lofty mountains covered with trees and bushes, and its pellucid bosom reflects the azure of the sky, intermingled with the most beautiful green.”*

I have been thus particular in describing these extraordinary works, as they shew that, even under despotic governments, a spirit of enterprise will be often manifested; and that countries, which boast of superior political advantages, may sometimes be equalled, if not surpassed, in undertakings calculated to promote the general good.

“The beneficial effects of water properly used upon land are now universally known; it is supposed that the warmth with which it clothes the earth, is highly useful.”† Such are the words of an eminent philosopher, who lived at a time when science was only in its infancy; but the advantages of irrigation are now so well established by long practice, that no doubt remains on the subject.

I found it practised in the county of Wicklow, but in no manner different from the method common in England. Mr. Gayson, in Tipperary, brought from Gloucestershire an English workman who had irrigated in a masterly manner a few acres of bog.

OCT. 11th, 1808. SHANBALLY, NEAR NENAGH.—Mr. Gayson has irrigated forty acres of bog, and converted it into excellent meadow, with a fall of 4 feet 10 inches in 100 perches. The work was executed under the inspection of a man, whom he brought over for that purpose from Gloucestershire. He kept 77 hoggits on 2¼ of an acre, and reserved one acre of upland for them to lie on. They remained on the land from the 4th of March to the 10th of May; after which it was mowed, and yielded an excellent crop of hay. His sheep were afterwards kept in condition on the fallow. On the 5th of March, five of them gained a premium from the Dublin society.

I was happy to find that Sir Edward O’Brien, in the county of Clare, had not neg-

* Picture of Valencia, p. 89, 91.

† Bacon’s Works, vol. i. p. 213. fol. edit.

lected the opportunity afforded him by this man being in Ireland. I again met with him at Monivæ, the seat of Mr. Trench, in the county of Galway; and I found him to be an intelligent person, who not only reclaimed waste bog, but converted it to most valuable meadow. Of course, I had a great deal of conversation with him on the subject of irrigation in Ireland. His opinion was, that there are immense tracts of country susceptible of improvement by this process, and the fact is, no doubt, incontrovertible. According to Dr. M'Parlan, a great spirit for irrigation prevails in Donegal.* Mr. Stewart, of Stranorlan, in that county, employs an irrigator from Staffordshire, who has effected much;† and in Tyrone Mr. M'Evoy‡ reports a considerable progress in this highly useful branch of rural economy. It has been introduced, also, into Down;§ and Mr. Dubourdieu gives some instances of bog having been treated in this manner with great success.||

The late intelligent Mr. Rennal, of Westmeath, had succeeded in the irrigation of bog, as appears by the following memorandum, which I wrote down on the 12th of August, 1808. The greatest of all his improvements is the draining of twenty acres of bad bog, which he has irrigated, and its produce is surprising. It would let now to the cotters in the neighbourhood for eight guineas per acre, and the after-pasture will still be of considerable value. I could not learn the precise method by which he brought it into this state; all I know is, that immediately after draining he ploughed it up; but no one could inform me what had been sown on it, or what course of crops had been adopted.

I must, however, remark, that all those bogs subjected to irrigation which I saw, were small spots, none of which exceeded fifty acres. In Kilkenny "the system of watering begins to be adopted, though not extensively; above fifty years ago it was practised by the late Sir William Towns, at Woodstock, and was imitated, though on a small scale, by some of his tenants. On some of the hilly grounds in Idagh, and in other places, the farmers occasionally turn streams over the grass, either for meadows or pasture, in winter or spring, which gives them a very green appearance; but it is done slightly, and without skill or system. Several persons have tried the practice in a better manner, and all with success. Mr. C. B. Ponsonby, on his farm in Eske, has about ten acres of water meadow on a slope, to which the stream is conducted, when wanted, by a wooden trough. Mr. Shaw, of Sandpits, near Besborough, watered a field for eight years, and, without any manure, found the produce as good the last year as the first. Miss Doyle, near Graigue, has watered the same land for six years, and mows near four ton of hay an acre from light ground: the low-land meadows in the same district are less profitable; the value of one adjoining, in low ground,

* Survey of Donegal, p. 61.

† M'Evoy's Tyrone, p. 192.

‡ Survey of Tyrone, p. 112.

§ Survey of Down, p. 187.

|| Ibid, p. 189.

near Ullard, was five guineas, and the grass was much later cut. Mr. P. Walsh, of Bellene, has constructed a water-course, from which he has turned the water over some of his ground, though its principal use is to serve his house; this water-course runs for a good way on the top of a bank, which is fifty feet broad at bottom, and eight at top, and seven feet in perpendicular height, and might be applied to watering more ground, by increasing yearly about sixty acres; and has done so these fifteen years. Since he observed the effect which a great flood had in a little stream that runs through the ground, and which takes its rise in a hill, the lower part of which consists of lime-stone, gravel, and marl, he takes advantage of the floods, and by an embankment turns the water into channels furnished with wooden sluices, and spreads it all over his fields. His first mode of stopping the current was, by faggots of furze laid across and pressed down, which soon became filled, and perfectly stanchd with mud. He is going to construct a large wooden sluice where the rivulet enters; but the former method will answer as a temporary one in all muddy streams. He waters for meadow as soon as he can take off his stock, and calculates that it makes three guineas per acre difference; for pastures, he turns the water on in February and March, and observes that it appears to rot the soil beneath the sod, and makes the herbage soft. The grass was remarkably thick on this watered pasture, and the stock it supports in summer is surprising; nor is it injurious to sheep, though it might if watered in autumn. He has had an ewe who lived till nine years old, and died fat, having always had twins, and always fed on this ground. He observes, that when his meadows grow dirty with knap-weed, cow-parsnep, or other perennial weeds, they may be made clean for several years if eaten down very close by sheep. In some parts of England they plough the main water-course, and drag a harrow along it to carry the soil into the channel; it is well sodded and gives a good pattern for constructing water-courses where they are necessary in crossing a valley or hollow. But the hills of this country are so full of springs and streams, that it would be in general very easy to conduct them along the sides of declivities at a trifling expense, and to water most of the lands beneath. In the calcareous districts, however, where watering seems most wanted and would have the greatest effect, streams are more deficient. Mr. W. Barton is the person who has carried this improvement the farthest.* “Water-meadows in Hants, are shut up in November, watered alternately every week till March, feed with ewes for six weeks, water again, and mow twice.”† In Dorsetshire the after-grass is again watered till the beginning of September, and grazed by cows till Christmas.”‡

Near the city of Londonderry, the bishop of that diocese has some very fine water-meadow.§ In Wexford, Mr. Dawson employs irrigation, which is performed as well

* Survey of Kilkenny, p. 368.

† See Hereford Report, p. 19.

‡ See Dorset Report, p. 34.

§ SEP. 13th, 1808. LONDONDERRY.—The land adjoining the town is exceedingly good, and abounds with lime-stone. The water meadows held by the bishop are excellent. One of them produced lately five tons of hay, per Cunningham acre. Some let at £12, and others so low as £8.

as in Wiltshire. Mr. Green of Kilkaye, in Kildare, possesses a great deal of land, improved by watering; but he remarked that his sheep rotted on them if kept beyond May, taking no harm in winter. Mr. Young says that, "there is a circumstance well known, as I suppose, for it is generally asserted, that watered meadows rotting sheep depends absolutely on the soil; the peat ones rot universally in summer and autumn."* All these facts shew that the Irish are well acquainted with the advantages of this practice, which is now fully established in various parts of the kingdom. In a country, which affords so many opportunities of applying this improvement, it may excite some surprise, that it was not adopted at an earlier period; or that it has not been conducted on a more extensive scale, so as to produce meadows equal to the long celebrated meadows of Milan in Lombardy, the existence of which may be traced back to the year 1067, as is mentioned on the authority of Count Guilini by Mr. Young, in his excellent Tour through France. When it is recollected that much of the water in Ireland passes through or over calcareous soils,† there can be no doubt of its good quality, as seems to be fully proved by the state of those meadows which have been already subjected to its influence: another point, of no small importance, is the facility arising from the unevenness of the ground, by which water can be conveyed to fields lying below the different sources that supply it; at the same time covering more land, and the water always running, an attention to which is most important.‡ There are few places where this convenience does not occur, and as the conveyance of the water is thus attended with a less expense, those who neglect to employ it in order to fertilize their grass lands are certainly without excuse: let them remember, that an increased crop of meadow affords an increase of manure for their old ploughed lands, so that the benefit is by no means confined to the increased crops gained upon the land irrigated.

PARING AND BURNING.—There is an act of parliament, which imposes a fine of £10. per acre on any person who follows this process;§ but like many other laws, which attempt to regulate minute operations in themselves not morally bad, very little attention is paid to it, although I observed, in 1811, that the penalties were levied by a great land-owner in the west of Ireland. Paring and burning, I believe, are practised in every part of the county, and upon every kind of soil. In the county of

* *Annals of Agriculture*, vol. xxiii. p. 267.

† Let the reader consult a paper on the quality of water for irrigation, by Mr. Young. *Annals of Agriculture*, vol. xxx. p. 204.

‡ *Ibid.*, vol. xxiii. p. 539.

§ All persons having 100 acres in their occupation (bog, mountain, rocky, craggy lands, meadow and parks excepted) shall plough five acres thereof; and so in proportion for a greater quantity, on pain of forty shillings per acre unploughed.

The tenant is discharged of any covenant to the contrary, but shall not burn the sod without consent of the owner. 1 *Geo. II.* chap. 10. *Lee's Statute Law of Ireland*, p. 316.

Galway, where it is very common, the celebrated Mr. Kirwan has an estate; and as he does not consider that mode of treatment injurious to the soil, he has permitted his tenants to employ it. I was shewn the estate, and at the same time told that it had been much hurt; but as I had never seen it before, I could form no opinion of its comparative state, nor was I able to give any decisive opinion in regard to this practice, as it is a part of farming in which I am totally inexperienced, never having occupied an acre which required it. It is commonly adopted in Clare,* and in Cork, as preparatory to the planting of potatoes.† “Paring and burning, a practice of great antiquity in the south of England, is still in pretty general use, notwithstanding the penalties to which it is subject, and the usual unwillingness of landlords to permit it: considerable quantities of potatoes are raised in this manner, particularly in the coarser or less improved parts of the country, where burning is considered, and justly, as one of the most expeditious and effectual methods of reclaiming waste lands.” As far as I am able to judge from my own observation in various parts of Ireland and in Lincolnshire, it appears to me to be in some cases beneficial,‡ and I would in particular recommend it for all moory soils.

Mr. Tighe also speaks of this custom in Kilkenny, and says: § “Burning is the usual way of bringing ground into tillage; some landlords prohibit it entirely, others pay no attention to it, but several judiciously permit it under restrictions. On Lady Ormond’s estate it is allowed, upon the tenant entering into bail-bond, with a penalty to put out 100 barrels of lime per acre the second year, to take but two crops, and to lay the land down with grass-seeds. Upon Lord Bessborough’s estate it is permitted to burn rough coarse ground, upon the tenants certifying that it was never tilled before, to be proved by the oath of a credible person if required: he must state the exact quantity, and obtain leave before he ploughs or grafts the ground; and the quantity after burning may be ascertained by the landlord’s surveyor, who is to be paid by the tenant. Skinning ground with a hoe, is a kind of trade which expert persons sometimes go about to perform, and earn thirteen pence a day and diet. When the ground is ploughed but once, and the large sods made into great heaps, it is called *great beating*, which ought never to be permitted, as in the burning great part of the carbon, every thing that can be volatilized, is dissipated by the fire; when the ground is cross-ploughed and harrowed, and the sods shaken with a fork, and made into small heaps, it is called *small baiting*: if the fire is kept close and well covered, as in making charcoal, the soil will receive rather improvement than injury; a quantity of carbon is formed as well as vegetable alkali, and little can be dissipated except water, which the land soon recovers. Burning, indeed, adds nothing new to the

* Survey of Clare, p. 35.

† Survey of Cork, p. 196. Either Mr. Townsend, or his printer, must have made a mistake, in inserting England for Ireland.

‡ M’Evoy’s Survey of Tyrone, p. 112.

§ Survey of Kilkenny, p. 450.

ground, but it brings into use all the vegetable food it contained at once; consequently, if successive crops of corn are taken from it, it will be in a few years perfectly exhausted, and may take a great length of time to recover; but the cropping should always be limited, and other manure should be added the second year; dung, if possible. With small baiting, sea-sand, or marl, is generally added in equal quantities. When the penalty for burning was but £5. an acre, some farmers have run the risk of doing it without leave, and sometimes paid the penalty. In boggy, and heathy land, it is the best preparation for tillage, if judiciously done, and the ground put into a proper course; in adhesive and clayey soils it might be very useful; burnt patches generally remain covered with white clover, and wherever a heap of baiting has stood, the crop is always the best."

MANURES.—On this subject I shall confine myself to a practical account of the manures used in Ireland, rather than attempt a scientific description of them; for notwithstanding the numerous works hitherto published by different authors of great eminence,* the practical application of chemistry to agriculture appears yet in its infancy.

Mr. Young considers lime as a manure that forms the food of plants in the soil, and corrects qualities injurious to vegetation:† it is common throughout Ireland; and except in Wicklow, Wexford, and the eastern part of Waterford, as far as the Blackwater, is so easily transported, that it is certainly much more employed as a manure than any other substance; but the use of it perhaps is carried to an excess, and in those parts where it is not found, the carriage is attended with a heavy expense. It is a manure particularly adapted to black peat earth, moory, boggy mountain land, upon which the effect is wonderful.‡ A very good idea may be formed of the quantity used from the subjoined notes which I wrote down in the course of my tour, and by the following extracts from the different County Surveys. Sir Charles Coote|| finds fault with the farmers in Armagh, for putting on lea land a double quantity of lime to what they do on old ploughed lands. But, in my opinion, the Armagh farmers seem to know more on this subject than the Baronet. In old ploughed lands, the lime speedily sinks below the depth to which the plough goes; and by laying on small quantities more frequently, I should imagine that they pursued the right method; whereas on lea, two or three years will be required before the lime can sink to the same depth; for the plough when applied brings it up to the surface, and as much time is again

* Bacon, Boyle, Priestly, Kirwan, Du Hamel, Tillet, Bergman, Lavoisier, Senebier, Ingenhouz, Arthur Young, Hassenfratz, Woodward, Davy, &c.—Kirwan has written an interesting paper on manure, which the reader will find in the *Annals of Agriculture*, vol. xxiii. p. 77.

† *Annals of Agriculture*, vol. xxxiv. p. 68.

‡ *Ibid*, p. 70. *Georgical Essays*, vol. i. p. 46.

|| *Survey of Armagh*, p. 239.

necessary before it can penetrate to the bottom. I have so frequently experienced this to be the case, that I am confident the Armagh farmers are right. Lime is a manure not so beneficial on a calcareous as on an* argillaceous substratum. Mr. Robert St. George, in Kilkenny, confirms this observation from his own experience, and Sir Charles Coote has found that lime in this case is injurious:† Dr. M'Parlan says, it is little used in Donegal,‡ and it appears that it has not yet been introduced as a manure into Tyrone.§

Mr. Tighe is of opinion that lime always loses some of its effect every time it is used; his observations on this subject are too long to be here inserted; but as they come from a man of scientific acquirements, who employs his knowledge for the improvement of agriculture, I cannot help recommending them to general attention.|| According to this author, the burning of limestone into lime had not been in use in Ireland above seventy-six years at the time when he wrote his Survey of the county in 1800. This, however, appears to be a mistake, for Boate, whose Natural History of Ireland was published in 1652, gives an accurate description of the process.¶ In Wexford, I was much surprised to see limestone and culm carried thither at a great expense in order to be burnt; though it is obvious, that the carriage would be easier, and the expense of course less, if the stone were burnt where it is dug up, which is on the western side of the Barrow. Towards the northern part of the county; it is brought from Kilkenny and Carlow in the state of lime, but, according to Mr. Fraser, at an immense expense.** The farmers of Wicklow procure it in nearly the same manner. In Meath, 160 barrels are considered as the quantity necessary for an acre.†† Mr. Rawson, speaking of Kildare, says, "lime is easily obtained, but very little used;‡‡ it has been used on exhausted soils, and has invariably failed; it must have a maiden

* "In the Peak of Derby it does good on gritstone land, but not on limestone soils." *Young's Eastern Tour*, vol. i. p. 214.

† Survey of Armagh, p. 240.

‡ Survey of Donegal, p. 61.

§ Survey of Tyrone, p. 112.

|| Survey of Kilkenny, p. 443.

¶ Boate's Nat. Hist. of Ireland, p. 96.

** Survey of Wexford, p. 97. ————— "The poor people, on the borders of Mount Leinster, have a journey to go for their lime which occupies them two days. With a wretched horse they proceed to the lime-kilns, bringing a barrel of lime at a time; and this journey they repeat forty times, in order to bring forty barrels for manuring an acre of this land."

†† Survey of Meath, p. 286.

‡‡ Limestone, however, in some countries is an article of commerce, for Thaarup says, that large quantities of it used to be shipped every year for Hamburg, at the quarry of Segeberg, in the Duchy of Holstein, which gives constant employment to sixty or seventy men. It belongs to the king, and brings annually about 5677 rix dollars, clear profit. *Thaarup's Versuch einer Statistik der Dänischen Monarchie*. Kopenhagen, 1795, vol. i. p. 193.

unexhausted substance to operate on; by being incorporated with such, it may be used with success in every situation."* This remark accords with the use of chalk in the hundreds of Essex,† which is never repeated, though when first applied it is exceedingly beneficial. "A very old lea, like all the preceding, abounds in vegetable food; and when by means of liming that food is rendered putrescent, mucilage produced, and carried off by cropping, lime cannot afterwards have the same, or perhaps any effect."‡

Limestone Gravel.—This is a common manure, which on account of its weight can never be used at a distance from the place where it is found. Like limestone rock, it pervades the greater part of the kingdom; and as it does not require to be burnt in a kiln, it is always, when it can be procured, preferred to lime. On some land its weight may be beneficial, as it compresses as well as ameliorates the soil; and though it abounds in Donegal, according to the account of Dr. M'Parlan, it is never used in that county.§

Mr. Tighe does not consider this manure as equal to lime; an opinion at which I must confess I am not a little astonished. He says, eighty loads of from 5 to 6 cwt. each, are allowed to an acre.¶ Mr. Rawson, in Kildare, describes it as exceedingly valuable, while he thinks lime to be of little importance.¶

Rotten limestone and calcareous sand are mentioned by Mr. Tighe, as a kind of manure employed in some parts of Ireland.** With what is called rotten limestone I am totally unacquainted; but by the Killenny Report, it appears that calcareous sand is merely limestone gravel, reduced to more minute particles. I have frequently seen it analyzed; and as this is the proper place, I shall here insert Mr. Marshall's process for analyzing all calcareous earths, as it may be of great practical use, and can be generally employed without much trouble or expense:††

"Dry a fair sample of the substance to be proved, pound it, and mix the whole uniformly; put one hundred grains of it into a common four ounce vial, cover them an inch or two deep with clear water, which has been boiled, pour into the vial a small quantity of the marine acid, *pure* spirit of salt; when the effervescence has ceased add more, and continue to add it, until on shaking the vial no farther hissing or fermentation takes place; fill a goblet or large drinking glass lightly with clean straw, giving the surface of this a smooth dishing form, and cover it completely with a piece of common blotting paper (that which is used to dry fresh writing), the precise weight of which has been previously ascertained; pour the liquid parts of the con-

* Survey of Kildare, p. 22.

† Blieth's Improver Improved, p. 133, shews why it may be good for the father, but bad for the son.

‡ Annals of Agriculture, vol. xxxiv. p. 72.

§ M'Parlan's Survey of Donegal, p. 60.

¶ Survey of Kilkenny, p. 443.

¶ Survey of Kildare, p. 92.

** Survey of Kilkenny, p. 443.

†† Marshal on Landed Estates, p. 244.

tents of the vial upon the paper, and when that has passed through it, add pure water to the earthy matter left in the vial; shake it and wash out the whole upon the paper; afterwards, repeatedly washing the gross matter on the filter with warm water, to prevent any part of the calcareous matter or chalk which the original substance contained, and which having united with the acid, has passed off with it in a liquid state through the pores of the paper: if the quantity of chalk or calcareous matter be not equal to one-third of the whole, or thirty-three per cent. the marl is weak; if it be equal to two-thirds it is good marl, and may generally be spread over non-calcareous soils with great profit. There are no other accurate means of ascertaining the strength of marl than those of *solution* and *filtration*; even the marine acid used as a *test*, is fallacious in the extreme. The degree of effervescence which rises from its application as such, depends infinitely more on the combination than on the specific quantities of its component parts. It is, therefore, highly imprudent to enter upon a work of any extent with calcareous fossils, until their qualities, have been accurately ascertained by analysis." I must, however, warn my reader against supposing that aquafortis will infallibly discover limestone; it may in the opinion of the chemist, but when it is entangled in a micaceous bed it will not burn, and the discovery is useless for any practical purpose.* Perhaps by rotten limestone Mr. Tighe means the porous kind which is found near Bath, and in various parts of England.

Marl is of three sorts, calcareous, argillaceous, and siliceous, or sandy; all are mixtures of mild calx or chalk with clay, in such a manner as to fall to pieces by exposure to the atmosphere more or less readily.† Bacon thought it the most valuable of any‡ fossil manures. In Ireland, it is sometimes employed for that purpose, although often neglected through ignorance. Limestone rock, limestone pebbles, and gravel, are easily distinguished; but a calcareous earth in its specific marks are less striking, and is not so readily known. Mr. Dutton gives the name of marl to the slime taken from the bed of the Shannon.§ If this gentleman alludes to the sediment which I saw at Mr. Parker's, at Castle Cor, on the eastern side of the Shannon, it consisted chiefly of shells, under which head I have classed it; but Mr. Dutton speaks also of marl dug up from the earth, and which therefore has a juster title to the name.|| Mr. Tighe says, that from two to three hundred loads of it are used in Kilkenny to an acre;¶ and he places the calcareous shells of the fresh water wilk under the head of marl, in which I think he is wrong also. In Cork, marl is applied in vast quan-

* Annals of Agriculture, vol. xx. p. 359.

† Kirwan's Essay on Manures. *Annals of Agriculture*, vol. xxiii. p. 86.

‡ Bacon's Works, vol. i. p. 212. fol. edit. 1753.

§ Survey of Clare, p. 117.

|| *Ibid*, p. 158.

¶ Survey of Kilkenny, p. 448.

tities, and the effect is proportionable ;* Mr. Dubourdieu says, that in Down marl has been used with great success, but that a repetition of it exhausts the soil.† Marl therefore as well as lime, appears to be endowed with the power of calling forth the productive qualities of land to its destruction ; a fact of which, I think, there can be no doubt, and which certainly evinces the necessity of employing judgment in its use. The Wexford marl is spread over the land in a most liberal manner, and according to Mr. Fraser, with very great advantage ; from a thousand to fourteen hundred car loads being allowed to an acre.‡

Marl is a manure which has long been partially used in Ireland ; Boate speaks of it in 1652, and says, that when put on land in Wexford, for the purpose of improving it, the expense was £3. per acre ;§ but in Connaught, it was employed to prepare the soil for wheat and successive crops of corn.|| The shells of fish which are calcareous, are made use of as a manure in the neighbourhood of rivers ; and it is very remarkable, that they are not confined to arms of the sea. Fish shells, which in form resemble those of a snail, are found in Lough Derg, a fresh water lake, being a part of the river Shannon, the bed of which is 120 feet higher than the level of the sea.

Coral.—At Bantry I learned that calcareous coral is dredged for in the bay, and used with great success as a manure. Mr. Townsend says, “ that the supply of this substance is inexhaustible ; it has long been in the highest esteem as a manure, and the intelligent agriculturist will be fully able to appreciate its merit, when he is told that it is purely calcareous.”¶ This is not a new discovery ; Dr. Smith, in his *Ancient History of Cork*,** says, “ in the Bay of Glangarriff, and towards the north-west parts of Bantry Bay, they dredge up large quantities of a *coral sand*, which is found to be a most excellent manure, and which lasts in the ground above twenty years.”

Sea Sand has long been known as an excellent manure,†† and it is strongly recommended by Bacon ;‡‡ it is employed in various parts of Ireland, and particularly on the coast of Clare. “ It has been used with great effect by Mr. Morony, near Miltown Malbay, and by many others near the sea coast in great quantities : it was not so much valued till one proprietor of the shore charged five shillings for every hundred loads, and another a guinea ; since that time the demand has increased.”§§

Mr. Townsend remarks, that in Cork it is calcareous ;||| and that it is used in great

* Survey of Cork, p. 244.

† Survey of Down, p. 183.

‡ Survey of Wexford, p. 77.

§ Boate's Nat. Hist. of Ireland, p. 102.

¶ There is a paper upon the use of the sea-sand in Cornwall, raised in Whitsand bay, by Edmund Bennet. *Annals of Agriculture*, vol. xii. p. 34.

‡‡ Bacon's Works, vol. i. p. 212. fol. edit. 1773.

||| Survey of Cork, p. 223. Ibid, p. 244.

|| Boate's Nat. Hist. of Ireland, p. 102.

¶ Survey of Cork, p. 398.

** Page 294.

§§ Survey of Clare, p. 159.

abundance, because sea weeds do not seem so proper a manure for the production of corn as sea sand.* This gentleman is of opinion that it “ performs a mechanical operation, in opening and mellowing the soil.”† The same kind of manure is employed also in Donegal.‡ Dr. Smith, in his State of Kerry, relates a curious circumstance respecting the powerful effects of sand upon bog;§ and we are told by Boate, that it was in common use so long ago as the year 1652.|| Dr. Smith says, “ some years ago an odd accident happened to the south-west of this place near the sea, occasioned by the sudden shifting of a large quantity of sand in a violent storm, that spread it all over an adjacent bog, which became soon after a good meadow; and not far from the bog, a small lough was filled up by the sand, which also became good ground.” Mr. Townsend says, “ that in Cork it is most usefully employed in the farm yards instead of straw, for the cattle¶ to lie upon; because, when mixed with the dung, it becomes most excellent manure.”**

River Sand is used in Kilkenny, but Mr. Tighe only mentions that it is raised up from the river below Ross, to which place the tide flows.†† It is similar, therefore, to the sand which I saw taken up for the same purpose from the Suir, and employed in the county of Wexford. Mr. Tighe does not consider it as a lasting manure,‡‡ and thinks its qualities are to those of lime only as one to five; but this is contrary to the observations of Mr. Townsend, on the sand taken from the sea shore of Cork. Mr. Fraser, in the Survey of Wexford, speaks of it in common with sea-sand.§§

Sea-weed has long been considered as a most valuable manure,||| it is used on the south-western and north-western coasts of Ireland;¶¶ on the eastern shore it is thrown up in less abundance. Mr. Dutton says, experiments have been tried to ascertain whether sea-weed, laid on fresh from the sea, is a better manure than when thrown into large heaps to rot before it is used, and the result has been in favour of the fresh weed.***

* “ Sand is principally directed to the corn, the quality of the grain being always highly improved by it.”

† *Ibid*, p. 244.

‡ Survey of Donegal, p. 60.

§ State of Kerry, p. 149.

|| Boate's Nat. Hist. of Ireland, p. 100.

¶ This practice is stated to be pursued in Flanders. *Blieth's Improver Improved*, p. 141. *Hartlib's Legacy*, p. 34. *France Du Hamel's Elements d'Agriculture*, vol. i. p. 198. *Laillevault Recherches sur la Houille d'Engrais*, tom. ii. p. 69.

** Survey of Cork, p. 238.

†† Tighe's Survey of Kilkenny, p. 276.

‡‡ *Ibid*, p. 448.

§§ Survey of Wexford, p. 85.

||| Maxwell's Practical Husbandman, p. 126. Home's Principles of Agriculture and Vegetation, p. 74. Campbell's Political Survey of Great Britain, vol. i. p. 512.

¶¶ Survey of Clare, p. 159.

*** Survey of Clare, p. 159. “ Sea-weed (different varieties of *algæ*) is another valuable manure, of which large

In the county of Cork, it forms a very valuable object of industry to the farmers, and "a prodigious quantity of it is annually cut from the rocks, or gathered in the coves or harbours. This constitutes the main stock of manure for their potatoe crop, the quantity of dung made by the farmers being comparatively inconsiderable. During the winter months, they collect with unceasing diligence, in all accessible places, the weeds which are torn from the rocks by the violence of the southern gales: when the storm subsides, the dissevered weeds float into the coves and strands, some of which are so abundantly provided as to afford a very considerable profit to the proprietors of the ground. A small strand at Donoughmore, between Courtmacshery Bay and Cloghnakilty, lets for £60. per annum, besides supplying the farm. The weeds thus gathered are laid out upon the ground intended for potatoes; and so volatile is their nature, that they soon disappear, leaving for awhile a sort of slime on the surface; when the supply is very copious, the ground sometimes receives a second covering; a proper dressing of these winter weeds is reckoned the best preparation for a potatoe crop. In addition to this supply, a great number of small boats are employed during spring, and the beginning of summer, in procuring the growing weeds; each boat's crew consists of six men, provided with long light poles, furnished at one end with a sharp iron bent into the form of a hook; with these they cut the weeds from the rocks as low as they can reach, and gather them into the boat until it is completely loaded; this kind is called riband, or red weed, of which in other places kelp is made; all kinds are reckoned good, but the potatoes produced from those laid out in early season, are the best for the table. The price of a boat load varies from fourteen to twenty-four shillings, which are its usual limits; four loads are the complement for an acre; the men are paid either by a share of the weeds, or by a stipulated hire, generally one shilling and six-pence per head. The boats are often held in partnership, the proprietors forming part of the crew: the labour of this service is often very severe; they frequently row from Timoleague to the Old Head of Kinsale, a distance of seven or eight miles; spend two or three hours in cutting and gathering the weeds, a fatiguing work, in which they are necessarily wet from head to foot, and return the same length of way without rest or refreshment; the tide, however, materially assists the process, for low water being the time for collecting, they go with the ebb and return with the flood: it also frequently happens, that after arriving at the place of destination, a sudden change of wind disappoints the hopes of the day, for weeds can be procured only in smooth and clear water. This is, notwithstanding, a very favourite as well as neces-

large quantities are used for potatoes, followed by a crop of barley or wheat: it is frequently brought up the Fergus by boats to Ennis, and carried into the country upwards of four miles: it costs about four guineas per acre. The potatoes are usually planted first, and get this first covering; and by degrees, as the weed can be drawn, it is spread over this, and covered by a second spitting and shovelling; when they have the weed in time, they plant the potatoes on it at once."

sary employment, and engages a great number of hands from the first fair weather in spring, to the beginning or even the middle of July. The usual mode of putting out those spring weeds is after the seed has been put in, and before the young plants appear, but it is by no means uncommon to spread them on the beds after the plants have appeared above the first earthing; another part of the practice, the propriety of which is at least doubtful, is suffering the weeds to remain for a long time uncovered; common sense should rather seem to warrant a contrary practice, in the hope of securing all the efficacy of a manure so extremely volatile, but when they happen to disagree, custom is generally an over-match for common sense. I have heard it said by farmers, that when weeds are covered too soon, that is, before they appear quite exhausted, they swell in such a manner as to throw a great part of the earth off the beds into the trenches. I should conceive such an effect to be salutary instead of objectionable, and amply sufficient to repay, by so mellowing a process, the labour of replacing the disturbed earth; in one or two instances of departure from the common mode, I know the result to have been what unbiassed judgment would infer. The old practice, however, is generally followed.**

I have no doubt that the weeds ought to be slightly covered, to prevent the escape of the valuable alkali;† but it seems extraordinary, that a manure so efficacious for potatoes, should not be serviceable for corn.‡ It is used in Donegal,§ and on the coast of Wexford, it serves as a preparative for beans|| and potatoes, ¶ but it is not considered so good a manure as dung.

“Wreck is much used along the coast of Down; it is employed for potatoes and in some cases for grain;”** it is collected also in the county of Dublin, at Hoath.†† The Rev. Mr. Dubourdieu makes the same remark‡‡ as Mr. Townsend, that it forms “manure of short duration:” this quickness of dissolution is the reason of its lasting rarely more than one crop.§§ The Rev. Mr. Sampson remarks, that land in Derry, fertilized by this manure, produced “potatoes which were watery and of no great increase;”||| but, by this account, it would appear that sea-weeds there have a different

* Survey of Cork, p. 238.

† Annals of Agriculture, vol. xxxiii. p. 620.

‡ “The advantage that corn might receive from sea-weed is yet to be discovered; I know no instance of its being tried as a top dressing for any kind of grain: it is always used for the potatoe crop, and I have reason to think, extends little or no influence beyond it; I have found it to produce one good cutting of hay.” *Survey of Cork*, p. 241.

§ Survey of Donegal, p. 60.

|| Frazer’s Survey of Wexford, p. 94.

¶ Ibid. p. 97.

** Survey of Down, p. 184.

†† Dutton’s Observations on the Statistical Survey of the County of Dublin, p. 96.

‡‡ Survey of Down, p. 184.

§§ Annals of Agriculture, vol. xxxiii. p. 620.

||| Survey of Derry, p. 188.

effect from those found in the southern and western parts of the island.* After these accounts, it is surprising that the idea of a vegetable manure should be repugnant to general notions;† but these general notions are much confined to Ireland, in England the contrary has certainly been the received opinion since the days of Bacon.‡

Bog and lime-stone gravel mixed.—In the King's County, Galway, and part of Tipperary, I found great heaps of this compost mixed with stable dung, the common manure of the country; but it was confined to that district. Sir Charles Coote speaks of it in his Survey of Armagh, where, when used as "a surface dressing to meadows of a very light soil, it ensures a very early verdure."§

Fossil Shells.—Fossil shells are found in the barony of Muskery, in the county of Cork,|| and perhaps in many other parts of Ireland. It is a curious circumstance, that all fossil shells differ from marine shells, by having their valve on the contrary side. In England, this may be particularly observed, in the county of Suffolk, where strata of fossil shells may be seen in various places. I have frequently compared them with those on the coast, and invariably found this distinction.

Bog Manure.—Lord Bacon observes, that "the inducing and accelerating of putrefaction, is a subject of very general inquiry, for corruption is a reciprocal to generation, and they two are as natures two terms or boundaries, and the guides to life and death."¶ It is, indeed, a fact too well known to require elucidation, that vegetable substances in a state of putrefaction make the best manure. There can be no doubt that the bogs of Ireland are immense masses of vegetable matter, in a partial state of decay; but the putrefaction is retarded by the insoluble and antiseptic qualities which they possess. The wisdom of the Almighty has given them these qualities for the benefit of mankind; otherwise the putrid effluvia arising from them would destroy animal life, as far as their influence extended. These qualities may be compared to the saline nature of the ocean, which prevents that immense body of water from acquiring putridity; were that the case, the earth might become a desert. Free that water from its salt, and it will be useful to man; free the bogs from their antiseptic qualities, and they will in an incalculable degree increase the manure of the country. But these operations can be beneficial only when done to a certain extent; the attainment of which is a matter of no small importance, and, therefore, every effort should be made to discover the means proper for effecting it.

Bog manure is employed in particular on clayey soil, the cohesiveness of which renders it unproductive, a defect which a mixture with bog overcomes.** In the

* See Survey of Derry, p. 136.

† Survey of Cork, p. 280.

‡ Bacon's Works, vol. i. p. 213.

§ Survey of Armagh, p. 238 and 243.

|| Smith's Survey of Cork, vol. ii. p. 380.

¶ Bacon's Works, vol. i. p. 472.

** Aiton on Bogs, p. 79.

county of Down, Mr. Dubourdieu, speaking of it, says, " This substance is useful in the above quality, both in itself, and when compounded with other materials ; upon this 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 as some mixture of clay should appear along with it, the effect upon the above-mentioned soil will be 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 ; a hundred or a hundred and fifty cart 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 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 able to give it the necessary adhesion."* Lord Dundonald, in his work upon chemistry ; Lord Meadowbank, in the Prize Essays of the Highland Society, p. 143, 144, and 145 ; and Mr. Aiton, in his treatise on moss-earth, have all elaborately dwelt upon the use of bog as a manure. These works should be consulted, particularly the last, which I consider as a valuable and important publication.

Flax-water.—The water in which flax has been immersed, is entirely neglected ; but Mr. Billingsby† mentions it as an excellent manure, and no country in the world, perhaps, affords better opportunities of employing it than Ireland. I made frequent inquiries respecting it, but could never hear of a single instance of its being used. The author of the Survey of Somersetshire says, " It is observable, that land on which rated flax is spread, to prepare it for housing, is greatly improved thereby ; and if it be spread on a coarse sour pasture, the herbage will be totally changed, and the best sorts of grasses will make their appearance. Having myself cultivated flax on a large scale, and observing the almost instantaneous effect produced by the

* Survey of Down, p. 184.

† Survey of Somersetshire, by Billingsby, p. 215.

water in which the flax was immersed, I was induced some years ago to apply it to some pasture land, by means of watering carts, similar to those used near London in watering the roads. The effect was astonishing, and advanced the land in value ten shillings per acre."*

Mr. Aiton says, flax-water will putrefy bog-earth,† which I consider as most important information for Ireland.

Dung and straw manure is universally employed for the purpose of increasing the next potatoe crop.‡ This certainly is a proper application of it, as the land is thus manured when clean, at the commencement of a course.§ In England, manure is applied to fallows, which is the same thing; or if from any accident it cannot be laid upon heavy ground, because the fallows are not finished till the wet season sets in, it is spread over the young clovers after one crop of corn; it is also put upon land in the commencement of the course; and as the seed of all the weeds which may be left in the ground germinates at this time, the weeds are removed by means of the scythe. Hence arises a double benefit, namely, that of forcing their growth, and taking them away with the clover before they have time to come again to seed. Mr. Tighe finds great fault with the manner in which dunghills are managed in Ireland;|| but his observations are applicable also to England; and as a remark made on this subject by my friend Captain Philip Beaver, of the Royal Navy, may be useful, I shall offer no apology for inserting it. To those who know that gentleman, it is needless to say any thing in his praise; but to those unacquainted with him, I shall beg leave to state, that in point of talents, information, and useful acquirements, though he may have equals, he has, in my opinion, very few superiors. I recollect his expressing astonishment at the neglect of some farmers in Essex, where he saw heaps of compost left exposed without any shelter in the hundreds of that county. "In the West Indies," said he, "the planters thatch them with as much care as you do your corn-ricks." Mr. Young mentions a similar practice¶ in France, and has recommended it warmly** in his writings; but whether it be owing to the ease with which fossil manures are obtained, or to the smallness of the quantity which can be made by a petty farmer, this article, so exceedingly useful, is greatly wasted

* Survey of Somersetshire, 3d edit. p. 215.

† Aiton's Treatise on Moss-earth, p. 93.

‡ Survey of Down, p. 177.

§ Vide Mr. Young's Remarks confirming this. *Annals of Agriculture*, vol. xxxix. p. 289.

|| Survey of Kilkenny, p. 437.

¶ "The dunghills are the neatest spectacles I have ever any where seen; the walls of them are twisted bands of straw, close and regular as a beehive, and some are covered at top with leaves and branches of trees, to exclude the sun. Admirable! deserving universal imitation." *Young's Tour in France*, vol. ii. p. 138.

** *Annals of Agriculture*, vol. xxxiii. p. 593. Vide also Sir Hugh Platt's "Jewel House of Art and Nature," p. 33.

throughout the whole of Ireland.* It is not improbable that this defect is to be ascribed to the starved state of the animals on the small tillage occupations, which do not produce a quantity sufficient to deserve care or attention. Besides, it is well known, that dung from animals of this kind is of small value; † such stable muck can be little better than straw and water, and therefore it is treated with so much neglect. In some parts of the country I have seen it flung into the rivers, or the straw burnt; ‡ nothing can more strongly exhibit ignorance of farming. For an excellent farm-yard system, it would be well to consult Wight's *Present State of Husbandry*, vol. vi. p. 435, and *Mem. de L'Acad. des Sciences de Bruxelles*. tom. iii. p. 72.

Turf ashes, which have been found useful in Picardy, § and which in the neighbourhood of bogs may be easily obtained, form an excellent manure, and in Ireland are frequently employed for the potatoe crop. || Mr. M'Evoy says, that they last only one season; ¶ but it ought to be observed, that when the ashes have a white colour they are entirely useless.

Having concluded my observations on the manures chiefly used in Ireland, I shall offer one remark, which is of considerable importance, and which I believe is not generally known, even to professed agriculturists. Manure derived from fossil substances, when applied to land, always sinks down; but that obtained from animal matters, on the contrary, ascends. This difference has been shewn and fully explained in Mr. Young's lecture on the practice of three celebrated farmers; and as it exposes the folly of putting together into one compost, substances which mix with the earth in two different ways, and shews the waste thus needlessly occasioned, it is certainly deserving of general attention. Fossil manure, to be of any benefit, should always be used at the surface, as it gradually sinks down through the crust, which is cultivated, and which will thus receive the whole benefit of its fertilizing properties. But if the same manure be buried in the earth, the soil above derives no benefit; for as it descends, it soon sinks to such a depth that the plough cannot reach it. On the other hand, if animal manure be laid at the top, it quickly evaporates, and no part of it mixes with the soil;

* A Danish writer, in a Prize Essay on agriculture, recommends covering a dunghill with earth, to prevent it from being wasted by the sun and the wind. See *Anvisning til et velindretted Jordbrug af H. J. C. Hoeh. Kiøbenhavn, 1797*. 8vo. p. 366. See also *Annals of Agriculture*, vol. xxxiii. p. 579. *Ellis's Husbandry abridged and methodized*, vol. i. p. 35.

† *Annals of Agriculture*, vol. xxxiii. p. 592.

‡ "What husbandry can there be in Friuli, where they depend on the stalks, &c. of the Turkey wheat for fuel?" *Zanoni dell Agricoltura*. tom. i. p. 250.

§ *Recherches sur le Houille d'Engrais*, par M. de Laillevault, tom. i. p. 105.

|| Sir Charles Coote's Survey of Armagh, p. 238.

¶ M'Evoy's Survey of Tyrone, p. 112.

but if it be placed at as great a depth as possible, it will rise up slowly, and being retained a long time in the earth, will exercise a more beneficial influence over it.

LIME KILNS are a kind of buildings on which much has been written, and various forms of construction have been recommended. At the seat of Mr. Rochfort, at Clogrennan, near Carlow, who burns large quantities of lime for sale, I saw employed the patent head which resembles Count Rumford's digester. It had been just erected, and the accounts I received respecting the effects of it were so various, that no certain result could be drawn from them. To describe the different kinds of lime kilns which I had an opportunity of observing, would be of little use; none of them exhibited any novelty, and, therefore, any thing I could say on this subject would be merely a repetition of what has been already detailed in every county survey.

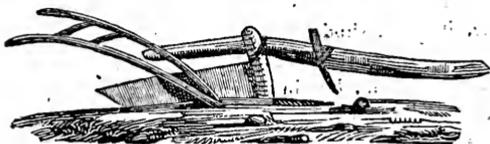
IMPLEMENTS.

The *Irish Plough* is made chiefly of wood, and has a very long beam, without catshead or swillyard. The breast, which is of wood, has seldom any ground, and where there is one, it is not shod. The shock, or share, has hardly any wing, so that the furrow is forced up by the breast of the plough. I saw no difference in the construction of this implement, but in the county of Wexford, where the beam was much shorter. The sock in general is of cast iron. The Scotch plough has been introduced of late years; it is a small swing plough, and a most excellent thing of its kind. The many varieties of English ploughs, the wheels, the turn wrest, the double furrow, &c. &c. are all unknown; and nothing can be a stronger proof of the backward state of husbandry in Ireland, as it is impossible that the same plough can be fit for every kind of land; and it is well known that the different varieties of the English plough were not brought into use by fashion, but were invented through necessity, and adapted to each particular soil in which they are used. Who can suppose that the long Hertfordshire plough, which turns up the flints of that county, could be used in the sands of Norfolk, or that the plough suited to the latter could be employed in the former. But lest it should be imagined that I have here given an incorrect account of ploughing in Ireland, and of the Irish plough, I shall lay before the reader the following description of them by Mr. Tighe: "The defects of the common plough of this country, and of the mode of using it, are very great. 1st, The chirp, or sole, has too long a heel, which makes it awkward in working or turning. 2d, The cross is mortised into the chirp, which renders the machine weak; the cross often parts from the beam or from the sole, or both, when it meets a stone or a root. 3d, The cross, forming almost a right angle with the sole, collects the earth and sods, and impedes the progress, and adds greatly to the weight of the draft. 4th, For want of a side-plate, to prevent its gathering earth, it becomes constantly clogged, the mould often filling the plough at every step, and even passing

through it. 5th, The mould-board being straight, cannot cast off the earth as it ought, nor lay the sod; on the contrary, by its narrowness and position it often throws it on both sides, and the clay which adheres to it must be perpetually scraped off. 6th, The coulter is blunt before, and has not a feather edge to make it act clean. 7th, The consequent increase of labour it requires in the cattle and the ploughman: the latter is necessitated to use all his force to remove the obstructions; for this purpose, he leans sideways, and turns the share upon its edge, by which not above half the soil is fairly turned, the surface of the field being left in this form beneath the sole of the plough.



8th, The weight of the ploughman at one end, combining with the draft from the point of the beam, which is always very low at the other, draws the share continually out of the ground; to prevent this, one man with a great stake, and sometimes two, one at each side, are obliged to keep the plough constantly in the earth.



Common Plough.

“ It is evident that such a machine can never make a clean furrow, nor of equal depth, that is calculated for drilling, sowing lea oats, or ploughing balk, or any sort of neat husbandry; that corn sown by it must be unequally buried, and vegetate at different times, and that the loss of the labour in its management is very great. Add to this, that in the manner it is conducted, by a man always leading the cattle, it is almost impossible for it to plough in a direct line; the man who leads can never go exactly in the sense of the plough, and draws the horses from the straight line, who, on their part, are not directed by having a clean furrow on one side; whereas, if the ploughman guided the cattle, they would be compelled to take a straight direction from him, who is the only person that can be so placed as to be able to guide the plough properly; but as the machine is impelled by two forces which rarely coincide in direction, the furrow is almost always made in a curved line; sometimes the first curvature was made to answer the winding ditch; but more frequently it will be seen to take a bend not corresponding to any fence, and the very fences appear rather to have been formed to suit the tillage; the original ones having been slight and temporary, when they were renewed, they followed the ridges. Often a second curve is formed in a contrary direction in the same ridge, and even a third in a large field; for when the ploughman finds his first error, he endeavours to correct it by a second; and sometimes, when he sees that the ridges have become too much bent, he leaves off in the middle

of a ridge, ending with an angle, and begins in a new one in a better direction. By these means, not only much land is lost, but the furrows, from their crooked shape, no longer answer the purpose of carrying off superficial water, where it is necessary, nor of ventilating the corn by straight alleys. These curved and waved ridges may be seen in every part of the county: they are particularly conspicuous in the hills of Idagh, and parish of Rosbercon; there are, however, some fields well and straightly ploughed in the wheat district.**

Mr. Townsend says, "the common plough of this country is rude in its form, and defective in its execution. The handles are short and thick, the beam low, and bending a little to the right hand. Instead of standing upright, and making a fair and handsome furrow, the coulter and sock are placed so obliquely as to oblige the ploughman to turn it to the left side, in such a manner as to keep the mould-board entirely out of the ground. The office of turning over the sod is, therefore, performed partly by the heel of the plough, and partly by the foot of the man, who is obliged to assist the operation by frequent kicks. Though they remove but a little earth at a time, no part but the sock entering the soil, the draught is rendered difficult by the length of the chain. In ploughing old ground, an additional man is often required to keep the plough in the ground, by leaning on the beam"†

I have seen ploughs in Ireland made of oak, ash, and even alder; and after Mr. Tighe's description, it is needless to say any thing further respecting an Irish plough.

Flail. This implement is in a ruder state, if possible, than even the plough; it is seldom heavier than a school-boy's whip, and is made of any kind of wood that can be procured with most ease. The swingle, however, as is well known to every farmer, ought to be of blackthorn, and to weigh at least seven pounds.

Spade. The handle of the Irish spade is generally five feet long, but it is much narrower than the same implement in England. According to the account given by Mr. Tighe, of that used in Kilkenny,‡ there seem to be various kinds; for the one he describes is different from any I ever observed. "The spade," says he, "is three feet eight or ten inches in length; the handle is curved about three or four inches out of the direct line: it is connected with the iron part by a piece of wood, forming the step on the right side, with an upright part spliced to the handle, and fastened by two iron hoops; below it fits into the iron, which is at the top almost closed round it. The iron is about fifteen inches long, and bent in a direction contrary to the handle; it is narrower towards the upper part, about five and a half inches; the iron sometimes differs, in being a few inches longer: it is not a bad instrument for digging up stony ground."

Shovel. The shovel has a handle of greater length than the spade, and in

* Survey of Kilkenny, p. 293. † Survey of Cork, p. 191. ‡ Survey of Kilkenny, p. 302.

its form resembles those used in Normandy. It bears no similitude to the English shovel, as will be seen by the following description:* “The shovel is usually rounded, but varies, in having a point rather sharp; and it is often made square at the end, especially in the northern part of the county; the square shovel is often used for earthing potatoes and trenching corn, for which it is particularly well adapted. The weight of iron in a spade is four and a half pounds, and one-fourth of steel; in a shovel, about four pounds. This round shovel is, I believe, of the same kind as that sent from Bristol to the West Indies.

Loy. This is an implement very much resembling a tool employed by the land-drainers in England. It is a long narrow spade, which projects entirely on the right side of the handle, and is just as wide as the breadth of the foot. The handle is of the same length as that affixed to the spade. Dr. M^r Parlan, in his Survey of Leitrim,† says, “the *loy* is a sort of spade of uncommon shape, having room only for the right foot to work on, about four inches broad at the lower end, tapering to a breadth of five or six inches, to where the foot commences, which is a distance of about eighteen inches from the lower extremity, with a handle about five feet long. The part of it called the handle or haft, is fashioned from solid wood, which slips into an iron socket, edged and fitted to the timber, in a strong and permanent, though simple manner.” Some persons, who have more strength in the left than the right leg, cause the rest to be made on the left side of the *loy*, and an implement of this kind is called “a left-handed *loy*.”

The *Harrow* is common in most parts of the country, and is made in all forms and shapes. A large heavy harrow, such as that called in England a crab-harrow, I never saw in Ireland, though it would be exceedingly useful in working the fallows.

Grape, is a name given to a three-pronged fork, but the handle is made after the Norman, and not the English manner: it is at least five feet in length. Implements of the same kind I have seen in Devonshire.

A *Pitchfork*, for the most part, consists of two spikes stuck into a handle. The fork is not so large as in England, and on account of the small space between the tines, is incapable of raising up many pounds weight of hay at a time. I had no idea that a worse fork could be constructed, till I read Mr. Tighe's account of Kilkenny,‡ where I learned that the prongs are made sometimes of wood.

Slane, is a sort of double *loy* generally used in cutting turf.

Steeen, is a dibble shod with iron, and of a large size, the handle being four feet long. The stem, which is three inches in diameter, is shod to the length of eighteen inches: and a piece of iron like a step, projecting at one side, serves as a rest for the foot, by which means it is forced into the ground in order to form holes for planting potatoes.§

* Tighe's Survey of Kilkenny, p. 302.

‡ Survey of Kilkenny, p. 305.

† Page 39.

§ Survey of Leitrim, p. 31.

Scythe. The blade of this implement is placed in such a manner as to form a very acute angle with the handle; and hence, the person who uses it is obliged to stand almost in a double posture. To the Irish, however, this, perhaps, is no great inconvenience, as they boast of a superior strength of back, arising, no doubt, from the nutritive qualities of the potatoe! The blade of their scythe seems to be the same as in England.

A Rake, in hay-making, is seldom used, the hay being generally gathered by the hands. When this implement is seen in Ireland, it appears to be similar in shape to those employed in England; but Mr. Dutton says that "the teeth are so short, that much of the hay is left behind."* I have always seen wooden rakes used; but many gentlemen have iron ones with long teeth, which are drawn by a horse.

Sliding Cars. These cars have no wheels: when drawn, the ends of the shafts, which are shod with iron, glide over the earth, and a wicker basket, called a *creel*, is suspended between them. There is an act of parliament which imposes a fine for using them on the high roads; but they are still to be met with among the poor farmers, and particularly in the mountainous districts. In Cork they are very common.†

Cars are small carts, having the wheel fixed to the axletree, which turns round along with it. The shafts rise to the summit of the horse's back, but reach no farther than to the middle of it, where the back-band, which extends across a pad, is made fast to their extremities. The horse draws by a chain, or rope, one end of which is fastened to the collar, and the other to a staple driven into the lower side of the shafts. Mr. Townsend considers the wheel-car as a very great improvement on the sliding one; and it must, indeed, be allowed, that it shews a most astonishing effort of Irish genius. His account is as follows:‡—"Formerly, hay and corn were brought from the fields on slide-cars, or crooks (*vulgo loadeens*). The latter of these is still used where the passes are very rugged; but the general improvement of the roads, by means of presentments from the grand jury, has introduced the wheeled-car into all the better parts of the county. This implement, as generally used, is of very simple construction. The body consists of little more than a pair of shafts, connected by a few cross bars. These rest upon a wooden axle-tree fixed into the wheels, and turning with them. The wheel not spoked, but solid, is composed of three pieces of ash plank, about three inches thick at the rims. The shafts are supported by a piece of cast-metal, called a bolster, flat on the upper part, and semicircularly hollowed underneath, for the axle to play in. These cars are capable of carrying a very considerable burden, and move with ease in a forward direction; but are difficult to be turned."

Had this gentleman visited the north of Ireland, he would have found the Scotch

* Survey of Clare, p. 66.

† Townsend's Survey of Cork, p. 221.

‡ *Ibid.*, 219.

dray as much superior to the wheeled-car, as the latter is to the sliding one; and that the use of the former is held in as much contempt as the sliding car is in the county of Cork.

Scotch Drays.—Within the last ten years, these carts, with spoked wheels and fixed iron axle-trees, have come into almost general use in the province of Ulster. The shafts, in consequence of the greater height of the wheels, are more on a level with the point of draught; and by this construction a horse is enabled to draw, at least, seven cwt. more than with a common car. These drays are used for bringing the linens from the North, to Dublin, and are now universally employed in the agricultural labours of the country. It is very fortunate for Ireland, that all carriage work is performed by a one horse-power; a method much superior to ours.

By the view here given of the agricultural implements generally used in Ireland, it will be readily seen how deficient this country still is in the construction of articles which contribute so much to improvement in husbandry. A manufactory has lately been established in Dublin, under the sanction of the Farming Society, for making them according to the most approved models; but, I hope, that this institution is on a better footing than the manufactories of many of our agricultural implements in England. I have always found, that the mechanic of the district was best calculated to make them in such a manner as to suit the soil on which they are to be employed; for no one can give directions in regard to the form and shape of any instrument so well as the workman who uses it. When I have seen a fine painted implement as neat as a child's toy, sent down into the country from a fashionable manufactory, I have often thought of the stained quills and ornamented paper sold in the shops, which certainly will not enable a boy to write well, unless he has previously learned the art. Most good writers always prefer pens made by themselves, because they know that form which is best suited to their hand; and the case is the same in farming. A man who knows how to till the soil, wishes to have the tools adapted to his purpose; and, therefore, those constructed on general principles by a London mechanic, seldom answer so well as those which have been made under his own immediate inspection. A Danish writer very judiciously remarks, speaking of ploughs, harrows, and other rural implements, that, "each district and province has them of a different form; some greater or less, and some heavier or lighter, according to the nature of the soil and the prevailing custom of the place. The simpler the construction, it is so much the better, as in case of any accident they may be repaired with the greater ease. And if one wishes to introduce other kinds of agricultural implements than those to which the country people have been accustomed, experiments on a small scale ought first to be made with such novelties, in order to shew that they possess a superiority over the old implements, and to prove that the general use of them will pay for the trouble and expense. For, if a farmer em-

ploys a new article with which he is unacquainted, and against which he entertains a prejudice, one may almost expect the result to be, that he will abuse it, and run it down, and at length abandon it altogether. It will be better, therefore, to convince him, by small trials, that it will be attended with great advantage, or that it will save him both time and labour. If he becomes sensible of the benefit it is likely to produce, it will not be difficult to make him adopt the new, and lay aside the old one.”*

L A B O U R.

The money rate of labour in Ireland will be seen by the table of prices ; but a few observations on this subject are necessary, because the greater part of these returns relate to labour as rated by a settlement of conveniencies, a curious mode of payment, peculiar, I believe, to that country. Considering it, however, as a payment, the most important circumstance connected with it is, that the rate is fixed ; and, therefore, it may be properly called, a maximum upon labour determined by the landlord ; who, to get in his crop, cart his turf, thresh his corn, or accomplish any other work, obliges his tenant to neglect his own occupations, in order that he may perform his labour at a fixed rate of payment, which is always less than what he pays to a person who does not reside under him.† I shall, perhaps, be asked, is not this frequently done with cheerfulness, and at some seasons are not the poor anxious to be employed ? That this in many cases is true, I am ready to admit ; but what does it prove ? It only shews the great extent of servility on the part of the tenant, and of tyranny on the part of the landlord. It is little to the credit of the latter when a tenant has not a sufficiency of employment on the land, which he cultivates on his own account. If he can spare labour, it is a sign of his wretchedness and misery ; and, indeed, tenants of this kind can be considered in no other light than slaves ;‡ little superior in their condition to the peasants in the empire of Russia. Mr. Burke has left upon record a maxim on this subject, which ought never to be forgotten : “ No slave was ever so beneficial to the master as a freeman, who deals with him, on an equal footing, by convention, formed on the rules and principles of contending interests, and compromised advantages.”§

* Samlinger om Agerdyrkning og Landvæsen. Kiobanhavn, 1792. *Andet Hefte*, p. 76.

† Mr. Townsend's Remarks in his Survey of Cork, p. 203, corroborate this fact.

‡ “ But great want of judgment often appears among the Irish, in the distribution, as well as the appreciation of labour. An experienced agriculturist cannot behold, without surprise, a farmer with half a dozen labourers toiling for a fortnight, while his horses are doing nothing, to perform a piece of work, which his plough and harrow could accomplish in a couple of days.” *Townsend's Survey of Cork*, p. 247.

§ The following observation of Pliny is highly worthy of attention : *Coli rura ergastulis pessimum est, et quicquid agitur a desperantibus.* Hist. Nat. Lib. xviii. cap. 6. *Lugd. Bat.* 1669. vol. 2. p. 418.

¶ Burke's Works, vol. iv. p. 269, in his Thoughts and Details on Scarcity.

But that the reader may be enabled to judge what similarity there is in the condition of the peasants in Ireland and those in Russia, I shall give the following extract from an intelligent writer, who has published a very excellent statistical account of the latter empire. Speaking of agriculture, the author says, "the second mean of bringing agriculture to a flourishing state is, the careful and enlightened direction of national industry. For even if we suppose that all the people in a state capable of labour, and not engaged in other occupations equally useful, were employed in cultivating the earth, it does not thence follow that agriculture would be conducted in a more perfect manner. The result of this kind of occupation depends so much on the conduct of the cultivator, the assistance he has, the nature of his implements, the choice he makes in regard to the production which he cultivates, and a hundred other circumstances, that it needs excite no surprise that the effect of his exertions should often be very different. A piece of land cultivated by indigent, inexperienced, and careless peasants, furnished with wretched implements, must yield a far less produce than another of equal extent, possessing the same quality, which is inhabited by an active and industrious people. Nothing, therefore, is of more importance than a judicious management and direction of this most useful of all occupations; to root out inveterate prejudices, to encourage industry, and to promote the acquirement of agricultural knowledge. No where are this management and direction more necessary than in a country where slavery, at least in many cases, checks the spirit of industry; where the farmer feels very little inclination to improve his art; and where, if he discovers any desire of this kind, it must be very difficult for him to acquire the requisite skill and assistance. But before I enter into a farther detail respecting these impediments, it will be necessary to give a short view of the manner in which the Russian estates in general are cultivated :"

"The value of an estate is determined partly by its situation, and the nature of the soil; but chiefly by the number of male peasants who belong to it. When a piece of land is sold, or let, the peasants form the principal object by which its value is calculated;* its natural advantages are at the same time taken into consideration; but

* "The price of a man," says the author in a note, "as may be naturally supposed, is very different, according to his greater or less utility; his physical or acquired properties, and the situation of the place where he is sold. Thus, for example, a young man sells at a greater price than an old one; and a woman, who understands the different kinds of work peculiar to females, or who can dress hair, &c. will bring twice, or even three times as much as another who does not possess the same qualifications. The only uniformity which prevails in this respect is, the commutation in money for a recruit as established by government, which, since 1786, has been throughout the whole empire, 360 rubles. Nay, in many places the boors pay for a fit substitute 700 rubles. Men sometimes will sell for from 100 to 120 rubles, and women for from 25 to 50."

"When estates are sold with the whole population belonging to them, young and old men, women and children, the price in general is more accurately defined, though a good deal depends on the nature and situation of the estate. The imperial loan-bank, when it takes estates in pledge for money lent, estimates each peasant

in common, the extent of an estate is always determined by the number of "souls" belonging to it; under which term are comprehended the male peasants only. The income derived from an estate is in general regulated by these also. Some proprietors divide all their land among their boors or peasants, and exact from them only a certain sum of money, called *obrok*; others, besides the *obrok*, retain in their own hands a portion of land which the peasants are obliged to till by bond-service; a third class require no *obrok*, but divide among their boors as much land as is necessary for their support, and cause them to cultivate the remainder for them without any payment for their labour. Though the manner in which estates are tilled may be referred in general to one of these three methods, yet in actual practice there is a great diversity; as the determination of the *obrok*, bond-service, the proportion between the land assigned to the peasants and what the proprietor retains for his own use, depend entirely on the pleasure of the latter, who, in this respect, is restrained by no laws. A great part of the nobility never reside upon their estates, and, therefore, take no concern in the management of them. Where nothing is demanded but the *obrok*, the presence of the owner is not necessary, because the inhabitants of each village pay their tax, or rent, annually to the elder, or head man, who transmits it to the proprietor; but in the two remaining cases, the estate, in the absence of the owner, is managed by the agents as they are called, or only by *prikaschtoschike*, or overseers, who are selected, for the most part, from the slaves, and are individuals in whom great confidence is reposed."*

In another place, the author says, "this annual impost, called *obrok*, is commonly exacted from each male; and on the crown lands amounts to about three, and on those of the nobility about five rubles per head; in poor districts it is frequently less, but in fertile parts of the empire it is often much more. In the country it is sometimes difficult for the peasants to raise this sum by agriculture and the sale of their produce; in towns, on the other hand, they are certain of earning this and even more, without much trouble or difficulty. Proprietors, therefore, are not displeased when they find their boors have an inclination and opportunity to adopt the latter method; and they readily grant them passes or permission to leave their home in order to seek employment in the towns. Here the peasant, in the course of a short time, becomes fit for almost every station; as domestic, mechanic, artist, or shopkeeper, he always finds employment; and, in many cases, by diligence, economy, and good fortune, he acquires a considerable degree of opulence. In general, in proportion as his gain becomes greater, the income of his owner is increased; and the peasant, who in the

sant at 40 rubles; but in cases of sale, their value is much greater. In the government of St. Petersburg, each individual, according to the nature of the estate, is estimated at from two to three hundred rubles; in other parts of the kingdom, the price is much lower; but scarcely any where less than a hundred." *Storch*, ut supra, vol. ii. note, p. 605.

* Historische Statistisches Gemälde des Russischen Reichs von. H. Storch, vol. ii. p. 372.

country could with difficulty earn his *obrok*, is enabled in town to pay five or even ten times as much, and sometimes to save also a considerable sum for himself. These peasants, indeed, seldom leave their home entirely; but, during their long absence, both population and agriculture sustain a considerable loss.*

Now will any one, who has attentively perused the above account, say that the situation of many of the Irish peasants is much superior to that of the Russian boor? The latter, indeed, is the property of the person on whose estate he resides; but in the first case, provided he pay his *obrok*, he may go where he pleases to procure employment, and what he saves over and above that sum, he may appropriate to whatever purpose he thinks proper. In the other two cases, he is allowed a certain portion of land for the support of himself and family; and in return, he either pays the *obrok* along with personal service, or the latter only; and in this he seems to be exactly on a level with the Irish *slave*,† who is bound by the terms of his lease to cultivate in like manner the land of his *master*. The expressions I have here used may offend some delicate ears; but to call the former, tenant, would be a perversion of terms; to name the latter, landlord, would be a prostitution of language. Can such a system be suffered to remain any longer in a free country? Does it not excite the flush of shame in the cheeks of an Irishman to be told, that the internal economy of Ireland in regard to agriculture, is very little different from that adopted under the most despotic government in Europe? I sincerely trust that what I have here said, and in other parts of this work, will induce those enlightened characters, whose breasts are warmed with the genuine spirit of patriotism, to exert their united influence to banish this evil from among them, and to ameliorate the condition of the peasantry; by which means they would exalt the national character, and be the cause of incalculable benefit to the empire. But I cannot quit this subject without saying a few words more respecting the pernicious effects of personal service, which are thus delineated by the writer already quoted. "By bond-service," says he, "is understood those different kinds of labour which the peasantry are obliged to perform to their proprietor, either gratis, or for a very small remuneration. In a country where, not only the soil, but the peasants themselves are the property of the landholder, the determination of this service depends upon his will alone; and as he does not always perceive, or rather perceives very seldom his real interest, which would tell him to observe moderation, it may be readily conceived that not only the

* Storch, ut supra, vol. ii. p. 361.

† Paley, who had been in Ireland, said, "the lowest class of the Irish afford a proof in point; they are poor, and in point of situation in a state of slavery." *Meadly's Memoirs of the Life of Paley*, Edin. 2nd edit. 1810. p. 379.

And as an Irish authority, the Rt. Hon. Maurice Fitzgerald, knight of Kerry, and member for that county, in May 1810, said in the House of Commons, "he thought the fate of the Irish peasant not superior to that of the negro." *Cobbell's Parliamentary Debates*, vol. xiv. p. 645.

extent, but the nature of this service is, in most cases, exceedingly oppressive to the peasant, because his private occupations must always give way to the work of his master; and, consequently, he is greatly impeded and retarded by the latter in those labours which are necessary for the support of himself and his family. Besides, one may easily see that bond-service being constrained is never performed with that spirit, exertion, and care, which a peasant would display when working entirely on his own account.* Hence a habit of idleness is acquired, which, by length of time, is rendered almost insuperable; and when this evil becomes general, which it cannot fail to do where such a system prevails, agriculture must be neglected; and the introduction of any useful improvement will be rendered, at least difficult, if not impossible.

When in Ireland, I had a good deal of conversation on agricultural subjects, with the irrigator from Gloucestershire, whom I met with at the seat of Mr. Trench, at Monivæ, in the county of Galway, on the 2d of November, 1809. He had worked in Tipperary, and in Clare; having been two years in the habit of hiring labourers, his opinion, of course, on this point, is of more importance. He complained of not being able to procure men to go on with his works: and I shall never forget the account which he gave me on this occasion. It is impossible to repeat it without feeling emotions of pity and indignation: "These poor people," said he, "are glad to get a holiday, in order that they may enjoy a little relaxation from their toil, at a pattern or a fair." On inquiring the reason, his answer was: "Because they are paid only six-pence per day for their labour, and seldom obtain a settlement in less than six months. By the terms of their lease, they are obliged to work as many days as will pay their rent; and, when they have accomplished this, it is difficult to get them at all, for, if they worked at home, their landlords would see them, and order them to their domains; so that they must remain idle or work for their landlords, for the paltry sum of six-pence a day." And is this generally the case?—"Throughout all the West of Ireland, you may rely upon it, Sir." And for what term are they thus bound?—"For their lives, in order to make freeholders of them." Such being the prevailing system in many parts of Ireland, how is it possible that any proper return of the price of labour can be obtained.

On the 13th of November, 1809, having gone to view some mountains in the county of Longford, I staid all night among small farmers, who lived at too great a distance from any domain to be ordered thither to labour. Observing that the hay here was not stacked, and inquiring the reason, the reply was: "We had something else to do." But why did you not hire labourers to assist you?—"In these parts none can be found." The fact is, that hiring or going out to labour is unknown in various districts of Ireland, and even thought disgraceful † The farms are cultivated by the members of the family, the value of whose labour it would be extremely diffi-

* Storch, ut supra, vol. ii. p. 380.

† Weld's Killarney, p. 170.

cult to appreciate. In many places I saw potatoes planted and dug, corn cut, &c. without the least expense to the landlord; and I was exultingly carried to the fields where these labourers were busy, in order, as I was rather hard of belief, that I might have ocular proof of a gentleman's great popularity. I, at first, imagined that those who worked for a gentleman were worse off than those who laboured for a farmer; but I found, on inquiry, that I was mistaken, and that, in general, they are more anxious to be employed by gentlemen than by the petty farmers. I could not, however, comprehend why a gentleman was able to hire a horse and car for 2s. 6d. whilst a farmer was obliged to pay 2s. 8d. $\frac{1}{2}$; but the whole mystery was soon unveiled by a little observation. Human nature, allowing for the modifications of education and custom, is the same in all countries, and in all situations. Self-interest has a prevailing sway in the cottage, as well as in the precincts of the palace. The hope of patronage induces the courtier to offer his services to the prince, and often under the assumed mask of the most disinterested devotion; the same hope among these poor peasants induces them to flatter their landlord, by working for him at an inferior rate of wages; a circumstance which he, perhaps, ascribes to a wrong motive, and vainly considers as a proof of his great popularity, and of the high estimation in which he is held by his tenants.

But, to return to labour: are not these prices an evident proof of the miserable manner in which the people and their animals are fed?—In various parts of the country, but particularly in Meath, I found that children are thought a valuable acquisition, on account of the labour which they can perform when they grow up. A son's enlisting into the army is considered, therefore, as a great misfortune; and, in such cases, it is usual for a father or mother to say: "Only think what he could have earned." Such ideas, in a country where the colour of money is scarcely known among the people, cannot fail of appearing singular, but, as long as their nominal rate of labour exceeds their conveniences, they imagine themselves rich. The *spalpeens*, who emigrate to the eastward, seem to me to be the only persons who carry their labour to a place where they can receive for it a proper compensation in money; and, during the short period of their absence, they acquire the double of what tenants would earn in the same time; but still it is employment at a distance from their own home, and being only for a limited portion of the year, does not, on that account, appear so beneficial. When at Mr. Stewart's, at the Ards, in Donegal, I found that he *paid his labourers in money every Saturday night*. He was the only man in the county, perhaps, who thought of it, and the difference which it produced was undoubtedly striking. I was there in company with Sir William Rowley, his son, and his brother, the Rev. Joshua Rowley; and I remember we were all filled with astonishment long before we got within the walls of his domain, at the appearance of every thing around us; being unable to discover what magical power could effect so speedy, and so uncommon a difference as we observed not only in the looks of the people, but in their habitations,

and whatever else belonged to them. We, however, soon found that the SPELL WAS READY MONEY, and REGULAR WEEKLY PAYMENTS.

I shall now proceed to the opposite side of the kingdom, to the residence of the Rev. Dr. Dudley, in the county of Wexford, where this gentleman may be considered as a new settler on the living to which he was presented; but different from a country squire, with his "army of freeholders." I found Dr. Dudley at Killown, employed in the same manner as I had often seen him at Bradwell, in Essex; giving work to the poor, and encouraging their honest industry. His little farm had the appearance of an ant-hill: payments were made every week in money; people came to work for him from a great distance, in every direction; and I observed, that though a protestant clergyman, surrounded by catholics, he seemed to possess as much popularity in Wexford as he had enjoyed in Essex. But it was not obtained by suffering the people to work for him without payment. He took me out to see his workmen, and I shall not easily forget an expression he made use of on that occasion; it deserves to be recorded, and may afford a useful lesson to those who are too apt to judge from prejudice: "Wakefield, look at these poor fellows, and honestly acknowledge that an Irishman can work; but bear this in mind, that he is paid every Saturday night." Such conduct on the part of an employer is a fair ground for public confidence, and the surest as well as the most honourable means of acquiring popularity. But I am sorry to say, that some of my friends, in this respect, are in a very different situation; for they have the weakness to think, that when the people give them their labour for nothing, it is an infallible sign that they possess their confidence, and that they are popular. Such delusive ideas remind me of some of the arguments employed in support of the slave trade; one of which was, "that the Africans were fond of slavery, and that they were happier in that state than they would be in any other." Arguments like these may suit base and grovelling minds, who are not ashamed to stand up in defence of oppression; but they will be laughed at by men of sense, and thought unworthy of a serious refutation.

But, in giving this account of the manner in which the labour of the poor peasants is paid for in Ireland, it would be ungenerous not to state, that there are numerous exceptions; and I should be extremely sorry, if the observations I have made should be applied to those who do not in the least deserve them. In the view which I have taken of the subject, I allude to the practice in a general manner, and, indeed, it cannot be denied that it is very extensive; but, at the same time, there are many gentlemen in Ireland who are decidedly against it, and who, inspired with patriotic zeal, do every thing in their power for its abolition. They have, therefore, held forth a laudable example, by adopting a very different system; and I sincerely hope that it will make some impression on the minds of country landlords, and induce them to copy so useful a lesson. To name all those respectable persons, who have exerted themselves to obliterate this stain on the national character of their country, would occupy too much room; but I cannot help mentioning a few who have rendered

themselves most conspicuous in endeavouring to remove so odious and intolerable a grievance. Mr. Foster, for many years past, has paid £5000. per annum, in ready money, to his labourers at Collon. Mr. Edgeworth, or one of his sons, the worthy members of a family no less known in England than in Ireland, by the elegance of their taste, and the valuable literary works they have produced, pays ready money every week for labour at Edgeworthstown. Mr. Wynne, at Hazlewood, near Sligo, does the same; and there are many others with whom I am acquainted, who would indignantly spurn at the idea of binding their tenants by any clause in their leases, to work for them at a fixed rate during any number of days in the year: in order, however, to give some idea of the extent of this evil, I have drawn up the following Table from replies received to printed queries, which I distributed in every county of Ireland.

RETURN by the following Persons of the Modes of Payment of Labour in their Neighbourhood.

Divisions.	Places.	Authorities.	Modes of Payment.
ULSTER.			
Antrim - -	Templepatrick -	Rev. W. Gooch -	In money.
	Ballintoy - -	Rev. Mr. Trail -	In money.
	Brookhill, Lisburn -	J. Watson - -	Always paid in money.
Armagh - -	Ardress - - -	George Ensor - -	Labourers of gentlemen are paid in money, those of the country people obtain part money per day, with their diet.
Cavan - - -	Tullyhaw - - -	Thomas Armstrong -	Both in money and conveniences.
Donegal - -	Woodhill, Glenties -	James Nesbit - -	Generally in cash.
		Mr. O'Doonel - -	Both in money and conveniences.
Down - - -	Moyallan, near } Guilford - - - }	T. C. Wakefield - -	In money.
	Dromore - - -	Rev. H. E. Boyd - -	In money.
Fermanagh -	Brookboro - - -	Mr. Brook - - -	As often in money as in conveniences. The bound labourer generally in conveniences, as cows, grass, hay, potatoes, corn, and flax land.
Monaghau -	Castle Elaney - -	Rev. W. Gooch - -	In money.
Londonderry -	Newtown Limavady -	Leslie Alexander -	Both in money and conveniences.
LEINSTER.			
Carlow - - -	Carlow - - - -	Rob. Fishborne - -	In money.
Dublin - - -	Dublin - - - -	Isaac Weld, jun. - -	In money, or with a cottage, or cottage and the grazing of a cow.
	Malahide - - -	Col. Talbot, M. P. -	Both in money and conveniences.
	Barony of Fingal -	George Evans - - -	Generally paid in money.
Kilkenny - -	Near Kilkenny - -	Robert St. George -	Both in money and conveniences.
	Kilkenny - - -	Mr. Robertson - -	In the vicinity of Kilkenny in money. In many parts of the country they hold small lots of land at a low rent, and are bound to work underrated at, perhaps, 6d. in winter, and 8d. in summer.
		* - - - -	Generally by conveniences. In the harvest-time Mr. B. pays in kind.
King's County	Near Birr - - -	Tho. Bernard, M. P. -	Generally by conveniences. In the harvest-time Mr. B. pays in kind.
	Durragh, near Tul- } lamore - - - - }	Richard Herbert - -	Partly money and partly conveniences.
	Cangor Park, near } Roscrea - - - - }	Stepney - - - -	
		William Trench - -	Settled with by land.
		John Green - - -	Labourers paid in money.
Kildare - - -	Kilkaye - - - -	Rev. Dr. Beauafort -	Both money and conveniences.
Louth - - - -	Collon - - - -	Mr. Stratton - - -	The large farmers furnish their labourers with a house, potatoe land, grass for a cow—others pay in cash, or furnish either potatoe land, or cows grass, or, when circumstances permit, paying, as all over the county of Louth, the balance in cash.
	Near Dundalk - -		

Divisions.	Places.	Authorities.	Modes of Payment.
LEINSTER. Longford	Edgeworth's Town -	R. L. Edgeworth -	Settled with by conveniences, except by Mr. Edgeworth, who pays 1s. per day in summer, and 10d. in winter.
Meath - - -	Navan - - - Beaupark - - -	Mr. Thompson Gustavus Lambert	Generally paid in money. The constant men are mostly served with conveniences, such as potatoes, cow's grass, oat and flax land, and so forth. With the farmers, 6d. per day is paid in money, out of which the labourer pays 3s. for which he has a house, half an acre of potatoes, cow winter and summer.
	Causestown - - Athbey - - -	Mr. Grainger William Hopkins	By conveniences and money. Cottagers are usually settled with by conveniences. Such as have potatoe ground, hay and grass.
Queen's County	Abbeleix - - -	Lord De Vesci -	Generally paid in money.
Westmeath - -	Packenham Hall -	Earl of Longford -	Generally paid in money.
Wexford - - -	Enniscorthy - -	Rev. R. Radcliffe -	Both in money and conveniences.
	Newtown Barry Kyle - - -	Rt. Hon. Col. Barry William Harvey	Money. Mostly in money.
Wicklow - - -	Near Arklow	Mr. Graham -	Both in money and conveniences.
MUNSTER. Clare	Barony of Ibrickane	Thomas Morony	Always in money.
Cork - - - -	Carrigoline, Cork Near Clonakilty -	Thomas Neweuham Rev. H. Townsend	Both conveniences and money. Almost every gentleman, as well as substantial farmer, has regular labourers, with whom he settles by conveniences, being furnished by him with a house, ground for potatoes, grass for sheep or cow.
		Rich. Aldworth -	Generally settled with by conveniences of house, potatoes, garden, &c.
	Castle-Martyr -	Earl of Shannon -	Some are paid in money, but the major part are settled with by conveniences.
Kerry - - - -	Carneine, near Killyarney - - - }	Rich. T. Herbert -	Paid in cash.
Limerick - - -	Near Limerick City	James Phelps -	In the city they are generally paid in money; in the county, they have generally a house and garden, the rent of which is stopped out of their wages.
	Bruff - - - -	Charles Creed -	Generally in money, deducting for conveniences.
	Adare - - - -	H. W. Quin, M. P.	Generally now in money.
Tipperary - - -	Shanbally, near Nenagh - - - }	John Gayson -	"As to the conveniences," they get them from their employers. I am sure twenty-pence per day would be cheaper to the farmer, or gentleman, to pay them, for no one who lives out of this county can believe the loss they occasion by their trespass of cattle, fowl, and pigs, both wilful and by neglect. I am now rearing (1st of May, 1811,) barley in potatoe ground; I let some to my workmen at eight pounds an acre last year, which I mean to let out with grass-seeds, and this day I am in a war with them to remove their potatoes out of the holes, which, although growing in a mat, it is with difficulty, and by force, I can get them to remove. I have offered them horses three months to remove them; this may give you some idea of their manners; all along the fields they have made gaps through a new quick hedge, sooner than pass a little round by the gate, and although I have been twenty-five years among them, I know no means of managing them, neither will they lead or drive, nor do I expect to see them in a better situation." This is the account of payment by conveniences by a resident Irish country gentleman.
	Carrick on Suir -	Rev. W. Herbert -	Both by money and conveniences.
Waterford - -	Waterford - - -	Thomas Wallis -	In money.
CONNAUGHT. Galway	Ballydougla, near Longlrea - - }	Michael Burke -	Generally settled by rent, or price of corn acres, meadow, or grass of a cow. Tenants of non-resident landlords work for such persons in their neighbourhood as they are sure will pay them when called on for their rents.
Leitrim - - -	Woodlawn - - -	Lord Ashtown -	Generally balanced half yearly, labour against rent of land.
		R. Davis, procured by O. Wynne, Esq. }	Generally paid in money.
Mayo - - - -	Westport - - -	Mr. Mahon -	In general by conveniences.
Roscommon - -	Castlegar - - -	Mr. Ross Mahon -	Value of labour generally credited in rent, half yearly, by landlords; paid in money about towns daily or weekly.
Sligo - - - -	Hazlewood - - -	Owen Wynne -	Paid in cash.

Some persons, I know, are of opinion, that general observations which imply censure, ought to be avoided, because they may give offence where none is intended, and hurt the feelings of those who are conscious that they do not belong to the class whose conduct is held up to reprobation; but it has always been admitted, that general satire, and general censure, are far more consistent with manly sentiments, than attacks made on individuals: the latter excite discontent, without effecting any good purpose; while the former, where the principles of rectitude are not entirely eradicated, will always make an impression, and be attended with beneficial effects. Some celebrated moralists have been well aware of this truth; they lashed, therefore, the reigning vices and follies of the period in which they lived, in a general manner, and by holding them up to detestation or ridicule in feigned characters, the children of their own lively imagination.

National reflections, when meant as reproach, are illiberal; but when introduced merely for the purpose of correcting faults, or amending errors, they may sometimes accomplish the object in view, where admonition would have no effect. Habit and example reconcile men to many things in life which the voice of justice condemns; and unless abuses become inveterate by time, and sanctioned by custom, be pointed out and branded with that ignominy which they deserve, there can be little hope of their ever being abolished. It is to be observed also, that this hope will be still less, if interest, prejudice, and ignorance, combine to oppose any salutary regulations that may be made for that laudable purpose. I am confident, therefore, that those who consider this subject, will not think that I have said too much, and accord with me in condemning a system so ruinous, and which those who pursue it are ashamed to acknowledge or avow. An intelligent writer has remarked, that "the free circulation of labour is of the greatest importance, as it regards the interest of the virtuous poor, and is, perhaps, the chief barrier against a state of indigence."*

Hitherto I have treated this subject chiefly as it relates to the rate of value affixed to labour; but it is necessary that I should consider it in another point of view, and call the reader's attention to the effect, on quantum of work, produced by manual exertion in Ireland. Labour, examined in this light, presents a very insignificant appearance indeed; but it may be naturally asked, what great object can be expected from men who work with reluctance, and labour without excitement? If half a dozen of labourers, hired in the common way, be placed together in one field, is there any difference made between him who works most and him who works least? And what is the consequence? That which might be expected: they all work at the rate of the slowest. Now let us see what the case is with the cottier, who works only for himself and his family. The necessity for his labour

* Colquhoun upon Indigence, p. 11.

will depend, in a great measure, on the number of those who look up to him for support. If they be many, potatoes are easily planted, and as easily dug from the earth when ripe; his corn-acre oats are as speedily reaped; in gathering his flax he is assisted by his neighbours; and if the hay upon his corn-acre meadow is settled for and carted home by Christmas, very little cause is left for exciting either care or uneasiness. His only anxiety is, that the butter and the pig sold, and the labour given to his landlord, may be equal in value to the payment which he has to make: when satisfied on this head, his mind is at rest; he has no farther wants, and neither he nor his family consider labour as of any importance to their happiness.* A habit of idleness, acquired by the remission of labour during only one period of the year, would unnerve the arms of a good workman in England; it would drive even the man who is naturally temperate and sober, to the ale-house; convert him without fail into a tippler, or sot; and in the sequel, send his starving family to the work-house. In Ireland, the family is supported by the potatoes; but none of the persons who compose it, have the least idea of labouring with efficient force, or of exercising that industry which raises men from the degraded state of poverty, to the enjoyment of those innocent comforts which convert them into a superior order of beings. In pursuing this subject, I must again advert to the Gloucestershire irrigator, whom I have already quoted, and whose account of the Irish labourers, deserves particular notice: "They come," said he, "so late in the morning, sit so long, and talk so much, while eating their potatoes, and are so anxious to leave off, that half-a-crown given for labour among five men in Galway, does not produce so much work as one man would perform for the same money in England."† Well, but you are speaking of hired labourers, how do they work for themselves? "Not in the smallest degree better. How is it possible, that a man who is idle one week, should work well the next."—I am certain, that this man's observations are just, for I have been too often convinced of their truth by experience.

In Ireland, the labour of children is nearly lost: in England, the married workman employs himself in threshing, ditching, or hoeing; and in the course of the hay

* Mr. Townsend remarks, "that a skilful husbandman, on a moderate sized farm, might certainly cultivate half a dozen acres of potatoes, with as little, or perhaps less labour, than is now employed about one." *Survey of Cork*, p. 199.

† No people, I believe, in the world, are equal to the English in labour, provided they be well fed, and well paid. The following anecdote on this subject, was told me by a very intelligent man, who had been a cooper on board of an East Indiaman: The vessel to which he belonged touched at the Cape of Good Hope, in the course of the passage out, along with some other Indiamen, and government being in want of hands to perform coopers work on shore, several coopers were permitted by their captains to engage in that service during the time they should remain at the settlement. But when the Englishmen began to labour, they dispatched their work so much sooner than the Dutch coopers, that the latter, quite ashamed, threw down their tools, and would work no longer, crying out, "Englishmen be *tyvels*!" that is, "Englishmen are devils."

harvest he can find plenty of occupation for his children: to some kinds of work he carries his boy, perhaps, along with him, while the single man is engaged in ploughing, and in performing that part of husbandry-labour which can be executed only by a full grown man. In Ireland, all are married; and except in some parts of Ulster, "hurling" appears to be the chief employment of the children.

In regard to the women in Ireland, they work more like slaves than labourers; I have adverted to this circumstance under the head of Customs and Habits, to which I refer the reader for further observations on the subject.

When the natives of any country read the remarks of travellers who censure bad habits, or hold up to derision ridiculous customs, there is a certain blind partiality in human nature, which induces each individual to refer such observations to his neighbours, and to consider them as having no relation to himself. To apply this to the present case; the great English absentees, the owners of immense tracts of country in Ireland, will, perhaps, say: "but the remarks you have here made, do not affect me; I employ no labourers at a maximum, nor do I expect men to work for me without payment."—No—but what does your agent do? what does the middle-man and his middle-man, the sub-tenant, and the whole tribe of tenants, descending in regular gradation to the cotter, who, perhaps, has his cotter-tenant. Do not all these, without exception, oblige their inferiors to labour at a fixed rate of hire?

It will, no doubt, be thought that I have dwelt upon this subject with a tedious minuteness, which may counteract the effect I intended, by creating disgust; but I am so much convinced of its great importance, that I should not have been satisfied with myself had I passed it over in a slight manner, and without entering fully into the nature of the evils occasioned by the habit to which I allude. I must even remark farther, that the state of the prevailing religion in Ireland, and the manner in which the affairs of the Catholic church are conducted, have a very powerful tendency to diffuse a spirit of idleness among the people;* as the priest depends for an income on the gratuitous donations of his parishioners; and as he has the power of commanding as many holidays as he chooses, this prerogative gives rise to an evil which deserves the most serious consideration, and which I shall notice at more length hereafter. It will suffice for the present to observe, that no money received for work done on a holiday, can be appropriated to the maintenance of a labourer's family; the sole disposal of it belongs to the priest, who frequently on such occasions grants "permission" to his parishioners to work; this is certainly an abuse which calls loudly for the interference of the dignitaries of the catholic hierarchy, who ought to excite, by every possible means, rather than damp the industry of the people.

* Tighe's Survey of Kilkenny, p. 505.

Even in Ulster, which abounds so much with Presbyterians, to whom the above remarks are not generally applicable, the idleness created by the "yeomanry corps," is greater than can well be conceived, but by those who have actually seen it: the lieutenant is sometimes a tenant of the captain, and frequently keeps "a whisky shop," where the men receive their pay, and unless they spend on that intoxicating liquor, a considerable part of what is due to them, they are not considered as "good fellows." A whisper is then spread about, that the captain expects they will "give him a day," to assist him in planting or digging up his potatoes. Such a system of causing people to work without payment, is certainly not to be found, if we except Russia, in any of the civilized countries on the face of the earth.

Since I do not write for the purpose of gratifying any religious sect, or political party, and as I have no desire either to court popularity, or to seek for favour, I attach the same blame to the catholic bishop who permits such causes of idleness to exist in his diocese, as I have done to the landlord who contributes to produce a similar effect by the covenant he enters into with his tenants. I am fully convinced, that the happiness of the people of Ireland depends much more, than is generally supposed, on the catholic clergy being drawn from their obscurity, if I may use the expression, and permitted to act a more enlarged part on the theatre of social life. I am no advocate for the interference of the priesthood of any church, in the legislation or government of a country; a certain line is chalked out for them, and by confining themselves to the duties prescribed by their profession, they might be of essential benefit to the state. But while sectaries are degraded, while their ministers are deprived of that consideration which is necessary to inspire respect, and create esteem, they can have little encouragement to exert themselves for the general good; and they will remain without that influence, which, while it commands attention to advice, always gives an additional, and more energetic force to example. Ireland is peculiarly circumstanced; its situation, notwithstanding what has been done, is still critical; every power which it possesses should now be brought into action; for it is certain, that it will need the united efforts of all men of education, whatever be their creed, to bring it to that state of internal stability which is requisite, before those improvements necessary to ensure public prosperity and individual happiness can be introduced, in such a manner as to render them effectual and permanent.

Another cause which contributes to the idleness of the people in Ireland, is, perhaps, the nature of their food: as I have discussed this subject in speaking on the State of the Poor, I shall here only observe, that being anxious on all occasions not to trust entirely to my own judgment, I sought for every information possible to be obtained on a point so interesting; and I am happy to find, that the opinion above expressed, is in some degree strengthened, if not confirmed by the remarks of a very intelligent writer, who, speaking of the Irish labourers, says: "when working for others, or not closely overlooked, they work in a manner the most languid, and indo-

lent; *their mode of living, perhaps, totally on vegetable food*, produces a general debility, which must have powerful motives to overcome it: their habits disincline them for any species of task-work, though they might gain double by it; and their labour, though nominally cheap, is, in fact, dear from the tedious and slovenly manner in which it is performed.* Hence it appears, that there is a combination of circumstances, all of which tend to create habits of idleness; and on that account, this national evil, like a dangerous malady arising from a complication of disorders, becomes much more difficult to be cured.

WORKING ANIMALS.—Oxen, horses, mules, asses. In the county of Kildare, which contains as large farms as any tillage district of Ireland, oxen are generally employed in the plough; this is frequently the case also in Meath, and among the gentry in most parts of the island. By Lord Shannon, and the Marquis of Thomond, they are used in the same manner as that pursued in various countries on the continent, but particularly in Normandy, Lombardy, and some of the provinces of Spain;† that is to say, they are made to draw by means of a yoke fastened on the forehead at the roots of the horns.

The working of oxen is a subject upon which much has been written; the use of them has been frequently recommended by the gentry in England, and those in Ireland, have in many instances adopted it. But, in my opinion, the English farmers in some parts of the country, have abandoned the use of them nearly in the same ratio, as it has been introduced among their superiors. Where the state of society is such, that it is a matter of indifference to the family, whether it requires one day or two to drag the implement over the same space of ground, it can be of little importance, whether the ill-fed animals to which it is yoked are horses or bullocks. But when agriculture has attained to a certain degree of improvement, a farm becomes somewhat similar to a manufactory; and the labouring animal may be compared to a machine, which the proprietor employs in preference, according as it can perform a greater effect at a less expense than any other. This being, undoubtedly, the case, when I consider the present state of rural economy in this country, I do not hesitate to declare, that I entirely coincide in opinion with the English farmers, who have decided in favour of the horse. I have tried many breeds of oxen, the Sussex, the Hereford, the Devon, the short-horned, and the Staffordshire; I have caused their food to be weighed, and their cost, including the hire of the men who attended them, to be noted down regularly every week; at the same time, I have kept a journal of the work performed by them, and compared both with similar accounts of the expense and labour of horses, and the result upon a trial of seven years has invariably been in favour of the latter. None but those who have actually tried the experiment, can have any idea of the quantity of hay which a working bullock consumes. This is the principal inconve-

* Tighe's Survey of Kilkenny, p. 507.

† Townsend's Travels in Spain.

nience which attends the use of this animal, and is of far more importance than its sloth. Mr. Middleton, in the Survey of Middlesex, has discussed this subject with great ability, and I cannot do better than refer the reader to the observations he has made.* I am well aware, that Mr. Young, in his Tour through France,† has given a contrary opinion, and produced instances from various authorities, of the great power of oxen among the eastern nations, a fact which I am not inclined to dispute; Capt. Tomlinson, of the Royal Navy, assured me, that he has been drawn at Bombay, nine English miles in an hour, by a pair of buffalo heifers; and Barrow relates that cattle are used for riding in the south of Africa.‡ I am, however, considering the advantage, or disadvantage of the Irish and English oxen, the food they consume, the labour they perform, and the attendance they require; and my opinion, after mature reflection, is, that Mr. Young has formed an erroneous conclusion. Oxen are little used in the west of Ireland, three,§ four, or more horses abreast being the common plough-team,|| and frequently made up by neighbours uniting their horses.¶ In Cork, mules are frequently employed,** and oxen very seldom. The same animals are worked in the plough in Kilkenny;‡‡ but Mr. Tighe, says, they are not in such general use as horses, and he makes a very important observation on the difference between oxen and horses, which deserves to be particularly noticed: "Bullocks certainly will not work in proportion to their food, in the same manner as horses, and in the spring of the year, when most wanted, they become weak, nor at any time will they bear such constant labour, nor would it be prudent to use them off the farm upon the hard roads of this country."‡‡ Mr. Billingsly, in the Survey of Somersetshire, a part of England where oxen are as generally used as any where, gives the preference to horses,§§ and yet in a subsequent part of his work, he begins a section by saying, "lessen the number of horses, and encourage the use of oxen;||| for the former he assigns a sufficient cause, but for the latter, not a single reason is adduced.

Mr. Cully has discussed this point in a masterly manner; his opinion is in favour of horses, and I request those who are considering the subject, to turn to his observations, which are superior to any yet published.¶¶

PROPORTION OF WORKING ANIMALS.—In England, the calculation among the best farmers is, six working horses to every hundred acres of tillage. But considering the weakness of animals in Ireland, whether horse, mule, or bullock, I am inclined to think that it is impossible to form an estimate of the same kind for that

* Page 307.

† Vol. ii. p. 159.

‡ Barrow's Travels in Southern Africa, vol. i. p. 193.

§ M^cParlan's Survey of Leitrim, p. 13.

|| M^cParlan's Survey of Mayo, p. 27.

¶ Survey of Clare, p. 149.

** Survey of Cork, p. 219.

‡‡ Tighe's Survey of Kilkenny, p. 309.

‡‡ Survey of Kilkenny, p. 306.

§§ Survey of Somersetshire, 3d edit. 1798, p. 105.

||| Ibid, 306.

¶¶ Survey of Northumberland, p. 160.

country. I often endeavoured to procure information on this head, but was never able to obtain any that was satisfactory.

COUNTY CESS AND PARISH TAXES.—Sir Charles Coote, in the Survey of Armagh,* remarks, that the frequent sub-divisions of land occasion numerous disputes in regard to the payment of those charges; and that the poorest, from their inability to support the expense of litigation, generally pay a greater share than the rest. This impost is a charge which falls upon the occupier, whether owner or leaseholder, and the amount will be found under the head Internal Communication.

TREES AND PLANTING.

It appears beyond a doubt, that a great part of Europe formerly was covered by forests, some of them of immense size. The Hercynian forest in Germany is said to have been of such extent, that persons travelling in it sixty days, had not reached its extremity. Cæsar, who gives this account, states also, that it was nine days' journey in breadth.† The Caledonian forest in Scotland is frequently mentioned by ancient authors, and according to Pliny, formed the boundary in that direction, to the progress made by the Roman arms in Britain.‡ Some remains of this forest, which may serve to give an idea, but an imperfect one, of its extent, are still to be seen. On the south side of Loch Laggan, in the County of Inverness, is the *Coill More*, or Great Wood, which once formed a part of this celebrated forest, and which stretches out to the length of five miles along the side of the loch.§ Another remnant of it is found in the united parishes of Crathy and Braemar, in the county of Aberdeen, which originally was royal property, and known by the name of the Forest of Mar. "This forest," says the Rev. C. McHardy, "with those of the Duke of Athol, and Mr. Farquharson, of Invercauld, in Perthshire, and the Duke of Gordon, in Badenoch and Glenaven, constituted the principal part of the great northern Caledonian Forest. In the deepest mosses or morasses, within the immense range of these extensive forests, there are to be found large logs, or roots of wood, even where a standing tree is not now to be seen; which affords the most incontrovertible evidence that they have formerly been overrun with timber."||

No historical reference is necessary to shew that Ireland also, in former times,

* Page 234.

† De Bello Gall. lib. vi. cap. 25. Oxon. 1780. p. 129. Tacit. Annal. lib. ii. cap. 45. De Morib. Germ. cap. 28, 30. Pliny, speaking of this forest, says: In eadem Septentrionali plaga Hercyniæ silvæ roborum vastitas intacta ævis, et congenita mundo, prope immortalis sorte miracula excedit. Ut alia omittantur fide caritura: constat attoli colles occurrentium inter se radicem repercussu: aut ubi secuta tellus non sit, arcus ad ramas usque, et ipsos inter se rixantes, curvari portarum patentium modo, ut turmas equitum transmittant. *Hist. Nat.* lib. xvi. cap. 2. Lugd. Bat. 1669. vol. ii. p. 223.

‡ Ibid. lib. iv. cap. 16. vol. i. p. 234.

§ Sir J. Sinclair's Stat. Account of Scotland, vol. iii. p. 146.

|| Ibid. vol. xiv. p. 337.

abounded with forests. The following names of places, still retained, all of which seem to be derived from wood of different kinds, are a sufficient proof of this assertion:

IRISH.	IN ENGLISH.
<i>Drunagh</i> - - -	The field of black thorn.
<i>Linas Kiagh</i> - - -	The foot of the white thorn.
<i>Druin na Derragh</i> - - -	The ridge with oak wood.
<i>Altagh derry</i> - - -	The glen with oak wood.
* <i>Chills dara</i> - - -	The wood of oaks.
<i>Nadeer</i> - - -	Of the yew tree.

But were farther evidence required, it might easily be found in many leases still in existence, which contain clauses, obliging the tenant to clear away the trees on the estate,† and this seems to have been the case at a time when there was only a limited demand, consequently a very dull sale for timber. It appears also, that formerly the chief consumption of this article was occasioned by the establishment of forges for the manufacturing of iron. There was likewise a considerable exportation of staves; but these demands were by no means sufficient to waste the whole of the woods, with which extensive tracts of country were covered; and, therefore, I am inclined to suspect that immense forests, being set on fire, were either entirely burnt, or reduced to such a state, that the trunks soon fell to the ground, or were rooted up by the subsequent labour of man. In some places, where the trunks remained exposed to the influence of the air and the weather, they decayed, and may have contributed to the formation of those numerous bogs which are found every where throughout Ireland, not only at the bases of the mountains, but even on their summits.‡

To those who have never seen it attempted, it may appear a matter of no difficulty to destroy a forest by fire, particularly in a dry season. This, however, does not seem to be the case. I have been told by Captain Beaver, of the Royal Navy, that when he first went out as Governor of the Island of Bulama, on the coast of Africa, where it was intended to form a colony; the new settlers usually set fire to the woods during the most intense heats; but though this method was practised week after week, they made so little progress, that they were finally obliged, wherever they wished to clear the land, to grub up the trunks by the roots over many acres.

* From a corruption of this word, the name of Kildare is given to a county.

† “By an order remaining in the council books of the 2d of November, 1654, Commissary General Reynolds was directed to fell and carry away as many trees, which the order says were dangerous shelter for rogues, and obstructed the highway, so as to enlarge the road twenty yards on each side, which was executed accordingly.” *Smith's Nat. Hist. of Waterford*, p. 92. From this it appears that the woods in some parts of Ireland were even then of considerable extent.

‡ Forests in the north of Europe have been lately destroyed in a similar manner. *Acerbi's Travels through Finland*, vol. i. p. 229.

In my opinion, the woods in Ireland have been destroyed nearly in the same manner. Where the trees were too thick to be entirely removed, they were set on fire, and the trunks having remained on the spot, when reduced to a decomposed state, formed bogs, in all of which the roots of trees are still observed, and from most of them, trunks of various sizes are frequently dug up. Mr. M'Evoy, in his Survey of Tyrone, says, "the chief reliance of this county for wood is upon the bog fir, which in many of the bogs is found in great plenty; but in general, the procuring of it is attended with considerable difficulty and expense, from the want of roads and of proper conveniences to raise it. This timber is sometimes sold at 2s. 6d. the cubic foot, for the purposes of loom timber and mill-shafts; but in general it is sold by bulk, and especially bog-oak. Even grained bog-fir is looked upon to be full as good for roofing and lofting to stabling, &c. as foreign fir or pine wood. It makes excellent laths, and when beaten into small filaments, is found to answer for ropes, which are used chiefly as cording to beds; and in damp places, they will last much longer than hempen ones. The usual length for a bed is twenty yards, which are commonly bought for ten-pence. The roots and fragments of the bog-fir are used for this purpose, and the making of these ropes is a kind of trade, with many poor people in the vicinity of bogs."*

In some places little timber of any other kind is to be procured, at least by those persons who have not means sufficient to enable them to purchase foreign deal. In Connaught, the cabins are exceedingly narrow; and I found this to be occasioned by the roofs being constructed of bog-timber, which is seldom so long in that district of country as to permit them to be extended to the proper size. The method employed by the Irish peasants to discover these trees concealed in the bogs, is somewhat curious. "Very early in the morning, before the dew has evaporated, a man with a long sharp spear goes out into the bog, and as the dew never lies on the part over the trees, be they ever so deep, he can ascertain their length, and by thrusting down his spear he easily discovers whether they are sound or rotten; if sound, he marks with a spade the spot where they lie, and at his leisure proceeds to extricate them from their bed."†

It is to be observed, that in places where the timber lies at a great depth, it is difficult to raise it up from its bed, and sometimes I have seen it torn away in pieces. In the deep black bogs of Armagh, this is a common practice; and in many parts of Ireland, the poor people waste a great deal of their time in searching after timber of this kind, which when found does not recompense them for their labour. A man who discovers a large trunk, considers it a prize of no small value; and on the intelligence being spread, half the inhabitants of a town land may be seen running with all their might to the spot, in the hopes of meeting with something similar.‡ But

* Survey of Tyrone, p. 188.

+ Dutton's Survey of Clare, p. 285.

‡ Confirmed by Weld in his description of Killarney, p. 38. †

the practice of digging for timber in this manner, is highly injurious to the bogs; for instead of being regularly cut away, as is the case when peat or turf is dug from them, they become filled with deep holes, which form pools of water, dangerous to the cattle and people who pass near them; and which, if the land be ever reclaimed, will render the surface of it exceedingly uneven.

The black bogs abound with oak timber, the red ones with fir, and in all of them there are yew and holly. An attention to the kind and quantity of timber found in them, will, in my opinion, account for the difference in their appearance, and sufficiently convince an unprejudiced mind that the whole country has been clothed with forests.* But when it was found necessary, as is now the case in America, to clear these away, it was done ignorantly, and by persons who seem to have had little thought respecting the wants of their posterity. One, indeed, cannot help being astonished at their negligence, and that they should have carried their extirpating system to such a length, as to leave the country completely destitute of wood; for I am acquainted with no place in Ireland, which exhibits any of those magnificent trees, the monarchs of the forest, so frequently seen in England, and which when cut down, and converted into ships, become the "rulers of the ocean." Being informed, that at Bellamont forest I should find as fine oaks as any in England, I hastened thither, anxious to see this uncommon sight; but to my great astonishment, instead of a primeval forest, I beheld a gentleman's domain planted with ornamental timber, having some oaks intermixed, few of which in age exceeded a century. They were fine trees of their standing, and I spent the day here in a very agreeable manner; but no part of the satisfaction I enjoyed arose from an idea that there were trees in these plantations fit to form the keel of an Hibernia.† I saw much older timber, and more acres covered with it at Curraghmore, than in any other part of Ireland; but the dimensions of the largest trees were not extraordinary, as may be seen by the following table:

SIX ASH TREES.											
No.		Height of clear stem.				Circumference at the root.				At the top of the clear stem.	
		Feet.	Inches.			Feet.	Inches.			Feet.	Inches.
1	-	17	0	-	-	16	6	-	-	9	0
2	-	14	0	-	-	18	9	-	-	16	6
3	-	15	0	-	-	22	6	-	-	20	4
4	-	15	0	-	-	23	0	-	-	18	0
5	-	13	0	-	-	21	6	-	-	20	3
6	-	13	9	-	-	33	9	-	-	22	6

* Even so late as 1652, according to Boate, there were extensive forests in Donegal, and other counties, where there are none at present. See his *Nat. Hist. of Ireland*, p. 123. "A century has scarcely elapsed, since the whole of it was so thickly covered with wood, that, to use the expression of those from whom I received the account, a squirrel could go from Killarney to Cork, by leaping from bough to bough." *Weld's Killarney*, p. 190.

† A new ship lately built, of 120 guns.

RURAL ECONOMY.—TREES AND PLANTING.

SIX BEECH TREES.

No.	Height of clear stem.		Circumference at the root.		At the top of the clear stem.	
	Feet.	Inches.	Feet.	Inches.	Feet.	Inches.
1	18	0	12	0	6	0
2	14	0	12	10	8	0
3	15	0	13	0	7	6
4	14	0	13	0	8	0
5	20	0	13	6	6	0
6	14	0	16	6	14	0

SIX OAK TREES.

No.	Height of clear stem.		Circumference at the root.		At the top of the clear stem.	
	Feet.	Inches.	Feet.	Inches.	Feet.	Inches.
1	21	6	14	4	11	5
2	27	0	15	4	11	5
3	23	0	17	0	10	0
4	23	9	17	6	10	4
5	23	6	17	6	10	6
6	25	0	21	9	12	0

Mr. Hayes, and various other writers, are of opinion, that as large timber grew formerly in Ireland as in any country whatever;* and the former has taken infinite pains to produce instances of a few trees, or rather the remains of large ones, still in existence. There is no rule without exception; but to speak in general, I am inclined to think, that trees in that country fork, or throw out branches at a less height, and are of a smaller size than in England.

AUG. 30th, 1809. HAZELWOOD.—Mr. Wynne ascribes the forking of trees at so early a period, to the thinness of the soil, the substratum in general being rock; to the prevalence of the westerly winds, and the want of copping, cattle having browsed on the main shoots.

Trees seem to have flourished formerly in parts of Ireland, where not so much even as a bush, is now to be found; and where, on account of the western blasts, none can be reared by the most attentive culture. At Miltown Malbay, on the coast of Clare, I have seen large trees taken up from the bogs, adjoining to which Mr. Morony has found it impossible to keep any tree or shrub alive, the tamarisk excepted, beyond two years; although completely sheltered on every side by a lofty stone wall.

* Practical Treatise on Planting, by Samuel Hayes.

The timber found in bogs seems to be much diminished from its original size, as the outward parts becoming decayed, have been decomposed; so that what now remains is merely the heart of the tree. Their present state, therefore, can be no criterion to enable us to form an opinion in regard to the bulk of the trees which formerly grew in Ireland. Some, however, of a great size, have been discovered; and I saw one in the possession of the Rev. Mr. Grady, of Littleton Glebe, in the county of Tipperary, which originally must have been very large. It was a fir trunk, which lay at the depth of nine feet below the surface, and when dug up measured 52 feet in length, and 22 inches in diameter. It was not perfectly sound; but it possessed a much greater degree of hardness than the same wood generally has, when seasoned in the usual manner.

Mr. Dutton mentions a tree of the same kind which was found "in a bog near Kilrush, and purchased by Mr. Patterson of that town for £14. 9s. 6d. It measured at the thickest end thirty-eight inches in diameter, and at the distance of more than sixty feet from it, thirty-one inches. It consisted of very fine sound timber, and produced to the purchaser upwards of £36. By age, and the action of the atmosphere, it had lost so much of its original bulk, that the part preserved, which was merely the heart, did not contain one half of the original trunk." The same gentleman speaks of another tree of immense size found a few years ago near Mount Callan. He could not ascertain the dimensions; but was informed, that on a cross-cut saw of good length being applied, it was found to be thicker than the saw was long.*

Bog timber may be applied to various purposes, because it has acquired such a degree of hardness, as renders it much more durable and lasting than wood prepared in the usual manner. Whether this hardness be produced by the antiseptic quality of the bog in which it has lain, or arises merely from the timber being the heart of the original trunk, as Mr. Dutton thinks, I will not pretend to determine; but it is certain, that wood of this kind is so hard, that it is with difficulty a saw can make its way through it.

SEPT. 26th, 1809. WOODLAWN.—Passed over a foot bridge made of bog timber, which Lord Ashtown remembers to have seen when he was a boy, and which, therefore, must have been in existence 45 years.

The splinters of this timber make a crackling and agreeable fire; and they are often used by the poor people instead of candles, as kannel coal is in some parts of England.

The different kinds of timber, found in the bogs of Ireland, are confined to oak, fir, yew, holly, sallow, and birch. The name of the new town of Newry, serves to corroborate the opinion of Mr. Dubourdieu, that yew† was formerly the common

* See Dutton's Survey of Clare, p. 284.

† Dr. Smith mentions an extraordinary yew tree growing out from the crevices of the rocks to the north of Dunmanaway, in the county of Cork, the body of which was 17 feet in circumference. *Nat. and Civil Hist. of Cork*, vol. i. p. 264.

wood of the county of Down. The Irish names of places are peculiarly significant; and to a person conversant with the Irish and other northern languages, might afford the means of explaining a great many curious facts relating to the history of the country, as well as to the manners and customs of the inhabitants, which must otherwise remain dark and obscure.

The fir trunks frequently found in these turf-bogs, which, from the texture of the bark, being coarse and rough, seem to belong to the Scotch fir, afford a very curious subject of investigation, as no individuals of that species are now indigenous in the country. On the other hand, I heard but of one instance of ash being found, a circumstance the more remarkable, as that kind of tree is now exceedingly common. Whether this sort of wood has entirely rotted, while the bogs preserved the other kinds which are dug up; or whether the ash be a tree only of modern introduction, might afford matter of dispute. But Mr. Dubourdieu says, that some of the trees now found in the bogs of Down, are not at present the natural wood of the county. "The natural wood of the county consists of oak, ash, alder, hazel, mountain ash, birch, holly, white thorn, and a species of willow, called the grey willow. The fossil wood from the bogs shews, that in former times we had two species, not now found growing naturally, at least in any part of this county, namely, the fir and the yew; of the first, considerable quantities are every year dug up. In some places, the roots only are to be met with; in others, both the roots and the stem. The yew is not so frequent; but sufficiently so to prove, that it was once naturalized, as well as fir. The other fossil trees are the same as those above mentioned; the fir, the oak, and the yew, the only kinds that are in sufficient preservation for use."*

Nov. 9th, 1809. GALWAY. MONEVE.—The intelligent irrigator from Wiltshire informed me, that in cutting ditches through some bogs which he had watered, he found oak, fir, and alder. At Captain Gayson's he once discovered ash, which was sound on the outside; but in the heart entirely rotten.

A great part of the devastation which has rendered wood now so scarce in Ireland, was effected above a century ago by burning the timber into charcoal for manufacturing the iron ore with which the mountains abounded; as appears by the Journals of the Irish House of Commons for the year 1697, where it is stated, that the injury done to the woods of Lord Kenmare in Kerry, amounted to £40,000. and to those of Lord Massey in Cork, to £25,000. Sir William Petty, Boate, and other writers, speak of the forges which existed in 1670; and we learn, that some years after, that is, in 1699, staves were sold for £10. per thousand. Mr. Newenham, in his View of Ireland,† ascribes the destruction of timber in that country, partly to an act passed in England in the eighth year of William III. by which the duties on bar iron, &c. imported from Ireland, were taken off. What would

* Survey of the County of Down, p. 151.

† Page 154.

this writer have said, if the English Parliament had imposed, instead of taken off a duty on Irish produce? This is the first time I ever heard of one country injuring another, by allowing a free importation. But not satisfied with this heavy charge against the English Parliament, Mr. Newenham, almost in the same page, says,—“The English companies too, or English directors, or agents, by whom chiefly the iron business was conducted in Ireland, looking, as usual in similar cases, much more to present than to future gain, declined the expense and inconvenience of seasonably securing to themselves a future supply of timber; in consequence of all which, a scarcity of that requisite article soon ensued.”* Because English companies laid out their money in manufacturing the ore of Ireland into bar iron, they must be accused above a century after, for not having left a reserve of trees, and copped the national plantations to prevent them from becoming exhausted. Had Mr. Newenham paid proper attention to this subject, before he brought such an accusation, he would have seen that it was the Irish land owners, and not the English companies, who ought to have seasonably secured to themselves a future supply of timber, by leaving reserves, and copping their woods. But dissatisfied as much with the conduct of the Irish Parliament, he blames it for “excepting England,” and to make the words more conspicuous, he puts them in italics, from a duty on the exportation of staves. But if an Irish legislature were desirous to encourage the cultivation of trees in Ireland, the same exemption ought to be extended not only to England, but to the whole world; for it is a well known axiom in political economy, that by rendering an article duty-free, the demand will be increased, and of course encouragement will be given to the production of it. As I cannot suppose this gentleman to be unacquainted with a principle so generally admitted, I am apprehensive, that on this occasion, as on some others, he has suffered his prejudice against England to get the better of his judgment, and to lead him into reflections which will not bear to be examined by the test of truth. The names of the English, whom Boate describes as the iron masters, were Blenerhasset, Dunbar, Loftus, and Wadsworth.† Their families would not now, I believe, forego the honour of Irish origin; and yet these were the persons chargeable with the guilt, of which Mr. Newenham speaks.

But, it may here be asked, are the English to blame also for the modern devastation, which has been occasioned in the woods and forests of Ireland? Mr. Hayes accounts for it by saying, “that the Irish entertained a notion, that no shoot from a tree once cut down would ever grow to timber.”—“Few things,” says he, “have been more prejudicial to the landed interest of Ireland, than the absurd opinion adopted about forty years ago with respect to woods, namely, that wherever a wood was *felled*

* Newenham's View of Ireland, p. 16.

† Boate's Natural History of Ireland, edit. 1652. p. 132.

it was useless, if not detrimental, to leave a *single reserve*, and that no shoot from a tree once cut down, could ever grow to *timber*. This ill-founded theory stripped whole countries at once both of their ornament and shelter; whereas a judicious *thinning-fall*, repeated from time to time, would have kept up that appearance of woodland, which we remark in almost every shire of England.”*

But this gentleman does not say any thing respecting the purposes for which the timber was cut down: Lord Enniskillen remembers being told by his father, that a squirrel might have hopped from tree to tree the whole way between Florence-Court and Belturbet, a distance of almost twenty English miles, in which, at present, not so much as a tree is to be seen; and similar circumstances have been related to me, all which seem to prove, that immense woods existed seventy or eighty years ago in places where no other vestiges of them are now to be found but the roots. Mr. Sampson, in his Survey of Derry, says, “I have heard several old people affirm, that in parts, which at present are entirely naked, their fathers have seen the martin jumping from bough to bough, and the woods extended thirty or forty miles in several parts of the country.”†

An account nearly similar is given by Dr. M'Parlan, who says—“Living persons who saw it, told me, that about a hundred years ago, almost the whole country was one continued, undivided forest; I used to hear them say, that from Drumshamba to Drumkerrin, a distance of nine or ten miles, one could travel the whole way from tree to tree by branches.”‡

“It has been handed down by documents and tradition,” says another writer, “that those very rocks which I recommend to be planted, have, at remote periods, been covered with woods; even some old people recollect woods growing where wool only is now produced.”§

Mr. Tighe, also, in his Survey of Kilkenny, remarks, “that in the memory of very old persons, many parts were covered with wood.”||

But whatever may have been the case formerly, timber, speaking generally, is now so exceedingly scarce, that I have travelled many a dreary mile, crossing whole counties, without seeing so much as a bush. By some cause or other, the country has been entirely cleared of wood; and since that time trees have been planted, not on speculation, or with a view to profit; for an opinion has prevailed in Ireland, and I am apprehensive still exists, that the planters of timber seldom reap the benefit of their labour and expense.¶ As the Irish are not in general accustomed to look

* Hayes on Planting, p. 76.

† Survey of Leitrim, p. 72.

‡ Survey of Derry, p. 441.

§ Survey of Clare, p. 269.

|| P. 571.

¶ An act was made 10 William III. sess. 2. c. 12. for planting the number of 200,000 trees, and the kinds of them in all the counties of Ireland during 31 years from 1703, and to be proportioned by the several grand

forward to future advantage, or to extend their view beyond the narrow circle of the present day, whatever trees have been raised in Ireland, were planted within the walls of domains merely for the sake of ornament; and hence the timber of that country is confined to the embellishments around family mansions. "By the man who plants," says Mr. Dubourdieu, "trees are generally considered an embellishment; and embellishments are seldom thought of until there is a comparative degree of ease."* And the author of another Survey remarks, that, "planting has only been attended to as ornamental, and is confined to domains."† Sir Charles Coote also observes, that, "except in the vicinity of gentlemen's seats, very little shelter is to be found."‡ A traveller, therefore, in Ireland, finds timber as he does shrubs and exotic plants, merely as appendages to a gentleman's place of residence; and after leaving a favoured spot of this kind, he at once loses sight of green foliage, so agreeable to the eye, and enters dreary wastes, where there is scarcely a twig sufficient to form a resting place to the birds fatigued with their flight. To so great an extent does this evil exist, that I have seen the remains of those who were gone "to that bourn whence no traveller returns," wrapped up in mats for want of a coffin, and in that state deposited in the earth. To a circumstance of this kind I was myself a witness during the summer of 1809, and Lord Enniskillen informed me, that the same practice is common throughout the county of Cavan.

There are no royal forests, in Ireland, and very little timber to be seen in hedge rows; whatever there is exhibits a stunted appearance, being planted on a bank rising above the level of the ground; so that when the roots have extended to the outside, the growth of the tree ceases. This accords with the observations of Mr.

grand juries, what number each barony was to plant. Persons were to have two-pence at the expiration of their estates for every tree planted.

Another Act was made, 9 Anne, c. 5. for settling the number of trees in each parish; a vestry to be summoned to apportion each person's proportion of them, and time was given to the 25th of March, 1712; forfeitures on former acts were to be discharged, and the act read at assizes and sessions.

By the 8 George I. c. 8. part 14. a tenant for life or years, may sell or carry away with him the third part of any trees by him planted during his term.

By the 5 George II. c. 9. the above tenant may have an equal moiety of such trees.

Such tenants, their executors, &c. shall be paid at the expiration of their term one shilling for every apple and pear tree they shall plant and preserve. *Lee's Statute Law of Ireland*, Dublin, 1734, 4to. p. 344, 345.

I am inclined to think, that more attention was paid to planting in Ireland seventy or eighty years ago than at present. Smith says, that Earl Grandison obtained from the Dublin Society a premium of fifty pounds, for planting out the greatest number of trees, having, between December, 1742, and the 5th of March, 1744, planted 63,480 trees, of oak, ash, chesnut, elm, and beech; which premium his lordship generously gave to the person employed by him in his plantations. *Nat. Hist. of Waterford*, p. 54.

In another place, he says, Mr. Maurice Uniacke obtained, in 1742, a premium, for having planted about his seat the largest quantity of trees that season; being of all kinds, 152,640. *Ibid*, p. 73.

* Survey of Down, p. 150.

† Survey of Armagh, p. 276.

‡ Survey of Cavan, p. 33.

Young, who, in his *Tour through Ireland* says, "The gentlemen in that kingdom are much too apt to think they have got timber, when, in fact, they have nothing but fine large copse wood. A strong proof of this is the great double ditches made thirty or forty years ago, and planted with double rows of trees, which are commonly ash. These, for two reasons, are generally (for the age) not half so good as trees of the same growth in England; one is, many of them were cut when young, and arose from shoots; the other is, their growing out of a high dry bank full of the roots of four rows of white thorn, or apple quick, besides those of the trees themselves. It is a fact, that I never saw a single capital tree growing on these banks. All hedge trees are difficult to preserve, and therefore must have been cut when young. Ash in England growing from a level, are worth in forty years from £2. to £3.; and I know many trees of from fifty to sixty years' growth, that would sell readily at from four to eight pounds; yet the price in Ireland is higher."*

Under the head "fences," I have described the means employed to divide the fields, none of which afford timber, though in England the largest and best trees are produced in hedge-rows.

In consequence of this great scarcity of wood in Ireland, timber sells at a much higher comparative price there than it does in England, and particularly at a stage of its growth highly advantageous to the planter, as no wood has a better sale than poles about twenty years old, which are employed as cabin-rafters. This demand increases progressively with the number of the people, and fortunately for the proprietors of land, will continue to do so, till the country attains to the summit of its population; but it must be attended with this evil, that it will prevent trees from ever acquiring that size which they would do were they suffered to remain standing till the full period of their growth. The axe will be applied to it at the age of twenty years, rather than at that of fifty: and while the proprietor, according to usual custom, prefers present advantage to a superior future benefit; the pleasure of pocketing a little ready money, to any considerations of public utility, or even to that desire, so powerful with some men, of increasing the revenue of an estate for an heir unborn; the merciless hand of the wood-cutter will spread desolation through the rising plantations, and prevent, for years to come, the face of the country from being embellished with

Majestic woods, of every vigorous green,
 Stage above stage, high waving o'er the hills;
 Or to the far horizon wide diffus'd,
 A boundless deep immensity of shade.

Thomson's Summer.

* *Tour in Ireland*, part ii. p. 46.

It is a paltry excuse for not attending to the raising of large timber, to say, that there is no demand for it among the Irish ship-builders.* Whatever trees suited to the purposes of naval architecture might be raised in Ireland, would easily find their way to Plymouth, where they would be employed for the King's service, or to Liverpool and Bristol, where they would readily be purchased for the use of the dock-yards belonging to the merchants. There are, however, some slight differences, in regard to the English and Irish timber markets, which deserve to be mentioned; such as the increased demand in the latter for ash, which is applied to the purpose of making butter-firkins, and which, in those counties where butter is exported, sells at one shilling per cubic foot dearer than it does in others. It is to be observed also, that, as hops are not cultivated in Ireland, there is, of course, no demand for hop-poles; but on the other hand, beech is in great request in the north, where it is employed for making beetling engines, which form a part of the machinery used in the manufacture of linen.

Maple is of great use to turners, &c. but Mr. Dubourdieu says, that "when of a certain size it is doubly valuable for beams to beetle white linen on, before it is made up for market, and also for making the beetles."† Sir Charles Coote remarks, that "this timber exceeds all other for its uses in the beam of the beetling engine in the bleach-mill; as it never splinters, and need not be covered with horse-skin, which even beech requires for this purpose. In so great a manufacturing country it must be ever in high estimation; and a beam, ten feet and a half long, and eighteen inches in diameter, is of treble the value of any timber of the same dimensions."‡

Hazel is sold for making the hoops of the butter-firkins. ||

* The following observations on the scarcity of timber in the Highlands of Scotland are very applicable to Ireland: "In many parts of the Highlands the farmer is often at a loss to find large timber for any price. Most of the natural woods are consumed by iron furnaces, or cut only at the end of nineteen or twenty years. On these occasions, farmers may be served with small timber, though not cheaply; but they must often be at a loss before that period again comes round. Landlords should consider that the inconvenience of the tenants must ultimately light on them, and take measures to remove it as speedily as possible.

"Had the people of the west and north-west Highlands and Isles a sufficiency of timber of their own to construct vessels, by which they would be enabled to avail themselves more of the advantages of their situation, their prosperity for half a century past would have been probably doubled to what it has been. Let us say what we please of our sheep, and of our mountains, it is by the sea that a country consisting of islands and peninsulas, and every where intersected by friths and bays, like the Highlands, must rise to that pitch of prosperity for which nature has destined it. Raise forests for a maritime people, and they will soon convert them into ships, and these ships will create commerce, introduce manufactures, build cities, beautify the country, and raise the value of land and its produce." *Prize Essays of the Highland Society of Scotland*, vol. i. p. 172.

† Dubourdieu's Survey of Down, p. 153.

‡ Survey of Armagh, p. 55.

|| The planting of the hoop-willow has been strongly recommended in Scotland, and I am much inclined to think, that the introduction of it into Ireland might be attended with great advantage. "Willows of all

A modern Latin poet, who has chosen agriculture as the subject of his verse, gives the following advice to his countrymen in regard to the planting of trees :

———Et te si digna futuri
Cura movet, totam nemorum, quæ pauca supersunt,
Antiveni cladem : facilis labor———

Vanierii Præd. Rust. lib. v.

The advice here given is very applicable to the present state of Ireland, and deserves the serious attention of those who may be anxious for the improvement of that country, or desirous to contribute their exertions towards its amelioration. But as a difference of opinion is very often entertained in regard to objects of high importance, and as objections may even be made to planting, I shall endeavour to point out those arguments which might be used either in favour of, or against this improvement in Ireland.

First, The price of timber has been greatly increased since the war with Denmark, which put a stop to the importation of Norway deal.

Second, The act by which the tenant reaps the benefit of his plantations, if he has complied with all its provisions, and registered his trees and copses. If he has done this, he has a right to cut timber for his own benefit during his tenure, and at the expiration of it, the landlord is obliged to pay him what it is worth, or allow him to carry it off.

But I must observe, that in this act there is something which I cannot approve; for I perfectly agree with Mr. Young, that "to oblige a man to buy or sell the property of another at the valuation of a jury is a harsh proceeding;" yet in a country where it is customary to take and to grant leases for 99 years, 61 years, or 31 years, or three lives, the interest of the owner in fee is so distant, that he will not plant, and unless the tenant is secured, he will act in the same manner." Mr. Young says,

kinds may be propagated by cuttings of two years old, though the bottom of one year's growth will do. The Huntingdon willows grow fast, and to a large size; there are trees of it on the western coast of Scotland, of two feet, or more, in diameter.

"The hoop-willow should be especially planted in great quantities in this country, not only for the use of the farmers, but also of the fisheries: it will grow well in mossy ground previously occupied by potatoes in the lazy-bed way. The cuttings should be planted three feet asunder in drills, and one and a half in the rows. When they thrive well, the shoots are, in three years, ready for the market, and frequently sell for £24 the acre." (*Agricult. Report of Ayrshire.*) "A farmer, even upon a short lease, could never turn an acre of his land to better account than by planting it with hoop-willows." *Prize Essays of the Highland Society*, vol. i. p. 206.

The willow appears to be a very profitable kind of wood. It sells well in England for the making of chip bonnets and hats. By the ancients, it seems to have been held in high estimation. Pliny, speaking of it, says, "Nullius quippe tutior est reditus minorisve impendii, aut tempestatum securior. Tertium locum ei in æstimatione ruris Cato attribuit, prioremque quem olivetis quamque frumento aut pratis: nec quia desint alia vincula.—Mirumque contuso ligno alicui majores ad vincula esse vires. Salici tamen præcipua dos." *Hist. Nat.* lib. xvi. cap. 38. *Lug. Bat.* 1669. vol. ii. p. 285, 286.

the act has proved insignificant: I am, however, of a different opinion. Many are the gentlemen's seats which have been ornamented with wood upon tenant interest in various parts of Ireland, and without this act, neither the house would have been built, nor the trees planted; and as wealth becomes diffused, and is distributed into many hands, it will ensure plantation around houses of the middle rank, which otherwise would have remained as they were.*

Third, The Dublin Society having large funds at their disposal, their premiums produce some effect, as the vanity of many individuals is gratified by the honour of receiving them. That this observation is founded in truth may be proved by one circumstance, namely, that many persons who apply for and receive these premiums, after they have been pompously announced to the public as extensive planters, permit their cattle to browse on the shoots of their young plantations, notwithstanding the agreement they must enter into to secure them for ten years.

Fourth, The ease with which land may be prepared for planting in Ireland, by adopting the potatoe system, is a great advantage to real planters who understand the value of timber: were it required to prepare land for planting, as is done in England, the expense of very deep ploughing or digging, and the impossibility of employing the former on the side of a mountain, would be an objection not easily to be surmounted. In Ireland the land might be let for potatoes during one or two years, at six or eight guineas an acre per annum, according to the quality; and by an agreement of this sort, the proprietor would receive back his land ready dug, and perhaps manured. The principal discouragement, however, is the nature of tenures. By referring to the article on church establishments, it will there be seen, that the acres belonging to the different episcopal sees cover an immense extent of country, independently of the other lands belonging to the church. But bishops have been found greater enemies to timber than persons holding only a life-interest; as the bishops live in the hope of being translated to a better see, they frequently sweep away every stick from those lands on which they have no permanent interest.

October 12th, 1808.—BALLYVALLEY, near KILLALOE. To the north of this house is a bare mountain, called Crag, which, within the remembrance of persons now living, was covered with wood, and formed one of the greatest ornaments of the country; but a bishop of Killaloe, named Carr, to whose see it belonged, unmoved by the beauty of sylvan scenes, cut down every stump, in order that he might profit by the devastation.

A similar instance of the destruction of timber is related by Mr. Hayes, in his Treatise on Planting.† “I am sorry to state that I have been eye-witness to the fall

* Mr. Tighe, in his Survey of Kilkenny, p. 573, gives an account of 139,731 registered trees in the county of Kilkenny, on leasehold property.

† Page 91.

of nearly two hundred acres of beautiful and well-growing oak, in a romantic valley, on the see lands of Glendallogh, in the county of Wicklow, *three times* within the space of *twenty-four years*. The produce of each sale, to the several archbishops, never exceeded £100.; and, as I am informed, it amounted once only to £50. or *five shillings* per acre, for a coppice, which, had it only been preserved for the same number of years, though not containing a single reserve of a former growth, would have produced thirty pounds per acre, at the lowest valuation, or *six thousand pounds* in place of *fifty*!"

Great doubts, however, are entertained, whether a life tenant or a beneficed clergyman has a right to clear his estate of wood, in such a manner as to leave nothing for the use of a successor. A general sweep of this kind ought to be considered, perhaps, as a delapidation; and in this light it seems to be viewed by the present Bishop of Clogher; for, when passing through Fermanagh, between Belleisle and Enniskillen, I was astonished at the quantity of ash timber which I saw growing in every direction. The people of the country informed me that "it belonged to the bishop," who suffered no more trees to be cut than were necessary for repairing the houses on the estates annexed to the see.

To me the difficulty of finding workmen sufficiently acquainted with the method of raising and taking care of woods, would be a great discouragement in any proposed scheme of planting, though I never heard this remarked in Ireland. Except boys brought up among the plantations of a very few gentlemen, there are no persons in that country fit to superintend woods. I do not, indeed, mean to say, that there are only three or four planters in Ireland; but before many persons can be bred up in the knowledge which is requisite to qualify them for the management of woods, a very considerable extent of plantations must be in the hands of one proprietor, and that proprietor must be a man of sound judgment, skill, and experience. Plantations are left, in general, to the direction of farming stewards, who know less of them than they do of farming, or to "wood-rangers," the idlest and most drunken vagabonds in the kingdom.

It is often remarked, as an objection against planting, that the poor cut down the timber as fast as it attains to any size; but this is an excuse which an industrious or zealous planter would be ashamed to mention, and I have been convinced, when I heard it, that those who offered it, were their neighbours ever so honest, would not give themselves the trouble to plant a single twig. The Irish parliament passed an act which subjected to a penalty of forty shillings every poor man in whose possession a stick was found, if he could not account for the manner in which he obtained it; thus rendering it necessary that a twig should neither be cut nor purchased without a sufficient witness, and without noting down both the time and the place, and every other circumstance attending it. This absurd law, which has not proved the means of saving a single tree, serves only to shew, that folly

is often combined with oppression; for acts, the object of which is to give the rich an unfair advantage over the poor, become useless through their severity, as they cannot, without danger, be put in execution; and betray the greatest weakness in their framers, as they shew what they intended to do, rather than what they have it in their power to accomplish.*

Evergreens in Ireland, to whatever cause it may be owing, attain to a very unusual size: at Ballyarthur, at the seat of Lord Arran in Wexford, and many other places, the laurel grows to be as large as a timber-tree. The bulk of the holly, at Killarney and Glangarriff, is really astonishing; and the case is the same with the yews at Lough Erne. The arbutus abounds at Killarney and in Wicklow, and throws out its foliage in the most luxuriant manner. Mr. Hayes says: "the shrub which I hold to be the most singular in this or any other kingdom, is the celebrated arbutus at Mount Kennedy, the charming seat of our present commander in chief,† already noticed by Mr. Fortescue, in his Hints on Planting, and by Mr. Young, in his Tour through Ireland. The stem, below its first division, as measured by Mr. Fortescue in 1773, was 13 feet 9 inches round. It had been planted in a small garden enclosed with high walls, at a period previous to the present century: as the castle was destroyed towards the end of the last, this ascertains its age to exceed *one hundred years*. General Cunninghame, in dressing his domain, found it necessary to take away the wall, and level the ground of the old castle-garden, which exposed the arbutus to the storm on that side where it had been sheltered for so many years, and where, from its situation near the wall, no great roots had been formed; the consequence was, that, in a high wind about twenty-two years ago, the root was torn up, the trunk split in two, one half nearly buried in the ground, and the other forced into a very oblique position, greatly mutilated indeed; but through skilful management, very beautiful fresh healthy shoots have sprung up from the branches, where they have been inserted in the ground in the manner of layers, and some young plants introduced among them, so as on the whole to make one of the most pleasing groups or masses of this charming species of evergreen which is any where to be met with. I measured it on Christmas-day, 1793; the principal stem now standing, which, as I said before, is but barely half the tree, is eight feet in circumference: this divides into four branches, one of which is 4 feet 10 inches, and the smallest 3 feet round. A branch which was sawed off at 9 feet from the trunk, measures 2 feet 9 inches at the small end, and the whole was then in full beauty of foliage, berry, and blossom, *at once*."‡

The Portugal laurel and laurustinus, at Collon, attain to a very extraordinary size. Climate, in this respect, has, no doubt, a very powerful influence. The myrtle

* Since the above was written, I have found that this law is severely reprobated by Mr. Young, in his Tour in Ireland, part ii. p. 43.

† General Cunninghame.

‡ Hayes on Planting, p. 128.

grows in the open air without shelter at Burnham, on the coast of Essex, but close to the sea shore, where snow never lies for any considerable time. I observed that such plants, in general, flourish most in the neighbourhood of large expanses of water; and I should be inclined to believe, that the uncommon size and luxuriance of the arbutus was confined to such spots, did not the large one in the court-yard of Warwick Castle, afford a proof to the contrary. Myrtles grow uncommonly well in various parts of Ireland, but wherever I saw them it was in the neighbourhood of the sea; and in looking over my journal, I find several memoranda respecting very large ones which I observed both in Wicklow and Wexford. Mr. Hayes, speaking of the myrtle, says, every species seemed formerly almost indigenous in Ireland; and he adds, that he has known at Dunganstown, the narrow-leaved Italian in full flower above sixteen feet high; of two old stems which he measured, one was within an inch of two feet in circumference, or eight inches in diameter.*

Dr. Patterson also bears testimony to the great growth of the myrtle in Donegal, and other parts of Ireland. "The myrtle flourishes in the wilds of the counties of Wicklow, and Wexford; and I have seen it grow in the north-west part of the county of Donegal, to a considerable height; and in great luxuriance, along the south-east wall of a respectable mansion in the neighbourhood too, where the north-west wind is said to be so unrelentingly hostile to the whole woody tribe."†

Mr. Dubourdieu states nearly the same thing in his Survey of Down, and remarks, "that ever-greens grow remarkably well, but especially along the sea-shore, where myrtles attain to a considerable size, without being sheltered by a covering of any kind during the winter months."‡

At Charleville, near Tullamore, in the King's county, there is a tulip tree of great size, which produces flowers.

Common ivy is abundant in Ireland; I have seen it twining in many places round the trees in such immense loads, that a free circulation of the air being impeded, they were completely stunted in their growth. This evil, an evident mark of carelessness and neglect, prevails in various domains, and particularly at Charleville, and Castle Mary, the seat of Lord Longueville, near Cork. The waste of timber occasioned by this parasite plant in these two domains, exceeds belief; and I very much doubt, whether the trees which have been thus clothed, for a series of years, in a full dress of ivy, would not soon die if now stripped of that covering to which they have been so long accustomed.

Orchards are numerous in the counties of Cork and Waterford, on the banks of the Blackwater, and the celebrated cackagee apple is found near a town called Six

* Hayes on Planting, p. 123.

† Observations on the Climate of Ireland, p. 214.

‡ Survey of the County of Down, p. 163.

Mile Bridge, in the county of Clare. Near the city of Armagh, there are also some orchards, the fruit of which consists generally of apples, but they are by no means so usual as in some parts of England. I do not, however, confine this remark to orchards which produce fruit for sale, like those of Kent,* Devonshire, Herefordshire, &c.; it is applicable also to orchards destined to supply domestic comforts, which are exceedingly scarce. In the orchards near Armagh, I observed pear trees, the first I had seen in any abundance in Ireland; the apples of these orchards are exported chiefly to Scotland.

AUG. 26th, 1808. FARNHAM.—Lord Farnham's bailiff, who is a Devonshire man, says, the Crofton apple is as prolific, and as good in quality, as any apple he ever met with.

Mr. Sampson observes, that the orchards of Londonderry are the remains of plantations made by the English settlers in that part of the country; he adds, that the Scots, perhaps, had not such examples so common at home, as to induce them to consider improvements of this kind essential to the comfort of an early settlement, and he requests those desirous of appreciating this remark, to examine those parts of Armagh and Antrim, which were colonized from England, and to compare them with others which were settled by the Scots. He tells us also, that there were some old orchards in Magilligan, where there was an English settlement under the family of Gage, but they are now entirely destroyed.†

According to Mr. Tighe, orchards are declining in Kilkenny,‡ though Mr. Robertson, the nursery man, in a letter to that gentleman, observes, that the fruit of this county has been long famed for its good quality. Mr. Dubourdieu states, that "orchards in Down are rather losing than gaining ground; many old trees have been stubbed up, but few new ones planted, and of those few the success has not been great."§

It appears by my own journal, that the case is the same in Clare:¶ on the whole, however, the orchards in the south of Ireland, must occupy a great many acres, as cider is the common beverage in gentlemen's houses; but I am inclined to think, that it is confined chiefly to these, for the middling and lower classes seldom taste it.

As the cackagee cider of the county of Clare, is so celebrated for its extraordinary flavour, I endeavoured to obtain some accurate information respecting it; but I was

* Apples and cherries are said to have been introduced into Kent from Flanders, by one Richard Harris, who was king's fruiterer in the reign of Henry VIII. *Kilburn's Survey of the county of Kent*, p. 6-7, *Fuller's Worthies in Kent*, p. 56. *Samuel Hartlib's Legacy of Husbandry*, p. 15; where he says, a cherry orchard near Sittingbourne, of thirty acres, produced a thousand pounds a year. *Evelyn's Sylva*, p. 64.

† Survey of Londonderry, p. 437.

‡ Orchards are in this county too much neglected; the old ones run fast to decay, and few new ones are planted. *Survey of Kilkenny*, p. 581.

§ Survey of Down, p. 146.

¶ Oct. 20th, 1809. Dromoland. Sir Edward O'Brien thinks orchards decreasing in this county.

not able to succeed according to my wish, all that I could collect being contained in the following memorandum :

OCT. 28th, 1809. DROMOLAND.—Cackagee apples are used for making cider in the neighbourhood of Six Mile Bridge. Some say, that the finest is made from the juice of the first squeezing, while that of the second is reserved for the common cider. Others assert, that only one side of the apple, namely, that which hangs towards the sun, is employed for the best kind of cider ; and some say, that the apples are thrown into heaps, and are not squeezed till they have attained to a certain degree of fermentation. The apples from which this cider is made, are of a remarkably sour nature, and it is to be observed, that they grow in the neighbourhood of the sea, and in a part of the country where frost and snow are very seldom seen. Mr. Dutton gives a different account, but it does not appear that this species of fruit is much cultivated, and of course their produce is not of great importance,* nor had I any means of knowing its amount.

Perry I never saw in Ireland, and generally speaking, fruit is very inferior to what it is in England ; this is commonly ascribed to the climate, but I believe without just cause. I am rather inclined to think, that it arises from bad management in grafting, and other arts practised in the treatment of fruit trees, which are not properly understood.

Peaches, nectarines, apricots, and grapes, are little cultivated out of doors, and their use is confined for the most part to the tables of the nobility and principal gentry.† They are to be met with on the sea coast of the county of Wicklow, much more than in any other part of Ireland, but they are still rare, though it is certain that the climate throughout the whole of the southern districts, is sufficiently favourable for their cultivation ; and at Glangarriff, where the leaves of deciduous trees, when they come forth, must make room for themselves by pushing off those of the preceding year, these fruits, if treated with proper care, would attain to full maturity.

The Crofton apple is the favourite eating apple in every part of Ireland, but the nonpareil, such as that which grows on the eastern coast of Suffolk and Essex, or the golden pippin, is never to be met with in that country.

As planting is an object of the first importance, and particularly to a country so deficient in this respect as Ireland, gentlemen who turn their thoughts towards it, ought to be aware, that great advantage arises from having a good nursery in the

* “ The first plantations of fruit trees in Waterford were in a great measure owing to the industry of the English brought over and settled hereabouts, by the first Earl of Cork ; which is not the only lasting benefit this country enjoys by means of that truly great man ; and it is said, that the first cider made in this country was at Affane, by one Greatrakes, who came over upon the settlement of Munster.” *Smith's Nat. Hist. of Waterford*, p. 38.

† “ Affane is famous for the best cherries in Waterford, or perhaps in Ireland, being first planted there by Sir Walter Raleigh, who brought them from the Canary Islands.” *Smith's Nat. Hist. of Waterford*, p. 55.

neighbourhood. Besides the expense which attends the purchase and transplanting of trees from a distance, a considerable loss may be sustained, by their roots being injured in the carriage, and if they remain long out of the ground, they may either die, or be greatly retarded in their growth. But it would appear, that for this branch of culture, there is not much encouragement in Ireland. Archer,* in his Survey of the County of Dublin, remarks, that “nursery grounds are declining in the neighbourhood of that city;” on the other hand, Mr. Dutton† in his Observations on Archer’s Survey, says that, “the nurseries are again stocking with young trees,” but Mr. Tighe‡ gives an account similar to that of Archer, and speaks of nurseries as being on the decline. Those for the cultivation and sale of forest trees, which I had an opportunity of visiting, were the following:

Antrim	-	-	near the seat of Lord O’Neil.
Armagh	-	-	near the city.
Carlow	-	-	near the town.
Clare	-	-	at Ennis.
Cork	-	-	in various places.
Dublin	-	-	many near the city.
Galway	-	-	near the town, and at Ballinasloe.
Kilkenny	-	-	in several parts of the county.
Louth	-	-	at Colton.
Meath	-	-	a very extensive one near Navan.

I by no means, however, consider these as the only nurseries in Ireland. There are, no doubt, many more in different parts of the country; and, to enable the reader to form some idea of the general prices of seedling forest trees, I shall subjoin the following list, as distributed in 1808, by Charles and Luke Toole, nursery and seedsmen, Westmoreland-street, Dublin, who, besides a nursery near the city, have established a very extensive one in the country:

TREES.	Years old.	Price per Thousand.	TREES.	Years old.	Price per Thousand.
		s. d.			s. d.
Larch	1	4 4	Scotch fir	2	2 2
Ditto	2	6 6	Ash	2	1 8
Dutch alder	1	4 4	Horn beam	2	6 6
Ditto	2	6 6	Silver fir	2	8 8
Birch	1	4 4	Balm of Gilead fir	2	8 8
Ditto	2	6 6	Spruce fir	2	3 3
Beech	1	5 5	Horse chesnut	2	8 8
Ditto	2	8 8	Weymouth pine	2	6 3
Oak	1	5 5	Mountain ash	1	3 3
Ditto	2	8 8	Ditto	2	5 5
Elm	1	5 5	Thorn quicks	2	2 6
Ditto	2	8 8	Ditto	3	3 3
Sycamore	2	4 4	Crab quicks	2	1 8

* Survey of Dublin, p. 213.

† Dutton’s Observations, p. 157.

‡ Survey of Kilkenny, p. 581.

The above seedlings were all announced as the produce of seeds collected in Ireland, and reared in an exposed situation, which rendered them peculiarly adapted for that country, as they were naturalized to the climate.

Miller* observes, that it is not necessary that the soil where a nursery is formed should be better than that of the ground into which the trees are to be transplanted; but in this, I believe, he is mistaken. I have always found that those trees raised in rich land possess a greater number of fibrous roots, which serve as absorbing vessels to receive the nutritive juices destined to promote their future growth; and this observation is in some measure confirmed by the account of Mr. Foster, who experienced the same thing at Collon.† I would, therefore, recommend, that the best land should be chosen for a nursery, and that it should be walled in to prevent the young plants from being injured by rabbits and hares. The seeds of many trees are liable to be eaten by mice, a circumstance which deserves attention; and great care should be taken to keep them clear of weeds and of grass. It is to be observed also, that the seeds of different kinds of trees require to be planted at different depths in the earth. Mr. Hayes, whose practical work ought to be in the hands of every planter, says,‡ “After the bed has been made smooth with the back of a spade, and the seed sown, a few small laths should be placed on it to the thickness of half an inch, and earth should be sifted upon these laths, from a fine wire riddle, till it rises to the top of them.” This method he recommends for those plants which require to be sown at a small depth. “And if the weather be dry the seeds should be gently watered. The ground of the beds ought to be rich, but not newly dunged, and to consist rather of a light than a stiff soil. It should, by no means, be exposed to the sun or to the dropping of trees, and ought to be open, at least, to the north. It is necessary also, that birds should be prevented from approaching it, as the tops of the plants bring up with them the seeds, which these little animals devour with great avidity.” The beds which Mr. Hayes found most convenient were only three feet wide, because they were more easily kept free from weeds, and in taking up the young trees for transplantation, the whole roots may be raised together from the bed, by two spades placed opposite to each other, without injuring a single fibre. The narrowness of the bed is attended also with another advantage; it will preserve the young plants from mildew, to which they are greatly subjected when planted too thickly.

Mr. Hayes has found single drills liable to great failures, in consequence of their being too much exposed to the sun, wind, and cold; and he remarks that stiff clay, or poor hungry gravel, is totally unfit for the purpose of raising seedlings. Mr.

* Dublin edit. 1732.

† Boucher, Kennedy, and Hayes, all agree in the same opinion. Aug. 9th, 1809. Collon.—Mr. Foster says he has frequently tried the mere transplanting of trees, but never found any to answer so well as those taken from the rich ground of a nursery.

‡ Hayes on Planting, p. 7.

Tighe does not recommend the propagating of trees from seed;* Mr. Knight entertains a contrary opinion. †

The want of timber, and the destruction of timber, are complaints continually made by country gentlemen throughout every part of Ireland. It may be worth while, therefore, to consider this subject more minutely, and to examine how far the scarcity of wood can be remedied, and what means ought to be adopted for this purpose.

While timber continues at the enormous price which it sells for at present, individuals, who possess land in Ireland, will find it highly advantageous to plant, even that which is of a good quality, with forest trees. ‡ But as there is sufficient room for plantations, without encroaching on the space devoted to agriculture, that land only which is too poor for grazing or tillage, or which, on account of its situation, is too remote to be applied to either with any beneficial result, should be employed for this purpose. An immense extent of ground, forming the sides of mountains, is exceedingly well adapted to the growth of trees, and to such places they ought to be entirely confined. I have often heard it remarked, that if timber can be procured from foreign nations, at a cheaper rate than it can be raised within the kingdom, it ought to be purchased. Sweden, Norway, and Russia, contain tracts of prodigious extent, which are fit only for the production of trees; and in return for timber, they draw considerable sums annually from Great Britain. But even in these countries, timber, in consequence of the great waste occasioned by the numerous purposes for which it is used, is becoming more scarce; and, therefore, its cultivation in any part of the British dominions, is an object of considerable importance. An idea, indeed, prevails, that the woods in the northern countries are inexhaustible; but how far this is well founded will appear from the following information, the accuracy of which cannot be doubted:

Thaarup, in his statistical account of Denmark, says, that “the woods there, in consequence of the extension of tillage, bad management, and immense consumption, have been so wasted and destroyed, that it is difficult to procure timber for constructing houses, ship-building, and fuel; and on that account, considerable quantities are imported not only from Norway, but also from Pomerania, Prussia, and Russia.” §

* Attempts to raise plantations from seed have not in general succeeded in this country; seeds in this mild climate are too apt to be destroyed by vermin, and particularly by mice. *Survey of Kilkenny*, p. 579.

† On the Culture of the Apple, p. 21.

‡ Besides other advantages, the planting of trees adds greatly to the appearance of a country. “By the oldest leases in the Bar estate, (parish of Galston, county of Ayr,) the tenants were bound to plant at least twelve ash yearly. This accounts for the beautiful appearance of the farm houses on that property, which are in general surrounded by trees.” *Stat. Account of Scotland*, vol. ii. p. 77.

§ Versuch einer Statistick der Dänischen Monarchie von F. Thaarup. *Kopenhagen*, 1795. vol. i. p. 74.

Even in Norway, according to the same author, great devastation is occasioned in the forests, and particularly by the following causes :

“ 1st, By the peasants, who, to the number of six or eight, live together in a sort of partnership, with a right of commonalty to certain woods in the neighbourhood, which they cut down and destroy without mercy, and without any regard to their own future wants, or to those of their posterity.

“ 2d, By immoderate burning, in order to clear the land for agriculture. At the distance of two or three miles from some village, where the young trees are thickest, and the soil, according to the ideas of the peasants, fittest for tillage, they clear away the timber from a small spot in summer ; and next year, when the felled trees have become dry, they set fire to them, and in general burn all the boughs and branches, leaving, for the most part, nothing but the stem. As soon as the fire is extinguished, and the earth has in some degree cooled, the seed is scattered over the remaining ashes, which are still warm. Next year a twenty or forty-fold crop, and even sometimes more, is obtained ; and this great increase is the temptation which induces the Norwegian peasants to destroy the woods in so wasteful a manner. When the corn is cut and piled up in sheaves, covered with bark, in order to be preserved, the remaining trunks are collected in heaps on the ground, and again set on fire, by which means they are completely consumed ; another crop is then sown on the ground thus cleared, and when reaped, the land is abandoned to nature, and no farther attention is paid to it.

“ 3d, By burning, either through accident or from being maliciously set on fire. It is supposed that above a million of trees are consumed in this manner in Norway every year ; and a Danish writer says, that in the course of a tour which he undertook in 1757, to examine the state of the forests, he saw one, which having been burnt, exhibited nothing as far as the eye could reach, but charred trunks and half burnt stumps, the melancholy remains of stately firs which had been thus entirely destroyed. On another occasion he saw no less than four or five conflagrations among the woods, on the high mountains, at one time. These fires are occasioned either by carelessness, or are the result of malicious design. When the peasants are desirous to enlarge the pasture ground in the neighbourhood of their habitations, they set fire to the woods ; but it sometimes happens, particularly when a strong wind prevails, that the fire acquires such a superiority as to render it impossible to check it, and to prevent it from spreading to a great distance around. The mountaineers also, who live by fishing in the rivers and streams, often kindle fires in the woods, and forget to extinguish them. When the cattle are driven out to pasture they are attended by a boy or a girl, who generally kindles a fire, that the smoke of it may drive away the gnats and other insects, which sting and torment the animals committed to their care. These thoughtless children often leave their fire burning, and sometimes, through wanton sport, they delight in making it flare up, by which

means it extends to the adjacent trees, and catching the dry moss and heath, frequently spreads in such a manner as to occasion great devastation. The woods are also often wilfully set on fire by some mischievous person, in order to gratify his malice and be revenged on the proprietor, who may have given him some cause of offence.

" 4th, By the quantity of timber consumed for houses and public edifices; as towns are built almost entirely of wood.

" 5th, The roads in many parts of Norway are constructed of timber."

" 6th, The use of timber for paling, instead of hedges. This paling is made of young trees split; then fastened together across each other in an oblique direction, and placed upright between posts, driven into the earth. As it must be renewed every third or fourth year, the consumption of timber it occasions is immense.

" 7th, By peeling off the bark of timber for the purpose of thatching houses, because trees, when they have lost their bark in this manner, soon perish entirely.

" 8th, By the quantity of wood used for firing, in the huts of the peasants."*

Similar complaints are made by different writers, in regard to the devastation of the woods in Sweden. On this subject, Lagerbring says: "Every person can use and destroy timber, but few think of forming plantations, or giving any assistance in this respect to nature. People cut down and waste trees for the sake of a temporary advantage, without the smallest regard to the wants of those who are to succeed them. It is, however, certain, that, were our woods to fail, the country would be exposed to inevitable destruction. Should the forges be obliged to stand still for the want of wood, the evil would be incurable; and if the same system of devastation be carried on, in regard to timber, as has been hitherto practised, fertile plains in Scania will be converted into deserts."

"Norland," continues he, "and West Bothnia, are destined by nature to produce wood, and to give activity to furnaces, which will bear a comparison with the most productive in the world. The beech woods of Scania are almost exhausted by the immoderate and unrestrained use of wood as fuel; the fir woods of Smoland are also consumed; and the case is the same with the pine woods of Warmland. The ridges of Falbygden and Tiorn are now completely naked, and immense tracts of land in Halland, Bobus-Lan, East Gothland, Nerika, Westmanland, Sudermania, and Dalsland, are in the same condition. In Upland there are above 5000 farms which are obliged to procure timber from other provinces. The northern part of Sweden has still extensive woods: in East Bothnia, Cayana-Lan, and North Twastland, there are large forests of fir, with considerable woods of birch; and the greater part of Heryedalén, Gestrückland, Helsingland, Jämtland, Medelpad, Angermanland, and West Bothnia, are covered by forests. But what destruction

* Thaarup, ut supra, vol. i. 369.

awaits Sweden, if these provinces should become as bare of wood as the former ! We must then expect to see, as has already happened in other places, that fire-wood will be sold by weight. There is scarcely any country in the world, where the woods are exposed to so many and to so great causes of devastation as in Sweden. Of all our manufactories, iron-works require the greatest supply of timber ; and the quantity consumed in the distilleries is immense. Much is destroyed also in the extraction of tar: in most places, the freshest and straightest trees are selected for this purpose, and only a small part of the stem is used, the rest of the tree being rejected. By this process, seventy trees are required to produce one barrel of tar. The consumption of fire-wood in towns increases also more and more ; and Stockholm alone uses annually upwards of 100,000 fathoms.*

Russia, in respect to its woods, seems to be nearly in the same situation as Denmark and Sweden. "Notwithstanding," says Storch, "the abundance of forests in Russia, there are districts in that extensive empire which are entirely destitute of timber fit for building, or fire-wood ; and even in some of the provinces where, a few years ago, there was a superfluity of this necessary article, it has been visibly lessened by the increase of population and industry. The immense use of wood, under a climate where the people, during eight or ten months in the year, must secure themselves from the cold, and where almost all the houses, both in towns and in the country, are constructed of wood, increases in the same ratio as the population. The drying of corn, which is an operation highly necessary ; the rooting up of forests and woods, in order to extend tillage and pastures ; the extraction of metals from their ores in the different works and furnaces ; the keeping up of two fleets, and the fuel used in the various manufactories, as well as for domestic purposes, all tend to lessen the quantity of timber in this country, according to the increase of industry, the spreading of luxury, and the wider diffusion of the conveniences of life. To this may be added, the immense exportation of timber, and the productions obtained in return ; and the demand of foreign countries, which daily becomes greater. All these causes combined have occasioned a perceptible decrease of wood in many parts of Russia, the remote consequences of which are sufficient to excite considerable alarm."†

"In another place," he says, "almost all the houses and buildings, both in towns and in the country, are constructed of rough undressed planks ; and this application of timber increases, notwithstanding the prodigious devastation occasioned every year, in all parts of the empire, by fires ; and though many towns have every opportunity of erecting buildings of stone. Most of the highways, also, are constructed of planks laid close to each other, in a cross direction, and covered with sand ; and

* *Sammendrag af Swea-Rikes Historia*, af Swen Lagerbring, Stockholm, 1796. Forste Delen. p. 23.
 † *Hist. Stat. Gemälde des Russischen Reichs* von H. Storch, Riga, 1797, vol. ii. p. 438.

for the reparation of these, whole forests are required. Bridges and fences are almost every where, of wood, as quick-set hedges have been introduced only in very few places, where a scarcity of timber has obliged the farmers to employ them. According to a custom which still prevails in some provinces, the trunks of trees are not sawn into deals, but split by means of wedges, and smoothed with an axe instead of a plane, so that a great deal of timber is lost in chips, which the people seldom think it worth their while to collect. The practice also prevalent among the lower classes, of using the warm bath, consumes an immense quantity of wood; and as economy is never observed in regard to fuel, and no substance employed but wood, the consumption, in this respect, is much greater than necessity requires. Many districts possess turf as well as coals, but the use of them for fuel has hitherto been so limited, that it scarcely deserves to be mentioned. Instead of candles or lamps, the peasants, and even the inhabitants of towns, burn thin strips of the birch tree, obtained by splitting the trunk, which, independently of the destruction they occasion in the woods, are attended with this bad property, that, by the least carelessness, they occasion fires, which often reduce whole towns and villages to ashes. The use of bark shoes consumes, in most provinces, an incredible quantity of the best and straightest lime trees, which, by this pernicious custom, are reduced to one half the number they would be if left entirely to nature.* The clearing away wood for the purpose of tillage has been already mentioned; but, independently of the irreparable loss which is hereby occasioned in a forest or woody district, it frequently happens that the woods are in this manner set on fire, which, in the course of a few days, destroys excellent timber; and it is often found, that the loss sustained in such burnt places, can scarcely be repaired in the course of twenty years. If, with all these, we take into account the distillation of spirits, which has immoderately increased in most parts of the empire, one may readily account for that scarcity of timber which, notwithstanding the immense quantity of woods, is already experienced in many provinces, and which is so great in some districts, that fire-wood, and timber for building, costs three times the sum that they did a few years ago, and that some of the Siberian forges have been abandoned.”†

The author adds: “the peasants almost every where have permission to procure what timber they want, in any place and at any time they think proper; and this indulgence they employ to their own immediate advantage, without the least regard to

* “Each pair of shoes requires from two to four young lime-trees. In winter these shoes will last about ten days; but, in the season when the peasants work, only four, or perhaps not so long. In the course of a year, each peasant wears out at least fifty pair of shoes, which, at a medium, consume 150 trees. A fresh young shoot, even in moist places, is not fit for barking before three years, and, in dry firm soil, its growth is slower. Hence it appears, that the lime trees are destroyed twice as fast as the young ones grow.”

Lepchint's Reise, vol. ii. p. 39.

† Storch, *ut supra*, p. 445.

the general good. Very often, the forest is the last resource of the peasant, in order that he may be enabled to raise money to pay the *obrok* due to his master."

Mr. Herman* has given a very interesting history of the the Russian forests, and, as many of his observations are curious, and some of them applicable to other countries, I shall offer no apology for laying before the reader the following extracts from it:—"The first want of man," says he, "is food, the second a habitation and clothes; and hence, in every part of Europe, forests have been sacrificed to agriculture. The extirpation of woods, through agriculture, has been effected chiefly in the middle provinces of Russia, or the region of oaks, which grow for the most part, in places where the land is of the best quality for tillage, and therefore villages have increased so much under the oak woods, that many of the inhabitants, not having a sufficiency of land for agriculture, are obliged to live by the sale of timber. Large and fertile plains, however, in Lesser Russia, Pultowa, Charkof, Saratof, and Orenburg, still remain waste, while Kasan is crowded with hamlets. In the latter, the woods are in danger of being entirely destroyed, or of becoming scarce; but in the former, plantations might be extended, and rendered highly productive by the assistance of agriculture. The cold and barren soil of the northern provinces prevent the extension of agriculture in these marshy and stony districts; and hence the immense forests of the fir, the pine, and the larch, which are seen there, have been preserved.

"Woods are a kind of property which become productive only under certain circumstances. Where there is nothing but timber it has no value. This is the case at Tobolsk and Irkutsk in Siberia; and, therefore, an order was issued, on the 1st of November, 1799, that the woods there should be extirpated, in order to make room for agriculture; and the same observation is applicable to many districts of Archangel, Olonetz, Wologda, and even Finland, where a great many trees are suffered to rot without being converted to any useful purpose. In these provinces there is abundance of wood, but a scarcity of large timber. As soon as the fir woods of Russia found a market in England, as the English did formerly in Holland, saw mills were every where erected on the banks of the rivers; masts were cut down in places where the carriage of them was easiest; the woods in the vicinity of the large streams, such as the Volga, were subjected to the axe; and none escaped its fury but those in the interior of the country. Hence it will excite no surprise, notwithstanding the superabundance of firs of every kind in the northern provinces, that it has been officially announced that, unless certain abuses are restrained, the building of ships at Archangel must be entirely stopped; because it has been found, by estimation, according to the present annual consumption, that the forests contain larch sufficient only for four years, and other fir wood for no more than fifteen. Want of water-conveyance makes it difficult to use the woods in Wologda, which cover an immense tract of

* Professor of History and Statistics to the first corps of cadets at Petersburg.

country; and the case is the same in other provinces. The manufactories are too few for the whole extent, and too numerous for a small district. Hence it has been found necessary to lessen them; and means are now in agitation for turning to advantage the present superfluity of wood, which has never been used. In regard to the accomplishment of this object, Wiatka presents the greatest hope of success; in Finland it will be more difficult, and in Wologda the most difficult of all. Russia expects that her riches in woods will be doubled by multiplying her canals. At the distance of twenty miles from Petersburg, there are places where the proprietors of land would readily sell on the spot, a fathom of wood for a ruble, which, in the capital, would bring four or five times that sum. Finland might be a great resource to Petersburg; but, though it abounds with lakes, it unfortunately has no rivers; and carriage in the interior is difficult.

“But, where the extirpation of forests, through agriculture and grazing, has been carried so far as to destroy that proportion which woods, considering the wants of the inhabitants, and of government, ought to bear to tillage, the timber left acquires a superior value, and, under certain circumstances, becomes more productive than the best corn acres ever can be. The forests still remaining in Kasan are an inestimable treasure, as the oak woods in Russia, at present, are sufficient to furnish the navy with timber only for eighteen years. The crown forests, which extend through Tula and Taluga, the length of 960 wersts, and which are set apart for the use of the manufactory of arms, at Tula, is a magazine of timber to all the adjacent governments, which already begin to experience a want of that necessary article.

“The natural proportion between woods and tillage land, has been exceeded in every part of Europe; because men began too late to perceive the value of forests, and attended only to the extension of agriculture and the increase of manufactures. The Harz Forest, in Germany, the grand timber magazine of Lower Saxony, has been entirely cut down; and while new plantations are forming, turf is burnt in the furnaces. Saxony purchases timber in Bohemia for its smelting works, and employs for the same purpose coals and turf. Want of timber begins to be experienced also in France;* in several provinces the people have no other fuel than coals and turf; and new forests are planted wherever the soil will admit. Britain formerly sold its timber to Holland; but except in the mountains of Scotland, it is at present poor in wood. In the latter country, however, timber is in the same state as in Wologda and the interior part of Finland; where, for want of water communication, no part is sold but the bark, the wood being left unemployed to rot. In building the new town of Edinburgh, not a single stick of Scotch wood was employed: all the timber used was imported from the north of Europe

* Mr. Young, who was in France in 1787-1789, makes the same remark as Mr. Herman, and speaks of great complaints respecting the dearth and scarcity of timber. *Travels in France*, 2d edition, vol. ii, p. 112.

and America. The saw mills on the Onega work almost entirely for England; and the wood is sawn, and cut according to the dimensions usual in that country. Spain and Portugal bring timber for ship-building from America. Italy possesses large forests in the Appenines; but in the flat country wood is exceedingly scarce. Hungary purchases timber for the use of its smelting works; and even in Sweden the people begin to complain of the bad consequences which attend the method hitherto employed to clear away the woods for agriculture. An idea has long prevailed, that Russia contains immense forests; and a view of the northern provinces seems to confirm it; but a survey of the southern districts will afford sufficient reason to be of a very different opinion. The high price of timber, which in the course of fifty years has risen one half, excited long ago considerable doubts in regard to the above idea; but the careful enumeration made since 1799, has reduced this doubt to a certainty, and established it as a fact, that Russia experiences a want of wood, and particularly of oak. In many of the provinces, wood for building and fuel has become scarce; and even in the northern districts, the banks of the rivers have been much cleared, that the price of timber increases every year.

“When the people of a country become convinced that the natural proportion between tillage and forests has been exceeded, they begin to think of establishments to regulate the employment of the timber which remains. Hence the origin of commissioners for the management of forests. This is always the consequence of want being experienced; but the remedy in general is applied a century too late. The first attention of such people is directed to the planting of new forests. A penetrating genius sometimes foresees the want of future ages, and endeavours by wise regulations to prevent it: but these regulations are seldom carried effectually into execution, till actual want has proved their indispensable necessity. Such a genius was Peter the Great; but his regulations have experienced the same fate as all precautionary measures, which men begin too soon to consider as unnecessary.

“Peter issued an order, that all the timber which had sufficient strength and size for ship-building, whether in the crown forests, or those belonging to individuals, should be reserved for the use of the navy. Such was the case till the year 1782, when the proprietors of land, obtained permission to cut down the timber on their estates, according to their own pleasure. Since that time some proprietors have sold as much of their timber as they could; and their woods are now exhausted: others have sold none; and their woods have grown so thick as to be ruined: few have managed them with prudence. In a word, the woods of private individuals are in a much worse state than those of the crown.

“In Russia there are two principal kinds of oak, the *Quercus ilex*, which grows in the northern provinces, and the *Quercus robur*, which grows in the middle and southern. The true country of these trees is between the 56th and 53d degrees

of north latitude; for they gradually disappear towards both the south and the north.

“Oaks grow in 22 governments; but only seven of these contain oak forests of considerable extent; namely, Kasan, Wiatka, Orenburg, Simbirsk, Pensa, Tambof, and Nishegorod. They contain 347,913 oaks above 24 inches in diameter, and more than 223 millions of oaks below that standard. The northern governments, Petersburg, Novogorod, Pskove, Yaroslaf, and Kostroma, contain 15,613 oaks of the first kind, and about 100,000 of the second. Mosco, Tula, Astrakan, Smolensk, Orel, Kief, New Russia, Charkof, Woronesh, and Kursk have 11,278 large oaks, and five and a half millions of weaker ones. The general sum of the whole then is 374,804 above 24 inches in diameter, and 229,570,427 below that measure. Russia requires annually for the use of its fleets as follows:*

	Trees.
For Petersburg and the flotilla on the Caspian Sea	18,905
For Archangel	1,003
For the Black Sea	10,802

Total 30,710

“The oak timber for the use of the Baltic fleet and the flotilla in the Caspian Sea is obtained from Kasan, Wiatka, Orenburg, Simbirsk, Pensa, Tambof, Nishegorod, and Novogorod; that for Archangel is procured from Kostroma; and that for the Black Sea from Smolensk, Kief, Orel, New Russia, Charkof, and Woronesh. Now, as in the first eight governments, there are only 348,055 trees of from 24 to 36 inches in diameter, and as the Baltic fleet requires annually 18,905, it is evident that there is a supply of oak timber for no more than 18 years, allowing all these trees to be fit for service. But it is found, in cutting them up, that every sixth tree is totally unserviceable, and every fourth and fifth partially so. Blemishes are discovered, even when the piece is put into the vessel; and, therefore, it may be readily seen, that the administrators of the forest department, in their report to the admiralty in the year 1800, could with justice say, that, “estimating according to the present consumption, the oak timber in the seven most woody governments of the empire, is sufficient to supply the fleet in the Baltic only for 14 years; that for the ships in the Black Sea there is scarcely enough for one year; and that some is now purchased from private persons.

“In 18 years no tree, which at present is below 14 inches in diameter, will attain to the size of 36 or 40. It will, therefore, be necessary to employ smaller trees, which must be bound together with iron; to substitute other timber in the room of oak, or to purchase oak timber from foreign nations.

* The timber used for the principal parts of a vessel must be forty inches in diameter; that of a mean size must be from 24 to 23 inches, and the smallest 12.

"Firs grow in Russia from the latitude of 64° to 50°. Large continued forests of fir are found as far as the latitude of 58°; in Archangel, Olonetz, Wologda, Wiburg, Petersburg, Novogorod, Yarorslaf, Kostroma, and Wiatka. In the northern governments, it is the prevailing kind of timber.

"Detached forests, some of them of considerable size, are found as far as lat. 51°; in Esthonia, Livonia, Courland, Twer, Wladimir, Tula, Kasan, Lithuania, Kief, Simbirsk, and Pensa.

"Firs fit for building are found every where within the latitude of 60° in the northern governments. On the southern side of 50° they cease altogether.

"A complete account of these immense forests has not yet been obtained; but it appears by reports from 31 governments, that there had been numbered 8,195,275 fir trees fit for masts, or 30 inches in diameter; and 86,869,243 fir trees fit to be used as timber for building.

"The annual consumption of firs for the use of the Russian navy, is estimated at 71,953 trees.

"The naval officers, who, between the years 1797 and 1801, made a tour through 31 of the governments, in order to survey the forests, and draw up a report respecting them, found, admitting the annual consumption to be as above,

"That there was fir timber sufficient to supply masts to the Baltic fleet during 55 years, and to furnish other timber for ever:

"To supply masts to Archangel during 15 years, and to furnish larch timber for four.

"To supply a sufficiency of masts, and other timber for the fleet in the Black Sea."*

I have extended the above extracts to so great a length, because the state of the Russian forests has a very intimate connexion with the trade and prosperity of Great Britain. A great part of the timber employed in our dock-yards, has hitherto been obtained from that country; and if its supplies should fail, unless new sources be opened, our navy must decline, and consequently the principal means of our existence as an independent nation be destroyed. It appears from undoubted authority, that timber, so far from being plentiful in the northern countries, is very much on the decrease, and in some provinces has become altogether exhausted. It is well known, that the emperor Paul II. during a tour which he made to the eastern provinces of the Russian empire a few years ago, was so convinced of the wretched state of the forests on the Kama and the Volga, before considered as inexhaustible, and of the evil likely to arise from the increasing price of timber, and the dearness of fuel in Petersburg, Moscow, and other populous towns, that he issued an *ukase* on the 10th of Sept. 1798, prohibiting the exportation of tim-

* Russland unter Alexander dem Ersten von. H. Storch, no. xi. p. 185. no. xiii. p. 47. 1804.

ber altogether. This regulation, however, was so prejudicial to the interest of many of the merchants, and particularly to those of Riga, that very strong remonstrances were made against it to the Russian government, and the prohibition was at length annulled on the first of March, 1800, by another *ukase* which restored the timber trade to its former state; but with this difference, that the duty on exportation was doubted.*

If the Russian navy requires an annual supply of above 30,000 oak trees, besides other timber, what an immense quantity must be consumed for the use of the British navy, which is four times as large! And if timber of every kind, and particularly oak, has become so scarce in Russia, as to excite the most serious apprehensions, is there not great reason to be afraid, that we may soon experience a want of timber in our dock-yards, an evil which would be attended with the most serious consequences to the country. It is well known, that a complaint of the scarcity of timber is prevalent throughout Great Britain; and Mr. Nicholls, in a letter to the Earl of Chatham, says, "that having, from long experience, obtained some knowledge of the timbered state of this country necessary to support the shipping of our navy and commerce, he is convinced, that the demand very much exceeds the growth; and if some effectual measures are not immediately taken, either to lessen the consumption of oak timber, or to increase its growth, he fears the time is not far distant, when we shall be greatly distressed for want of this useful article." The same writer adds, that, "he has of late observed with grief, a great diminution in the stock of growing timber, insomuch, that he does not believe there is one-tenth part of the quantity there was twenty years ago."†

By the increase of population, and the consequent extension of trade and manufactures, the shipping of this country has of late years been considerably increased; and, if to this be added, the great number of new houses and edifices of every kind which are building in almost all parts of the kingdom, it will appear that the consumption of timber must be exceedingly great. This being the case, and considering the state of the forests in those countries which are supposed to be most abundant in wood, it becomes an object of great importance to devise the best means for preventing the scarcity of an article so essentially necessary to a great commercial empire, and on which the preservation of its navy, and even its own existence, depend. In considering this subject, our views must naturally be directed to the immense extent of waste and uncultivated land within the united empire, capable, by proper exertion, of being converted into thriving plantations of timber, which, in a few years, might supply many of our wants, and afford the most promising hopes in regard to future times.

* Hist. Stat. Gemalde des Russischen Reichs von H. Storch, vol. viii. p. 179.

† Methods proposed for decreasing the consumption of timber in the navy by Thomas Nicholls, purveyor of the navy for Portsmouth Dock-yard. Southampton, 1793.

Mr. Hermana says, "forests are not of equal importance to all countries. In a country which possesses extensive coasts, or in an island, if it has a sufficiency of coals or turf, it might, perhaps, be more advantageous to purchase timber for building from foreign nations, and convert its own wood-lands into corn-fields and meadows. Such is the case with England."* This, under certain circumstances, may be true, and even if it should hold good in regard to England, the case must be very different with respect to Scotland and Ireland, where there are immense tracts, which, on account of their situation, steepness, ruggedness, sterility, or other causes, are unfit for agriculture, and yet might be employed with great success, in raising new plantations of the most useful kinds of timber. A good deal has already been done in this way in Scotland, where a spirit for planting, which deserves the highest commendation, has prevailed for several years. And it is not improbable that the exposure made by Dr. Johnson of the nakedness of the country in his Tour to the Hebrides, may have contributed to excite and increase it.† In the county of Aberdeen, Sir Archibald Grant of Monimusk, had planted no less than fifty millions of trees; and at the time of his death, there were some of his own raising, which were nearly one hundred feet high, and about six feet in diameter.‡ The Earl of Fife, uncle to the late Earl, made a point of planting a hundred acres of land on his estates every year. And the same attention to this valuable branch of national improvement has been paid by other noblemen and gentlemen, whose thriving plantations are a pleasing and convincing proof, that much neglected land in Scotland might be applied to the same useful purpose. That country can boast, not only of supplying the British navy with some of its ablest commanders, but of furnishing timber to add to the number of its ships. A frigate of thirty-six guns, called the

* Russland unter Alexander dem Ersten von H. Storch, No. xi. p. 194. 1804.

† Sir Alexander Dick, in a letter to Dr. Johnson in the year 1777, says, speaking of his Journey to the Western Islands, "Indeed our country of Scotland, in spite of the union of the crowns, is still, in most places, so devoid of clothing or cover from hedges and plantations, that it was well you gave your readers a sound *Monitoire* with respect to that circumstance. The truths you have told, and the purity of the language in which they are expressed, as your "Journey," is universally read, may, and already appear, to have a very good effect. For a man of my acquaintance, who has the largest nursery for trees and hedges in this country, tells me, that of late, the demand upon him for these articles is doubled, and sometimes tripled. I have, therefore, listed Dr. Samuel Johnson in some of my memorandums of the principal planters and favourers of the enclosures, under a name, which I took the liberty to invent from the Greek *Papadendriou*, Lord Auchinleck, and some few more, are of the list. I am told, that one gentleman in the shire of Aberdeen, viz. Sir Archibald Grant, has planted above fifty millions of trees on a piece of very wild ground at Monimusk: I must inquire if he has fenced them well; for that is the soul of enclosing. I began myself to plant a little, our ground being too valuable for much, and that is now fifty years ago; and the trees, now in my seventy-fourth, I look up to with reverence, and shew them to my eldest son, now in his fiftieth, and they are full the height of my country-house, where I had the pleasure of receiving you, and hope again to have that satisfaction with our mutual friend Mr. Boswell." *Boswell's Life of Johnson*, vol. iii. p. 106.

‡ See Communications to the Board of Agriculture, vol. iv. p. 237.

Glenmore, from the name of the forest where the timber grew,* was built a few years ago of Scotch fir, and was for some time commanded by the gallant Captain Duff, who gloriously fell, supporting the honour of the British flag in the ever-memorable battle of Trafalgar. Many of the brave sons of Erin are now serving in the navy as well as the army: but has that country ever yet supplied timber sufficient to make so much as a gun-boat or even a sloop?

In this respect, Ireland is very deficient. Though it contains extensive tracts of waste land, planting has made very little progress, and this is the more to be regretted, as there is scarcely any land so poor, barren, or rocky, as not to be susceptible of this species of improvement. The mountains of Donegal and Derry, now almost without a tree, could not be employed for a better purpose; and I have no doubt that the expense incurred, would be amply repaid, if not to the present, at least to the succeeding generation. On those, who look chiefly to immediate gain, the

* "This forest, the oldest and largest in Scotland, situated in the united parishes of Abernethy and Kinchardine, was let, some years ago, by the Duke of Gordon to an English company for £10,000. The fir was of the best quality in the country, and very conveniently situated for being floated down the river Spey to Garmouth or Speymouth, whence it was sent to England. Once a-year, in general, about 12,000 pieces of timber of various kinds were sent down that river loose, but this could be done only when the water was increased beyond its usual quantity by rain. For several years, great numbers of small masts or yards for the use of the navy, were conveyed to the royal dock-yards, and besides the frigate above-mentioned, about 20 vessels of various burdens were built at Garmouth, all of Glenmore fir. Among these, there was one of 500 tons. The fir-woods of this country exceed all the natural fir-woods of Scotland put together. Sir James Grant's woods of Abernethy, of many miles circumference; next the Duke of Gordon's in Glenmore; then Mr. Grant's of Rothiemurcus, who is supposed to have more trees than either of them; then the Duke's again; after that, the Laird of M'Intosh's in Glenfishy; all in a line of about twenty miles in length on the south side of the Spey, and all having the advantage of abundance of water to convey them to that river. Besides, Sir James Grant has another wood of an excellent quality, on the other side of the country on the river Dulnan." *Sir John Sinclair's Stat. Account of Scotland*, vol. xiii. p. 135, 136.

It has been remarked in some places of that country, that trees planted near the sea-coast, do not thrive so well as those growing at a distance from it. The Rev. John Steven, author of the Statistical Survey of Mochrum parish, in the county of Wigton, says, "In Mochrum, or in no other part of Galloway, situated near, and exposed to the western ocean, do trees of any kind seem to thrive, owing to this cause alone. Sir William Maxwell's extensive plantations, which had every other advantage that either art or nature could bestow, have made little progress, except in low situations, and not in sight of the sea. Whenever old Neptune gets but a peep at them, they soon begin to sicken and to fade." *Stat. Account of Scotland*, vol. xvii. p. 570.

Among the great planters of timber in Scotland, were the Earls of Findlater, who, on their estates in the counties of Banff and Moray, are supposed to have planted 32,000,000 of trees since the year 1744. *Ibid.* vol. xii. p. 151. Mr. Farquharson of Invercauld, alone, has planted above 14,000,000 of Scotch firs, and upwards of a million of larch, with a variety of others. *Ibid.* vol. xiv. p. 338.

The late John Earl of Loudoun, was distinguished for his improvements, both in planting and agriculture. He is said to have planted a million of trees, mostly ash, elm, and oak; many of them some years ago, were of great size, and sold at one, two, and sometimes three guineas. One crop of hoop willows from a small enclosure of three rods, sold for £27. *Ibid.* vol. iii. p. 108.

prospect of future advantage produces very little effect. I would, therefore, recommend to the attention of such selfish and narrow-minded persons, the consideration contained in the following lines of a modern poet, already quoted, which certainly in many cases, has a powerful influence over the human mind:

Quæ si non animum silvæ nascentis imago
Moverit; at dulces non obliviscere Natos,
Nec tibi sed retro venturis consere seclis.

Vanierii Præd. Rust. Lib. V.

But, independently of the profit which may arise from the sale of timber, and the ornament that woods form to a country, they are attended with other advantages which are of no mean consideration. The high barren mountains of Wansfell, near Ambleside, on which the Bishop of Landaff made a plantation of forty-eight thousand larches, have been let for several years, at a greater rent as a sheep-pasture, than could be had before they were planted, without the least injury to the trees; thousands of the larches now measure from fourteen to eighteen inches in circumference, at six feet from the ground.

It is well known that acorns, which the oak produces in such quantities in favourable seasons, are an excellent food for hogs; and turkeys, fed with that article, are peculiarly delicate.

In Sweden and other countries, cattle and sheep are fed during the winter season with the branches and leaves of trees; and in England, branches of the Scotch fir have been found of use to sheep.

It has also been considered an advantageous practice, to collect the leaves of trees in any part of a park where the soil is of inferior quality, and to fold sheep upon them, by means of which, a quantity of excellent manure may be obtained.*

It may, perhaps, be some inducement to gentlemen in Ireland to engage in planting, to be informed, that in Shropshire, Lord Powis found it an excellent practice to permit the planting of potatoes in his young plantations, the season after the young trees are put in the ground. The neighbouring cottagers were allowed to plant them; and if it be new or maiden ground, no manure is put in for the first two years. The potatoes are not continued above three years, and the culture is rather advantageous than otherwise to the young trees.

Mr. Coke, of Holkam, in Norfolk, permits the poor people to plant potatoes in his young plantations, and finds the cultivation beneficial to the trees.

In all cases where the benefit to the planter and to the poor is reciprocal, as in this practice, it is much to be wished that the same system may be universally adopted.†

* Anderson's Essays, p. 293.

† Report on the Culture and Use of Potatoes, p. 10.

Mr. Blaikie observes, that when plantations are made on old turf, the intermediate spaces may be dug and set with potatoes for two or three years, without much injuring the trees. When the potatoes are taken up, all couch-grass, roots, and other rubbish, should be carefully picked out. If the ground is *strong*, beans may be planted for the third crop; but if *light*, turnips or buck-wheat will answer better. It is advisable not to take more than three crops, if the plantation succeeds well, as the trees will then have become sufficiently large to keep down the weeds. Where the ground has been trenched or fallowed, potatoes do not answer so well as on old turf. Cabbages may be planted if the soil be rich and deep; beans, if strong clay, or marl; and turnips or buck-wheat, if light. It is disputed whether such culture be advantageous; one benefit, however, is obvious, namely, the digging and cleansing of plantations, which would otherwise be in a great measure, if not entirely, neglected; and unless the land is poor indeed, the crops will pay all the expense of keeping the plantation free from weeds.

In regard to the expense of planting in Ireland, it will, no doubt, depend much on situation and other local circumstances. In the north of Scotland, the expense of enclosing a plantation of at least one hundred acres, and planting it with Scotch fir, is generally calculated at twenty shillings per acre, and the undertaker upholds the plants for seven years.* In the east of England, the expense of enclosing and planting, according to various county reports, is said to be three pounds per acre. At an average it may be stated to be about thirty shillings per acre in Scotland.

Assuming this, therefore, as a proper medium applicable as an average to the whole empire, the return of a plantation of 1000 acres in thirty years, may be thus calculated:

One thousand acres of plantation, Dr.	
Expense of enclosing and planting, at 30s. per acre	£1,500
Interest of that expense for 30 years	2,250
Draining, pruning, dressing, &c.	10,000
Repairs of gates and fences, &c.	6,250

£20,000

One thousand acres of plantation, Cr.	
By 700,000 trees, thirty years old, at 5s.	£175,000
Expense as above	20,000

Clear profit on 1000 acres £155,000

Or at the rate of £5. 17s. 4d. per acre per annum. The thinnings would pay the rent of the land.

* Sketch of the tenth chapter of the General Report regarding the Agricultural and Political State of Scotland, by the Rev. G. F. Hamilton, p. 12.

Mr. Stewart, of the Ards, in Donegal, who is an extensive planter, complained to me of the want of a market. At present, the population of his neighbourhood is too thin to create one at home, and the quantity of timber which that gentleman has for sale is too small to attract the notice of timber-merchants, who carry on business on an extended scale. But this circumstance ought not to deter the owners of these trackless wilds from having them planted; their elevation is not so great as to impede the growth of trees; and their exposure is certainly less unfavourable than that of the bleak mountains in many parts of the highlands of Scotland. In the course of time markets will be formed, and the cutting down and transporting the timber would furnish employment to hundreds of people, who, at present, must remain half their time idle, or emigrate to foreign countries in order to procure support.

To shew the great benefit which a nation, generally speaking, might derive from the cultivation and sale of timber, I need only advert to what is said by Storch, in regard to the timber trade of Russia: "The number of ships, which are attracted every year to Riga, by the timber trade alone, amounts to three or four hundred; and as masts can be conveyed only in large vessels, these, for the most part, in order to complete their lading, take on board various other articles, and thereby increase the advantage of the merchant."

But the utility of the timber trade extends still further. It diffuses life and activity throughout these remote districts, which are acquainted with no other source of industry; increases circulation, by the money which is expended for carriage from such distant provinces; procures to the state a considerable profit, and contributes to render the balance of trade favourable to the empire, by the millions which it brings into it from foreign countries. But this will be more readily perceived by the following statement:*

	<i>Rubles.</i>
If a quantity of timber purchased on the spot, costs - -	57,690
The expense of carriage will be - - - - -	173,070
<hr/>	
So that the whole buyer's price will be - - - - -	230,760
The duty on exportation will be - - - - -	57,992
And if to this be added other expenses, reckoning the interest of the capital employed, and the profit of the merchant, at 20 per cent. - - - - -	46,152
<hr/>	
It will be found that a quantity of timber, which, when bought on the spot, costs only 57,690 rubles, will cost the foreigners who purchase it - - - - -	327,134

* Hist. Stat. Gemälde des Russischen Reichs von H. Storch, vol. viii. p. 173—178.

A million of rubles, therefore, brought into the empire by the timber trade, is distributed in the following manner :

	<i>Rubles.</i>
Prime cost - - - - -	172,000
Expense of carriage - - - - -	517,000
Other expenses, and profit to the merchant - - - - -	138,000
Duty on exportation - - - - -	173,000

Foreigners, therefore, pay for timber, nearly six times the original cost ; one half of the whole price, or three times the prime cost, goes for the expense of carriage ; a seventh part of the whole price comes into circulation at Riga ; and more than a sixth, or a sum equal to the prime cost, goes to the government as duty.

But these advantages are still greater when ship-timber is sold :

	<i>Rubles.</i>
For if a quantity cost on the spot - - - - -	35,070
The carriage will be - - - - -	105,210
	<hr/>
	140,280
The duty will amount to - - - - -	56,326
And other expenses, with the profit to the merchant, amounting to 20 per cent. will be - - - - -	28,056

So that the price, to foreigners, will be - - - - - 224,662

Hence a million of rubles brought into the country by this trade, will be thus distributed :

Prime cost - - - - -	156,000
Carriage - - - - -	469,000
Other expenses, and profit to the merchant - - - - -	125,000
Duty on exportation - - - - -	250,000

I do not mean to insinuate, that Ireland' can ever look forward to any advantages of this kind ; but, without prejudice to agriculture, it might certainly be made to produce timber which would form a valuable addition to our national resources, and create a spirit of industry in parts of the country where indolence and poverty prevail. Norway, Sweden, and Russia, produce that of an excellent quality, in a more northerly and exposed climate than any part of Ireland ; as I have been informed, by a Mr. Self, who spent the summers of 1808 and 1809 on the western side of the gulf of Bothnia, where he was employed in purchasing timber on commission for the British merchants, of which he appeared to be an excellent judge. In that part of the country he procured much finer fir than he could elsewhere ; but the larch there is of no value. The timber, when cut down,

is conveyed on sledges over the snow, during the time of frost, between December and March, to saw-mills, which cannot be worked till June, the streams not being clear of ice till that time. It is sawn in the green state, and then formed into rafts, which are floated in some river till it reaches the port, where it is shipped for England. He remarked, that much of this timber grows on rocks and sandy soil, but the best on loam. The bark is not stripped from the trees, but suffered to remain on them till they are chopped square with the axe. The Riga and Memel timber, compared with the Swedish, is hollow in the pip. The rents, in that part of Sweden, are paid entirely by timber.

Those who plant mountains, ought to be particularly careful to provide shelter for their trees, as far as may be possible. Dr. Patterson says, that "according to Mr. Templeton, whose opinion is entitled to great consideration, it is the wind which prevents the growth of trees on the sea-coast of Ireland." The first means of security is by firm insertion into the earth at the time of transplanting. The Scotch method of planting horizontally, in the same manner as thorn-quicks are put into a bank, is most excellent; I have seen it practised in the North with great success, and therefore I have the less hesitation in recommending it. In the best soil, the tree acquires a firm hold before its head is grown so large, or so high, as to be affected by the violence of the wind. Another point of importance is, to plant, as nurses, such trees as are best calculated to stand exposure; and in this respect, the tamarisk, as a shrub, is superior to all others. The sycamore and birch may be placed in the next class. At Hazelwood, I have seen the Carolina poplar, *populus angulata*, grow in an exposed situation, with a rapidity truly astonishing. It certainly is a beneficial method to commence plantations at the bases of hills, and it is recommended by Mr. Dubourdieu, who says; "I believe it is very well known in exposed countries, that the only way to make trees thrive on the top of high ground, is, by beginning to plant at the bottom. The natural shelter afforded them, so placed, and the general superiority of earth, give a freedom to their growth, which gradually supplies those above them with protection, until the whole is covered."*

Great care should be taken also, to thin the plantations gradually, as many trees are killed by too sudden exposure. "The western side of every plantation," says Mr. Dutton, "however deep it may be, will certainly be injured, and the tops of the trees will form an inclined plane; yet within this they will grow as freely as in any sheltered situation of equally good soil. At any future period, when thinning is necessary, the outside injured trees should be scrupulously preserved, for the certain consequence of removing them would be the death of those they protected."†

Mr. Tighe states, in his excellent Survey of Kilkenny, that there are 1800 acres of wood in that county; and if accounts equally accurate and minute of the other

* Dubourdieu's Survey of Down, p. 166.

† Survey of Clare, by Heley Dutton, p. 270.

counties were published, we might, perhaps, be able to ascertain how many acres of wood-land there are in Ireland. Mr. Dutton says, that there are 780 acres of plantations, rather than woods, in the county of Clare, a district which is remarkably bare of trees: one may travel there for many a mile over limestone rock without seeing a bush, and the same sort of prospect prevails throughout Galway: but this nakedness might be remedied, for it is certain, that on such rocky soil, ash will grow to a very great size. Mr. Herbert, of Carniene, is of opinion, that the growth of trees on limestone depends much on the inclination of the beds in which it lies. This kind of rock readily exfoliates, and becomes mixed with the staple wherever it is parallel; where the dip of the rock proceeds obliquely into the earth, the exfoliation runs down to the roots of the trees, and on this account they flourish.

Ash is a tree confined chiefly to Fermanagh, and to some parts of the adjacent counties of Tyrone and Cavan; but in the former it runs along the hedge-rows, and on the northern side of Lough Erne it is like a weed of the country.

Elm I saw in a gentleman's domain near Tralee, in Kerry, and at Adare, the seat of Mr. Quin, in Limerick. The weeping, or Hertfordshire elm, I found at Woodstock and Avondale. In the counties of Carlow and Dublin it is frequently raised, but in some parts of Ireland it is unknown; and there is no demand there for it, to make water-pipes, as there is in England.

Oak abounds throughout the glens of Wicklow, and upon the mountains of Killarney; but however much it adds to the picturesque beauty of forest scenery, it is not of such a size as to merit the appellation of magnificent, or to excite any idea of national utility, by being fit for the construction of large ships of war. The ilex, or evergreen oak, grows in great perfection at Kilruddery and other places in the county of Wicklow. I saw it at Rostellan, near Cork; and Mr. Dubourdieu describes some in the county of Down, which he says, "never bear acorns;"* but this is not the case with those in the county of Wicklow.

Wood is more general in Fermanagh than in any other county of Ireland. Beech grows there to a large size, and there are some very good ones at Castle Cool. Mr. Hayes says that this tree is not a native of Ireland;† whether this be the case or not, I will not pretend to determine; but I am acquainted with no general use to which it is applied in that country, and in many places no market for it can be found. On the sea-coast, a little may be used for the keels of boats and small vessels, and some may be employed for gun-stocks and turners' work; but the demand occasioned by these articles must be very limited. In the north of Ireland a few trees are sold annually in order to make beetling machines.

The Spanish chesnut is a tree of rapid growth; it is apt to fork at a very early height, and affords excellent timber, fit for the same purposes as oak. At Oak Park,

* Survey of Down, p. 162.

† Hayes on Planting, p. 112.

near Tralee, there are many magnificent trees of this sort, in a grove behind the mansion; but the largest I ever saw were at the seat of Lord Wicklow, and in that county they flourish with great luxuriance. Some good ones may be seen, also, at Orange Park, in the county of Antrim.

The variety of trees to be found in gentlemen's domains, it is needless to enumerate. Mr. Foster has collected some of every sort which will bear the climate of Ireland, and has 500 acres of ground covered with them. Many noblemen and gentlemen have plantations on a similar plan; but this branch of our rural economy has been conducted at Collon, perhaps, with as much skill and success as in any part of the united empire. It is impossible for any one, fond of this study, to spend much time there without acquiring great instruction in regard to the management of plantations. Mr. Foster, along with his financial and other extensive acquirements, possesses more knowledge of trees, as to their propagation, growth, connexion with soil, and value when timber, than any person I ever met with. I have been in his company in many nursery-grounds, and I always found, that the proprietors of them acquired much curious information from him in the course of our walk. Nursery men, in the neighbourhood of London, have often assured me that he was by far the best arborist of a gentleman of fortune they ever knew. I shall here add, because I do not think it is generally known, that they told me also that the late Mr. Fox had a more extensive knowledge of plants and of botany than any other person who was in the habit of visiting their grounds.

Mr. Wynne, at Hazelwood, near Sligo; Mr. Bolton, of Faithleg, near Waterford; the Rev. James Symes, of Ballyarthur, near Arklow; Mr. Herbert, of Carneine, near Killarney; and Sir W. Newcomen, of Carickglass, in the county of Longford, are all experienced planters, from whose knowledge much may be expected; and I have no doubt that there are many others in different parts of Ireland, with whom I have not the honour to be acquainted.

The late Mr. Hayes, of Avondale, left behind him a small treatise on the subject of planting, which I strongly recommend to the attention of every gentleman of landed property who may be desirous to promote this kind of improvement.

In all modern plantations, the larch makes a conspicuous figure. It is a native of the Pyrennees, and has acquired great celebrity on account of its extraordinary growth on mountains. Its hardiness points it out as a tree fit for exposed situations; but I very much doubt whether it is not too general a favourite.

The birch is an excellent nurse in exposed places, and in this respect may be classed next to the sycamore, with this advantage in Ireland, that it would find a sale for its bark, which brings half the price of oak bark. In England, under the idea of encouraging the planting of oak, the use of it is prohibited.

In Wicklow there are extensive oak woods belonging to Earl Fitzwilliam, whose agent manages them in a superior manner. A stated quantity are felled every year,

reserves being left for a regular succession, and the whole are copped up with great care. These woods, which are not kept for ornament, but profit, grow in general on mountains, and afford a visible proof that timber can thrive in Ireland without the protection of a high stone wall to prevent it from being cut down by the poor, for the purpose of being converted into walking sticks.

It was once my intention to give some general rules, the result of my own observations, for the planting and management of woods: but a desire of not swelling this work to too great a size, induces me to reserve what I have to offer on this subject till another opportunity. To treat it in a proper manner, would require a volume; and, as I am constantly collecting new facts, I, perhaps, at a future period, should no one else undertake the task, may attempt something of the kind, and which I have reason to think might be attended with considerable benefit. The raising of timber in any part of the united empire, where it could be done without prejudice to agriculture, is, undoubtedly, an object of the utmost importance; and it would give me great pleasure to see Ireland possessing her share of this advantage. A late intelligent and acute statesman, Lord Melville, in a work published a few years ago,* strongly pointed out the alarming scarcity of timber for naval purposes; and, when the enormous and increasing demand for it is considered, it must be admitted, that the subject merits the most serious consideration of landed proprietors in every part of the empire. It is no new observation; the evil was foreseen a century ago by the commissioners of the navy;† and if a scarcity of timber was apprehended at that time, when the most sanguine patriot could entertain no idea that the British navy would be swelled to its present extent, is there not much more cause for alarm now, when we can boast of possessing no less than two hundred ships of the line, with four times as many vessels of inferior rank, either in our ports, or scouring the ocean in all quarters of the globe?‡ Neither the ports of Tyre, Carthage, or Alexandria, ever exhibited such a display of trading ships of every description, as those which belong to the ports of Great Britain. To protect these, our superiority must, at all events, be preserved. Every thing, indeed, in the political situation of the world, points out, in the most impressive manner, the necessity of our maintaining, and even enlarging, our navy; and it is evident that this cannot be effected but by encouraging and enforcing, as far as possible, the raising of that timber so necessary for its formation. Supplies from foreign countries are uncertain; the northern forests, as has been already shewn, are very much on the decline; and, even if there were abundance of timber in these countries, it would be highly imprudent to trust to a source which may be unexpect-

* Letter from Lord Viscount Melville to the Right Honourable Spencer Perceval, on the subject of Naval Timber. *Bagster*, 1810.

† Derrick's *Memoirs of the Navy*, 1806. p. 77.

‡ To build a seventy-four, requires 2000 trees, each containing two tons of timber. *Marshal, on Planting*, 3d edit. vol. i. p. 111.

edly closed against us, at the caprice of an individual. It would be a gratifying spectacle, to see the bleak mountains of Ireland, many parts of which are unfit for any other purpose, covered with thriving plantations, the hope of future ages: we might then look forward with satisfaction, should the circumstances of our country decree their necessity, to new victories, for our proud fleets and our gallant seamen. To them we have been indebted for that exalted station which Great Britain now holds; they have secured us from invasion, notwithstanding the insolent threats of an inveterate foe; and they will continue, I trust, to be our best bulwark till the winds and the waves shall cease to buffet our sea-girt coast.

That the reader may be better enabled to form an idea of the nature and growth of trees in Ireland, I shall subjoin some notes on this subject, extracted from my journal; but I must observe, that when I speak of size, I allude to measurement, made at the height of about five feet from the ground. Where the age can be ascertained as well as the size, it is always useful to give it, as the growth, by these means, may be determined; but few planters pay sufficient attention to this point, though it is certainly of considerable importance.

Lords Lismore and Cahir are forming plantations on a very extended scale, in the county of Tipperary. I inspected the nursery ground of the latter nobleman, and found it under excellent management; but his lordship being at Clónmel assizes, I was prevented from profiting by my letter of introduction. Both these noblemen reside in a county which is well adapted for planting, and the character they universally bear, induces me to expect every thing from their spirit and exertions.

JUNE 30th, 1808. DOWN. MOYALLAN.—Oak sells here at six shillings per square foot, and ash at four shillings. An acre of timber, near Tandragee, which was of eighty years' growth, sold for as much, at Lord Sandwich's sale, as twenty-five adjoining acres of land.

JULY 6th. ARMAGH. GOSFORD CASTLE.—Oak bark brings twenty shillings per cwt. Foreign deal costs four shillings per square foot.

AUG. 30th. FERMANAGH.—Saw an extraordinary yew tree at Lough Erne, the branches of which extended 45 feet. At Killigowan there is an island in the Lough, which is covered with oak, ash, and firs, and where there are willows and hazels of an uncommon size.

AUG. 29th.—There are a hundred acres of ash at Glaslough. I have heard that Colonel Leslie, in the county of Monaghan, when ash brought 2s. per foot, was offered 6000 guineas for 1000 trees. Spruce, fir, and larch, of 45 years' growth, sell at forty shillings each. The value of ash depends on its being smooth, and fit to make staves for butter firkins. The hoops are made of hazel.

AUG. 31st. FLORENCE COURT.—Saw here ash of considerable size, which had the woods been thinned when young, would have been fine trees; but notwithstanding.

ing every disadvantage, they are very tall, though thin, but on the outside some which stand single are very large.

Quicks cost 5s. per hundred; firs 16s. 3d. per hundred; beech the same. Mr. Reily has a nursery ground near Kells, consisting of twenty-four acres, from which he sold young trees last year to Lord Sherborne, to the amount of £1200.

AUG. 12th. WESTMEATH. REYNELLA.—In this neighbourhood there are thriving plantations of twenty years' growth.

AUG. 13th, 1808.—Sir Richard Levinge has very extensive young plantations. Hazel is sold to make hoops for butter firkins.

AUG. 17th. COOLURE.—The Weymouth pine often dies at the age of four or five years, but as I have been told, this happens only when it is in contact with another tree.

AUG. 23d. CAVAN. FARNHAM.—Rode round the extensive plantations in the park, where I observed that no tree thrives so well as the beech, but there is little sale for it: oak brings 5s. 3d. per cubic foot; ash £9. per ton; oak bark £20. per ton.

Hazel-wood, of three years' standing, is sold for hoops to butter firkins. Mr. Coote sold an oak tree, lop, top and bark, for sixty guineas; the bark is valued at twenty-two guineas per ton; ash brings 3s. 6d. per foot; it is used for making butter firkins. This gentleman has sold an acre of timber here for £500.

SEPT. 11th. DONEGAL. ARDS.—Mr. Stewart finds birch trees the best nurses for his plantations, cutting them down as the oak and ash grow up. He has observed, that the spreading branches of the Scotch fir impede the growth of young trees. He complains of the want of a market, and, therefore, sells his timber in single trees. As there is here no demand for ash to make butter firkins, it finds very little sale.

SEPT. 14th. LONDONDERRY. NEWTOWN LEMIVADY.—There is much wood in the neighbourhood of Walworth.

SEP. 16th. COLERAIN.—The plantations belonging to Capt. Richardson, on each side the river, are thriving in great beauty.

SEP. 19th. ANTRIM. RANDELSTOWN.—There is a nursery near Shanecastle.

SEP. 23d. TYRONE. DUNGANNON.—Ash sells for 3s. 3d. per foot. Fir used in building houses brings 4s. 4d. per foot. Elm here becomes covered with moss, and does not answer.

SEP. 28th. WESTMEATH. MITCHELSTOWN.—Saw a sycamore tree here which was losing its leaves; oak and ash sell at 4s. 6d. per foot; fir at 2s.

SEP. 5th. FERMANAGH. FLORENCE COURT.—I observed at this place a yew tree growing in a spiral form like a cypress: it is a native of the rocks on the adjacent mountain.

CASTLE COOLE.—At Enniskillen, oak sells at 5s. and 7s. 6d. per solid foot; ash at 4s. 6d. For beech there is no market; elm is seldom raised; oak bark is worth £20. per ton.

SEPT. 6th.—Visited Devenish Island, where I saw the dwarf alder, which has a remarkably sweet smell; at Castle Coole there are beech trees 120 years old, which are of an immense size.

SEPT. 11th. DONEGAL. ARDS.—I observed here on the bogs some white heath. Heard of bodies buried in mats for want of timber to make coffins.

OCT. 9th. GALWAY. LOUGH REA.—On the hills belonging to Mr. Burke, the American spruce grows much better than the Scotch fir; there is no difference in this respect between the black and the white. In Tipperary, oak sells for 5s.; ash for the same, and fir for 3s. per foot.

OCT. 18th. KERRY. OAK PARK.—This place is remarkable for a grove of sweet chesnut trees, of great age and size; the trunk of one of them is twenty-four feet in height, before it begins to throw out branches.

OCT. 22d. CARNIENE.—This domain contains 152 acres, and in the year 1742, when Mr. Herbert's uncle first resided upon it, there was not timber worthy of being noticed, in an estimate made of its value. Ornamental plantations were afterwards formed, and the woods at present are worth £4000. at least. One oak near the house measures in girth 7 feet 5 inches, and a sweet chesnut 8 feet 2 inches. I measured two of the oaks referred to in Mr. Hayes' Treatise on Planting,* which were sown from acorns, in 1760, and found the dimensions of them as follows:

	In 1800.		October 22d, 1808.	
	Feet.	Inches.	Feet.	Inches.
N ^o . 1 measured	3	1	6	1
2	3	2	4	11

OCT. 31st. CORK. GLENGARRIFF.—Variegated ivy grows at Castle Townsend, the vines of which creep up the rocks throughout the grounds. Geraniums, myrtles, and exotics of every kind, remain out of doors the whole year in a southern aspect, under the shelter of some bank or rock.

NOV. 7th.—Willow and alder are used for charcoal at the gun-powder manufactory near Cork; it is worth three guineas per ton. Called upon Lord Longueville, at Castlemary, and observed the trees covered with ivy, which gave them the appearance of evergreens.

NOV. 10th. CORKBEG.—Ash here is worth from £15. to £20. per ton. Fir sells for £18. which is about forty shillings per tree; bark brings twenty guineas per ton. In this neighbourhood there are many orchards where cider is made.

NOV. 17th. CASTLEHYDE.—Butter firkins are made of American timber at Cork.

NOV. 20th.—Mr. Hyde says, that a planter must raise his trees from seedlings, as purchasing from a nursery would ruin him.

NOV. 20th. CASTLEHIDE.—The Irish furze is a dwarf plant in comparison of the French. A considerable quantity of furze seed is exported from Cork.

Nov. 23d.—Mr. Hyde sold 8000 trees of 100 years' growth, which covered sixty acres of land, for £10,000. and five acres of fir for £1100. The buyer re-sold the latter for £3000.: he has sold for £800. timber of thirty years' standing, the bark of which produced £1400.

DEC. 1st.—LIMERICK. ADARE.—Mr. Quin estimates, that if an acre of land be planted with 4000 larches, 2000 cut out in thinning will pay the expenses. He supposes that 200 may die, and that the remaining 1800 will be saleable in twenty years, at twelve shillings each. The Scotch fir, and the Weymouth pine, are not so valuable, he thinks, by 1s. 6d. each.

Timber is in request here chiefly for building cabins. Mr. Quin says, that it has increased in price in a much greater proportion than the rent of land. The American staves can be sold at Limerick and Cork, for less than timber the production of this country: sawn timber has been tried for firkins, but it does not answer well, as the butter adheres to the sides, on account of the roughness of the wood. Oak bark is of more value than any other; young bark of eighteen years' growth brings 24 per cent. more than old; birch bark sells for one half of that price, and that of the willow for one quarter.

DEC. 2d. GRANGE.—Mr. Grady has a plantation of five acres, the substratum a cold yellow clay, covered with oak, ash, sycamore, and elm, from which, at the end of thirteen years, he sold thinnings to the amount of £30.; the second year he sold to the value of £60.; the third, to the value of £70.; and the fourth, to the value of £100. The rent of the land when he planted was thirty-five shillings, but at present it is worth three guineas. The wood was all sold for cabin timber.

DEC. 13th. WATERFORD. FAITHLEG.—I spent this day in measuring different trees, the dimensions of which I found to be as follows:—

	Feet.	Inches.	
Larch - - -	2	2	
Beech - - -	2	1	at 18 years old.
Norway fir - - -	3	1	24; this tree requires much room.
Pine - - -	3	9	26 { a coarse useless wood, and the tree decays at this age.
Larch - - -	3	1	28 raised from seed.
Beech - - -	2	2	
Larch - - -	3	0	
Black Canadian Poplar	6	1	{ was a cutting two feet high in 1789.
Canadian red Elm -	3	8	was three feet high in 1782.
Small waved English Elm	5	1	- - - - 1764.
Cornish Elm - - -	2	7	- - - - 1782.
Larch - - -	3	1	{ in the same nursery 23 years' growth.
Scotch Fir - - -	2	2	

DEC. 12th. WATERFORD. FAITHLEG.—Mr. Bolton sold a beech tree twenty-seven years old, at the price of a guinea; it was to be formed into the keel of a boat, a purpose for which it answers as well as elm. Saw here a black Newfoundland spruce growing in great luxuriance. The Cornish elm is remarkable for never yielding to the influence of the sea breeze; all other trees give way to the continued power of the south-west wind, but this tree stands perfectly erect. In consequence of the peculiar manner in which the roots of the larch and the elm grow, they furnish excellent knees for boat building; but to be used for this purpose they must be taken up with great care.

DEC. 15th. A cargo of Scotch fir was lately brought to this city, where it sold for four guineas per ton, whilst the foreign cost £12.; it had not been barked, and the consequence was, that it became dozed. At Newfoundland the silver fir is called, var, and the larch, which is remarkably good, jumper; these, with the black spruce, are the principal trees which grow there.

DEC. 17th. WEXFORD. NEWTOWN BARRY.—Bark sells for £20. per ton; birch bark at half that price. Colonel Fare, who dined here, has 800 acres of wood near Ross. Colonel Barry wanted timber for immediate use, and as he could not wait to have it seasoned, he dried it by fire.

DEC. 23d. WEXFORD.—There is a great deal of timber in this neighbourhood, at the seat of Lord Arran, at Saunders Court, and at Mr. Le Hunte's, at Arrans-town; it consists of larch and oak.

KYLE.—Mr. Harvey has sold a silver fir forty years old, for seven guineas. At Saunders Court there are many laurels of an enormous size, some of which are eight or nine feet high in the stem before they begin to branch, and three feet in circumference; the branches of one embrace a circumference of 36 feet; those of a silver fir forty years old, extend 5 feet 4 inches, and those of another 7½ feet.

JAN. 9th, 1809. QUEEN'S COUNTY. ABBEYLEIX.—The woods here are of great extent, and some of the timber may vie in size with that of England. If timber be soaked some time in water, the turpentine will exude from it.

FEB. 9th. WEXFORD.—Hazel, witch and elm have a fast root; English elm throws out its roots horizontally, and has no sap root; the latter should be grafted on the witch; the witch elm lasts as long as the English, and grows faster, but it does not attain to the same size or straightness; both acquire their good qualities by engrafting. If planted horizontally on a mountain, the roots for a while shoot into the best earth, and yet the tree grows in a straight direction; all quicks are planted in this way, the sod being raised with a spade and the plant put in.

ROSANNA.—Measured an elm here, which was eleven feet in circumference. Weeping willows were in full blossom, and exceedingly beautiful. Two silver firs at Mount Usher, measured each twelve feet, carrying their timber of this size full forty feet; and rising altogether to the height of eighty. Wall fruit ripens well on this coast; apricots were in full bloom at Mr. Beaumont's, near Goree; this gentle-

man recollects brooms being made of the small leaved myrtle; gooseberry trees should be hooped; an ever-green oak at Mount Usber, measured ten feet; the bark of this tree was very fine grained like that of the ash; a sweet chesnut measured eleven feet, and a horse chesnut twelve feet.

MARCH 16th. WICKLOW. STRATFORD.—Saw plantations of larch around the manufactory.

MARCH 1st. BALLYBEG.—An oak not a century old measured twelve feet in circumference; but like all the other oaks I ever saw in Ireland, it branches out at the distance of a few feet from the ground. It has a most beautiful top, and stands in front of the house. There is a plantation here of larch, beech, and Scotch fir. The larch has grown to double the size of the rest, though they were all planted at the same time, twenty years ago. Two sweet chesnuts, fourteen years old, are four feet in circumference. Larch, eighteen years old, are three feet two inches.

MARCH 5th.—There are here two most wonderful balsam poplars. They are only fourteen years old, and of such an extraordinary height as I never saw at the same age.

MARCH 23d. TIPPERARY. LITTLETON GLEBE.—Mr. Grady finds that the larch out-tops all the other trees in his plantations; but it does not thrive in a wet soil. He has observed, that irrigation kills it. Bog must be drained before it is planted, or the roots of the trees will be left bare. A sallow, scorched, and twisted like a bay band, is much used here instead of harness, and is called a *gadd*. Near Armitte bridge there is an uncommonly fine apple orchard. Sir Thomas Fitzgerald has formed an excellent orchard, and finds it the best way to plant a wild tree, and then graft his stock, plums on the black thorn, and pears on the white. He places a hay band *sagan* round the stalk of the tree, and rubs it over with a mixture of cow-dung and urine, which prevents the rabbits from gnawing it. He has raised elms from cuttings. Ash thrive best, if cut down after they have been transplanted two or three years. Some treated in this manner are higher than those that were not cut.

MARCH 19th. KILKENNY.—Sir Richard St. George is forming extensive plantations, which are laid out with great taste. He always plants larch by itself, because it outstrips and smothers all other trees. In transplanting trees of the same size, a cavity should be scooped out in the ground, and the tree, with a ball of earth adhering to it, should be placed in the hollow. The root is then to be well covered with earth, and the sod being placed over it should be kept down with stones. By these means the moisture will be prevented from escaping in dry seasons, and the stones, which cannot injure the roots, on account of the interposition of the sods, save the trees from being shaken or loosened by the wind.

MARCH 30th. WATERFORD.—Any timber which has sap in it when stripped of its bark, if daubed over with lime-water, will, in a few weeks be fit for the saw. In Norway, the timber felled is immediately barked and rolled into the mountain

torrents, in which it remains all winter; next year it is shipped for England. All the timber of quick growth on the banks of the rivers, has been cleared away, and the people are now cutting down that of slow growth, produced on the tops of the mountains.

Mr. St. George plants 2500 larch trees per acre; reduced by thinning to 1200; they will pay the rent in twenty years.

MARCH 27th. There are considerable plantations at Coolmore, the seat of Mr. Walls, in the county of Waterford.

APRIL 5th. KING'S COUNTY. GLOSTER.—Mr. Lloyd has sold firs seventy years old, for seven shillings per tree. He has 100 of that age which he values at £4. each. He finds that the Scotch fir decays, at the end of that period.

APRIL 28th: DUBLIN.—The Botanic Garden, belonging to the Dublin Society, at Glasneven, stands on limestone gravel, with a very thin covering of soil. I am sorry to remark, that it has the appearance of being kept in a slovenly manner.

MAY 26th. WICKLOW.—The poor people strip the bark from the witch elm and the alder, and use it for dyeing.

AUG. 26th. FERMANAGH.—Fir, oak, and yew, are the only kinds of wood found in the bogs; the ash, which grows here so commonly, is a tree of modern introduction.

JUNE 3d.—Mr. Carew lately sold thirty acres of wood, seven miles from Enniscorthy, for £6000. It was sixty years old, but so stunted, in consequence of its not being early thinned, that it was scarcely equal in size to timber of thirty years' standing. He calculates that an acre produces eighty barrels of bark. The expense of stripping it off is from 2s. 6d. to 2s. 10d. per barrel. Larch makes good railing, but when employed for this purpose the bark must be retained.

JUNE 10th. WICKLOW. SHELTON.—Lord Wicklow has near his house eight beech trees, which were planted a century ago, round a bowling green, and are now 11 feet 6 inches in circumference. A Spanish chesnut is 17 feet, but it was scarcely six feet high when it branched. One bough forms a fine stick, nine feet in circumference. The ash produces beautiful sticks, exceedingly straight.

Mr. Harvey says, that Mr. Carew's woods sold for £6000. In 32 acres of oaks there were not 20 trees seven inches in diameter.

JUNE 16th. CARLOW. OAK PARK.—There is here a small oak wood, which is considered as a great rarity. Mr. Brown's plantations are 35 years old. The balm of gilead firs are all dead. The spruce and silver are also dying very fast, and on that account he is cutting them down. All the other trees, and particularly beech, are healthy.

JULY 4th. KING'S COUNTY. DURRAGH.—Mr. Stepney has pruned the larch with great success; but he finds that this tree does not thrive in bog. Bark sold last year at £18. 10s. per ton.

JULY 28th. CARLOW.—Observed elm in this county earlier than any where else.

JULY 15th. BORRIS.—In this domain there are many elms, and in the front lawn, horse and Spanish chesnuts. Oak, lime, larch, and fir, are distributed in single trees.

JULY 16th. WEXFORD.—Measured a fir tree here, and found its circumference to be seven feet four inches. A Spanish chesnut was twelve feet. There are some magnificent ever-greens at Woodstock, and particularly Portugal laurels. A larch, forty years old, was five feet in circumference. Woodstock has 200 acres of wood. Mr. Tighe lets osier beds for £8. an acre, and might have £12.; they are used for hoops.

JULY 17th.—Such is the scarcity of timber here, that in general it is used as soon as cut down. Coal-tar daubed over the trunks of pines will prevent sheep from destroying the bark. Mr. Harvey sold silver firs forty-two years old, as follows: one tree for fourteen guineas; four for £12. and eight for £7.

AUG. 1st. LOUTH. COLLON.—This is the best time of the year to transplant ever-greens. There is an oak here, thirty-six years old, which is four feet in diameter.

AUG. 3d.—Spent the early part of the day in examining Mr. Foster's extraordinary collection of shrubs and forest trees, in which, in my opinion, he stands unrivalled. A privet hedge clipped, is employed instead of a drying ground, as it never stains the linen, and has in it no thorns. It forms a border to the shrubbery at Lady Ferard's cottage, and makes a very handsome appearance. Oaks grow best in gravel, ashes, or clay. Mr. Foster conceives all aspects to be equal for trees, the west excepted, because the prevailing winds blow from that quarter. The Rhododendrons at Collon, strike every stranger with astonishment.

AUG. 13th. ARMAGH.—Saw orchards here with many pear trees in them. The apples are sent chiefly to Scotland. The freight of timber from Canada to Ireland, is four shillings per solid foot.

AUG. 16th. ARMAGH.—Measured two larches in front of Dr. Richardson's house at Clonfeckle, one of which was five feet three inches, and the other five feet six inches in diameter.

SEPT. 23d. ROSCOMMON. TULSK.—Mr. Kelly propagates holly by layers. His house is roofed with bog-timber, which keeps out the wet; but is dangerous on account of fire. An oak here, which branches out almost immediately from the root, measured from bough to bough, one way, twenty-four yards, and the other twenty-seven. Sir Edward Crofton says, he finds that ash rots as soon as it comes to maturity, and bog destroys the bark of oak. Mr. Taafe had on one apple tree 8400 apples. The crofton apple is the favourite in this neighbourhood.

SLIGO. HAZEL WOOD.—The Irish use no hurdles, and they have no aptitude for making gates, or any thing of the sort. Mr. Wynne finds that trees will not grow on those parts of the mountains where there is a tough, wet, bog soil.

A LIST of TREES, PLANTS, and GRASSES, either observed whilst I was in Ireland, or taken from "White's Indigenous Grasses in Ireland," or a List furnished me by the Rev. Mr. Hinks, Secretary to the Cork Institution, or taken from some of the County Surveys.

Botanical Name.	English Name.	Class.	Order.	Nat. Order.
<i>Acer pseudo platanus</i> -	Great Maple -	Polygamia	Monœcia	Trihilatæ
<i>Achillea millefolium</i> -	Common Milfoil or Yarrow	Syngenesia	{ Polygamia Superflua	{ Compositæ Discoideæ
<i>Agrostis pumila</i> -	Dwarf Bent-grass -	} Triandria	Digynia	Gramina
<i>stonilifera</i> -	Creeping Bent-grass -			
<i>Aira aquatica</i> -	Water Aira Grass -	} Triandria	Digynia	Gramina
<i>flexuosa</i> -	Heath Aira Grass -			
<i>præcox</i> -	Early Aira Grass -			
<i>Ajuga reptans</i> -	Common Bugle -	Didynamia	Gymnospermia	{ Verticillatæ or Labiatæ
<i>Abchemella vulgaris</i> -	{ Common Ladies Mantle or Bearsfoot - - - }	Tetrandria	Monogynia	Senticosæ
<i>Alisma plantago</i> -	Great Water Plantain -	Hexandria	Polygynia	Tripetaloidæ
<i>Althea officinalis</i> -	Common Marsh-mallow	Monadelphina	Polyandria	Columniferæ
<i>Alopecurus pratensis</i> -	Meadow Foxtail -	Triandria	Digynia	Gramina
<i>Anagallis tenella</i> -	{ Bog Pimpernal, Purple Loose- strife, or Moneywort }	Pentandria	Monogynia	Rotacæ
<i>Anethum pœniculum</i> -	Fennel or Fickle -	Pentandria	Digynia	Umbellatæ
<i>Anchusa sempervirens</i> -	Evergreen Alkanet -	Pentandria	Monogynia	Asperifoliæ
<i>Angelica Sylvestris</i> -	Wild Angelica -	Pentandria	Digynia	Umbellatæ
<i>Andromeda polifolia</i> -	Marsh Andromeda -	Decandria	Monogynia	Bicornes
<i>Anthoscanthum Odoratum</i>	Sweet-smelling Vernal Grass	Diandria	Digynia	Gramina
<i>Anthericum Ossifragum</i>	Lancashire Bastard Asphodel	Hexandria	Monogynia	Coronarïæ
<i>Antirrhinum cymbalaria</i>	Ivy-leav'd Toad-flax -	} Didynamia	Angiospermia	Personatæ
<i>repens</i> -	Creeping Toad-flax -			
<i>linaria</i> -	Common Yellow Toad-flax			
<i>majus</i> -	Great Toad-flax or Snap-dragon			
<i>Arbutus uva ursi</i> -	Red-berried trailing Arbutus	Decandria	Monogynia	Bicornes
<i>Aratus thaliana</i> -	Common Wall Cress -	Tetradynamia	Siliquosa	{ Siliquosæ or Cruciformes
<i>Arenaria peploides</i> -	Sea Sandwort or Chickweed	Decandria	Trigynia	Caryophylliæ
<i>trinervia</i> -	{ Plain-tail-leaved Chickweed or Sandwort }	} Decandria	Trigynia	Caryophylliæ
<i>serpyllifolia</i> -	{ Least Chickweed or Thyme- leaved Sandwort }			
<i>rubra</i> -	Purple Spurrey or Sandwort			
<i>marina</i> -	Sea Spurrey or Sandwort	} Gynandria	Polyandria	Piperitæ
<i>Arum maculatum</i> -	Common Arum -			
<i>Asperula odorata</i> -	Sweet-scented Woodroof -	Tetrandria	Monogynia	Siellatæ
<i>Asplenium Irishmanus</i>	Common Maidenhair -	Cryptogamia	Filices	Ferns
<i>Aster tripolium</i> -	Sea Starwort - - -	Syngenesia	{ Polygamia Superflua	{ Compositi Radiati
<i>Avena elatior</i> -	Tall Oat-grass - - -	} Triandria	Digynia	Gramina
<i>plavescens</i> -	Yellow - - - - -			
<i>Ballota nigra</i> -	Stinking or Black Hoarhound	Didynamia	Gymnospermia	{ Verticillatæ or Labiatæ
<i>Bartsia viscosa</i> -	{ Viscid Bartsia or yellow-marsli Eye-bright - - - }	Didynamia	Angiospermia	

Botanical Name.	English Name.	Class.	Order.	Nat. Order.
<i>Bellis perennis</i> -	Perennial or common Daisy	Syngenesia	{ Polygamia { Superflua	{ Compositæ { Discoideæ
<i>Berberis vulgaris</i> -	Common Barberry -	Hexandria	Monogynia	
<i>Beta maritima</i> -	Sea Beet - - -	Pentandria	Digynia	Holoracæ
<i>Betula alta</i> -	Common Birch-tree -	} Monœcia	Tetrandria	} Amentacæ
<i>alnus</i> -	Alder - - -			
<i>Betonica officinalis</i> -	Wood Betony - -	Didynamia	Gymnospermia	{ Verticillatæ { or Labiatæ
<i>Borago officinalis</i> -	Common Borage -	Pentandria	Monogynia	Asperifoliæ
<i>Bovia media</i> -	Lady's Hair-grass			
<i>Bromus mollis</i> -	Soft Brome-grass -	Triandria	Digynia	Gramina
<i>Bunias cakile</i> -	Sea-rocket - - -	Tetradynamia	Siliquosa	Siliquosæ
<i>Bunium flexuosum</i> -	Less Pig-nut - -	Pentandria	Digynia	Umbellatæ
<i>Butomus umbellatus</i> -	Flowering Rush or Water Gladiol	Enneandria	Hexagynia	Tripetaloidæ
<i>Carex cæspitosa</i> -	Turfy Sedge - -	} Monœcia	Triandria	} Calamariæ
<i>distans</i> -	Distant flowering Sedge			
<i>flava</i> -	Yellow Sedge			
<i>Carduus nutans</i> -	Musk Thistle - -	} Syngenesia	} Polygamia { æqualis	} Compositæ { Capitatæ
<i>lanceolatus</i> -	Spear Thistle - -			
<i>Caltha palustris</i> -	{ Marsh Marygold - { Souci de Marais -	Polyandria	Polygynia	Multibliquæ
<i>Campanula rotundifolia</i>	Round-leaved Bell-flower	} Pentandria	} Monogynia	} Campanacæ
<i>hideracea</i> -	Ivy-leaved Bell-flower -			
<i>Caucalis autriscus</i> -	Hedge bastard Parsley	} Pentandria	} Digynia	} Umbellatæ { Siliquosæ or { Crucifloræ { flowers
<i>nodosa</i> -	Knotted bastard Parsley			
<i>Cardamine billidifolia</i>	{ Daisy-leaved Lady's-smock or { Alpine Cress - -	Tetradynamia	Siliquosa	
<i>Centunculus minimus</i>	Bastard Pimpernel -	Tetrandria	Monogynia	Rotacæ
<i>Centaurea lanceolatus</i> -	Blue-bottle - - -	Syngenesia	{ Polygamia { Frustranea	{ Compound { flowers
<i>Cerastium vulgatum</i> -	{ Common or narrow-leaved { Mouse-ear - - -	} Decandria	} Pentagynia	} Caryophyllei
<i>viscosum</i> -	{ Clammy or broad-leaved { Mouse ear - - -			
<i>semidecandrum</i>	Least Mouse-ear - -			
<i>aquaticum</i> -	Water Mouse-ear - -			
<i>Cheerophyllum sylvestre</i>	{ Wild Cicely or Cow-weed { common Cow Parsley	Pentandria	Trigynia	
<i>Chara vulgaris</i> -	{ Common or stinking Chara or { Stonewort - - -	} Monœcia	} Mouandria	} Inundatæ
<i>hispida</i> -	Prickly Chara or Stonewort			
<i>flexilis</i> -	Smooth Chara or Stonewort			
<i>Chinopodium bonus henricus</i>	{ Angular-leaved Goosefoot, { English Mercury or All- { good, Good Henry -	} Pentandria	} Digynia	} Holoracæ
<i>urbicum</i> -	Upright Goosefoot - -			
<i>rubrum</i> -	Red Goosefoot - - -			
<i>poligspernium</i>	Round-leaved Goosefoot, all seed			
<i>maritimum</i>	{ Sea Goosefoot or white Glass- { wort			
<i>Cheiranthus sinuatus</i> -	{ Prickle-podded Stock-Gilli- { flower - - -	Tetradynamia	Siliquosa	Siliquosæ
<i>Chelidonium majus</i> -	Common or great Celandine	Polyandria	Monogynia	Rhœoadæ
<i>Chrysanthemum leucanthemum</i> -	{ Common Ox-eye or great Daisy { - - -	} Syngenesia	} Polygamia { Superflua	} Compositæ { Dioricoidæ
<i>segetum</i>	Corn Marygold - - -			
<i>Chrysosplenium oppositifolium</i>	Opposite-leaved golden Saxifrage	Decandria	Digynia	Succulentæ

Botanical Name.	English Name.	Class.	Order.	Nat. Order.
<i>Gistus helianthemum</i> -	Dwarf Gistus or little Sunflower	Polyandria	Monogynia	Rotaceæ
<i>Circeea lutetiana</i> -	Common Enchanter's Night-shade	Diandria	Monogynia	
<i>alpina</i> -	Mountain Enchanter's Night-shade	Diandria	Monogynia	Aggregate
<i>Cochlearca officinalis</i> -	Common Scurvy-grass	Tetradynamia	Siliculosa	Siliquosæ
<i>anglica</i> -	English or Sea Scurvy-grass			
<i>ormoracia</i> -	Horse Raddish			
<i>Comarum palustre</i> -	Marsh Cinquefoil	Icosandria	Polygynia	Senticosæ
<i>Cocium maculatum</i> -	Common Hemlock	Pentandria	Monogynia	Umbellatæ
<i>Covonopus ruellii</i> -				
<i>didyma</i> -				
<i>Corylus avellana</i> -	Hazel nut tree	Monœcia	Polyandria	Amentaceæ
<i>Cotyledon umbellicus</i> -	Common Navel-wort	Decandria	Pentagynia	Succulentæ
<i>Convolvulus arvensis</i> -	Small or Field Bind-weed	Pentandria	Monogynia	Campanaceæ
<i>sepium</i> -	Great or Hedge Bind-weed			
<i>soldanella</i> -	Sea Bind-weed			
<i>Cynosurus cristatus</i> -	Crested Dog's-tail Grass	Triandria	Digynia	Gramina
<i>Dactylus glomerata</i> -	Rough Cock's-foot Grass	Triandria	Digynia	Gramina
<i>Daucus corata</i> -	Wild Carrot	Pentandria	Digynia	Umbellatæ
<i>Daphne lauriola</i> -	Spurge Laurel	Octandria	Monogynia	Vepreculæ
<i>Dipsacus sylvestris</i> -	Wild Teasel	Tetrandria	Monogynia	Aggregate
<i>Dianthus plumarius</i> -	Feather Pink	Decandria	Digynia	Caryophyllæa
<i>Draba verna</i> -	Common or Spring Whitlow Grass	Tetradynamia	Siliculosa	Siliquosæ
<i>Drosera rotundifolia</i> -	Round-leaved Sun-dew	Pentandria	Pentagynia	Gruinales
<i>longifolia</i> -	Long-leaved Sun-dew			
<i>Echium vulgare</i> -	Common Viper's Bugloss	Pentandria	Monogynia	Asperifoliæ
<i>Elymus caninus</i> -	Bearded or Dog's Lyme-grass	Triandria	Digynia	Gramina
<i>Empetrum nigrum</i> -	Black-berryed Heath	Diœcia	Triandria	
<i>Epilobium parviflorum</i> -	Small flowered willow herb	Octandria	Monogynia	Calycanthemæ
<i>Equisepum palustre</i> -	Marsh Horse-tail	Cryptogamia	Filices	Filices
<i>Erica tetralix</i> -	Cross-leaved Heath	Octandria	Monogynia	Bicornes
<i>vulgaris</i> -	Common Heath			
<i>cinerea</i> -	Fine-leaved Heath			
<i>Eriophorum polystachion</i> -	Cotton Grass	Triandria	Monogynia	Calamariæ
<i>Erysimum officinale</i> -	Hedge Mustard	Tetradynamia	Siliquosa	Siliquosæ
<i>Ervolium cicutarium</i> -	Hemlock-leaved Crane's-bill	Monadelphina	Pentandria	Gruinales
<i>moschatum</i> -	Musk Crane's-bill			
<i>maritimum</i> -	Sea Crane's-bill			
<i>Euonymus europæus</i> -	Common Spindle-tree	Pentandria	Monogynia	Dumosæ
<i>Euphorbia peplus</i> -	Petty Spurge	Dodecandria	Trigynia	Tricocæ
<i>exigua</i> -	Dwarf Spurge			
<i>portlandica</i> -	Portland Spurge			
<i>paralia</i> -	Sea Spurge			
<i>heliosopia</i> -	Sun Spurge or Wartwort			
<i>hibernia</i> -	Irish Spurge			
<i>aurygolaloides</i> -	Wood Spurge			
<i>Euphrasia odoritites</i> -	Red Eye-bright	Didynamia	Angiospermia	Personatæ
<i>Fagus sylvatica</i> -	Common Beech-tree	Monœcia	Polyandria	Amentaceæ
<i>Festuca durius-cula</i> -	Hard fescue Grass	Triandria	Digynia	Gramina
<i>ovina</i> -	Sheep's fescue Grass			
<i>Polyuodum pratensis</i> -	Meadow fescue Grass			
<i>Filix mas</i> -	Male Fern	Cryptogamia	Filices	Filices
<i>Fraxuries excelsior</i> -	Common Ash-tree	Polygamia	Diœcia	Separiæ
<i>Fumæra officinalis</i> -	Common Fumitory	Diadelphina	Hexandria	Corydæles

Botanical Name.	English Name.	Class.	Order.	Nat. Order.
<i>Galium montanum</i> -	Mountain Ladies' Bedstraw	Tetrandria	Monogynia	Stellatæ
<i>verum</i> -	Yellow Ladies' Bedstraw			
<i>pusillum</i> -	Least - - -			
<i>Gentiana campestris</i> -	Dwarf Field Gentian - -	Pentandria	Digynia	Rotacæ
<i>vena</i> -	Spring Gentian - - -			
<i>amarella</i> -	Autumn - - -			
<i>Glauc maritima</i> -	Sea Milkwort - - -	Pentandria	Monogynia	Calycanthemæ
<i>Gnaphalium diocum</i> -	{ Mountain Everlasting or Cud- weed - - - }	Syngenesia	{ Polygamia - Superflua }	{ Compositæ Discoideæ }
<i>Hedera helix</i> -	Common Ivy - - -	Pentandria	Monogynia	Hederacæ
<i>Helleborus foetidus</i> -	Great bastard black Hellebore	Polyandria	Polygynia	Multisiliquæ
<i>Heraclum sphondylium</i> -	Common Cow Parsnep - -	Pentandria	Digynia	Umbellatæ
<i>Hippuris vulgaris</i> -	Common Mare's-tail - -	Monandria	Monogynia	Innadata
<i>Holcus lanatus</i> -	Meadow soft Grass - - -	Polygamia	Monœcia	Gramina
<i>Hordeum murcurius</i> -	Wall Barley Grass - - -	Triandria	Digynia	Gramina
<i>Holosteum umbellatum</i> -	Umbelled Holosteum - - -	Triandria	Trigynia	Caryophyllei
<i>Hydrocotyle vulgaris</i> -	Common Marsh Pennywort	Pentandria	Digynia	Uncellatæ
<i>Hydrocharis morsus-ranæ</i> -	Frog-bit - - -	Dicœcia	Enneandria	Palme
<i>Hypericum humifusum</i> -	Trailing St. John's-wort	Polyadelphina	Polyandria	Rotacæ
<i>clodes</i> -	St. Peter's-wort - - -			
<i>Humulus lupulus</i> -	Hops - - -	Dicœcia	Pentandria	Scabridæ
<i>Iberis amara</i> -	White Candy Tuft - - -	Tetradynamia	Siliculosa	Siliquosæ
<i>Ilex aquifolium</i> -	Common Holly - - -	Tetrandria	Tetragynia	Dumosæ
<i>Iris foetidissima</i> -	Stinking Iris - - -	Triandria	Monogynia	Ensatæ
<i>Isœtes lacustris</i> -	Common Quillwort - - -	Cryptogamia	Filices	Filices
<i>Jasione montana</i> -	Mountain Jasione - - -	Syngenesia	Monogamia	Campanacæ
<i>Juncus campestris</i> -	Hairy Field Rush - - -	Hexandria	Monogynia	Tripetaloidæ
<i>uliginosus</i> -	Least-jointed Rush - - -			
<i>Juniperus communis</i> -	Common Juniper - - -	Dicœcia	Monadelphia	Conifera
<i>Lathræa squamaria</i> -	Great Toothwort - - -	Didynamia	Angiospermia	Personatæ
<i>Lepidium latifolium</i> -	{ Broad-leaved Pepperwort or Dittander - - - }	Tetradynamia	Siliculosæ	Siliquosæ
<i>Leonurus cardiaca</i> -	Common Motherwort - - -	Didynamia	Gymnospermia	Verticillatæ
<i>Lichen rangerferinus</i> -	Rein-deer Lichen - - -	Cryptogamia	Algæ	Algæ
<i>uncialis</i> -	Perforated Lichen - - -			
<i>ericetorum</i> -	Heath Lichen - - -			
<i>gracilis</i> -	Cup Lichen - - -			
<i>globiferus</i> -	Globe Lichen - - -			
<i>Lichen fimbriatus</i> -	{ Cup Lichen - - - }			
<i>pyxidatus</i> -	- - -	Cryptogamia	Algæ	Algæ
<i>cornutus</i> -	- - -	Cryptogamia	Algæ	Algæ
<i>Ligustrum vulgare</i> -	Common Privet - - -	Diandria	Monogynia	Separiæ
<i>Linum usitatissimum</i> -	Common Flax - - -	Pentandria	Pentagynia	Grinales
<i>perenne</i> -	Perennial Flax - - -			
<i>angustifolium</i> -	Narrow-leaved Flax - - -			
<i>catharticum</i> -	Purging Flax - - -			
<i>Lotus corniculatus</i> -	Common Bird's-foot Trefoil	Diadelphia	Decandria	Papilionacæ
<i>Littorclea lacustris</i> -	Plaintain Shore-weed	Monœcia	Tetrandria	Plantagine
<i>Littospenum officinale</i> -	Common Official Gromwell	Diandria	Monogynia	
<i>Lolium perenne</i> -	Perennial Darnel or Ray Grass	Triandria	Digynia	Gramina
<i>tenuè</i> -	- - -			
<i>temulentum</i> -	Annual Darnel or Ray Grass			
<i>Lobelia dortmanna</i> -	Water Lobelia or Gladiote	Syngenesia	Monogamia	Campanacæ
<i>Lycopodium clavatum</i> -	Common Club Moss - - -	Cryptogamia	Musci	Musci
<i>Lycopus europæus</i> -	Water Horehound - - -	Diandria	Monogynia	Verticillatæ
<i>Lycnis flos-cuculi</i> -	Red-flowered Meadow Lychnis	Decandria	Pentagynia	Caryophyllei

Botanical Name.	English Name.	Class.	Order.	Nat. Order.
<i>Matricarsa chamomilla</i>	Corn Feverfew -	Syngenesia	{ Polygamia Superflua	{ Compositæ Discoideæ
<i>Melampyrum sylvaticum</i>	Yellow Cow-wheat -	Didynamia	Angiospermia	Personatæ
<i>Melica cœrulea</i> -	Purple Melic Grass -	Triandria	Digynia	Gramina
<i>Mercuriales annua</i> -	Annual Mercury -	Diœcia	Enneandria	Triœcea
<i>Mentha aquatica</i> -	Water Mint -	Didynamia	Gymnospermia	Verticillatæ
<i>Menyanthus trifoliata</i> -	{ Common Buck-bean or Marsh Trefoil - - - }	Pentandria	Monogynia	Preciæ
<i>Milium effusum</i> -	Millet Grass - - -	Triandria	Digynia	Gramina
<i>Mispilus oxyacantha</i> -	Medlar - - -	Icosandria	Pentagynia	Pomœcæe
<i>Myosotis scorpioides</i> -	Mouse-ear Scorpion Grass -	Pentandria	Monogynia	
<i>Myrriophyllum spicatum</i>	Spiked Water Milfoil -	Monœcia	Polyandria	Isuudatæ
<i>Narcissus poeticus</i> -	Poetic or white Narcissus -			
<i> angustifolius</i> -	Narrow-leaved Narcissus -			
<i> biflorus</i> -	{ Two-flowered Narcissus or pale Daffodil - - }	Hexandria	Monogynia	Spathacæe
<i> major</i> -	Great Daffodil - - -			
<i> pseudo narcissus</i>	Common Daffodil - - -			
<i>Nardus stricta</i> -	Common Mat Grass - - -	Triandria	Monogynia	Gramina
<i>Narthecium ossifragum</i> -	See Anthirinum - - -			
<i>Nepeta caturia</i> -	Cat-mint - - -	Didynamia	Gymnospermia	Verticillatæ
<i>Nymphaea lutea</i> -	Yellow Water-lily - - -			
<i> alba</i> -	White Water-lily - - -	Polyandria	Monogynia	Succulentæ
<i>Odontites</i> -	See Euphrasia - - -			
<i>Oenanthe fistulosa</i> -	Common Water Drop-wort -	Pentandria	Digynia	Umbellatæ
<i>Ophrys spiralis</i> -	{ Spiral Ophrys, or Triple La- dy's-traces - - }	Gynandria	Diandria	Orchidæ
<i>Orobis tuberosus</i> -	Tuberous Bitter-vetch - -	Diadelphina	Diandria	Papilionacæe
<i>Orogonum vulgare</i> -	Common Marjoram - - -	Didynamia	Gymnospermia	Verticillatæ
<i>Orobanchæ major</i> -	Common Broom-rape - - -	Didynamia	Angiospermia	Personatæ
<i>Oxalis acetosella</i> -	Wood Sorrel - - -	Decandria	Pentagynia	Graminales
<i>Papaver argemone</i> -	Long prickly-headed Poppy -			
<i> dubium</i> -	Long smooth-headed Poppy -			
<i> rheas</i> -	Corn or red Poppy - - -	Polyandria	Monogynia	Rhœdæe
<i> sommiferum</i> -	White Poppy - - -			
<i>Parnassia palustris</i> -	{ Common Marsh Parnassia, or Grass of Parnassus - - }	Pentandria	Tetragynia	Capparides
<i>Paricartaria officinalis</i> -	Common Pellitory - - -	Polygamia	Monœcia	Scabridæ
<i>Pastinacca sativa</i> -	Common Parsnep - - -	Pentandria	Digynia	Umbellatæ
<i>Pedicularis palustris</i> -	Marsh Louse-wort, or red Rattle -	Didynamia	Angiospermia	Personatæ
<i> sylvatica</i> -	Common or Heath Louse-wort -			
<i>Peplis postula</i> -	Water Purslain - - -	Hexandria	Monogynia	Calycanthemæ
<i>Phalaris canariensis</i> -	Manured Canary Grass - -	Triandria	Digynia	Gramina
<i>Pinipinaella magna</i> -	Great Burnet Saxifrage - -	Pentandria	Digynia	Umbellatæ
<i>Pinus sylvestris</i> -	Wild Pine-tree - - -	Monœcia	Monadelphia	Coniferæ
<i>Pinicula lusitanica</i> -	Pale Butter-wort - - -			
<i> grandiflora</i> -	Great flowered Butter-wort -	Diandria	Monogynia	Corydals
<i>Pondecumbes</i> -				
<i>Pontrivialis</i> -	Roughish Meadow Grass - -	Triandria	Digynia	Gramina
<i>Ponanna</i> -	Annual Meadow Grass - - -			
<i>Polygala vulgaris</i> -	Common Milk-wort - - -	Diadelphia	Octandria	Lomentacæe
<i>Polypodium cristatum</i> -	Crested Polypody - - -	Cryptogamia	Filices	Filices
<i>Polytrichum subrotundum</i>	Dwarf Maiden Hair - - -			
<i> commune</i> -	Common or greater golden do. -	Cryptogamia	Musci	Musci
<i>Poterium sanguis orba</i> -	Lesser or Upland Burnet - -	Monœcia	Polyandria	Miscellanæe

Botanical Name.	English Name.	Class.	Order.	Nat. Order.
<i>Potentilla fruticosa</i>	Shrubby Cinquefoil	Icosandria	Polygynia	Senticosæ
<i>Potamogeton nutans</i>	Broad-leaved Pond-weed	Tetrandria	Tetragynia	Inundatæ
<i>Primula veris</i>	Common Cowslip or Paigle			
<i>Populus alba</i>	White Poplar	Diœcia	Octandria	Amentaceæ
<i>Quercus ilex</i>	Ever-green Oak			
<i>Quercus robur</i>	Common Oak	Monœcia	Polyandria	Amentaceæ
<i>Ranunculus lingua</i>	Great Spear-wort			
<i>sceleratus</i>	{ Marsh or Celery-leaved Crow-foot			
<i>ficaria</i>	Pilewort or lesser Celandine			
<i>auricomus</i>	Wood Crowfoot or Gold locks			
<i>bulbosus</i>	Bulbous Crowfoot	Polyandria	Polygynia	Multisiliquæ
<i>repens</i>	Creeping Crowfoot			
<i>acris</i>	Upright Meadow Crowfoot			
<i>parviflorus</i>	Small-flowered Crowfoot			
<i>pederaceus</i>	Ivy-leaved Crowfoot			
<i>aquatilis</i>	Water Crowfoot			
<i>Reseda luteola</i>	Dyer's-weed	Dodecandria	Trigynia	Miscellanea
<i>Rhinanthus crista-galli</i>	Yellow Rattle or Cock's-comb	Didynamia	Angiospermia	Personatæ
<i>Ribes rubrum</i>	Common Currant			
<i>nigrum</i>	Common Black Currant	Pentandria	Monogynia	Pomaceæ
<i>grapulariæ</i>	Rough-fruited Gooseberry			
<i>Rosa canina</i>	Dog-rose	Icosandria	Polygynia	Senticosæ
<i>Rottboella incurvata</i>	Curved hard Grass	Polygynia	Monœcia	Gramina
<i>Rubus idæus</i>	Raspberry			
<i>fruticosus</i>	Common Bramble	Icosandria	Polygynia	Senticosæ
<i>Rumex acetosella</i>	Sheep's Sorrel	Hexandria	Trigynia	Holoraceæ
<i>Salix repens</i>	Creeping dwarf Willow			
<i>fusca</i>	Brown dwarf Willow			
<i>arenaria</i>	Sand Willow	Diœcia	Diandria	Amentaceæ
<i>Sagina procumbens</i>	Procumbent Pearlwort	Tetrandria	Tetragynia	Caryophyllei
<i>apitala</i>	{ Annual small-flowered Pearlwort			
<i>Salsola kali</i>	Prickly Saltwort	Pentandria	Trigynia	
<i>Sambucus niger</i>	Common Elder	Pentandria	Trigynia	Dumosæ
<i>Sanicular Europœa</i>	Common or European Sanicle	Pentandria	Digynia	Umbellatæ
<i>Saturium hircinum</i>	Lizard Satyrion	Gynandria	Diandria	Orchidææ
<i>Sedum telephium</i>	Alpine Stonecrop			
<i>dasyphyllum</i>	Thick-leaved Stonecrop			
<i>anglicum</i>	English or wild white Stonecrop	Decandria	Pentagynia	Succulentæ
<i>acre</i>	Bitter Stonecrop or Wall Pepper			
<i>reflexum</i>	Yellow Stonecrop			
<i>forsterianum</i>				
<i>Senecio grandiflora</i>	{ Ragwort Groundsel, or com- mon Ragwort	Syngenesia	{ Polygamia Superflua	{ Compositæ
<i>Serapias longifolia</i>	White Helleborine	Gynandria	Diandria	Discoideæ
<i>Semper vivum tectorum</i>	House-leek	Dodecandria	Dodecagynia	Orchideæ
<i>Scabiosa succisa</i>	Devil's-bit Scabious	Tetrandria	Monogynia	Aggregateæ
<i>Sceleranthus annuus</i>	Annual Knowel	Decandria	Digynia	Caryophyllei
<i>Schœnus nigricanus</i>	Black Bog-rush	Triandria	Monogynia	Calamariæ
<i>Sherardia arvensis</i>	{ Field or blue Sherardia, or little Field Madder	Tetrandria	Monogynia	Stellatæ
<i>maritima</i>	Sea Catchfly	Decandria	Trigynia	Caryophyllei
<i>Siccus latifolium</i>	Broad-leaved Water Parsnep	Pentandria	Digynia	Umbellatæ
<i>Smyrniolum olusatrum</i>	Common Alexander	Pentandria	Digynia	Umbellatæ
<i>Solidago virgaurea</i>	Common Golden-rod	Syngenesia	{ Polygamia Superflua	{ Compositæ Discoideæ

Botanical Name.	English Name.	Class.	Order.	Nat. Order.
<i>Solanum dulcamara</i> -	{ Woody Nightshade, or Bitter-sweet -	Pentandria	Monogynia	Lurida
<i>nigrum</i> -	Common or Garden Nightshade -			
<i>Spergula arvensis</i> -	Corn Spurrey -	Decandria	Pentagynia	Caryophyllei
<i>pentandria</i> -	Little Corn Spurrey -			
<i>nodosa</i> -	Knotted Spurrey -			
<i>saginoides</i> -	Smooth awl-shaped Spurrey -			
<i>Spirea ulmaria</i> -	Meadow Sweet -	Icosandria	Pentagynia	Pomaceæ
<i>Sparganium erectum</i> -	Great Bur-reed -	Monœcia	Triandria	
<i>Sphagnum palustre</i> -	Grey Bog-moss -	Cryptogamia	Musci	Musci
<i>Stellaria graminea</i> -	Less Stitchwort -	Decandria	Trigynia	Caryophyllei
<i>nolostea</i> -	Greater Stitchwort -			
<i>graminea</i> -	Lesser Stitchwort -			
<i>uliginosa</i> -	Bog Stitchwort -			
<i>Symphitum officinale</i> -	Common Comfrey -	Pentandria	Monogynia	
<i>natens</i> -	-	Pentandria	Monogynia	Asperifoliae
<i>Taxus baccata</i> -	Common Yew-tree -	Dicecia	Monadelphia	Coniferae
<i>Tetralix</i> -	See Erica.			
<i>Teucrium scorodonia</i> -	{ Sage-leaved Germander or Wood Sage -	Didynamia	Gymnospermia	Verticillatae
<i>Thalspi campestre</i> -	{ Mithridate Mustard or Bastard Cress -			
<i>Trifolium repens</i> -	{ Creeping white Trefoil, Dutch Clover -	Diadelphia	Decandria	Papilionaceæ
<i>Triglochin palustre</i> -	Marsh Arrow Grass -	Hexandria	Trigynia	Tripetaloideæ
<i>Tornicuteella officinalis</i> -	Common Tormentil -	Icosandria	Polygynia	Senticosæ
<i>Triticum repens</i> -	Couch or Bog Grass -	Triandria	Digynia	Gramina
<i>juncœum</i> -	Marsh Hair Grass -			
<i>Typha latifolia</i> -	Great Cat's-tail or Reed-mace -	Monœcia	Triandria	Calamariæ
<i>Turritis hirsuta</i> -	Hairy Bower Mustard -	Tetradynamia	Siliquosa	Cruciformes
<i>Usticia urens</i> -	Small Nettle -	Monœcia	Tetrandria	Scabridæ
<i>dioica</i> -	Great Nettle -			
<i>Utricularia vulgaris</i> -	{ Common Bladder-wort or hooded Milfoil -	Triandria	Monogynia	Corydalis
<i>media</i> -	-			
<i>minor</i> -	{ Small Bladder-wort or hooded Milfoil -			
<i>Vaccinium oxycoccos</i> -	European Cranberry -	Octandria	Monogynia	Bicornes
<i>Valeriana rubra</i> -	{ Common or broad-leaved red Valerian -	Triandria	Monogynia	Aggregate
<i>Veronica scutellata</i> -	Narrow-leaved Brook-lime -	Diandria	Monogynia	Personatæ
<i>Viola palustris</i> -	Marsh Violet -	Syngenesia	Monogamia	Campanaceæ
<i>lutea</i> -	Yellow Mountain Pansy Violet -			
<i>canina</i> -	Dog's Violet -			
<i>Vicia</i> -	Vetch -	Diadelphia	Decandria	Papilionaceæ
<i>Vinea major</i> -	Great Periwinkle -	Pentandria	Monogynia	Contortæ
<i>minor</i> -	Small Periwinkle -			
<i>Verbatum Thupsus</i> -	Great Mullein -	Pentandria	Monogynia	Luridæ
<i>Viburnum opulus</i> -	Water Elder -	Pentandria	Trigynia	Dumosæ
<i>Zostera marina</i> -	Grass-wrack -	Gynandria	Polyandria	Inndatæ.

GENERAL OBSERVATIONS.

Having in the preceding pages given as detailed an account as the nature of this work would admit, of the present state of agriculture in Ireland, I shall now offer some remarks upon it, and endeavour to point out what appeared to me to be its principal defects. I am the more induced to undertake this task, as few of the gentlemen in that country with whom I am acquainted seem to have a correct notion of those principles of political economy which form the foundation for more improved modes of cultivation.

Many persons consider the immense extent of grazing lands in Ireland as a great economical evil,* which has an influence on its political condition; if it be one, it is consoling to reflect, that it is very much on the decline. Some land, undoubtedly, has been intended by nature for the fattening of animals, as well as for the production of corn, to supply food to man; and so far from believing, that it would be beneficial to the kingdom to convert the rich grazing lands of that country into corn fields, I freely confess, that better arguments in favour of this change than I have yet heard must be adduced, before I can be convinced of its utility. The one, which is drawn from an increased population, is futile and weak, since it is much better to provide for the people already in existence, than to increase the number, only to render the whole more wretched. I should rejoice to see the mass of the people in Ireland enjoying a comfortable meal of good beef fed upon the pastures of the country: this is the improvement which I should consider the most beneficial.† When the scheme of dividing the land into small allotments, which would cramp circulation, and oblige every man to produce for himself, and to be satisfied with a bare subsistence, without any surplus, is considered in all its consequences, it will have a quite contrary effect. True philosophy aims at progressive improvement; without that desire man becomes brutal, and loses the only good quality of a rational being.‡ Can a worse plan be adopted in any country than that of the corn acre, the corn acre meadow, the corn acre potatoe-ground, the bounden labourer,§ and the cotter paid by conveniences as much when he is idle as when he works? If it be conducive to the good of the country, that ignorance, indolence, and poverty should waste the natural productions of the earth, I should not hesitate to say—introduce this plan and the object will be gained; adopt it, and you will see hay floating about the meadows at Christmas, land tilled almost without

* Dr. Crump, p. 241. Dr. Campbell's Philosophical Survey of Ireland, p. 338.

† Upon this head consult Davenant, vol. ii. p. 229. Houghton's Husbandry, vol. i. p. 49.

‡ Tizhe's Kilkenny, p. 413.

§ Vide Townsend's Cork, p. 203 and 551.

implements, by the protracted and wasteful labour of many clumsy hands;* seed put into ground unfit to receive it, and, therefore, incapable of producing a proper crop; and the corn when ripe, if it ever ripens, harvested and threshed in such a way as to injure it full fifteen per cent. in its value. If we advance but one step beyond these minor cultivators, and examine the tillage farmers of Kilkenny, Carlow, Kildare, Meath, and Louth, shall we find in their mode of management any signs whatever of agricultural skill? Do they study such a succession of crops as is calculated to ameliorate rather than to injure the soil? If any one of a different description exists, he must be some solitary individual who did not fall under my observation. I made every inquiry to discover a farmer of this kind, but all my endeavours were fruitless; no person I conversed with could tell where he was to be found. It is certain, that in Ireland there is abundance of exceedingly rich soil, capable of producing the heaviest crops; and yet crops of this kind are seldom seen. This deficiency is to be ascribed to the wretched mode of cultivation, and not to the quality of the land. Bad fallows, vile implements, ragwort and thistles, banks without hedges, land saturated with water, meadows mown, and the grass carried off without any return, oats frequently the same, the whole manure of the farm absorbed by the crop of potatoes†, are all striking defects, which will enable any one to judge of the state of agriculture in Ireland. Yet, I must admit, that a certain system is pursued, to which the farmers pertinaciously adhere, without the least exception. The first crop is potatoes; the land is then limed to call forth its productive qualities; and it is harassed in the most barbarous manner with one crop of white straw after another, till it becomes quite exhausted, and unproductive for many years after.‡ Necessity then interferes, and the land, according to the expression used in some counties, is "turned to rest," or, as said in others, "to waste."§ This is the end and the result of all the exertions of an Irish farmer. For this system I cannot find sufficiently strong terms of reprobation.||

If we look at the manner in which labour is conducted, it must excite astonishment in a person acquainted with the agriculture of England. Besides, it is not

* Consult on this subject *L'Ami des Hommes*, 5th edit. Paris, 1760, tom. v. p. 43.

† Tighe's Kilkenny, p. 216.

‡ Mr. Newenham has given a very opposite opinion in his "Natural and Political Circumstances of Ireland," p. 313. He thinks corn is to be produced by *premiums*.

Mr. Townsend also, p. 697, falls into the same error, but in a less degree. What "bounty" can there be but the bounty of demand, and who can create it?—The statesman. As if a premium from the Cork Society could of itself effect any thing: a well fed population will pay for well cultivated fields.

§ Survey of Cork, p. 239.

|| I beg the reader to consult an admirable essay of Mr. Young's, on the course of crops. *Annals of Agriculture*, vol. xxxii. p. 17.

applied in the proper time; when most wanted, it is neglected,* and when applied, it is conducted in so bad and slovenly a manner, that notwithstanding its apparent cheapness, it becomes, in fact, exceedingly dear to those who employ it, and still dearer to the state, which maintains half a dozen of labourers instead of one. The cause of this system being followed by the Irish farmers, is the inordinate desire of present gain, which renders them as anxious to make the most of their land, as if they expected that the next year it would be taken from them. This method is exceedingly pernicious; and, indeed, experience ought to tell them, that the same rest, applied at an earlier period, before the land is exhausted, and frequently repeated, would enable it to continue productive for a greater number of years. It will certainly appear very strange to the reader to be informed, that in 1811, the method of giving land rest in the early part of the course, by means of clover, was not practised in Ireland. If I had not convinced myself of the circumstance by being on the spot, I could not have believed it. I can readily conceive, that a man who knows that his land, in the course of a few years, will be publicly advertised, and assigned to the highest bidder, may torture and torment the soil in this manner, to extract from it all that he can, because I know the reason which induces him to act in this manner; but a tenant, who has an unexpired lease of twenty or thirty years, and who follows the same plan, can be considered in no other light than that of a maniac, who neither knows nor cares what he is doing.

If we next look at that practice which universally prevails, of threshing on the bare ground, we shall have a still more unfavourable idea of the agricultural processes employed in Ireland, all of which seem to be calculated to produce the greatest possible waste. But, if we inquire into the causes of this wretched system, we must trace them back to the original source, that is, to the manner in which land in general is let. Where leases are granted without any restraining clauses, to prevent practices hurtful to the property, the richest country on the face of the earth may be reduced to a state of devastation. But, perhaps, I shall be told that Ireland, under the present system, is improving, and that rents of late years, have considerably risen. Rents will rise by an extension, as well as by an improvement of tillage; they will rise from increase in the price of produce, and it is well known that they have risen in consequence of an enlargement of circulating medium. To these causes I ascribe the latter circumstance, the truth of which I fully admit, though I absolutely deny the former. If any one will shew me farming buildings of a late erection, or point out a single plough on a proper construction, in the hands of an Irish farmer, whose only means of support is the cultivation of the soil, I will allow that some improvement has taken place. Is any competent judge pre-

* Survey of Cork, p. 247.

pared to say, that fewer acres, in proportion to the whole tillage-land, are cultivated with the spade, than there were twenty years ago? * Some, perhaps, may consider this system as beneficial, by affording employment to the people, † but it might be observed on the other hand, that, to count the grains of wheat in every barrel, would furnish them employment also. In every case of this kind we ought to look to the result; for employment is useful only as it becomes productive.

Many, I have no doubt, will be astonished at the high rent of land in Ireland, and will naturally inquire how such a wretched system of agriculture is able to pay for the hire of a farm at so exorbitant a rate. But it will be found on inquiry, that the case is always the same where cultivation is carried on without capital, and where the occupier, while he expects a return for his labour, ‡ has no claim to interest for money sunk in improvement. Mr. Young found the same thing in France. § To a country in general, this must be a great evil, and I cannot allow myself to think that it will ever prove beneficial to the landlord. A total absence of poor's rates, if we speak of dearth of rent as compared with England, tythes paid only on tillage, no open field land (a system of tenure prevalent in England, and common from the shores of the Atlantic to Siberia) all contribute to account for the highness of rent in Ireland, notwithstanding the wretched manner in which the tillage of land is conducted. It must not, however, be here understood, that I by any means coincide with the generally-received opinion of the dearth of land in Ireland. Irish acres, Irish money, and local situation, are seldom taken into account; but these are circumstances of great importance, which, in forming a comparative estimate, must not be neglected. Go only to the distance of a few miles from a town, and convert the rent into English money, and the acres into the measure of the same country, and it will be found that the rent does not much exceed the common level in other parts of the empire, especially as the land is enclosed, and not burdened by poor's rates, land tax, or very heavy tythes.

Mr. Townsend says, speaking of the rent of land in Ireland, "the value of land, or rather, perhaps, the price of farm-land, experiences such a progressive increase, that it is hard to form any fixed estimate of its state. The completion occasioned

* "A large portion of the tillage of the county is performed by the spade," "the pocket not answering for the expense of a plough and horses." *Dutton's Survey of Clare*, p. 41. "The English garden spade has lately been used, and found to be the best implement where the ground is deep." *Coolte's Survey of the King's County*, p. 156. "A great part of the labour is performed with the spade." *Coolte's Survey of Monaghan*, p. 100.

† Townsend's *Cork*, p. 199 and 241.

‡ "The fine vineyards of Champagne and Burgundy," says Hume, "that often yield to the landlord above five pounds per acre, are cultivated by peasants, who have scarcely bread. The reason is, that such peasants need no stock but their own limbs, with instruments of husbandry, which they can buy for twenty shillings." *Hume's Essays*, vol. i. p. 284.

§ Young's *Tour in France*, p. 355.

by an overflowing population, in some degree, contributes to the advancement; but the principal causes are owing to the diminution of the value of money, and the present exorbitant prices of provision." And in another place he remarks, "whenever a peace shall arrive, provisions, at least corn, will undoubtedly fall, and, with it, the value of land."* The opinion expressed in the latter extract, coincides with that entertained by many country gentlemen in Ireland, with whom I conversed on this subject.

I have often heard some of the great absentee proprietors who reside in England, speak in high terms of the productive state of their Irish property. The opinion which they form on this subject, is derived from a comparison of the rent-roll and income with those of their English estates; but they reason here on fallacious principles, and therefore have been led into error. Let them really ascertain the number of English acres which they possess, and the amount in English money which they receive from them, and I will undertake to shew that few of their Irish estates are equal to those which they have in England. When riding over some of the former, I could readily see with what ease the rent-roll of their lands, and the happiness of their tenants, might be increased much beyond what they are at present, by a judicious course of management. In regard to one estate, I have some reason to think, that the situation of the tenants has been ameliorated by my visit to Ireland; and I sincerely wish that what I have written may contribute to excite more attention to this subject, and to spread a general spirit of agricultural reformation and improvement.

In the wilds of Mayo, and throughout a great part of the west of Ireland, the culture of land is in so infantile a state, that the earth is rendered productive rather by the accumulation of labour, than by the assistance of skill, or of capital.† There, the crop of potatoes is every thing; a crop cultivated chiefly with the spade; a system pervading every other part of the island, as well as those to which I am now alluding: on it depends the subsistence of the cultivator and of his whole family. His wants, indeed, are few, and easily supplied, else it would be impossible for him to exist on such scanty means of support; but this circumstance occasions a habit of indolence, which is attended with very bad effects. His potatoes are left in the ground till the commencement of frost makes him apprehend that his food may be locked up in the earth; and though very great inconvenience has been occasioned by this negligence, the repeated experience of the bad result arising from it, has not yet been able to induce the peasantry in Ireland to adopt a better method. It is very common to hear persons of higher rank observe, when a very early frost takes place, that "it is a fortunate event, as it will oblige the poor to dig up their potatoes:" for the poor and the cultivator of the soil are here synonymous expressions, "and of course they will be saved before a severe one sets in."

* Townsend's Survey of Cork, p. 218.

† Townsend's Account, p. 738. of some occupiers in Cork does not exhibit a better picture.

Wheat is little known throughout this country, and oats are never used by the inhabitants as food; a very small quantity of the latter are sold at Sligo, Westport, Galway, and Kilrush; but the greater part are employed, together with barley, for distilling whisky, without which, cultivation, in my opinion, would decline. Do not all these things furnish most convincing proofs that a wide field is open for improvement, or rather, that it is imperiously called for, and ought to be undertaken? But how is it to be effected? By introducing a different mode of tenure. Abolish all partnership leases, which are only compacts for promoting waste, and encouraging idleness—establish a few more Scotch buyers of corn—invite to the western shores of Ireland a few more Pattersons*—create a demand for grain, which is every thing; and unless that part of the country be cursed with some interested being, some evil genius of Ireland, the new port will not, like Kilrush, be cramped in the commencement of its rise, and the country will be speedily covered with corn fields, which certainly would present a more agreeable appearance to the eye than melancholy patches of potatoes.

Some writers have been exceedingly lavish in commendation of premiums and bounties; but no premium is equal to a good market, and no bounty can produce the same effect as self-interest, when excited by a ready money sale. Under the present system of laws, commodious roads to a port may be soon planned out, and constructed; measures of this kind, if pursued with spirit, and effectively carried into execution, would soon send English guineas to Connaught instead of Brittany; and give additional strength to the sinews of our own state, instead of increasing the revenue of our enemies. When I reflect on the millions which have been paid to the continent for corn, since the 1st of January 1800, and consider that the same sum diffused through Ireland, would, according to every appearance, have brought that country to a high state of cultivation, and excited a real spirit of industry among the people, as well as allayed the discontents of those in England, I cannot help being astonished that a plan so simple, and which would be attended with such beneficial consequences to the whole empire, should be so long neglected. Instead of directing our views to Ireland, which might be rendered, not only the store-house; but the best bulwark of Great Britain, the whole policy of the country has been to render its inhabitants inert, to damp their spirit as well as their industry; and while those objects which are calculated to rouse them from their torpor, or reclaim them from idleness are withheld, they are ungenerously reproached for indolence, and punished for being unruly; as if insubordination were not the natural consequence arising from such treatment.

I have received many letters this spring (1811), from most intelligent correspondents, all complaining of the price of corn, and the want of demand; and,

* A Scotch gentleman who purchases corn and ships it at Kilrush.

indeed, I know no subject connected with Ireland, which has a more urgent claim to the serious consideration of every person interested in the happiness of the country.

In 1799, Mr. Young * estimated, that, converting Irish acres into English, it would require an expense of £5. per acre, to place Ireland on the same footing with England, in regard to her rural economy. The whole amount, therefore, would be £88,341,136.; but a calculation of this kind must depend more on conjecture than on accurate data, which it would be extremely difficult, if not impossible, to obtain. Considering the decreased value of money, and the improved state of cultivation, in England, I have no doubt, could an estimate be made, that to effect this grand object would require £120,000,000.; and if to this be added the capital invariably employed by the English cultivator, while the Irish eagerly hire land without thinking it in any manner requisite, the sum would be swelled to an enormous extent. It must be evident, therefore, to every one in the least acquainted with the principles of political economy, that the proposed amelioration can be produced only by the slow but sure progress of industry, excited and encouraged by directing the corn-purchases of England to Ireland, rather than to Poland, Flanders, and America. The statesman who considers this subject in any other point of view, must see things through the medium of prejudice and error, and be totally unfit to conduct the affairs of a great and commercial empire. The debt of Ireland amounts, at the present time, to £80,000,000, a load which, comparing its situation with that of England, it is very inadequate to sustain. Were the country in a highly improved state; were its annual produce increased, as it easily might be, and even to a considerable extent beyond what it now is, such a burden could be borne without much inconvenience; but under the existing circumstances, it presses most severely on all ranks, and is a great check on improvement. Yet it is only a few years ago that I heard an English minister exclaim, "Food! why talk of food? Corn can be imported from France." It is well known, that the declared sentiments of Mr. Pitt were in favour of a very different principle. Is it forgotten, that the great Duke de Sully, when the Parisians petitioned his master to offer a bounty for the import of corn, immediately issued a proclamation offering one for its exportation? The consequence was, that France experienced no want of that article for a century after. These are measures over which an Irish minister has very little power, but they are not less important;† and it is only by a steady attention to them that cultivation can be extended in Ireland.

* Irish Tour, part ii. p. 9.

† "The principal attention of the sovereign ought to be, to encourage, by every means in his power, the attention, both of the landlord and the farmer, by allowing both to pursue their own interest in their own way, and according to their own judgment, by giving to both the most perfect security that they shall enjoy the

When we suggest improvements in that country, as applied either to agriculture, manufactures, or trade, the constant complaint is, want of capital; but this is a perversion of terms, the great deficiency is the want of industry.* Look at England, and you will see thousands of farmers, tradesmen, merchants, owners of estates, &c., who, beginning the world without a single guinea, have accumulated very large fortunes. With me such complaints have never had the smallest weight; they can be no excuse for neglecting to pursue the necessary means of improvement, as I am fully convinced that industry, real industry, exerted for one year by every individual in Ireland, would produce a material change in the present state of things, and be attended with the most striking advantage. In a certain degree, rent and taxes exercise an action on human industry, as lime does on the productive powers of the earth; this calcareous manure calls forth its powers, and rent and taxes carried to a certain length excite and invigorate industry.† But if this forcing system be extended too far, the active cultivator will be broken down by labour, coarse fare, and disappointment; and land, in like manner, may be rendered barren and fruitless. But when I say that this universal complaint in regard to capital has never with me had any weight, I have always borne in mind that judicious remark of Barrow's, "the American fishermen never set out with a capital, but invariably work themselves into one."‡ I speak generally; for I have seen land let by a landlord, whose sole object was immediate rent, to a tenant without capital,§

the full recompense of their own industry, and by procuring to both the most extensive market for every part of their produce, in consequence of establishing the easiest and safest communications, both by land and by water, through every part of his own dominions, as well as the most unbounded freedom of exportation to the dominions of all other princes." *Adam Smith's Wealth of Nations*, Book 5. ch. ii. vol. iii. p. 269.

* Mr. Tighe says, "First, nothing is ever built or repaired by landlords; these expenses, as well as every other improvement, is left to the tenant, who generally comes into a dilapidated holding, without capital enough to stock it, still less to build, to fence, or to drain." *Survey of Kilkenny*, p. 412.

† "There is a prevailing maxim among some reasoners," says a philosophical writer, "that every new tax creates a new ability in the subject to bear it, and that each increase of public burdens increases proportionally the industry of the people. This maxim is of such a nature, as is most likely to be abused; and is so much the more dangerous, as its truth cannot be altogether denied; but it must be owned, when kept within certain bounds, to have some foundation in reason and experience.

"When a tax is laid upon commodities which are consumed by the common people, the necessary consequence may seem to be, either that the poor must retrench something from their way of living, or raise their wages, so as to make the burden of the tax fall entirely upon the rich. But there is a third consequence, which often follows upon taxes, namely, that the poor increase their industry, perform more work, and live as well as before, without demanding more for their labour. Where taxes are moderate, are laid on gradually, and affect not the necessaries of life, this consequence naturally follows; and it is certain, that such difficulties often serve to excite the industry of a people, and render them more opulent and laborious than others who enjoy the greatest advantages."—*Hume's Essays*, vol. i. p. 363.

‡ Barrow's *Southern Africa*, vol. ii. p. 317.

§ Dr. Adam Smith, *Book 5. ch. 2. vol. iii. p. 265*, speaks against clauses in leases, I think, most erroneously

who seemed to know very little what he was about; and in such cases capital has with me always had weight, for I could not help considering the one party as a fool, and the other as a knave. Were I the owner of an estate in Ireland I should suffer my land to remain unoccupied, unless I found tenants who could convince me that they possessed capital in money or industry, or in both united, adequate to the quantity of land which they wished to occupy. But capital is considered of so little importance in Ireland, that advertisements may be seen daily in the newspapers, in which the owner assures the public, that "preference will be given to the highest bidder." Bargains are constantly made with a beggar, as a new tenant, if he offers more rent, turning out the old one if ever so industrious;* little confidence exists between landlord and tenant.† Thus leaving out of consideration not only capital, but skill, industry, character, and every other requisite or qualification which can ensure the payment of rent. Proprietors who adopt this method, plainly say, "here is my estate, who will agree to give most rent? and I will suffer him to exhaust its productive powers, provided I can procure a *temporary* addition to my income; for temporary it must be, as land taken under such conditions, will soon be worn out and destroyed. The rise of prices, the decreased value of money, and the consequent increase of surrounding rents may support such tenants for a short time, but it needs no prophetic spirit to foretel that they must in the end come to ruin. Even if the unfortunate wretch has a little ready cash to begin with, it only serves, in ninety-nine cases in a hundred, as a temptation to the landlord, who, when the fact becomes known to him, finds means to obtain it, under the name of a fine for possession.‡ I know that I here speak the truth, however unwelcome it may be to those to whom it is applicable; and I will even venture to assert, without the fear of contradiction, that through the corrupt conduct of agents,§ and the wants of necessitous landlords letting to middle-men for the sake of a fine,|| who they know will never employ any capital in the cultivation of their estate, that no farmer is suffered to commence a lease with a capital in his pocket; and sometimes when the son comes into possession of the estate, he will, in all probability, break the lease because his

neously. A reply will be found to this observation by Mr. Young, *Annals of Agriculture*, vol. xx. p. 492.

* Sampson's Survey of Derry, p. 304.

† M'Evoy's Tyrone, p. 196. Townsend's Cork, p. 712.

‡ "Some landlords, instead of raising their rent, take a fine for the renewal of the lease; this practice is in most cases the expedient of a spendthrift, who for a sum of ready money sells a future revenue of much greater value; it is in most cases, therefore, hurtful to the landlord, it is frequently hurtful to the tenant, and it is always hurtful to the community." *Adam Smith on the Wealth of Nations*, Book 3. ch. 2. vol. iii. p. 264.

§ Townsend adverts to the same circumstance, p. 712.

|| Townsend's Cork, p. 717.

father received the fine. Are not these facts lamentable oppressions on the tenantry of the country, and shameful drawbacks on agriculture? Can it flourish under so wretched and infamous a system? I request every Irish landlord to read Mr. Marshall's advice on the choice of a tenant, which I shall here transcribe.*

"*Choosing Tenants.*—It would be difficult to determine which of the two considerations, fixing rents or choosing tenants, is of more importance in the superintendence of landed property. Jointly considered, and they cannot be well separated, they form the main bearing on which the uniform and lasting prosperity of an estate may well be said to rest. The qualifications of a good tenant are capital, skill, industry, and character. Without a sufficient *capital* the rest are unavailing. An industrious, frugal, good farmer, will strive with difficulties, and get on with less money than a man of contrary qualifications. But if he has not sufficient strength to work his lands, nor sufficiency of live stock to raise manure, nor money wherewith to purchase it, he must, under ordinary circumstances, live in a state of poverty and hard labour; and on the first attack of misfortunes, or the first failing season of crops, he will probably sink under the weight of his accumulated burden. The due *proportion* between *rent* and *capital* depends on the existing state and circumstances of a farm, and the style of management in which it is intended to be conducted; as well as on the number and strength of an occupier's family and their industry and frugality. To give a general idea of this subject, I will say that for farms of size, such as those of one to five hundred pounds a year, the occupier ought to have at his command, from five hundred to a thousand pounds of capital for every hundred pounds of rent. On the majority of farms, the proper proportion is too small to manage them with full profit. And if a tenant farm with spirit, and attempt the higher order of improvements, especially if he enter the list with modern breeders, he will not find the latter too large. It is always good policy in a tenant to farm within his capital; a few pounds in his pocket enable him to embrace every favourable opportunity, and to sell or buy with advantage, while a man who is straightened for money is obliged to take the chance of markets, and is liable to make a losing bargain. Without sufficient skill in the business of husbandry, a tenant cannot farm with profit either to himself or his landlord. If, however, his capital and exertions are great, he may by experience acquire skill, and thus be enabled to do justice to his farm, whatever he may do for his family; but if with a want of skill a scanty capital is joined, it is not all the industry and frugality in the power of man that can save his family or his farm from injury. Without *industry*, *capital* and skill may be said to be thrown away. In the rural profession, in which so much depends on seasons and the weather, idleness is a vice of the darkest hue. Every instance of negligence is not only injurious in itself,

* Marshall on Landed Estates, p. 406.

but operates as a bad example, and serves as an excuse for the half industrious, with which every estate is more or less encumbered.

“*Moral Character of Tenants.*—Seeing the intimate connexion which necessarily subsists between proprietors and occupiers, and how profitable it is to preserve good order upon an estate, thereby giving freedom to the exertions of its tenantry, it becomes a matter of some importance in choosing a tenant, to make proper inquiries into his moral character, particularly as it relates to habits of sobriety, or of extravagance, and to a peacefulness or a quarrelsomeness of demeanour. Further, it is to be remarked on the subject of choosing tenants, that nothing of *interest*, nor any other consideration whatever, which is not intimately connected with the foregoing qualifications, can warrant the choice, unless in particular cases, as in providing for the widow and orphans of a deceased tenant, no family connexion of a manager, no friendship, favour done, or other fee can fairly influence him. A superintendent cannot, as such, have any true interest distinct from that of the estate he superintends. It becomes a dishonest act in an agent to put an inferior tenant into the possession of a farm through his own interest, even at a fair rent. Finally, it is to be remarked, that in a district which stands forward in the ranks of rural improvements, merit should be looked for near home. But to bring up an estate which remains in the rear of modern practices, two or more tenants of the higher classes ought to be sought for at a distance, namely, in districts of a kindred nature; but where more profitable management prevails, as leaders of the native tenantry.” Professor Millar, also has made some just observations on this subject, which I advise Irish landlords to consult.*

Throughout a great part of Ulster, very little land is let for the purpose of farming. It is remarkable, that a country abounding in manufactories, every part of which seems from its local situation to be valuable, should bring a much less rent than those districts which are occupied only for farming. It would be unfair to make any comparison between the rich lands of Meath, and those of Monaghan and Armagh; but I am convinced, that between Kilkenny and these counties, the difference is not very great. Does not this furnish a striking proof that the capital now engaged in the linen trade might have been more beneficially employed in farming the land? And when I have so often heard gentlemen assert, that they were not able to procure “tenants of property,” I could not help observing: if the want is innate in the county how comes it that the linen trade finds plenty of people ready and willing to invest in it large sums? This is a complete proof that the evil does not arise from the want of capital, but from the ignorance of the landlord in regard to the kind of tenure which would encourage a man of property to cultivate his estate; and what is the consequence in Ulster? The monied people embark their capital in a different

* Octavo edition, vol. iv. p. 127.

adventure ; the improvement of the soil is with them an inferior consideration ; they obtain an income for the use of their money in their own pursuit, and the land-owner is left, though he possesses that which is the foundation of manufactures and trade, to dispose of it in any manner he can : he has, therefore, no alternative, he must either occupy his land himself, or let it to indigent persons who destroy the soil, and contribute to increase that beggarly tribe of tenantry, who are a nuisance to every neighbourhood where they reside, and a general disgrace to the country.

This question is an object of great national importance in whatever point of view it may be considered. It is impossible to cast a transient glance at this cursory account of Irish agriculture, without perceiving that its present degraded state is a source of the greatest evil ; and it is equally obvious, that no effectual cure can be applied but by those who are the primary cause of it—the land-owners of Ireland : with them the work of reformation must begin, and it will then be the duty of the legislature to afford the assistance of markets, which, fortunately for Ireland, considering the present state of Great Britain, it has very much within its power.

An extension of tillage has, no doubt, taken place in the mountainous districts of Ireland, except in the north, and also in the flat parts of the country ; but there is a wide difference between extension and improvement. The former has arisen from an increased population, and is not the result of any stimulus applied to excite national industry, or of encouragement given to adopt better methods of farming. When a landlord sees a colony of half-starved beggars planted on the side of a mountain, he may, perhaps, vainly imagine that the country is in a progressive state of prosperity, because he finds that his rent-roll has been considerably augmented ; but any increase arising from such means makes no addition to the national wealth ; and at the same time it prevents him from directing his thoughts to a better and more beneficial system of management. Hence it happens, that a traveller in Ireland looks in vain for embankments, lakes, and marshes drained, rivers let off, land reclaimed, or the execution of any of those great works which characterize the English farmer in so striking a manner, and afford the most evident proofs of his public spirit, enterprise, and industry. I do not believe that one acre in a thousand in that country which require irrigation, has been subjected to this mode of improvement, though it is certain that it might be applied without much expense or labour.* It cannot be said as an excuse for such neglect, that capital is necessary for a process so simple and easy ; even at Siwah, in the deserts of Africa, the indolent negro has adopted this system;† in the Sandwich Islands it is practised;‡ in Chili it has been

* In Kirkpatrick Nepal, p. 65. there is an account of an irrigated mountain which holds forth an excellent example.

† Home-man's Travels, p. 8.

‡ Vancouver's Voyage, vol. i. p. 170.

pursued to great advantage.* An attempt, indeed, is now making, to do something in regard to the cultivation of bogs, but hithert the proposed measure has been only the cause of an annual public expenditure. Mankind in general are so much inclined to place confidence in calculations rather than in facts, that I have no hope of being able to convince the Irish country gentleman, who is now receiving £4000. per annum instead of £1000., which the same number of acres produced to his father, that the family estate is not in a course of improvement. Nay, I expect to be contradicted in the opinion I have formed on this subject by every person in the country, from the peer to the peasant; but setting aside individual cases, and taking that comprehensive view of the subject which alone can enable us to get at the truth, I beg leave to ask those who boast of improvement to point it out in detail, and then to shew me the general result of the whole, and in what instances it has ameliorated the condition of the kingdom. I must be shewn fallows better made; crops of corn less encumbered with weeds; the labour of horses substituted for that of men; the introduction of artificial grasses in the early stage of a course of crops; no part of the farm turned to "rest," or "waste." Shew me these, and I will readily retract what I have said, and admit that the improvement so much boasted of, has really been made.

In the next place, if we direct our attention to the grazing parts of the kingdom, do they exhibit any signs of the want of capital? Are there not plenty of monied men always ready to come forward, anxiously waiting for an opportunity to hire them; and this is certainly a convincing proof, that capital will always be found when it can be applied to any purpose likely to answer the expectation of its owner. I do not here allude to things which have not fallen under my own observation. I have seen an instance where the lease of a rich pasture estate being within a few years of expiration, the tenant having no confidence in a renewal, sub-let the whole to cotters during the remainder of his term, for the avowed purpose of withdrawing his capital;† and this could not be effected without introducing the spade culture, and minute divisions, which in the end, would ultimately ruin the land. This is not a solitary case, such practices are common; and they are sometimes pursued by tenants, in order that they may be able to hire the estate again. For proofs of what I assert, I might refer to almost every county survey that has been published. The Irish certainly cannot plead ignorance on this subject, for in every county, and on every day of the year, landlords, if they will only open their eyes, may see these methods which are most likely to ruin an estate employed by their tenants without the least impediment, and yet the proprietor is never roused to a sense of his own interest, nor ever thinks of altering his conduct. I have, in other places of the present work, made allusions to this impolitic system, which may be

* Molina's Hist. of Chili, English Version, vol. i. p. 47.

† Townsend's Cork, p. 413.

considered as a real abuse in rural economy; but I do not think it necessary to apologize for any repetition of the kind, as the evil has become so inveterate; and landlords are so blinded by prejudice, that more than common means must be employed to eradicate the one, and to enlighten the other. I am anxious to impress on the minds of the latter, that the most serious injury is done to the soil by the introduction of cotter tillage, and the withdrawing of capital in this manner. I am no enemy to the increase of tillage, but to the means by which it is effected. I am aware that the custom house-books, on inspection, will exhibit an export of corn instead of an import, but this circumstance like an increased rent, is a proof of extended, as well as of improved tillage; and for this reason I consider it as no test of the truth, particularly in a country where the people, in consequence of their habits, consume so little corn.

When we hear of societies being formed for the encouragement of any particular branch of industry, we are naturally led to conclude, that some improvement has been made. Dublin has a large farming society, but has it effected any good? Were its efforts directed with that enlightened spirit, which setting aside the false, but captivating theories of the day, soars beyond the bounds of modern prejudice, examines and compares facts, and deduces from them practical conclusions established on the basis of truth, a most beneficial result might be expected from their labours. It is the task imposed on man by his Creator, as the only means of acquiring knowledge, and is particularly applicable to agriculture and political economy. Without it, men must still plod on in the same fruitless path, which instead of conducting to prosperity, leads only to error and misfortune. The Farming Society offers bounties: what benefit was ever produced by a bounty? Were premiums ever of advantage in any branch of industry? Premiums! To whom! To the producers! To the farmers! Those who bestow premiums begin at the wrong end. Will landlords by receiving premiums, let their estates upon just and liberal principles. If the £5000. per annum expended by the farming society of Dublin, could effect so desirable an object, I should not hesitate to say that this would be applying the axe to the root. The farming society, no doubt, is of utility; if it obtain statistical returns of the rural economy of Ireland, this benefit is well worth the expense; but according to the plan which it at present pursues, the only material service it can render to the country is, to procure useful information in this general way.

I have no desire to enter into particulars, but I cannot here refrain from impressing on the reader's attention, the great extent of that evil which arises from the boasted potatoe crop, introduced and followed up in every course, and in every county of Ireland; a crop which absorbs all the manure without giving any thing in return.* Some will, perhaps, deny my position, and remind me that the potatoes pro-

* "Potatoes, the crop of their main subsistence, engrosses almost the whole of their manure, as well as of their labour." *Townsend's Survey of Cork*, p. 291.

duce freeholders; a fact, of which I will only doubt its beneficial result. The most important circumstance, however, and which ought never to be forgotten, is, that land may be able to throw out exhausting crops when they produce straw, as a return for the exhaustion; but when there is a continual recurrence to one crop which impairs the soil in the utmost degree; which not only draws out its nutritive juices, but absorbs all the manure within its reach, the ground must at length be impoverished, and every particle rendered sterile. No farmer, whatever may be his judgment, capital, or industry, could keep land in a decent and productive state of cultivation, were he to grow a breadth of potatoes every year.* And yet there are few Irish gentlemen who do not maintain that potatoes are a crop which contributes to improve the soil. But this is an erroneous opinion, which arises from the effect produced by the large quantity of dung which has been previously thrown upon the land. Of the truth of the general facts which I have here stated, I entertain no doubt; but at the same time I must observe, that the habit of relying upon the potatoe is now so confirmed that no scheme of sudden alteration can be recommended.

In Ireland, if from any accidental circumstance, the farmer makes money, he never thinks of employing it to improve the condition of his land.† He buries his guineas in the earth, consoles himself with the idea of his secret treasure,‡ and toils on according to his former routine. This is a striking fact; it speaks a great deal, and deserves particular attention. It not only shews a want of confidence, but betrays ignorance. It furnishes a most convincing proof how much men may be mistaken in regard to that grand source of action, interest. It is interest, the hope of immediate gain, which induces this poor farmer to exhaust the soil; and it might be supposed that the same motive would make him apply the surplus to improve his land, that it might become more productive: but this is an idea which never enters his head. He may be compared, therefore, to a spendthrift who lives on his capital; by wasting a part of it every year, it becomes continually less and less, till at length it entirely vanishes.

The evil of hiding money is, however, the child of latter times. Mr. Young, whose acute observation suffered nothing to escape his notice, neither saw nor heard an instance of it when he was in Ireland: at present, it is common. I was told of

* Batchelor, in his Survey of Bedford, p. 426, says of potatoes, that "they are known to love the taste of new ground, and there is scarcely a cottager in the county who has planted them three or four years on the same soil, who remains ignorant of their exhausting nature."

† "Our farmers are generally very deficient in capital, and, of course, pursue a very deteriorating system of cropping: it is too much the custom, even when they do, by the utmost economy, save a little money, to hoard it up, especially in guineas, instead of expending it in draining, or any other permanent improvement. I am confident that, since the last disturbances, a great part of the gold coin of the realm is hid in smoky cabins." *Dutton's Survey of Clare*, p. 136.

‡ Townsend's Cork, p. 720.

it wherever I went; and, very often, on inquiring of a farmer concerning his system and produce, he would conclude his answer by saying: "and I buried some guineas." A similar practice has of late years been adopted in Holland; ducats and louis-d'ors have been buried there by the farmers in abundance.* † Men, who are secretly plotting against a government, or who are waiting in silence to take advantage of any disturbance that may arise, conceal as much as they can their rebellious intentions; but a fact of this sort betrays their feelings, it shews discontent, and affords a most decisive proof that they look forward to some change, and that they have no confidence in the existing state of things.

If the inquirer directs his attention to the state of planting in Ireland, it will be found, that the high-sounding bounties and premiums of the Dublin Society have effected little or nothing. But I wish not to be misunderstood. I here speak of planting on that extensive scale which renders it an object of national importance. Many a villa and country seat has been beautified and adorned by avenues and trees; but have all the exertions hitherto made, been able to create timber sufficient to construct a single ship of war? Is there enough in the kingdom to build as many fishing boats as could be employed on its shores? Truth compels me to state, however ungracious it may be to individuals, if I except a few persons who have been mentioned when treating of trees and plantations, that nothing worthy of notice in this respect has yet been done in Ireland; and when I turn my view towards Scotland, and see the patriotic exertions made by landed proprietors in that country, and particularly by the uncle of the late Earl of Fife, ‡ to clothe the naked and barren hills with verdure, and to obviate the reproach thrown out against it by Dr. Johnson, I cannot help admiring their industry, and candidly owning, that the same class in

* The practice of burying money prevails under all arbitrary governments, and in countries where the people think their property insecure. Bernier, speaking of the natives of India, says: "d'où vient qu'un chacun est dans une crainte perpétuelle de ces sortes de gens, et sur tout des gouverneurs, plus qu'un esclave de son maître: que pour l'ordinaire ils affectent de paroître gueux et sans argent, très-simples dans le vestement, logement, ameublement, et encore plus dans le boire et le manger; qu'ils apprehendent même souvent de se mêler trop avant dans le negoce, dans la crainte qu'ils out qu'on ne les roye riches et qu'on ne leur trâmé quelque piece pour les ruiner; si bien qu'enfin ils ne trouvent point de meilleur remede que de cacher et enfouir leur argent bien secrettement et bien profondement en terre sortant ainsi hors du commerce ordinaire des hommes et perissant enfin là dedans, sans que le roy ni l'etat, ni qui que soit en profite." Bernier, *Voyages contenant la Description des Etats du Grand Mogul*, Amst. 1710, vol. i. p. 309.—The same practice is common in Turkey and in Russia. See *Abhandlung vom dem Geldeulauf*, von J. G. Büsch, Hamburg und Kiel, 1800, vol. ii. p. 531, and *Zeichnungen eines Gemähltes, von. Russland*. Moskau und St. Petersburg, 1798, p. 105.

‡ His Lordship, for some years previous to his death, continued to plant, annually, one hundred acres; and, in 1807, his plantations in the counties of Biff, Aberdeen and Moray, amounted to above thirteen thousand acres. The oaks, and other close-grained timber trees which he has planted, rise vigorous and healthy. On the estate of Scone, near Perth, belonging to Lord Mansfield, 96,000 oaks have been raised; and similar instances might be produced in other parts of Scotland. See *Transactions of the Society for the Encouragement of Arts, &c.* vol. xxv. and xxvi.

Ireland have just reason to be ashamed. A relation of mine in England has planted more than 3000 acres within seven years;* has ever this been done in Ireland during the same period?

In regard to live stock, and particularly neat cattle and sheep, great and most useful improvements have certainly taken place, and every praise is due to those individuals whose exertions, I am happy to say, have been crowned with the fullest success. But a wide field is open for this species of exertion. The lands reserved for grazing are not broken into those minute tenures which paralyse every endeavour that the most energetic mind can employ. These have not yet been introduced into the grazing system. It is tillage alone that is stunted by this erroneous principle; and, unfortunately, this system, pregnant with the most ruinous effects, is making rapid encroachments on the lands employed for pasture. There certainly would be no harm in this change, were agriculture conducted in a proper manner: but it is overrunning the whole country, bearing its own curse on its head; and yet the Irish are so weak as to flatter themselves that this sort of extension is improvement. "The number of petty tenures occupied by indigent cottagers, and the frequent overflow of population, on a small farm, are circumstances unfavourable to good husbandry. A farmer, indeed, often estimates his riches by the number of his sons, whose labour preclude any necessity of mercenary aid. But this lasts only for a short time; they marry at an early age, new families arise, a separation of interests takes place, and with it a partition of the farm. The same system is still going on, future subdivisions are to be made, more or less productive of jealousy and quarrel."[†]

But let it proceed in its baneful career, and the result will infallibly be an extension of idleness, poverty, discontent, resistance to the laws, and, at last, rebellion. More freeholders, perhaps, more rent, more income to the parish priest; but at the same time, more *shanavests*, more *caravats*, more special commissions, the erection of new jails, and new barracks.

If, instead of such petty tenures, fine farming homesteads were to be established, surrounded by corn-stacks and villages, peopled with well-fed, industrious labourers, what a charming sight would the country afford to the eye of benevolence!

Oh! is there not some patriot, in whose power
That best, that godlike luxury is plac'd,
Of blessing thousands, thousands yet unborn,
Thro' late posterity? Some, large of soul,
To cheer dejected industry? to give
A double harvest to the pining swain?
And teach the labouring hand the sweets of toil?

Thomson's Autumn.

The statesman, who should effect this, would have great cause to rejoice at his

* The late Mr. John Wakefield, of Westmoreland.

† Townsend's Survey of Cork, p. 202.

efforts; and Ireland, whoever he might be, would hail him as her best friend and benefactor. But if we reverse the picture, what do we see? Instead of a wealthy and respectable population,* swarms of lazy, half-starved beings, ignorant and naked,† who vote at command, and form the political influence of their landlords; and who, indeed, may serve to recruit our armies and navies, but can never increase the internal strength of the empire. From foreign enemies Great Britain has little to fear: like a colossus, she stands amidst the surrounding waves, and beholds, with a smile of contempt, the abortive efforts of a most vindictive foreign foe: if ever she falls, it must be through the ignorance of those who conduct her councils, who neither attempt, nor know how to draw forth or make use of her vast internal resources.

For an elucidation of the opinions which I have here detailed, let Irishmen consult "*Le Tableau Oeconomique*" of M. de Mirabeau; that enlightened genius foresaw the benefit which would result from large farms,‡ namely, the exportation of corn; and he seems also to have been fully sensible of the truth of that great political axiom, which ought to be inscribed in letters of gold over the escritoire of every minister:—"POPULATION IS ONLY VALUABLE AS IT IS INDUSTRIOUS."§

A celebrated writer has ascribed the excellent husbandry of England to the following circumstances: ||

- 1st. Liberty.
- 2d. Mode of taxation.
- 3d. Leases.
- 4th. Tythe not generally gathered.
- 5th. A freedom from personal service.
- 6th. Corn laws.
- 7th. General wealth of the kingdom.
- 8th. Enclosures.
- 9th. Consumption of meat.

For a discussion on each of these heads, I must refer to Mr. Young's work here quoted; but I shall endeavour to consider their influence as connected with agriculture in Ireland.

* I request the reader to consult the *Annals of Agriculture*, vol. i. p. 62, for a confirmation of this sentiment.

† At Page 741 of the Cork Survey, Mr. Townsend makes some excellent observations on the mischief of the redundant and ill-fed population of the south of Ireland.

‡ It is extraordinary, that in the *Lettres à la Socrate Rustique*, he should contradict this opinion.

§ "Quanto la popolazione proporzionata ai prodotti della natura e dell' arte è vantaggiosa ad una nazione, altrettanto è nociva una popolazione soverchia." *L'Abbate Vasco. Risposta al quesito-proposto dalla Reale Accad. delle Scienze*, &c. 1788, p. 85.

|| Young's *Political Arithmetic*, Lond. edit. 1774, p. 4.

1st. LIBERTY. "The advance," says Mr. Young, "which the agriculture of this country has made, is owing primarily to the excellence of our constitution; to that general liberty which is diffused among all ranks of the people, and which ensures the legal possessions of every man from the hand of violence and power. This is the original and animating soul that enlivens the husbandry of Britain."* Whatever may be the case at present, I will boldly assert, that this, for many years past, has not been the situation of Ireland. I shall, perhaps, be asked, Have not the two countries had nearly the same constitution? This I am ready to admit; but unfortunately, the majority of the people in Ireland profess a religion, on account of which they have been excluded from the enjoyment of many of the blessings derived by others from that excellent constitution. I shall not enter into any discussion, whether the tenets of their faith are of such a nature, as to render it necessary to prevent them from participating in these blessings; it is sufficient for me to mention the fact, let it have arisen from whatever cause it may, as one reason to account for the miserable cultivation of the greater part of Ireland. It is not long ago, that a protestant brother was allowed to take possession of the estate of his elder brother, if a catholic. While the premises of a farmer were threatened with the possibility of such an event, was it to be expected that he could enter with spirit into the business of agriculture, or conduct it, either with benefit to himself, or advantage to the public. Besides, if a Roman catholic made any money, he could not invest it at home; and as catholics were prevented from voting at elections, protestants who possessed votes were certain, if they chose it, of obtaining their farms as soon as their leases were expired.† Impose the same restrictions on the majority of the English farmers, and, notwithstanding the firm establishment of that enlightened system of British cultivation, which has brought the land in England to so great perfection, the island would soon be converted into a desert. Laws containing such restrictions have existed in Ireland, and are sufficient, independently of any other cause, to account for that wretched and ruinous mode of agriculture which is still pursued. To transcribe or refer to more of this odious code is needless. It will, perhaps, be said, that it is no longer in force: I know it; but the invariable answer to all my inquiries has been, that protestants are the best farmers; and that they enjoy a greater share of comforts than the catholics. All this proves to me, that there is a principle in human nature which revolts at restraint; that restraint of any kind, when not rendered necessary by the circumstances of the times, has a direct tendency to discourage

* Young's Political Arithmetic, p. 5.

† According to the laws of Mahomet, "whosoever cultivates waste lands does thereby acquire the property of them: a Zimmee (infidel) becomes proprietor of them in the same manner as a Mussulman." From an oral authority of Mohammed, quoted in the Hedaya, and referred to by Col. Wilkes, in the History of the Mysore, p. 108.—Ireland might learn something even from this law.

exertion, and to damp that ardour of pursuit which characterizes the independent mind. Hence, the superiority of the protestant in this respect, inspires him with a confidence, which induces him to employ more industry, because he feels that he stands on a perfect equality with every one around him. Can the man who considers himself degraded make the same exertions as he, who, conscious of his own dignity as a member of society, sees no obstacles thrown in his way, to prevent him from obtaining a full recompense for his labours: or, is it to be expected, that he who is excluded from an equal participation in the rights of citizenship, should display the same zeal and activity, as he that enjoys civil existence, unconfined by any fetters, either of a political or a religious nature. Interested politicians may assert what they please; but I will boldly maintain, that, if disqualifying acts hang over the heads of any class of men, unless they are mere slaves, lost to every sense of their own importance, they must feel themselves dispirited; and if so, they will be incapable of keeping pace in improvement with their more independent neighbours. It is difficult to enlarge on this subject, without entering on that of religious parties, which I intend to discuss at full length in a separate chapter: but I could not well omit making these few reflections, in enumerating the causes of the bad husbandry remarked among the farmers in Ireland.

2d. **TAXATION.** In England, the land-tax has either been redeemed, or the tax is still paid as formerly. In Ireland, there is no such tax. Parish taxes in England are often exceedingly heavy. In Ireland, they are confined to the church-rates, which are really of too trivial a nature to be considered as any burden upon farming.

In regard to the *window-tax*, it seldom affects a farm-house in Ireland, but in its stead, what is called *hearth-money*, may be taken into consideration. It is, however, of little importance in regard to the husbandry of the country, but as connected with the health of those who inhabit farm-houses, is exceedingly impolitic.*

Excise, Customs, Stamps, Licenses, Post-office, &c. scarcely bear upon farmers in Ireland; and, therefore, I must consider these branches of taxation, as more favourable to agriculture there, than in England.

The County Cess, chiefly for the making and repairing of roads, is a tax almost entirely returned, as the price of labour to those who pay it; and, although some abuses occasioned by its existence might be mentioned, it is one, of which cultivators seldom complain. I have known farmers willing to give more rent in a county, in which roads were about to be made, under the expectation that they should be able to earn something towards the payment of their rent. In my chapter on Internal Communication, I shall give the amount of this tax per acre throughout the whole island.

3d. **LEASES.** In regard to leases, the Irish farmer is in a much better situation

* See Dubourdieu's Survey of Down, p. 33.

than the English, and, if the encouragement of a longer term could create superior husbandry, Ireland ought to be a real garden. I have already adverted to the want of proper clauses, and the little attention paid to the qualifications of a tenant, which are circumstances of neglect, that counterbalance all the advantages arising from a longer tenure.*

4th. TYTHE. This tax, in whatever manner or degree collected, acts, no doubt, as a burden on agriculture. I have devoted a chapter to its consideration, and have there pointed out a material difference in this respect between England and Ireland, which is, that in the latter country, it falls only on tillage-land, and hardly affects any but the peasantry. On this account it becomes an evil of great magnitude, to which, in my opinion, a remedy must soon be applied.

5th. FREEDOM FROM PERSONAL SERVICE. In this respect, there is a wide difference between England and Ireland. All those payments by "conveniences," of which I have already spoken in various parts of this work, may be considered as giving rise, in some degree, to a sort of bondage, equivalent to personal service. In Ulster, there is less of it than in any other district of Ireland, and, in some parts of that province, it does not exist; but I shall refer the reader to what I have said on labour, for a more minute examination of this great evil. A poor man, who enjoys these "conveniences," as they are called, would be accounted a rebel, did he not abandon his own crop, to gather in that of his master; and if to this be added the "duty fowl," the "duty turf," and, in short, the "duty" in general, which is but another term for personal service, it will be seen to what a great extent this kind of slavery is carried in Ireland. In France, formerly this oppressive custom was an evil, which called loudly for redress; and I have observed, that those parts in Ireland where it most prevails, are the worst cultivated. The French writers on political economy ascribed their wretched agriculture in a great measure, to the pernicious system of personal servitude. It would be well for the rich aristocracy of Ireland to consult the works of these authors, where they will find enough to convince them, that no mode of obtaining labour can be more prejudicial to the state. They might be taught some useful lessons also, were they to visit such estates as those of Mr. Foster, Mr. Wynne, Mr. Stewart of the Ards in Donegal, and Mr. Hyde, where they will observe the difference of effect produced by liberal and illiberal treatment—between the exertions of freemen and the labour of slaves. It is needless for me to dwell longer at present on this system, so degrading to human nature: the reader will find that I have reprobated it in various parts of my work; and yet, I fear, I have not commented upon it with half the severity which it deserves. I may, perhaps,

* "In Ireland, lands are let in very great tracts by auction, with a liberty of reletting to others. Thus the over-grown tenant, who is probably no farmer, has that security which the cultivator of the land should have, who, on the contrary, is often only tenant at will. In this pernicious system, long leases are practised, without one good effect flowing from them." *Young's Polit. Arithmetic, Lond. edit. 1774*, p. 181. This, though written in 1774, is applicable to 1811. The same circumstance I observed in every county of Ireland,

be told, that the West-India islands are kept in a state of high cultivation by the hands of slaves, and that the land is rendered productive in Poland and Russia, by boors and peasants, whose situation is little better; but, to attempt a further discussion of this subject, would be entering a field of endless extent, and I trust, that any reflection on it in England is now unnecessary.*

* Bond-service was one of those heavy grievances which afforded such just cause of complaint to the peasants in Denmark, and which induced them sometimes to break out into open insurrection. In many parts, and particularly in Zealand, they were villeins or slaves, *adscripti glebæ*, who could not leave the estate to which they belonged, without the consent of their master, and who were sold along with land in the same manner as cattle or other stock.† They were not permitted to bring up their children to such professions as they thought proper, nor could they marry, without permission from their lord. Frederic IV. and Frederic V. made some attempts to ameliorate the situation of these people, but the principal service rendered to humanity in this respect, was by the late King Christian VII. who was strongly seconded in his patriotic views by a native of Switzerland, named Reverdil, who had been his preceptor for the French language. After considerable opposition from selfish proprietors, the following decrees and proclamations, favourable to the liberty of the peasants, were drawn up and issued:

1787. Decree relating to the Duties and Obligations which ought to take place between the proprietors of land and their tenants, on the latter entering on, or quitting their farms.

1788. Decree for freeing the male peasants in Denmark, from attachment to the soil on the manors where they are settled.

1791. Decree for regulating bond-service on manorial lands in Denmark.

1791. Royal exhortation to a voluntary commutation of limited bond-service.

1792. Decree respecting various advantages promised to land proprietors, as an encouragement to induce them to divide their lands into distinct farms.

1796. Royal invitation to accept a commutation in corn or money, instead of tythes.

1799. Decree containing general regulations in regard to service.

By these and other regulations drawn up in the same spirit, added to advances and loans of money, and a continual adherence to the same plan during a series of years, such beneficial effects have been produced in Denmark, that most of the royal and public domains, and a great portion of private manors have been converted into free farms; so that more than one-half of the whole landed property in that country is now parcelled out among the peasantry; the abolition of bond-service is rendered possible in most places on paying a commutation in money, and things have been placed on such a footing, that the remainder of the leaseholders may become proprietors by purchase. When such things are done under the most despotic government in Europe, is it not time that every mark of feudal servitude should be banished from the British dominions? See more on this subject in *Versuch einer Statistik der Dänischen Monarchie von F. Thaarup*, vol. i. p. 148-157, and *Historisk-Statistik. Skildring af Tilstanden i Danmark, of Norge*, ved. Rasmus Nyerup. Kiøbenhavn, 1804. vol. ii. p. 508-516.

Even in Russia the condition of the peasants has been much improved, in consequence of some late regulations made by the present emperor Alexander I. who, soon after his accession to the throne, granted permission to the nobility to give liberty to their slaves; a measure which has already been attended with the most beneficial effects. In consequence of this permission a nobleman named Petrov-Solowowo in the government of Woronesch lately emancipated his slaves to the number of 8001, on the condition of their paying for their liberty,

† Till the year 1775 men were sold in the same manner in Scotland, and the act of parliament which abolished the custom states in its preamble, that it was enacted, to enable the proprietors of mines, to obtain labourers, and not a- having been brought in to satisfy the feelings of equity and justice, see 15 Geo. 3. c. 28. *Sir I. Eden's State of the Poor*, vol. i. p. 418, and *Peasant's Tour in Scotland*, ed. 1776, part 2d. p. 203.

6th. CORN LAWS.—So great a friend am I to general commercial freedom, and so convinced that demand is ever the parent of production, that I much regret the existence of such laws; and as long as the base and sordid spirit of mercantile speculation shall interest the legislature to offer bounties on importation to a certain price, so long must the landed interest bring forward plans to counteract so baneful and destructive a system. Corn is to be made cheap, that is, in truth, to check its increase; and for what purpose? To create a consumption of sugar, of tea, and of rum. This, in fact, is the substance and sum of our famed corn laws. Without a market, and without a sufficient price, who will produce corn? I entertain a high respect for the legislature of my country; but I know that acts of Parliament are not omnipotent; they cannot change seasons, or render that possible which in its nature is impossible. When Parliament, therefore, enacts laws which hold out to the people of England an idea that it has power to depress or to raise the price of corn, I cannot help lamenting the delusion which it practises. If you import and lower the price, cultivation is discouraged at home, and next year so much less is produced as will raise the price to the same level at which it was previously to this importation. Such laws, therefore, are absurd; they effect no good whatever, and rest on the most unstable foundation. If I am not mistaken, this subject will, before many years, call more imperiously for redress than any with which the public mind can be occupied. It is to Ireland that Great Britain must look for corn. At present, the markets for corn in that country are very different from those in England. No object that I know of attracts more the attention of an observer. But I have already detailed my sentiments upon it. I have described the state of cultivation which I saw in a circular district around Killrush, a *market* of demand. If improved cultivation in Ireland be an object of high importance, as it undoubtedly is, I must repeat what

liberty, and the lands assigned to them, a million and a half of rubles, or about seventy pounds sterling per head. This money was to be paid in the course of nineteen years, and by the following instalments:

	Rubles.
1st. During the first four years annually 100,000 rubles - -	40,000
2d. During the next 14 years annually 75,000 rubles . - -	105,000
3d. In the 19th, or last year - - - - -	5,000
	<hr/>
	1,500,000

See *Russland unter Alexander dem Ersten*, June 1804. vol. ii. p. 396.

What sentiments the Emperor Alexander entertains in regard to the situation of the peasants in his dominions, may be collected from the following extract of a letter written by him to a nobleman who solicited for an estate:—"The greater part of the peasants in Russia are slaves. I am not under the necessity of extending the misfortunes and degradation of that class; I have, therefore, made a vow that I will not increase the number: and I have adopted it as a principle not to give away peasants to be held as property. The estate shall be granted to you and your descendants; but on this condition, that the peasants shall not be sold or alienated like beasts." See the work above quoted. Sept. 1804. vol. iv. p. 302.

I have already said—"increase the markets." The banks of the Shannon, the ports of Connaught and Munster present themselves as substitutes for Dantzic; as places to which the people of England may send their money and shipping. What the farmer requires, is a high steady price, without which no enterprising plans of cultivation will ever succeed.

7th. GENERAL WEALTH.—"In proportion to that wealth in a country, which is the result not of mines, but of industry, will be the prosperity of agriculture, arts, manufactures, and commerce."* In this respect, Ireland is not equal to England; in the extravagance, luxury, and prodigal waste of the higher orders, she has made much greater progress; but these are no proofs of the existence of general wealth; nor are they attended with the same salutary effect as that diffusion of opulence which creates ready markets for the productions of the soil. As such markets do not exist, I have strongly urged Great Britain to provide them. They might easily be created, and the benefits resulting therefrom would soon become manifest. But I should consider Ireland much richer, if her own inhabitants would consume more of the produce of her luxurious soil. The want of this consumption will in part account for the slovenly cultivation, which must offend the sight of the English farmer who visits that country. Universal luxury, in my opinion, creates general wealth.† "A clean shirt and a laced hat, are not inconsistent with piety and virtue, nor ortolans or burgundy with temperance, nor a feather bed with fortitude, nor a pinch of snuff with sobriety, nor a handsome woman with chastity. A man may enjoy them all, and yet act up to the dignity of his nature, and conformably to the precepts of religion and morality. Neither, on the other hand, does a man's confining himself to the use of fat bacon, Lacedemonian broth, muddy beer, coarse woollens, a leather doublet, a canvas shirt, and a thatched hovel upon a common, render him the more pious, temperate, sober, chaste, religious and virtuous; for he may confine himself to the use of all these, and yet be a most slovenly sinner, and beastly profligate."‡ It may be thought from this quotation, that I am a disciple of Mandeville, and consider private vices as public benefits; but luxury§ and vice are by no means synonymous terms, and before a charge of this

* Young's Political Arithmetic, p. 46.

† Some may think that I confound cause and effect; for it is generally believed, that wealth is the parent of luxury. But political writers adopt popular ideas sometimes without proper reflection; for is it not probable that luxury may be both cause and effect? Sometimes the one, and sometimes the other. However this may be, an acute French writer considers luxury as absolutely necessary under a monarchical government.—"Pour que l'état monarchique se soutienne, le luxe doit aller en croissant, du laboureur à l'artisan, au négociant, aux nobles, aux magistrats, aux grand seigneurs, aux traitants principaux, aux princes; sans quoi tout seroit perdu." *Montesquieu Esprit des Loix*. liv. vii. chap. 4.

‡ Vindication of Commerce and the Arts, 1758. p. 51.

§ "Luxury," says Mr. Hume, "is a word of an uncertain signification, and may be taken in a good as well as in a bad sense. In general, it means great refinement in the gratification of the senses; and any de-

kind can be made against me, it would be necessary to define luxury, and ascertain beyond what limits it becomes vicious and immoral.† What I maintain is simply this, that a certain degree of luxurious habits in the people of a country, will be a general benefit in every respect, and in none more so than in creating markets for the different productions of the earth.‡

gree of it may be innocent or blameable, according to the age, or country, or condition of the person. The bounds between the virtue and the vice, cannot here be exactly fixed, more than in other moral subjects. To imagine that the gratifying any sense, or the indulging of any delicacy, in meat, drink, or apparel, is of itself a vice, can never enter into a head that is not disordered by the frensies of enthusiasm. I have, indeed, heard of a monk abroad, who, because the windows of his cell opened upon a noble prospect, made a *covenant with his eyes*, never to turn that way, or receive so sensual a gratification. And such is the crime of drinking Champagne or Burgundy, preferably to small beer or porter. These indulgences are only vices, when they are pursued at the expense of some virtue, as liberality or charity; in like manner, as they are follies, when for them a man ruins his fortune, and reduces himself to want and beggary. Where they entrench upon no virtue, but leave ample subject whence to provide for friends, family, and every proper object of generosity or compassion, they are entirely innocent, and have, in every age, been acknowledged such by all moralists. To be entirely occupied with the luxury of the table, for instance, without any relish for the pleasures of ambition, study, or conversation, is a mark of stupidity, and is incompatible with any vigour of temper or genius. To confine one's expese entirely to such gratification, without regard to friends or family, is an indication of a heart destitute of humanity or benevolence. But if a man reserve time sufficient for all laudable pursuits, and money sufficient for all generous purposes, he is free from every shadow of blame or reproach." *Hume's Essays*, vol. i. p. 285.

Our stern moralist, himself, seems to have been fully sensible of this truth, for, in a conversation with Goldsmith, according to his biographer, he made use of the following words: "Luxury, so far as it reaches the poor, will do good to the race of people; it will strengthen and multiply them. Sir, no nation was ever hurt by luxury; for as I said before, it can reach but to a very few." *Boswell's Life of Johnson*, vol. ii. p. 219. On another occasion, this great man said: "Many things which are false, are transmitted from book to book, and gain credit in the world. One of these is the cry against the evil of luxury. Now, the truth is, that luxury produces much good. Take the luxury of the buildings in London; does it not produce real advantage in the conveniency and elegance of accommodation, and this all from the exertion of industry? People will tell you, with a melancholy face, how many builders are in gaol. It is plain they are in gaol, not for building; for rents are not fallen—a man gives half a guinea for a dish of green peas. How much gardening does this occasion! how many labourers must the competition, to have such things early in the market, keep in employment! You will hear it said very gravely, "Why was not the half guinea, thus spent in luxury, given to the poor? To how many might it have afforded a good meal. Alas! has it not gone to the *industrious* poor, whom it is better to support than the *idle* poor. You are much surer that you are doing good, when you *pay* money to those who work, than when you *give* money merely in charity." *Ibid.* vol. iii. p. 52.

Sir James Stewart, in his *Inquiry into the Principles of Political Economy*, Lond. 1805, vol. i. p. 155, adverts to the reciprocity of wants and dependencies among a people.

† Political Arithmetic, p. 157.

"The word luxury hath usually annexed to it a kind of opprobrious idea; but so far as it encourages the arts, whets the inventions of men, and finds employment for more of our own people, its influence is benign and beneficial to the whole society." *Hart's on Coin*, p. 30.

‡ Political Arithmetic, p. 157.

8th. ENCLOSURES.—In this respect Ireland has the advantage of England; the whole country is enclosed, a circumstance which under proper management would, no doubt, create abundance. But the benefit arising from this advantage is counterbalanced by the minute division of these enclosures, which even clogs all cultivation; and yet this system, so destructive, finds advocates in abundance. It is a subject which did not escape the keen penetration of our immortal bard; for there is still in existence a paper which he wrote in favour of enclosures and large farms, entitled, "A Compendium, or brief Examination of certain ordinary Complaints of divers of our Countrymen in these our Days; by W. S. 1581." It is now 1811, and the same complaints continue.

9th. CONSUMPTION OF MEAT.—On this head Mr. Young says, "but there is another circumstance which, though not of equal consequence, should not be forgotten; it is the custom of eating such quantities of meat in this country, and in comparison with others, so little bread." How different is the system in Ireland! The great bulk of the people seldom taste meat; and the reader will perceive, by consulting my table of prices, that the price of wheaten bread has seldom been stated; and for this obvious reason, because it is not in use. It is an undoubted maxim, that the article most consumed in any country as food, will become the chief object of cultivation. In Ireland, therefore, potatoes exclusively engage the attention of every farmer; and till the people assume different habits, no material change in the present system can be expected. To the south of Cork, I found that wheat formed a part of the constant course; and Mr. Fitzgeald, the late member for the county, explained this circumstance, which he ascribed to the failure of the potatoe crop in 1800. At that period the people were reduced to the necessity of eating wheaten bread, and they have never since given it up. In no part of Ireland did I observe superior cultivation, better fed, better clothed, or more industrious peasants than in the neighbourhood of Corkbeg. The difference was striking, and the fact which gave rise to it is of the utmost importance. It shews in a decisive manner, how the course of cropping the earth is affected by general habits. Accustom the same people to consume meat as a part of their food, and their lands will be farmed with greater ease and industry. More improvement would be produced by a change of this kind than could be effected by all the books of husbandry that might be written. It is a demand for corn and cattle; that steady and uninterrupted demand which is most certain when created at home, that can excite a true and active spirit of cultivation in a country, and diffuse it generally among the people.

Having enlarged sufficiently, I trust, on this subject, I shall conclude by reminding the reader, that it is the patriotic and enlightened statesman alone, who can give a beneficial stimulus to cultivation in Ireland, and promote that improvement, which can be of real advantage to the country. Individuals may be gra-

tified by premiums and bounties; and the vanity of country gentlemen may be flattered by the commendation and praise bestowed on them by agricultural writers; but neither the one nor the other will fill the bushel, or add to the welfare and prosperity of the people.

I must now call the reader's attention to the general result of the agricultural system pursued in Ireland, the average produce of nine districts appears as follows:

	In lbs. Avoird.		In lbs. Avoird.		In lbs. Avoird.		In lbs. Avoird.		In lbs. Avoird.			
	Wheat.		Bere.		Barley.		Oats.		Potatoes.		Flax.	
	Seed used.	Produce.	Seed used.	Produce.	Seed used.	Produce.	Seed used.	Produce.	Seed used.	Produce.	Seed used.	Produce.
1st District. Part of Antrim, part of Tyrone, Down, Armagh, Monaghan, and Cavan	224	2272	203	3500	209	2982	333	2636	2392	22,248	30 Gal.	785
2d Ditto. Part of Antrim, Londonderry, part of Tyrone	171	2135	-	-	203	2646	291	3227	1383	15,183		
3d Ditto. Fermanagh (no return.)												
4th Ditto. South of Fermanagh, Sligo, Mayo, Galway, Clare, Roscommon, and Longford	222	2024	196	3584	244	2765	308	2749	2144	22,289		
5th Ditto. Limerick, Kerry, part of Cork, Waterford	243	2537	261	4480	249	3024	298	2970	2592	24,328	-	972
6th Ditto. Southern part of Cork, (the returns being according to the English acre, are not taken into the average.)												
7th Ditto. Tipperary, Queen's and King's County	232	1857	187	3131	173	2228	310	2265	2660	22,358		
8th Ditto. Wexford and part of Wicklow	186	2020	-	-	296	2614	368	2606	2632	21,140	-	896
9th Ditto. Kilkenny, Kildare, Westmeath, Meath, Louth, and Dublin	257	2353	211	3494	246	3235	361	3063	2659	27,113	-	824
Average	1535 219	15,198 2171	1058 211	18,189 3637	1620 251	20,094 2,870	2369 324	19,517 2,788	16,442 2,348	154,659 22,094		3477 869
In Statute Barrels*	St. lbs. 13 11	Bar. St. lbs. 6 15 11	St. lbs. 13 3	Bar. St. lbs. 14 3 5	St. lbs. 14 7	Bar. St. lbs. 11 3 6	St. lbs. 20 4	Bar. St. lbs. 10 14 4				
In Winchester Bushels to the Irish Acre	Bush. 3.38	Bushels. 33.6	Bush. 4.01	Bushels. 69.2	Bush. 4.4	Bushels. 54.6	Bush. 8.4	Bushels. 72.4				
In Winchester Bushels to the English Acre	Bush. 2.086	Bushels. 20.74	Bush. 2.47	Bushels. 42.7	Bush. 2.71	Bushels. 33.7	Bush. 5.18	Bushels. 44.5				

* Calculating the bushel of wheat to weigh 64.5lbs.
Bere and barley 52.5
Oats 32.5

This acreable produce must be placed in comparison with that of England: according to Mr. Young, the average produce of wheat in this county is twenty-four bushels to the acre;* but the quantity must not alone be taken into consideration. No wheat in Ireland is ground without screening and kiln drying, a further deduction of full 15 per cent. rendering the average produce per English acre 17.63 bushels, not exceeding the produce in France.† In England, Mr. Young calculates spring corn, barley, and oats, to produce 32 bushels of corn;‡ a similar deduction for dirt and damp must be allowed in the Irish crop, reducing the average to 31.28; and in barley, it is to be recollected, that all my information proved the same fact, that malt made from it does not yield an equal quantity of saccharine matter, by 20 per cent. Spring corn shews a more favourable result in point of quantity, than that of wheat; but it is not this alone, but the quantity of labour which has been expended in order to procure it, which is the incalculably important object of consideration for the political economist, who must consider the quantity of production from a given number of acres and a given number of people; and he must not lose sight of the quality of the soil and climate; the former, perhaps, more favourable to the Irish crop than to the English, the latter less so. Mr. Young has remarked of France, and I shall here quote the passage:

“Under these various circumstances, for the average produce of the former, to be so much inferior, is truly remarkable. But eighteen bushels of wheat and rye, and miserable spring corn, afford as high a rent in France, as twenty-four in England, with the addition of our excellent spring corn: this forms a striking contrast, and leads to the explanation of the difference. It arises very much from the poverty of the French tenantry; for the political institutions and spirit of the government having, for a long series of ages, tended strongly to depress the lower classes, and favour the higher ones, the farmers in the greater part of France, are blended with the peasantry; and, in point of wealth, are hardly superior to the common labourers; these poor farmers are *metayers*, who find nothing towards stocking a farm but labour and implements; and being exceedingly miserable, there is rarely a sufficiency of the latter. The landlord is better able to provide live stock; but, engaged in a dissipated scene of life, probably at a distance from the farm, and being poor, like country gentlemen in many other parts of Europe, he stocks the farm not one penny beyond the most pressing necessity; from which system a wretched produce must unavoidably result. That the tenantry should generally be poor, will not be thought strange, when the taxes laid upon them are considered; their *tailles* and *capitation* are heavy in themselves; and the weight being increased by being laid arbitrarily, prosperity and good management are little more than signals for a higher assessment. Under such a system, a wealthy tenantry, on arable land, can hardly arise. With these farmers, and this management, it is not much to be wondered at, that the lands yield no more than eighteen bushels. Such a tenantry, contributing

* French Tour, vol. i. p. 354.

† Ibid.

‡ Ibid. p. 358.

so little beyond the labour of their hands, are much more at the landlord's mercy than would be the case of wealthier farmers, who, possessing a capital proper for their undertakings, are not content with a profit less than sufficient to return them a due interest for their money; and the consequence is, that the proprietor cannot have so high a rent as he has from *metayers*, who, possessing nothing, are content merely to live. Thus, in the division of the gross produce, the landlord in France gets half; but in England, in the shape of rent only, from a fourth to a tenth; commonly from a fourth to a sixth. On some lands he gets a third, but that is uncommon. Nothing can be simpler than the principles upon which this is founded. The English tenant must not only be able to support himself and his family, but must be paid for his capital also, upon which the future produce of the farm depends, as much as on the land itself."

I read these remarks, and I could hardly believe that they alluded to France rather than Ireland. Change the term "tailles and capitation," into bound labourers and corn acres; and every sentence, every word is applicable to Ireland. If I could but ring them with effect in the ear of every Irish land-owner, I should be rendering them infinite service; but does it merely end with landlords, land-owners? No; legislators, ministers, public men of all descriptions, must consider these extremely important points upon this head. I shall quote another passage from the same work, because the sentiments it contains are exactly applicable to the subject which I am upon; and because they are stated in plainer and more explicit language than I know how to write, and will be not less useful, because they have been some years in print:

"Ten millions of acres produce more corn than fifteen millions; consequently, a territory of one hundred millions of acres more than equals another of one hundred and fifty millions. It is from such facts that we must seek for an explanation of the power of England, which has ventured to measure itself with that of a country so much more populous, extensive, and more favoured by nature, as France really is; and it is a lesson to all governments whatever, that if they would be powerful, they must encourage the only real and permanent basis of power, AGRICULTURE. By enlarging the quantity of the products of land in a nation, all those advantages flow which have been attributed to a great population, but which ought, with much more truth, to have been assigned to a great consumption; since it is not the mere number of people, but their ease and welfare, which constitute national prosperity. The difference between the corn products of France and England is so great, that it would justify some degree of surprise, how any political writer could ever express any degree of amazement, that a territory, naturally so inconsiderable as the British Isles, on comparison with France, should ever become equally powerful; yet this sentiment, founded in mere ignorance, has been very common. With such an immense superiority in the produce of corn, the more obvious surprise should have been, that the resources of England, compared with those of France, were not yet more decisive."

CHAPTER IX.

FUEL.

THE advantages which arise from having an easy and cheap supply of fuel, particularly in a northern climate, are many and important. It is, indeed, an article so useful for domestic purposes, and so necessary to render life comfortable, that, where a scarcity of it prevails, the people are reduced to a state of the utmost misery and distress.* In parts exposed to a cold damp atmosphere, it tends to promote health, and to prevent many diseases, which afflict the inhabitants of districts where it is expensive and difficult to be obtained.† In a word, without fuel, man would be a helpless being, incapable of cultivating many of the most useful arts,‡ and almost defenceless; since it is by the agency of fire that he is enabled to construct those means of self-protection, which render him far superior to the most powerful of the animal race, and in every sense of the phrase, "lord of the creation."

Fuel has an influence, even on agriculture. A celebrated writer remarks, that

* "Those who live in countries where fuel is plentiful, can have no conception of the misery to which people are reduced, in places where, in consequence of local situation, this useful article cannot be obtained. In the Isle of Mull, one of the Hebrides, the people are sometimes so distressed in the spring for fuel, that they not only gather dried horse-dung for that purpose, but even burn straw, and at times, the roofs of their houses, or some of their furniture." *Sir John Sinclair's Stat. Account of Scotland*, vol. x. p. 405. "In the winter of 1790-91, the inhabitants of isle Muck were reduced, by a scarcity of fuel, to the necessity of burning different kinds of furniture, such as beds, dressers, stools, barrels, and also house-timber, divots, tangles, straw, &c." *Ibid.* vol. xvii. p. 286.

† "The parish of Shotts, in the county of Lanark, is so well supplied with fuel from the collieries, that, though the soil is moist, and the air chill and penetrating, the inhabitants are equally, if not more, healthy, than those who live in a warmer climate. In consequence of the abundance of fuel, dampness without doors produces no rheumatic disorders; and, therefore, the celebrated Dr. Cullen, who began his career in this parish, used to say Shotts was the Montpellier of Scotland."—*Stat. Account*, vol. xv. p. 59. "In the parish of Campsie, county of Stirling, the climate is exceedingly wet and variable, yet the people are healthy. This is ascribed, in part, to the abundance of fuel, which enables every cottager to have a hearty fire." *Ib.* p. 318.

‡ In the northern part of China, the climate is exceedingly unfavourable, and the want of fuel is attended with very bad consequences to the poor peasantry. Mr. Barrow says: "the summers are so warm that they go nearly naked, and the winters so severe, that, what with their poor and scanty fare, their want of fuel, clothing, and even shelter, thousands are said to perish from cold and hunger. At Pekin there are no coals nearer than the mountains of Tartary, which are all brought on the backs of dromedaries; of course they are extravagantly dear." *Travels in China*, p. 551.

It is not without reason, therefore, that a Greek dramatic writer calls fire "the teacher of the arts, and a great source of profit to man:"

— ἡ διδάσκαλος τέχνης
Πᾶσιν βροτῶν πίψυκε καὶ μίγας πόρος.

Aeschyl. Prometheus Bound. 110.

"countries, where coal-mines furnish matter proper for burning, possess this advantage over others, that as woods are not necessary, the whole land may be applied to the purposes of cultivation."*

One great object of fuel, in a national point of view, is the benefit resulting from it to manufactures; for, independently of the consideration that many kinds cannot be carried on without the consumption of a very large quantity, the warmth requisite to enable the persons engaged in them to go through their labour with comfort, and which is a great excitement to industry, has no small claim to attention. On this head, Dr. Franklin very justly says: "Much more of the prosperity of a winter country depends on the plenty and cheapness of fuel than is generally imagined. In travelling, I have observed, that, in those parts where the inhabitants can have neither wood, nor coal, nor turf, but at excessive prices, the working people live in miserable hovels, are ragged, and have nothing comfortable about them: but when fuel is cheap, or where they have the art of managing it to advantage, they are well furnished with necessaries, and have decent habitations. The obvious reason is, that the working hours of such people are the profitable hours; and they, who cannot afford sufficient fuel, have fewer such hours in the twenty-four, than those who have it cheap and plenty; for much of the domestic work of poor women, such as spinning, knitting; and of the men, in those manufactures that require little bodily exercise, cannot well be performed when the fingers are numbed with cold. Those people, therefore, in cold weather, are induced to go to bed sooner, and lie longer in a morning, than they would do if they could have good fires or warm stoves to sit by; and their hours of work are not sufficient to produce the means of comfortable subsistence. Those public works, therefore, such as roads, canals, &c. by which fuel may be brought cheap into such countries, from distant places, are of great utility; and those who promote them may be reckoned among the benefactors of mankind."†

In England, the spot where fuel is found seems to possess an attractive quality, and to give birth to population and industry. Fuel and manufactures, indeed, go hand in hand; and the latter, where the least encouragement is given, seem always ready to accompany the former. Had the bogs of Ireland been capable of being converted into fuel at a cheap rate, they must, long ago, in my opinion, have created manufactures in their neighbourhood; but as this has not been the case, it is a decisive proof that the expense of this kind of fuel is too great to admit of any such improvement. In some manufactures, fuel is an essential requisite; without large

* Les pays où des mines de charbon fournissent des matieres propres à brûler, ont cet avantage sur les autres, qu'il n'y faut point des forêts et que toutes les terres peuvent être cultivées. *L'Esprit des Loix*, livre xxiii. ch. 14. *Œuvres de Montesquieu*, tom. iii. p. 71.

† Franklin on Smoky Chimneys. Works, vol. ii. p. 285, 286.

quantities of it they cannot be conducted; and if it be not obtained at a moderate price, the article manufactured will become too dear for general consumption, and, of course, the establishment, whatever it may be, will not meet with encouragement.

The principal kinds of fuel employed either for domestic purposes or manufactures, are wood, coals, and turf, or peat; but of all these, coals seem to deserve a preference, on account of the many advantages with which they are attended.

Coals are found in France and in Germany, also in Newfoundland, Cape-Breton, Canada, and some parts of the United States of America, but of a quality much inferior to the British.* They abound also in Bornholm, an island in the Baltic, belonging to Denmark, and some unsuccessful attempts have been made to work them. A few years ago they were resumed by an Englishman named Davenport; but the author who mentions this circumstance does not tell us the result. There are coals likewise in the small island of Fucer in Liimford.†

Sweden possesses coals in the island of Oland; and in 1738, a good coal-mine was discovered at Qvistofsta, a few miles from Helsingborg; but they are used only in burning lime and making bricks, for the use of government, at Landsrona.‡

Coals, said to be of a good quality, are found in Suderoe, one of the Feroe islands, and, in 1792, a large quantity were lying there ready for sale; but, though the Danish government announced in the public journals, that they would be disposed of at a very moderate price, no buyers seem to have appeared.§

According to Munster, coal is found in Tartary;|| and China is said to abound with it.¶ Barrow saw, in the defiles among wild mountains, in the province of Canton, extensive collieries, which were advantageously worked by driving levels from the river Pei-kiang-ho into their sides. The coals brought out of the horizontal *adits* were immediately lowered from a pier into vessels, ready to receive and transport them to the potteries of that province, and of Kiang-see. Coals, however, in this country, are not much used in their raw state; they are first charred in large pits dug in the ground; and coal-dust mixed with earth, and then formed into square blocks, is frequently employed by the Chinese, to heat those small stoves on which they boil their rice.**

* Encyclop. Britan. Edin. verbo Coalery.

† Versuch einer Statistik der Danischen Monarchie, vol. i. p. 54.

‡ Tuneld's Geographie öfver Konungariket Sverige. Stockholm, 1793, vol. ii. p. 155, 444, 445.—Engeström Guide du Voyageur aux Carrieres et Mines de Suede. Stockholm, 1796, p. 56. 103.

§ Landt's Descript. of the Feroe Islands, p. 71—76.

|| M. Schookii Tractat. de Turfis. Groningæ, 1658, p. 223.

¶ Lettres Edif. vol. i. p. 22. Purchas's Pilgrims, vol. iii. p. 88.

** Barrow's Travels in China, p. 594.

Coals are said to exist in the island of Madagascar;* and, if search were made, it is probable that they would be found in many other parts of the world.

The first mention of coals in England† seems to occur in 1239, at which period King Henry III. is said to have granted a charter to the townsmen of Newcastle upon Tyne, for liberty to dig coals in the vicinity of that place. But the strongest and most unequivocal proof of this species of fuel being used here, during the reign of that prince, is to be found in the inquisition preserved among the additions to the History of Matthew Paris, dated 1245. Here it is called sea-coal, and express mention is made of digging pits to win it, and of the wages of the workmen employed in them.

The first mention of coal that occurs in any charter in Scotland, is found in a grant executed in 1291, which permits the abbot of Dumfermline to dig for coal in the lands of Pittoncrief, in the county of Fife.

The use of sea-coal was prohibited in London, in the year 1306, by proclamation. Brewers, dyers, and others, had found great advantage in substituting this fossil for dry wood and charcoal; but so general was the prejudice against it at that time, that the nobles and commons assembled in parliament, complained of it as a public nuisance, which was thought to corrupt the air with its stink and its smoke.

About 1512, the best kind of coals appear to have been purchased for five shillings per chaldron; and those of an inferior sort for four shillings and two-pence.

In the year 1536, coals were sold at Newcastle upon Tyne for two shillings and six-pence the chaldron; and at London for about four shillings.

Bishop Fleetwood tells us, in his *Chronicon Pretiosum*, that, in the year 1550, a load of coals sold for twelve shillings.

In 1643, the commons made an order to restrain the price of coals to twenty shillings, or not to exceed twenty-three shillings the chaldron; and, in 1667, by a similar order, the price was confined to thirty shillings.

* Anderson's Dict. of Commerce, vol. i. p. 227.

† The derivation of the word coal is uncertain; but it is worthy of remark, that it has run through several of the northern dialects with very little variation. In the Anglo-Saxon it is *col*, in the Swedish *kol*, in the Dutch *kole*, in the German *kohle*, and in the Danish *kul*. Whitaker, in his History of Manchester, says, "that the Britons, in general, were acquainted with this fuel, is evident from its appellation among us at present, which is not Saxon, but British, and subsists among the Irish in their *ogual*, and among the Cornish in their *kolan*, to this day." There are no beds of coal in the compass of Italy; and some are of opinion that the Romans, while in Britain, were ignorant of it, because there is no name for it in their language: the genuine and determinate sense of *carbo* being charcoal. It seems, however, to have been proved, beyond all doubt, that, though it escaped the notice of that great people at first, it was afterwards brought into use among them. "The Romans," says the learned Whitaker, "appear actually using coal in Britain. In the West Riding of Yorkshire, and neighbourhood of North Brierly, are many beds of cinders, heaped up in the fields, in one of which a number of Roman coins was found some years ago.

In 1710, coals imported from the west of Scotland to Ireland, &c. were charged with the same duties as coals from the West of England to Ireland.*

Coals of Wales, or the West of England, shipped for Ireland, &c. were to pay one shilling per chaldron; Newcastle coals eight-pence per ton, and security to be given for landing.†

Though coals were employed in various manufactories in England for several hundred years, they were not brought into common use till the reign of Charles I. and were then sold for about seventeen shillings per chaldron.‡ Some years after the restoration, about two hundred thousand chaldrons were burnt annually in the metropolis.§ In 1670, about two hundred and seventy thousand; at the revolution, upwards of three hundred thousand; and about the year 1774, between five and six hundred thousand.||

In general, there are three kinds of coal: first, what is commonly denominated Scots coal, though improperly, as it is found at Limmington in Warwickshire, and in many other places. It is smooth, splits easily, burns briskly, with a white flame, and consumes entirely into white ashes. The second kind, usually called Welsh coal, is more lasting, burns with little smoke, and turns to cinders.¶ The third is a strong heavy coal, which makes an excellent fire, and is the common Newcastle, or sea coal, of which there is great variety, above forty different sorts being brought to London.** Another kind of coal, called canal coal, which possesses a considerable degree of hardness, is much used for making snuff-boxes, and other toys, and is found chiefly in Cheshire, Cumberland, and Lancashire.††

Various opinions have been entertained respecting the formation of coal; but it is generally believed to consist of vegetable matter, changed or modified by some unknown cause, in the bowels of the earth; and this seems to be strongly confirmed by the following circumstance, which is mentioned in Brand's History of Newcastle: "Sir Joseph Banks, Bart." says the author, "president of the Royal Society, so eminent for his knowledge of natural history, favoured me with the inspection of a large specimen of fossil found in Iceland, in strata of considerable thickness, and at great depths, which seems to exhibit a substantial proof that coal originally was wood. He has preserved several trunks of it, each of which is flattened, possibly by the weight of superincumbent strata; so that, instead of being cylindrical, as the body

* 9 Anne, c. 22. sect. 90.

† 9 Anne, c. 6. sect. 5 and 6.

‡ England's Grievance, in relation to the Coal Trade, by Ralph Gardiner, London, 1655, 4to. p. 53.

§ Campbell's Political Survey of Great Britain, vol. ii. p. 30.

|| Hunter's Complete View of the Coal Trade, p. 184.

¶ "This property," says Dr. Campbell, "of burning without smoke, renders them fit for making malt, even without being charred or converted into coke.

** A list of them may be seen in Hunter's Complete View of the Coal Trade, p. 186.

†† Campbell's Political Survey of Great Britain, vol. ii. p. 29.

or root of a tree naturally is, it is flat. Some of them are more, and some less woody. One is a fair plank of wood. As the woody ones are the greatest curiosities, they are sent in preference. The specimen I examined, appears to have been the root of a small tree, with the bark still adhering and remaining on the greatest part of it: in the lower part, however, the transformation has proceeded farther than at the top, so that it is real coal, while the top is actual wood.**

It has been already mentioned, in the chapter on bogs, that turf is common in several other countries of Europe besides Great Britain. It abounds in Denmark and Holland,† where it forms the principal part of the fuel used by the inhabitants. In the duchy of Berg, and around Cologne, there are very extensive morasses, from which turf is dug up,‡ and it is found also in France;§ and, according to Barrow, there are large tracts, which contain a similar substance, in the southern parts of the province of Shan-tung in China.||

That the use of turf was well known in the earliest periods in some districts of Lower Saxony, and throughout the Netherlands, seems to be fully proved by the account which Pliny gives of the Chauci, a people who inhabited that part of Germany, comprehending, at present, the duchies of Bremen and Verden, with the counties of Oldenburg, Delmenhorst, Diepholz, Huy, and East Friesland. This author says, expressly, that the Chauci pressed together, with their hands, a kind of mossy earth, which they dried by the wind rather than by the sun, and which they used not only for cooking their victuals, but also for warming their bodies.¶ Professor Beckman says, that he explains, by turf, a passage of Antigonus Carystius, quoted from Phanias, in which it is mentioned, that a morass in Thessaly, having become dry, took fire, and burned.**

The fuel of Ireland is confined almost to turf, cut from its numerous and extensive bogs, or to coals, which are either found in the country, or imported from England. Wood is so scarce, that I never saw it any where used. In Ulster there

* Hist. of Newcastle, vol. ii. p. 243, note.

† Natuurlyke Historie van Holland door Francq. van Berkhey. Tweed deel, Amst. 1769, 8vo. p. 552.

‡ Some account of the turf morasses, near Cologne, may be found in Hupsche's Entdeckung des Ursprungs des Colnischen umbers. Fraankf. und Leipzig, 1771, 8vo.

§ The use of turf was first made known in France in the year 1621, by Charles de Lamberville, advocate of the parliament of Paris, who resided some time in Holland, to which he had been sent, by the king, on public business. See *Anciens Mineralogistes, par Gobet*, vol. i. p. 302.

|| Barrow's Travels in China, p. 557.

¶ *Capitumque manibus lutum ventis magis, quam sole siccantes, terra cibos, et rigentia Septentrione viscera sua urunt.* Hist., Nat. lib. xvii. cap. 1. Lugd. Bat. 1669, vol. ii. p. 222.

** Hist. of Inventions, vol. i. p. 335. Φανιας δε, τη των Πυρακων λιμνη στα αναζητησθη, καισθαι. Phaniam pauludem Pyracum siccant ardere. Meursius says that the reading ought to be Πυρξαιωι, and he is of opinion that it means a part of Thessaly, called by Stephanus Πυραια.

are two coal mines, both worked, one in Antrim, at Ballycastle,* and the other in Tyrone, between Dungannon and Stewartstown. An attempt has been made to convey the coals, which are bituminous, and of a bad quality, to Dublin, for the supply of that city; from the latter, by the canal to Newry, and from the former, by sea; but the harbour of Ballycastle will prevent any large quantity being sent from that place, even if they could be raised at a moderate expense.†

The amount of the produce of Coal Island colliery, which I have here given in a note,‡ was obtained from a person representing himself as one of a company, who had hired it from Mr. Staples of Lisson, and who said he was the acting partner; but on comparing his account with the quantity raised at Castle Goomer, I am convinced that my informant meant to impose upon me.

In Connaught, collieries have been worked at Arigna in the county of Leitrim, one of which I visited in the month of September, 1809. The vein of coal is in a mountain near Lough Allen, the summit of which is bog. Mr. Williams has one-eighth of the concern; John La Touche the same, and Peter La Touche the remainder. These works belonged originally to a company of the O'Reillys, who, having failed, it fell by mortgage into the hands of the La Touches, who are said to have already lost, in consequence of their interference with it, £60,000. An estimate has been formed of the probable expense that would arise from making levels, sinking shafts, &c. to get at the coal, which as yet has been obtained only in small quantities. At present, they are paying £500. per month, and employ 253 men. Mr. Williams comes from Staffordshire, and is apprehensive that the concern will never answer, partly on account of the difficulty he encounters in managing the working people, whom he describes as untractable, and given to laziness, intoxication, and quarrelling at patterns and fairs. Besides, the coal is of a bad quality; and what has hitherto been raised is employed in the foundery. When I asked Mr. Williams, whether he considered this colliery as likely to supply with fuel any considerable portion of the kingdom, he shrugged up his shoulders in a

* SEPT. 18th, 1808. ANTRIM. BALLYCASTLE.—Came to a colliery of considerable extent, worked by a Mr. Boyd, who pays the men for extracting the coals 5s. 5d. per ton. A great part of these coals is exported, and some are sold for internal consumption. The price at the mouth of the pit is 10s. 10d. per ton; but the measure by which they are worked and that by which they are sold is different, a ton, according to the former, making a ton and a half of the selling measure. The labourers, at the rate at which they are paid, can earn from 14d. to 2s. per day, and are besides allowed some perquisites, such as fuel for their own use, land at a moderate rent, keeping for their cows, &c.

† AUG. 17th, 1809.—The Coal Island and Dungannon collieries raise 68,000 tons annually, which are sold at the pits at 16s. 8d. per ton.

‡ The freight from Coal Island to Newry, by the canal, is 4s. and from Newry they are conveyed to Dublin as back freight, at 3s. per ton less than from Coal Island to Newry. The bounty at Dublin is equal to the expense of carriage. The colliers employed are 140 in number, and can earn a guinea per week. The vein is about five feet in thickness, and lies at the depth of seventy yards from the surface.

significant manner without making any reply; but there appears to be very little hope that these works will ever turn out to be productive. Every thing here is still in its infancy; but Leinster possesses a large vein of coal, which is worked near Castle Coomer, for the benefit of Lady Ormond;* and by the Grand Canal Company at Doonane, in the Queen's County, and Kilkenny. The coal here is a stone coal, and is raised in immense pieces. A great part of it is conveyed to Dublin by the canal,† and is sent to various parts of Ireland as back carriage for cars which go into that neighbourhood. It is used chiefly by malsters and blacksmiths, for whose purposes it is peculiarly fitted. It is the fuel of the city of Kilkenny, as well as of the adjoining country; but its sulphureous quality renders it both disagreeable and pernicious to the health. The ashes are used in brickmaking, and communicate to bricks the greatest hardness I ever observed in like compositions.

Mr. Tighe has given a very accurate and interesting description of the Castle Coomer colliery, the largest, and perhaps the only one of any importance in the island: it does him much credit; but as it extends to a great length, I shall only extract from it what he says in regard to the quality of the coals:—"The use of this coal in private houses, to persons not well accustomed to it, is disagreeable, and often noxious. Where chimneys draw well, and in country houses, where there is a constant accession of fresh air, its effects are not so sensible; but in the town of Kilkenny, strangers are often affected by the very atmosphere. The vast quantity of carbonic acid gas, evolved and formed during the ignition, not only diminishes the quantity of pure vital air, but being so much heavier than atmospheric air, subsides and mingles with the lower stratum of it which must be breathed by the inhabitants; and it is observable, that in the lower part of the town, its effects are more sensible than in the higher. When breathed in any quantity, the air produces heaviness in the head, diminished circulation, torpor, and fainting. In close rooms, it has the suffocating effects of charcoal; but its smell is not like that of charcoal, but of a heavier and more disagreeable kind.

"To asthmatic persons it is peculiarly injurious and offensive; and, indeed, it has

* JULY 26th, 1809. CASTLE COOMER.—Forty thousand tons are raised every year at this colliery. There are 400 watchmen, and the salaries of the overseers amount to £1000. Trials cost £1000. per annum, and sinking pits £2000. A steam engine is used, and the collieries extend four miles. The number of colliers employed is 600. £400. a-year is paid for damage done to the adjacent lands. Smiths, carpenters, &c. are very numerous. Eighty men in England, where the coal is bituminous, would raise as much. The coal is extracted at an expense of 10s. per ton. At some of the collieries in England, coals are delivered by the workmen at the mouth of the pit, at 3s. per ton.

† JUNE 19th, 1809. KILKAYE.—Coals at the pits cost 12d. per cwt. A car carries 10 cwt. to Athy, at the rate of 8s. for the twelve miles. The canal charges amount to 7s. 10d. per ton; and those of the owner of the boat to at least 7s. more. The coal is free from smoke, and no coke being made in Ireland, it is used in its stead. Mr. Green now sells it in Dublin, for 44s. per ton.

a tendency to induce asthma, which is far from being an uncommon disorder in the district where this fuel is used; and though persons bred up in its use are not sensibly affected by it, yet it gives a paleness of complexion very observable among the inhabitants of this district, arising from impeded circulation; nor is very old age common among them. Asthmatic persons who have been early habituated to this coal, sometimes prefer it to any other, as was the case with the late Earl of Ormonde. Cold bathing seems to be the stimulus most peculiarly calculated to counteract its bad effects, and cure asthmatic affections brought on by this means; for which reason Dr. Ryan of Kilkenny, whose patients had probably suffered from the use of this fuel, found the good effects of bathing, which he has recommended in the asthma. The use of this coal is said to produce the croup in children, particularly in those brought out of the country to Kilkenny. The common people burn the coal in small grates of four bars, and not quite a foot wide, and generally without a chimney. They sleep with their heads close to the fire-place; but the houses being very accessible to fresh air, open all the day, and the fire small, they are not affected by it. Having asked a woman at Castle Comer, why she had no chimney in her house, she seemed perfectly surprised that such a thing should be thought necessary."*

Mr. Tighe says, that this mine was discovered in 1626, and gives Boate as his authority;† but the first person who worked it with any advantage was the father of the late Lord Wandesford.‡ The subjoined Table contains an account of the coals raised, and the profit obtained by them previously to 1800. Since that time, the Countess of Ormonde has increased the price, and the expenses of working the colliery have, no doubt, kept pace with the rate at which the coals are sold.

§ "The ACCOUNT of the quantity of Coals raised, and the profit on their sale for three years is as follows:

	Coals landed.		Colliers' Money.		Coals sold.		Value at 6s. 6d. per Barrel.			Value of Coals sold.			Expense of Servants and contingencies.		
	Barrels.	£.	Barrels.	£.	Barrels.	£.	s.	d.	£.	s.	d.	£.	s.	d.	
From 1st April 1797, to 31st March 1798	57,820	5,782	49,557½	15,527	3	2	1,011	9	7½	12,794	4	1			
From 1st April 1798, to 31st March 1799	57,180	5,718	49,063½	14,960	8	9	397	7	7	12,929	13	4			
From 1st April 1799, to 31st March 1800	59,980	5,998	47,861½	16,566	15	8	839	15	8	15,252	8	6			

* Tighe's Survey of Kilkenny, p. 78.

† Ibid. 43.

My edition of Boate was published in 1652, and does not mention this circumstance.

‡ Survey of Kilkenny, p. 43.

§ Ibid, p. 46 and 47.

“LADY Ormonde finding the expense so great, and the profits so small, raised the price of Coals in 1800, from 6s. 3d. to 8s. 8d. a barrel, and the account of the first four months stood as follows:

	Barrels landed.	Colliers' Money.	Barrels sold.	Value at 8s. 8d.	Culm Sold.	Servants and Contingencies.
April - - - -	4,850	£. 483	3,260	} £. s. d. 8,375 7 4	} £. s. d. 687 15 3½	} £. s. d. 6,256 17 6½
May - - - -	4,000	401	3,422			
June - - - -	3,550	355	6,041½			
July - - - -	3,840	384	6,016			
TOTAL - - -	16,220	1,623	18,739½			

“ Two shillings a barrel is allowed to the colliers for raising the coal, besides which the expenses to the proprietors are stated for the last four months under the following heads:

Landing	£2,343 7 1½
Contingencies	2,902 17 7½
Engine Tenders	102 13 10½
Finlan (director of the steam engines)	55 13 9
Charities	110 11 10
Wages	741 13 3½
Total	£6,256 17 6
Add colliers' money	1,623 0 0

Total expense. £7,879 17 6 for raising 18,739½ barrels.

“ These expenses may be considered as exorbitant: the value of coal sold at the increased price, was only

.	£8,375 7 4
And of culm	687 15 3½

	£9063 2 7½
Deduct expenses	7879 17 6

Profit to the proprietors for four months £1183 5 1½

“ These four months include June and July, the best season in the year for the sale of coals; the profit during the rest of the year is much less, consequently £3000. a year is rather more than the proprietors had reason to expect.”

In the province of Munster, a colliery, being a continuation of the vein from Castle

Comer, is worked in Tipperary, on the borders of the Queen's County. In the county of Cork Mr. Freeman has re-opened a mine, which he is working with considerable spirit; but it yields a sulphureous stone coal similar to that already mentioned, and has not yet been carried to a condition from which any idea can be formed of its probable success. When I state that this vein has been re-opened by Mr. Freeman, I do not particularly allude to any thing he may have done at a former period, but merely to what I was told when in the country, that for many years past coals in small quantities had at different times been procured from it. Mr. Townsend, speaking of the barony of Duhallow says, "with respect to mineral production, it stands particularly distinguished, being the only part of the southern portion of the province in which coal has been hitherto discovered. The seat of the coals is in those tracts of argillite, which have been already mentioned. One of them takes its eastern commencement in the barony of Fermoy, between Doneraile and the Blackwater, and passing on the north side of Mallow, continues its course westward to the mountains that form the boundary of Kerry. In this tract, and principally in the western part of it, the greatest quantity of coal has been found. Another argillaceous range, parallel to this, and north of Kanturk, is also found to contain it. In some places, the coal approaches very near the surface, where the veins are usually thin, but widen as they descend. The position of the strata, which run to great distances east and west, is, as has been already observed, not horizontal, but inclined, rising towards the surface as they go northward, and dipping or descending in the contrary direction. The coal is enclosed in a cover or case of dark ferruginous slate, some of which splits into laminæ, or plates of a size and form resembling large house slates; but apparently too brittle and tender for that use. As these argillaceous tracts abound with water, for the discharge of which nothing but a bucket has yet been employed, no perforations of any considerable depth have been made. The vein is pursued as long as it can be done without much inconvenience; and as soon as the water becomes too troublesome, the old pit is filled in, and a new one opened. The coal is often so near the surface, as to be found with little labour of sinking; in which case they often run upon it, superficially taking what is got without trouble, but not pursuing it in its descending direction. This is called, and not improperly, robbing the vein. The remote and, consequently, neglected situation of these collieries, some of which, from the bad state of the roads are but barely accessible even in summer, is to be considered as the cause of their never having been properly worked. The time, however, is approaching, when the charge of neglect and ill management will be no longer imputable. The plan of improving the roads has been lately taken up with some spirit, and its execution, which nothing can prevent, if the leading gentlemen pursue it with constancy, will be very conducive both to public and private advantage. An attempt to commence a new and improved mode of working these collieries has been reserved for the enlightened and liberal mind of Edward Deane Freeman,

Esq. and it could not be confided to better hands. Some of the best pits are upon his estate to the south-west of Kanturk, and about eight miles from his residence at Castle Cor. Under the direction of an experienced artist, he has just erected at considerable expense, a large water wheel to work the pumps necessary for discharging the water of the pits. The shaft now sinking at the south side of the coal vein, will, it is calculated, meet it, supposing that it descends with an uniform declination, at the depth of about an hundred feet. In this case, the miners will have the advantage of working upwards as well as laterally, the difficulty lessening as they proceed, the reverse of which has hitherto attended the more unskilful labours of preceding operators.

“ In quality the coal of Duhallow resembles that of Kilkenny, very sulphureous for the most part, and containing no bitumen. Though the genus be the same in all, great difference is observable in the species, the far greater part is wholly unfit for domestic use; but upon Mr. Freeman’s ground, and in one or two other places, a bed has been discovered of superior purity, free from any dangerous, or even disagreeable vapour, and perfectly fit for kitchen or parlour; this is distinguished by the name of sweet coal, and forms the object of his present undertaking. The extent of it is supposed to be very considerable in its longitudinal direction, but how this or any other may turn out upon a deeper examination, remains yet to be ascertained. Thirty or forty feet are, I believe, the utmost depths to which the common mode of working has descended. The thickness of the veins in general is from two to three feet, that of the sweet coal is already ascertained to be about three, at no great distance from the surface, and it is hoped that it will be found to increase in descending. There is the more encouragement to this expectation from the discovery of a sulphureous vein in its immediate vicinity, which at no great depth measures four feet and a half, a thickness seldom paralleled, and far exceeding that of the best Kilkenny pits.*” This vein of coal extends to Kerry,† and I saw some of it used by Mr. Bateman at Oak Park, near Tralee, in October 1808.

“ The value of this coal, even supposing culinary uses out of the question, is very considerable; the great and increasing demand for lime both as a cement and a manure, the diminution of turf in some, and the total want of it in other places, all combine to render it an object of the utmost importance to this part of the county. That its uses will become more extensive there is no immediate reason to expect. A communication by water with Cork or Youghal, is a work too expensive for the present circumstances of the country, and perhaps will not, at any period, be worth the cost. Instead of looking to arduous and impracticable undertakings, it seems a much

* The depth of the bed of coal varies from two feet six inches to three feet one inch, which it has never exceeded. *Survey of Kilkenny*, p. 55.

† Smith’s *Survey of Kerry*, p. 393.

easier, and at the same time, a far better course for men of property to direct their attention to works of public utility within their reach. New lines of road, where the old are objectionable, and a strict attention to the repairs of those already constructed, will answer the principal purposes of commercial intercourse, if not with equal, at least with ample sufficiency. A remarkable circumstance in these coal-beds is their resemblance in structure, not only to limestone quarries, but also to that of the primitive rocks in the northern part of the county; the strata of all of which hang in the same way to the north, and dip to the south.

“Coal, at least the bituminous kind, is ranked among the alluvial strata, the general position of which, though occasionally interrupted and irregular, is horizontal; some twists and deviations are also perceivable in this arrangement, but the general principle is uniform and unvarying. How far it may be affected by the state of the primitive rock which will probably be found under it, remains to be ascertained by deeper perforation. From what we know at present, it seems to want several of those stratified substances with which, as we learn from Mr. Tighe’s accurate and scientific account, the Kilkenny coal is accompanied. In the pits I visited, there was nothing to be seen besides the slate in which it was cased, but coarse yellowish clay intermixed with loose stones of brown argillite. The spirited undertaking of Mr. Freeman will enable us to form a better judgment of its value and extent: should his labour be crowned with the success so much to be wished for, he will have the double satisfaction of accomplishing a very profitable purpose, and exhibiting to the neighbouring proprietors a most useful example. It is an object of very great importance to know how this coal is circumstanced at a remote depth, and whether the angle of its inclination suffers any change in descending; in the other clay-beds of the county, the rock is seldom at any considerable distance from the surface. It is not unreasonable to suppose that the productibility of these veins will be found to depend upon the depth of the beds that contain them, or in other words, upon the distance between the top of the vein and the subjacent primitive rock, where I should suppose the coal will be found to terminate. A judgment formed upon analogy, will incline us to believe, that the depth at which this rock may be found, is not very considerable.”*

Many Irish writers have published extraordinary accounts of the abundance of coal in Ireland, and the Royal Irish Academy have printed a paper by Mr. Preston, in which this circumstance is particularly stated,† but it is evident that Mr. Preston never was at Arigna, or he would not have written such an account; and, whatever may be the size of the vein of stone-coal, which is the only kind to be found at Castlecomer and Donnoan, it can never be raised at such a price as to admit of its being brought into competition with bituminous coal. The quality of the coal

* Townsend’s Survey of Cork, p. 420.

† Vol. ix. p. 186.

obtained from the northern collieries, is so bad, that many persons who reside in that neighbourhood burn English coal in preference, through economy; and the price paid at Ballycastle for extracting it, as appears by the memorandum I made when at that place, will always prevent its becoming the general fuel of the country. From what I have seen and heard, I will venture to assert, that there is no vein of coal yet discovered in Ireland, which can come into general consumption. This article is imported in great quantities from Workington, Whitehaven, Liverpool, North Wales, Swansea, and other places on the western coast of England. Belfast, Newry, Drogheda, Cork, Dublin, Wexford, Waterford,* Ballyshannon, and Tralee, all import English coal, and the English colliers go to many of these ports, and particularly to Dublin, as to a market. Most of the vessels which carry corn to Liverpool, and other parts of England, or which go with copper from Tralee to Swansea, take in a cargo of coals when they return. Along the whole sea-coast, from Belfast to Cork, English coal is the general fuel used in gentlemen's houses, and it finds its way inland for the same purpose, by the Boyne, from Drogheda to Navan, and from Dublin through Kildare, as far as Tullamore, by one branch of the grand canal, and to Carlow by another. At the latter, English coal is cheaper than that procured from the collieries of Castle Comer, which are only at the distance of nine miles.† These coals are conveyed also to Mullingar, and as far as Enniscorthy. In Cork,‡ English coal is chiefly burnt, and it is the kind generally used throughout the whole coast of that county. English coals are burnt even in the remotest parts of Ireland.

* December 13, 1808. Faithleg—Nothing used at Waterford but Whitehaven coals.

December 14. Waterford—The low price of coals here, arises from their forming back freight to the corn vessels. They sell for 28s. per ton of 32 Winchester bushels.

October 18, 1808. Tralee is badly supplied with turf, but the vessels which carry the copper ore of the Ross mines to Swansea, return laden with coals. These coals are sold on an average at two guineas per ton. Half a *kish* of turf, barrack measure, is here called a *slane*. Near this place is a colliery belonging to Mr. Batemao, but it is badly worked. The coals are of a very sulphureous nature.

† June 19, 1809. Carlow—Whitehaven coals are sold here at thirty-two shillings per ton. In Dublin they cost twenty-seven shillings. They pay the canal charges for each carriage, and as the barges would return empty, the coal owners are satisfied with almost a nominal profit.

‡ November 10, 1808. Corkbeg—The hedges here are all furze, and I saw two fields in which it was raised as a crop; for fuel being here exceedingly scarce, it becomes of great value. No turf is used, nothing but imported coal, which costs seven shillings a barrel, and five barrels make a ton. Brought from Whitehaven and Wales.

November 12. Castlemartyr—Much furze is raised in this neighbourhood for fuel, and particularly to heat the bakers' ovens, of which there are twelve in this small town. The climate is so mild, that furze answers every purpose of fuel during many months of the year. In winter coal is burned. It is sold for eight-pence per peck; twelve pecks make a barrel, and four and a half barrels a ton. The poor say that eight-pence given for a peck of coals will go farther than twenty-pence expended for turf.

November 15. Rosstellan Castle—Coals, the universal fuel of rich and poor.

In the southern counties of Cork, Waterford, and Wexford,* much furze is burnt, and I have seen it raised in whole fields for that purpose.† It is used particularly by the bakers in that mild climate for heating their ovens, of which a considerable number are employed, as a good deal of wheaten bread is eaten in these districts. Few counties, however, being without bog, turf is the chief fuel of Ireland. Of the large towns, Cork, Waterford, and Kilkenny, do not burn much; but such is the state of the poor, that they use it in every part of the country, as they can buy any quantity according to their means; for they can purchase a penny-worth of turf, but not so small a quantity of coals.

The expense of turf varies according to the quantity of bog. In many places, the bogs are of such extent, that they are valued at only one farthing an acre; but in populous districts, when they are small, they become a most valuable property. A bog near Limerick, sold a few years ago at the rate of £80 an acre, for turf. Mr. Townsend mentions, that Col. Fitzgerald lets sixty acres for £800 per annum.

It is a common observation, that the providing of turf engages the time of labourers at a period of the year when they are most wanted, and this arises from the whole supply for annual consumption being cut and carried home at one season; whereas, in collieries, labourers are employed all the year round. But this, if it be an evil, cannot be remedied in any other manner, than by substituting some other kind of fuel in its place; and in my opinion, this could easily be done, as most parts of Ireland might be supplied with English coal at a less expense, than the internal places of England, or than most of its cities and towns. Coals are no where in Ireland so high, by nearly 50 per cent. as they are in London. This difference is owing to the difference in the expense of carriage, for it costs less to a collier to float from Workington to Ireland, than it does to navigate the coast from Newcastle to London. It is, therefore, to me a matter of much surprise, that turf is so generally used in Ireland for fuel.

A great deal of turf is consumed in the cities of Dublin‡ and Limerick; which is conveyed to the former by the canal, and to the latter in turf-boats, which come from Kilrush, and the coast of Clare, up the Shannon. It makes a pleasant fire; but the turf cut from the deep part of the bog, being the heaviest, burns more

* December 17. Newtown Barry—From New Ross to this place, fuel is exceedingly scarce.

December 23. Wexford—In the Barony of Forth there is no fuel but furze, which is husbanded with great care. Wigan coals at Wexford cost thirty shillings per ton.

† Confirmed by Mr. Townsend. *Survey of Cork*, p. 379.

‡ *Ibid.* p. 608.

§ December 11, 1809. Dublin—Large quantities of turf are conveyed to this city by the grand canal. It is said that the tolls paid by the turf-boats yield the proprietors £10,000. per annum. The turf brought to this city is used to keep the fires in all night. The fire is beat down in the stove, then covered with turf, and a thin layer of coals pressed down over the whole; small bundles of bog deal cut into thin slips, which blaze like a candle, are sold for the same purpose.

readily than any other, making a brighter fire. It forms a clean kind of fuel, and produces very little ashes, which are either red or white, and, when once kindled, continues to burn, if not stirred, for a long time. Another quality is, that it is not apt to go out like coals when taken off and put under the grate.

The cutting, drying, and carrying home turf, is considered in Ireland, and in many parts of Scotland, to be of as much importance as the harvesting of corn; and the period when the people are engaged in this occupation exhibits as active a scene. To those who reside in the neighbourhood of bogs, it is obtained with so much apparent ease, that they waste it without the least care or attention, which greatly increases its price; and this is the case in particular with servants and domestics, who seldom think of practising economy in regard to fuel.*

The poor often shew signs of great alarm, when they hear of bogs being drained and reclaimed, as they fear that they may be deprived of their fuel; but this apprehension is entirely groundless. After a bog has been drained, it ought to be covered with a thin stratum of earth; and, if it be then cultivated, the stratum below, which has become the sub-soil, will be so compressed, that it will afford much better turf than before. From this the wants of the people may be easily supplied, without losing time in drying in the early part of the summer.

The cost of turf must be calculated from the expense of cutting and carrying home, added to the rent of the bog, which varies according to situation and the labour employed.

Turf is capable of being charred in the same manner as wood, and in that state it is employed by blacksmiths, whom I have seen subjecting it to this process on the road side, in different parts of Ireland.†

AUG. 27th. CAVAN. FARNHAM.—Turf, when purchased in summer, costs 1s. 6d. per barrack kish. Last winter the price was so high as 8s. 8d. Fuel here is becoming scarce; but this evil may be the means of producing its own remedy, by causing a canal to be constructed from Cootehill to join that at Navan. Coals are brought as back freight from Newry, where they cost one guinea per ton, but the carriage doubles the expense, and yet they are cheaper than turf.

* At Mr. Waller's at Allan's Town, 8000 kishes of turf have sometimes been used in one year. A kish is four feet long, two feet wide, and three feet high, containing twenty-four solid feet.

August 29, 1809. FERMANAGH. Belleisle.—Turf is sold here by the horse-load, of four bushels, at from five-pence to seven-pence. Sir Richard Hardinge, who has but a small establishment, and resides here only in summer, pays £250 per annum for fuel.

† Rinman says, "turf and charred turf have the property of producing ashes highly fusible, which soon flowing over iron, cover its surface, and prevent it from being burnt; but they yield, for the most part, an inferior heat, and on that account the iron must be kept longer in the fire. Turf, therefore, may rather increase than lessen the burning, if one wishes to obtain from it the same effect as from other kinds of fuel. But there is a great difference in the quality of charred turf, and for good smiths' work, charred turf is far superior to that which is not charred." *Forsök till Järnets Historia*. Stockholm, 1782. 4to. p. 210.

Many persons in Ireland are alarmed at the idea of their bogs being cut out or exhausted ; but, in my opinion, this circumstance would be a great blessing to the country. It would produce a spirit of enterprise hitherto unknown ; and induce the inhabitants to search for fuel in the bowels of the earth, rather than to obtain it by wasting its surface, which might be converted to some more beneficial purpose. By adopting the use of coals, the saving would be great, even if it should be necessary to import them from England. But to overcome prejudice is difficult, and particularly among a people so wedded to their own customs and opinions, and who often consider improvement as useless innovation. On hearing this proposal, a thousand voices will exclaim, " What ! pay England for supplying Ireland with fuel ? " Yes. This method would certainly be the most advantageous to her in every point of view ; for, if she can purchase fuel at a cheaper rate than she can procure it within the country, it is a matter of indifference from what quarter it is obtained. The time and labour now wasted in cutting and managing turf, might be more profitably applied, to agriculture or to some other useful art. Besides, land which at present answers no purpose, but that of furnishing fuel, might be made to supply food to man, or grazing to cattle ; and even the change which would thus be effected in the appearance of the country, is a consideration that will always have some weight with those who prefer the beauty of rural scenery, where land is improved, to the bleak, barren, and dreary appearance exhibited by uncultivated bogs. It deserves to be mentioned also, that by reclaiming these bogs, a considerable addition might be made to the productive land of the country, and a general spirit of industry and activity would thus be diffused throughout these districts, where the people are characterized by indolence, poverty, and dirtiness.

JULY 20, 1808. LOUTH. COLLON.—Between this place and Dundalk, saw a number of women busily employed in the fields in gathering dry dung to serve them as fuel. Considerable quantities of coals are imported from Whitehaven to Drogheda, where they are sold for 22s. per ton, and at the distance to which the navigation of the Boyne extends, for 30s. Turf, at Collon, costs 3s. a kish. The practice of gathering dung to burn, is common throughout the whole county of Louth.

AUG. 1st. MEATH. KILLEEN.—Some parts of this county are very badly supplied with fuel. Each cabin requires at least twenty-five kishes for the consumption of one winter. Habit, and the want of grates, prevent any attempt being made to employ coals. One ton of coals is equal to fourteen kishes of turf, at 4s. 4d. each, and a ton of coals costs only 34s.

AUG. 11th. WESTMEATH. MULLINGAR.—Dry turf is sold at the rate of 30s. for 100 kishes. The bog in the neighbourhood of Mullingar is let on the following terms: the tenant may cut as much turf as he can spread on an acre, and for this he pays about six guineas rent.

AUG. 12th. WESTMEATH. REYNELLA.—Turf is sold here for one shilling per barrack kish. Coals, from Kilkenny, cost 3s. 6d. per cwt.

SEPT. 5th, 1808. FERMANAGH. CASTLE COOLE.—Turf is delivered at Enniskillen barracks by contract, at the rate of 1*s.* 4*d.* per barrack kish. At Ballyshannon, which is thirty miles distant, coals cost only 3*s.* 6*d.* per ton.

SEPT. 8th. DONEGAL. BALLYSHANNON.—Went into a cabin belonging to a widow woman, who takes in two lodgers; these lodgers join with her in purchasing fuel, of which they burn two horse loads per week in summer, and three in winter. The expense in the former season is eight-pence each, and in the latter from thirteen-pence to eighteen-pence per week, making the whole annual expenditure for that article upwards of five pounds. Coals, at Ballyshannon, sell for a guinea and a half per ton. The family of a labourer in England can obtain fuel at a much cheaper rate, as a ton of coals will last them a year.

DEC. 20th. LIMERICK. GRANGE.—Mr. Grady, and the Rev. Dr. Fitzgerald agree in opinion, that even at the bog side, turf costs each cabin 40*s.* per annum.

CHAPTER X.

H A R B O U R S.

NOTHING tends more to promote the flourishing state of a country than harbours; but it is not sufficient that they are numerous, they must be safe as well as convenient, and so connected with the interior,* that a ready communication can be established between them and the populous districts, where the national productions and manufactures are most abundant. Ireland, on account of its insular situation, enjoys in this respect a very great advantage. Every part almost of its coast contains spacious, well sheltered, and commodious bays and harbours; but this is the case in particular on the western side, from Waterford to Lough Foyle, where they are more numerous than in the same extent of coast, perhaps, in any other part of the world. On the eastern side, nature has been less favourable, as it exhibits no harbours entitled to the same commendation.

On this side, however, they are not so necessary as on the western, where the storms are more violent, and rage with a fury which can scarcely be conceived, but by those who have seen them. Some faint idea may be formed of the force with which the waves are impelled by the western winds from the Atlantic, when it is known, that blocks of limestone, ten or twelve feet in diameter, are thrown up on ledges of rock

* Weld, in his American tour, vol. i. p. 55, says, that sea-port towns do not flourish, which are not well situated for carrying on inland trade. Newport, the best harbour in America, is falling into decay for want of this communication. Again, p. 53, he describes the advantageous spot on which the new city of Washington is built, 280 miles inland, but still possessing an access to the ocean.

several feet high, near Doolen, in the county of Clare; and at the same place there is a barrier of water-worn stones, some of them many tons in weight, raised above twenty feet high, across a small bay, into which fishermen used to land from their boats, and where their former quay, surrounded with huts, remains many yards from the sea. This has occurred in the memory of persons still living. Where the coast is rocky, the sea is daily gaining on the land; but where fine sand forms the barrier, the land is increasing. This effect is produced in a very rapid degree at a small distance beyond the Pigeon-house, and on the North Bull, near Dublin: in a few years there will be pastures, or at least rabbit warrens, on the sands, and if a little pains were taken, this effect might be accelerated.*

Proceeding from Lough Foyle to the eastward, the first place which may be called a port, is Coleraine; but it is merely a bar harbour, capable of admitting only vessels of small burden at the time of high water, and upon which considerable sums of money have been expended to very little purpose.

From Ballycastle to Carrickfergus there is no harbour whatever, unless a sort of stone pound at Portrush be entitled to that appellation.

Belfast stands at the extremity of an extensive bay, and has the advantage of a large and commodious harbour, capable of affording excellent shelter to vessels which may be beating to the westward, and which here have to contend with a most impetuous tide, flowing along a rocky coast, bordered with high cliffs.

Beyond Belfast, Newry, Drogheda, Dublin, Wicklow, Arklow, and Wexford, have all been converted into ports; but through necessity, as they are merely harbours; and more dangerous shifting sands than those which here present themselves can hardly be any where found. Such places can never be kept clear for navigation without a sufficiency of back water to sweep away the sand deposited by the tide, and unfortunately those here mentioned are extremely deficient in this respect. Various schemes have been proposed for improving the harbour of Dublin, and immense sums have been expended for that purpose, but hitherto without success. A pier has been run out from Ringsend to the distance of three miles, in order, no doubt, to prevent the sand from being accumulated at the mouth of the harbour by the tide, and thus to secure a safe port; but it has been found, that no bulwark of this kind, however far it may be carried, will obviate the evil. The sand still settles at its extremity, and presents no less danger at an increased distance, than it did at a less. Many of the plans adopted have been formed on principles directly contrary to those pursued by nature, in depositing the sand brought up by the tide, and therefore the attempts founded upon them have always miscarried. If any thing effectual can be done, it must be by assisting an agent too powerful to be controlled by the strength or ingenuity of man. As the water of the Liffey is now

* Dutton's Survey of Clare, p. 4—5.

wasted by being mingled with the tide, or divided into small streams, which run into lesser channels and empty themselves into the bay, why not collect them together, and shut up the water till the tide is down? Were the whole then let loose into its natural bed, its force would drive the sand before it, and form a free passage, which would enable ships and vessels to enter the harbour in safety. In this scheme there is nothing contrary to the order of nature; and though, where such obstructions occur, a perfect harbour is not to be expected, a much better one might be formed, or at any rate, the difficulties of the present might be lessened.*

Wicklow and Arklow scarcely deserve the name of harbours, and therefore any description of them is useless.

Wexford stands at the mouth of a stream which flows over shifting sand, and therefore the passages into the harbour are continually changing their place, so that no certain rules can be laid down for entering it.

From Waterford, proceeding westward, the coast abounds with noble harbours, which may be put in competition with any in the world; of these Cork and Bantry Bay are particularly worthy of notice. The latter I visited in the month of October, 1808. It is surrounded by high mountains, and its whole shore is indented with small creeks and inlets, in all of which the anchorage ground is good. Glangarriff is highly distinguished on account of its beauty, and it is entitled to no less praise for its safety and the shelter it affords from the winds. In coasting along the eastern shore, I had a distant prospect of Bere Island, between which and the main land, formed by the Hungra mountains, there is a sheltered roadsted called Berehaven; it is nine miles long and three broad, and has forty fathoms water.

Blacksod harbour, Killybegs, and Lough Swilly, are said to be equal to any in the world.

The entrance to Lough Swilly is between two high cliffs, within which there is a spacious bason where the whole navy of Great Britain might remain in perfect security at single anchor. When the entrance is viewed at a distance, it appears so narrow that one might imagine it capable of being shut by a pair of flood-gates.

Cork harbour, the roadsted between the island of Bere and the main land, called Bere-haven, and a roadsted near the promontory of Tabart, in the Shannon, are the parts generally used by the King's ships which are stationed or cruising on the coast of Ireland. They occasionally also run into Dublin harbour and Belfast Lough.

* In a paper inserted in the Philosophical Transactions, by W. Molineux, Esq. R.S.S. it is stated, that at the bar of Dublin, on the new and full moon, a south-south-east moon makes high water; that is, at half an hour after ten; at Rings End at three quarters after ten; at the Custom House at Dublin, at eleven.— On the quarter days: high water on the bar at five o'clock; at Rings End at a quarter past five, and at the Custom House at a quarter past five. A southerly wind, between S.S.E. and S.S.W. blowing fresh, makes it flow near half an hour longer than its usual course. Vol. xvi. no. 184.

The following are the commercial ports frequented by vessels, connected with foreign trade :

Belfast	Londonderry
Carlingford, or Newry	Limerick
Cork	Sligo
Dublin	Waterford.

Besides these there are others, used chiefly by the vessels engaged in the trade with England and Scotland, such as :

Drogheda	Tralee
Dundalk	Wexford
Dungarvon	Westport
Galway	Wicklow
Kilrush	Youghall.

Small coasting vessels are not so numerous in Ireland as might be expected, in a country so much intersected by rivers and estuaries, which afford an easy communication with the interior parts of the island.

To give a full account of all these different harbours, and of the advantages they possess in a commercial point of view, would require a complete treatise. But as it is necessary to say a few words on the subject, I shall confine my observations to the following :

BELFAST.—The whole neighbourhood of this lough and port, was formerly occupied by persons engaged in the linen manufactory; but that of cotton having been lately introduced, a considerable quantity of the raw material is imported from the West Indies, and manufactured into calicoes and muslins, which give employment to many weavers. This circumstance, and the linen trade, will render Belfast the great commercial port of Ireland.

CARLINGFORD, or NEWRY.—Large quantities of butter brought from the adjoining districts by the canal which comes from the county of Tyrone, are shipped at this port; and it has its share also in exporting the linen manufactured in the neighbourhood.

CORK.—The city of Cork stands at the distance of seven or eight miles from the bay and harbour, in the latter of which is an island of considerable extent, called Great Island, containing the town and quay of Cove.

The town of Cove, a few years ago, was only a collection of mud cabins on the south side of the island. The shore was the property of Mr. Smith Barry, and Lord Middleton, the former of whom at his death, left £36,000. to be expended in the improvement of his estate. A quay was therefore constructed at an enormous expense, and a market-house has also been built, but unfortunately these improvements are at the west extremity of the shore, and the best anchorage ground lies

more to the east, opposite to the property of Lord Middleton. About three years ago, his lordship promised to his tenants leases of sixty-one years, and in consequence of this advantage, they were induced to lay out money in building, so that in the course of two summers, a town consisting of stone edifices was erected. But the leases were not arrived when I was at Cove, in November 1808, and the progress of the building was suspended.

Trading vessels of any size are stopped by a bar in the river, at a place called Passage, and as they cannot proceed further, they are obliged here to load and unload.

Cork being situated to the south of the great grazing counties of Ireland, this port is the staple for salted provisions, of which it exports large quantities.

DUBLIN is connected with the interior parts of the country by the Liffey, and the Grand and Royal Canals, the former of which has two branches; one of these proceeds to the Shannon, and the other by joining the Nore at Carlow, extends the communication to Waterford. This city, in addition to its being the largest in the country, and the seat of government, derives great benefit from its various manufactures, as well as from those in the neighbourhood, and from the agricultural produce of many counties sent hither by the canal to be shipped.

LONDONDERRY is a city and port, situated on the borders of Lough Foyle, at the distance of some miles from the sea; the entrance of the port is narrow. Its chief trade arises from the connexion which subsists between it and America, and it is the principal channel for those numerous emigrations of the northern presbyterians, which so often take place.

LIMERICK stands in the interior of the country, at the distance of sixty miles up the Shannon; and on this account possesses superior advantages, being adjacent to some of the richest grazing and corn districts of Ireland. It enjoys, therefore, a larger share of the corn trade than any other port; but it will derive far greater benefit from its situation, when more branches of communication are opened by means of canals.

SLIGO is a small port with the linen manufactory in its neighbourhood, and besides the advantage of exporting butter and corn, has in its vicinity a considerable fishery; but its importance is much lessened by the want of communication, as it is not connected with the interior of the country either by a river or canal.

The harbour of WATERFORD is connected with three rivers, the Barrow, the Nore, and the Suir, which there discharge themselves. The city stands at the distance of about eight miles from the sea, and the harbour extends almost twelve miles up the country, all the way deep and clear; common tides rise here to the height of fifteen feet; spring tides to eighteen or twenty. The Barrow is navigable to Thomastown in the county of Kilkenny; the Nore, by means of the canal, establishes a communication with Dublin and the Suir, and affords a passage through the

county of Tipperary, as far as Clonmel. This extended communication with the interior would make Waterford a place of great commerce, were not navigation impeded by a bar at the entrance of the haven, which large vessels cannot pass. There is a second bar which runs across the Suir, besides the one which occurs after its confluence with the Barrow, and, in consequence of these obstacles New Ross seems to be a much more convenient place for foreign trade, and to afford a greater hope of its becoming an important harbour, as ships of burden can come up to the quay even at low water.

DROGHEDA, though a bar harbour, is a place of considerable trade. It lies opposite to Liverpool, and as the Boyne is navigable up to the town, large quantities of corn are here shipped. Coals are imported here, and sent by the river into the interior, and by means of a canal, as far as Navan.

DUNDALK, as a port, is inferior to Drogheda, but it exports some corn.

DUNGARVAN is celebrated for its coasting trade, of potatoes and birch brooms, humorously called "fruit and timber," which are sent to Dublin. It is well situated for a fishery, being distant only about eleven leagues from the Nymph Bank, which abounds with cod, ling, skate, bream, and whiting.

GALWAY stands on a bay of the same name, in a very advantageous situation; but its trade is now almost annihilated on account, as is said, of the bad faith of its merchants.

KILRUSH is a thriving and highly improvable spot, situated on the banks of the Shannon, and exports corn to Scotland. By referring to the subjoined note; being the substance of a memorandum which I made in the course of my tour, the reader will perceive the reason why it is not one of the first ports in Ireland.* Mr. Vandeleur, it is reported, refused a company of Londoners a lease of the Slob, where

* Oct. 28th, 1809. Kilrush.—This place, and a tract of country extending ten miles one way along the coast, belong unfortunately to the Right Hon. — Vandeleur, a gentleman of Dutch extraction, whose family obtained a grant of this land from the forfeited estates of Lord Clare. Its peculiar situation and vicinity to good anchorage ground, being the first in that noble river the Shannon, and to the rocky coast of Kerry and Clare, render it a place which might be made the Liverpool of Ireland. But as the views of its proprietor seem to be directed more to immediate gain, than to the prospect of future advantage, and confined rather to private interest than public benefit, every hope of this kind must for the present be suppressed. Mr. Vandeleur charges six shillings per foot in front for building ground, which extends thirty feet in depth, let upon determinable leases, this is the price in Bond-street. Hearing many complaints on this subject, I remarked to those who were most clamorous, "Well, but Mr. Vandeleur has built you a quay." "No," replied half a dozen of voices, "he has got a presentment from the county for that." A Scotsman, the master of a vessel, and another person who married a Scotswoman settled here, began to export corn by the turf boats to Limerick. Succeeding in their enterprise, they built store-houses, and afterwards shipped oats to Scotland; a branch of trade, which, if continued with spirit, would be of great advantage to the country; and I have no doubt, that under a more liberal-minded landlord the foundation which has thus been laid, might render this a place of very great importance.

they offered to build wet docks for the repair of vessels in distress coming in from the west. It is asserted also, that he proposed such unreasonable terms, and asked so high rent, as entirely deterred these adventurers; who, however, have since built hot and cold baths at Miltown Malbay, twelve miles distant. This instance affords a strong practical proof of the mischief which often arises from large territorial grants, particularly when they fall into the hands of men whose mode of reasoning prevents them from ever entertaining an idea of conferring a benefit either on their own posterity, or the public. In such cases, can any one feel the least regret, when he sees an extravagant heir dissipating an inheritance, which becoming divided, and exchanging one master for many, communicates in this state new life to enterprise and industry?

TRALEE.—At the end of a bay of the same name, is a bad harbour with a bar from which copper ore is exported to Swansea, where it is smelted. The ships engaged in this trade, take in when they return a lading of Welsh coal.

WEXFORD haven has before it two large shelves, between which is the principal channel, where the water is from four to five fathoms in depth; after passing the bar, the water is from three to four fathoms, but for a great way after, only about ten feet; even at high flood under the castle, where vessels come to an anchor, there are four fathoms, and before the town the same depth; but on account of the shallows, no vessels drawing more than ten feet can proceed to Wexford, but must load and unload in a creek near the mouth of the haven, on the south side where there is a sufficiency of water, but no shelter from the south-west winds. A considerable quantity of corn is exported from this place to Liverpool, and the ships which carry it bring back cargoes of coals. There is also a great malting trade along the coast to Dublin, and some provisions are sent hither for exportation, by the Slaney, from Enniscorthy and other places in the interior.

WESTPORT belongs to the Marquis of Sligo, who pursuing a system directly opposite to that of Mr. Vandeleur, has endeavoured to convert this place into a port; but as there is no connexion between it and the interior by any river or canal, it can never possess an extensive trade. Besides, the adjacent districts are thinly peopled, and the neighbourhood produces less corn than almost any part of Ireland.

WICKLOW harbour admits at present nothing but small craft, as the bar even at high tides has only seven or eight feet water; but it is said, that it might be much improved by the construction of a pier.* It is used chiefly in summer, and copper is exported from it to Swansea.

YOUGHAL is a bar-harbour, and the entrance is troublesome, and sometimes dangerous; but ships, when they have once entered it, can lie in perfect security.

* March 14th, 1809. Wicklow.—Mr. Mills, of the copper-mines, has formed a plan for the improvement of the harbour at the expense of £5600.

Corn and provisions are shipped here for England, and as the Blackwater is navigable, the exports might be considerably increased.

These are the principal ports of Ireland, and the greater part of them possess one advantage which may be considered of some value, that they are not liable to be frozen up in winter like those of London and Bristol.

All the Irish ports were surveyed by the late Admiral O'Brien Drury, during the administration of the Marquis of Buckingham, but the charts have never yet been published.*

CHAPTER XI.

L I G H T - H O U S E S .

A LIGHT-HOUSE duty of four-pence per ton is payable to his Majesty in virtue of his prerogative, by all foreign ships trading to Ireland, and applied towards the support of his light-houses, erected as a safe-guard to the lives of seafaring men, and for the preservation of ships and cargoes.

King Charles II. in the seventeenth year of his reign, in consideration of services done by the Countess Dowager of Mountrath, then married to Sir Robert Reading, granted by letters patent, issued to Sir Robert in trust for Lady Mountrath, a duty of one penny per ton inwards, and one penny per ton outwards, to be levied on all ships belonging to subjects, two-pence per ton in like manner upon all ships belonging to strangers; ten shillings yearly on fishing boats; and upon all French ships, such a duty as English ships paid at Bourdeaux; provided, however, that it should not be less than two-pence per ton, inwards and outwards, upon condition, that he should build and maintain six light-houses in Ireland.

In the nineteenth year of the same reign, this patent was surrendered, and another granted to Richard, Earl of Arran, to the same effect, and on the same trust for the term of sixty-one years.

* In the course of the last winter, more British ships of war were lost than has been the case in the same space of time for many years. If it be true, as some assert, that these misfortunes are often occasioned by the want of proper charts, this circumstance certainly requires investigation. The loss of a few ships, considering the present state of our navy, is not of much importance; their place may be easily supplied by others; but the loss of brave men is a calamity which cannot be sufficiently deplored. I trust, therefore, that means will be taken to obviate, or at any rate, to lessen this evil, if it arises in any manner from the cause above mentioned. There are officers in the navy well qualified to make accurate surveys of every dangerous coast which British ships may have occasion to approach, and any money, laid out on an object so interesting to the public, would be considered by every friend to humanity as well expended.

Several petitions were afterwards presented to the English House of Commons, particularly from Chester, and Liverpool; complaining that these duties were a heavy burden on trade, and in consequence of these applications, letters patent, bearing date July 19th, 1672, were made out to Sir Robert Reading, granting him an annual salary out of the concordatum money, and Sir Robert entered into an obligation not to exact the duty payable by subjects, but that only payable by foreigners.

In 1703, the Irish House of Commons, observing this charge of £500., which had then become the property of the Earl of Abercorn, by his marriage with Sir Robert Reading's daughter, made inquiry into the execution of the covenant of the patent; and finding that two only of the six light-houses were maintained, and that even these were very ill-supplied and attended, passed several resolutions on the subject, which were transmitted to his Grace the Duke of Ormonde, then lord lieutenant.

After a report made by commissioners, who had been appointed to investigate this business, the Earl of Abercorn surrendered his patent, and Queen Anne, by a letter dated November 22d, 1704, directed the management of these light-houses to be placed under the care of the commissioners of the revenue, and that the expenses should be paid from the public income.

In September 1717, in consequence of a memorial from the corporation of protestant merchants and citizens of Limerick, to the Irish House of Commons, the latter resolved, that the building of a light-house near Loop Head, at the mouth of the river Shannon, would be of the utmost use to the public, in preventing shipwrecks on the western coast of the kingdom. This resolution was laid before the lord lieutenant, by whom it was transmitted to the commissioners of the revenue, with directions to determine the site, and estimate the expense. This was accordingly done, and his Majesty, George I., by a letter dated April 25th, 1720, ordered, that the commissioners of the revenue should defray the charge of maintaining it out of the public income.*

In the reign of George I., an act of parliament was passed for erecting light-houses, and the execution of it was intrusted to the commissioners for barracks.† Some others were also passed in the reign of his present Majesty, George III., for the same purpose; and for levying a tonnage-duty on all shipping, to meet the expenses.‡ The commissioners of revenue, and the commissioners of customs and port duties, were authorized to purchase lands and tenements for the erection of light-houses, and certain funds were established for supporting and repairing them. But by a late act, of the 15th of June, 1810, all powers granted to the commissioners of barracks, commissioners of the revenue, or com-

* Howard's Treatise of the Exchequer and Revenue of Ireland, vol. i. p. 80-83. This author says, that in 1777, the duty levied for maintaining light-houses in Ireland, amounted to £400. or £500.; but that the expense of supporting them was more than double that sum.

† Fourth Geo. I. c. 7.

‡ Thirty-sixth Geo. III. c. 18; Forty-sixth Geo. III. c. 106.

missioners of customs and port duties, were revoked, and the same powers vested in the corporation, for preserving and improving the port of Dublin. By this act the corporation are authorized to repair and maintain light-houses, and with the consent of the lord lieutenant, to build and to alter such places according as it may be found convenient; but before they alter any existing light-house, or erect any new one, beacons, or sea-marks, they must communicate their intention in writing to the "Corporation of Trinity House."

To defray the expense of these light-houses, a duty of six-pence, in addition to all former duties, is levied on every entry inwards and outwards, made in any port of Ireland, and on every entry, cocket, or warrant for shipping any goods inwards or outwards, or from any port of Ireland to another. This rate, however, does not extend to ships of war, or to fishing vessels, smacks, or boats.*

The principal light-houses which have been erected for the convenience of shipping on the coast of Ireland are:

1st.—At Cross Island, Barony of Ardes, county of Down, in Ulster. This island is one of the Copland Isles, containing about thirty acres, and on account of the light-house, is sometimes called Light-House Island. The light-house is built of limestone, which the island furnishes in abundance. It is of a square form, seventy feet in height to the lantern, and the walls are seven feet in thickness; it consists of three stories, the lower and second of which are laid with beams and boarded; but the third is arched and covered with large flag-stones, seven or eight feet in length. In the middle of the building is erected a round tower, on which the grate is fixed on a thick iron spindle: it is supplied with coals from Scotland, and on a windy night consumes a ton and a half, burning from evening to day-light both winter and summer. It sheds its light to the south-east, to save ships from the north and south rocks, distant from it about three and a half leagues, and to the north and west to warn ships from the danger of the Whillans rocks, called also the Maidens, which are situated at the mouths of Larne, and Glenarm Bays, at the distance of about four or five leagues. The light is seen plainly at Port-Patrick and the Mull of Galloway, the last of which is nearly ten leagues distant.

2d.—At Balbrigen, barony of Balruddery, county of Dublin, Leinster,

3d.—At Hoath Hill, barony of Coolock, county of Dublin.

4th.—At the South Wall, in the liberties of the city of Dublin.

5th.—Two at Wicklow Head, barony of Arklow, in the county of Wicklow.

6th.—At Hook Tower, barony of Shelbourn, in the county of Wexford.

7th.—At Duncannon Fort, in the same barony and county.

8th.—At Charlesford, barony of Kinsale, county of Cork, in Munster.

9th.—At the Old Head of Kinsale, barony of Courseys, same county.

10th.—At Loop-Head, barony of Moyferta, in the county of Clare.

* The Statutes at Large, London, 1810, 4to. vol. iv. part i. p. 132.

CHAPTER XII.

INTERNAL COMMUNICATION.

INTERNAL communication, as it relates to commerce, and the convenience of travelling, embraces the six following heads: navigable rivers, canals, roads, inns, posts, and the conveyance of heavy goods.

Few countries possess more advantages, in this respect, than Ireland; since nature has distributed its waters in so favourable a manner, as to render them convenient for almost every valuable purpose. The bays and inlets of the sea supply, as has been already shewn, numerous harbours for carrying on the most extensive foreign commerce, and its rivers and lakes are no less happily placed for procuring to its inhabitants every benefit arising from an easy communication between the several parts of the country.*

The English, almost as soon as they had settled in Ireland, perceived the advantage of its situation, and the value of its rivers, some of which were already navigable, and others capable of being rendered so with little trouble and expense. Several good laws, therefore, were made for their improvement,† and there is reason to think, that, at some periods of tranquillity, the government endeavoured to carry them into execution: but as long as it held in subjection only certain districts, the natives, considering their own interest as in direct opposition to that of their invaders, not only neglected such improvements, but prevented them as much as in their power; considering freedom of communication with the interior of the island as hostile to that independence which they were anxious to preserve.‡ The frequent commotion, by which the country was afterwards disturbed, made the English relax in their schemes, and retarded the accomplishment of their beneficial views to a much later period than was intended. Such, indeed, were the bad effects of the vicissitudes which the affairs of Ireland experienced for a long series of years, that, notwithstanding all the attempts made for their increase in the reigns of James and Charles I., and after the restoration, it appears, by an authentic account taken

* These advantages are pointed out in Campbell's Polit. Survey of Great Britain, vol. i. p. 237. And in An Essay on the Trade and Improvement of Ireland, by A.D. Esq. Dublin, 1729. Svo.

† Stat. 25 Edw. III. stat. 4. cap. 4. 45 Edw. III. cap. 3. 1 Hen. IV. cap. 12. 12 Edw. IV. cap. 7. sect. 3. 28 Hen. VIII. cap. 22. sect. 1, 2.

‡ "The natives heretofore had, nevertheless, some advantage by the woods and bogs; by them they were preserved from the conquest of the English, and, I believe, it is a little remembrance of this makes them still build near bogs: it was an advantage then to them to have their country unpassable; and the fewer strangers came they lived the easier; for they had no inns, every house where you came was your inn, and you said no more, but put off your brogues, and sat down by the fire." *Of the Bogs and Loughs of Ireland*, by Mr. Wm. King, Fellow of the Dublin Society, in the Phil. Transact. for 1685, vol. xv. No. 170.

in 1697, that all the seafaring people, including such as were engaged in the inland navigation, did not amount to four thousand five hundred.*

In the commencement of the reign of George II., the subject of internal communication was resumed by the legislature; and, as the navigation of the Shannon seemed, in this respect, to be of the first importance, an act was passed † for removing every impediment in the passage by that river, between the town of Carrick Drumsna in the county of Leitrim, and the city of Limerick. Commissioners or undertakers were appointed to prosecute at their own cost and charges, this design, and they were authorized, at the same time, to impose certain tolls and duties for the re-payment of the expense, and for the support of the necessary works. By a concurrence, however, of untoward circumstances, the execution of the proposed scheme was delayed for many years, and not seriously undertaken till a complete change had been made in the original plan. Instead of the commissioners or undertakers, ‡ who were at first appointed, a new and perpetual council was created, under the title of "The corporation for promoting and carrying on an INLAND NAVIGATION in IRELAND;" composed of the lord-lieutenant or chief governor, the archbishop of Armagh, the lord-chancellor or lord-keeper, the three other archbishops, the speaker of the house of commons for the time being, and twenty commissioners from each of the four provinces of Ireland, with a power of filling up vacancies, as they should happen, by election. §

After this period, various works were undertaken and completed, which seem to have outstripped the civilization of the people, and the progress of industry. Canals were constructed, without internal trade to give them sufficient employment; and the consequence is, that the sanguine expectation formed of their success has not been realized.

RIVERS. The Shannon, the largest river in Ireland, is navigable as far as Limerick for ships of five hundred tons burden. From Limerick, a canal has been cut for some miles, to Lough Derg at Killaloe, but it is fit only for barges.

After passing Lough Derg, an immense sheet of water, which becomes contracted at Portumna, the river is again navigable for boats, as far as to Shannon Harbour, where it is joined by the grand canal from Dublin. In some places it is navigable from Athlone to Carrick, and barges of a considerable size are used upon it.

* Captain South's Return of the Seafaring People in Ireland, A. D. 1697, in the Philosoph. Transac. No. 261. p. 519.

† Stat. 2 Geo. I. cap. 12.

‡ Stat. 3 Geo. II. cap. 3. 25 Geo. II. cap. 10. But by both these laws, whatever was found right in the former acts, was continued and confirmed; whatever appeared improper, or was found to be impracticable, was repealed.

§ Campell's Polit. Survey of Great Britain, vol. i. p. 270.

The Suir is navigable for large vessels as far as Waterford, and for barges to Clonmel.

The Barrow and the Nore, previous to their junction with the Suir, are navigable for large ships to New Ross, and for barges to Carlow and Athy; the communication is then continued to Dublin by a canal.

The Nore is navigable from New Ross to Inistioge, and by boats from the latter to Thomastown.

The Suir, the Nore, and the Barrow, unite, and proceed in one channel to the sea; but after their junction, there is a considerable bar, which prevents the passage of large ships, except at the time of high tide.

These streams, next to the Shannon, are the most important rivers in Ireland; but there is a second bar or shoal in the Suir, which renders the navigation to Waterford more difficult than to New Ross.

The Slaney is navigable for barges from Wexford to Enniscorthy.

The Boyne is navigable for ships of considerable size as far as Drogheda, and by means of cuts, barges may proceed thence to Navan; or, more properly speaking, there is a navigable canal, assisted by the Boyne, which crosses in its course from Drogheda to Navan.

The Foyle is navigable to Lifford. Derry, which is the place of greatest trade in the north of Ireland, is situated on its banks.

CANALS. The grand canal runs from Dublin to Shannon Harbour, while another branch proceeds to Athy, where it joins the Barrow. This canal is more used for passage-boats,* than for the conveyance of merchandise: it serves, however, for the carriage of corn and turf.

The Royal Canal, one branch of which commences at Glassmanogue, in the county of Dublin, and the other at the Liffey, near the Lots, extends to Coolnahay, beyond Mullingar; the two branches uniting near Prospect, on the Glasnevin road. It is used for the same purposes as the Grand Canal; and as these are the only canals which serve for the conveyance of passengers, it is proper to remark, that the boats are conducted with a punctuality and dispatch highly creditable to the companies to whom they belong. I travelled by these water conveyances, to ascertain how they were conducted, and found that I arrived at the place of destination nearly within a minute of the stated time. Good hotels, with every accommodation for travellers have been erected by the companies at the places where the boats are accustomed to stop.

* April 10th, 1809. DUBLIN.—Came to this place, from Tullamore, by the canal-boat. The highest level of the canal is near Robertstown, twenty miles from Dublin. There are 38 locks, at each of which the passage requires two minutes and a half. The boat is well-conducted, and goes from Tullamore to Dublin, a distance of forty-four miles, in thirteen hours. The passengers have their meals on board, and, on the whole, the accommodations are good.

A canal has been cut from Coal Island to Armagh, and from that inland sea near Portadown to Newry. A freight of 4s. per ton is charged for this navigation, but there is little trade in the neighbourhood, and when I was there in 1809, it was nearly choked up with weeds.

An attempt has been made to cut a canal from Lough Neagh to Belfast, and though it is pretty far advanced, every thing is now at a stand.

In like manner, there is an unfinished canal between Ballyshannon and Beleck, which was stopped for want of sufficient funds; and at present all merchandise is conveyed by land carriage to the latter, and there shipped across Lough Erne to Enniskillen and other places.*

All these canals are the work of individuals formed into different companies, who, with the exception of those engaged in the one last-mentioned, have received assistance from government, since the union, in addition to large sums granted by the Irish parliament, amounting altogether to £379,388. At the time of the union £500,000. was voted by way of loan, for the purpose of assisting them, and a board of commissioners was appointed, to whose judgment the expenditure and management of these grants were intrusted.† In the preamble to the bill passed on this occasion, the commissioners were authorized to employ part of the money in improving the harbour of Dublin, but there is no clause of this sort in the body, and the whole bill seems to have been drawn up in a careless and inaccurate manner, as the commissioners, who alone are to act under it, have no power to originate any plan of internal navigation. Their duty being to judge only of the expediency of those plans which may be laid before them; and if they meet with their sanction, they may lend this public money, which is not a sum already lying in their hands, but for which they draw upon the treasury as it may be wanted. The board consists of five individuals, four of whom were members of the Irish parliament, and each, as well as the secretary, has a salary of £500. per annum. This board, unless renewed, will be at an end when the sums voted are expended; but the members have been accused of purposely procrastinating the works, for the carrying on of which they were appointed, in order that they may not lose their salaries; and as this abuse was foreseen, it was made an objection to the original formation of the board. It is not improbable but that this may have been one of the union jobs, as they are called; yet I cannot allow myself to believe that there is any truth in the surmise, that the labours alluded to have been purposely retarded.

In regard to the idea that this board ought to act without salary, as was urged by some Irish members in the House of Commons, I consider it as absurd; no one can be

* My own Journal, Churchill, Sept. 6th, 1808.

† The commissioners appear, at first, to have laid out this money in building bridges. See Tighe's *Kilkenny*, p. 563.

expected to devote his time and attention to any business without some remuneration. Such maxims may suit those ideal governments that are framed in the studies of philosophers: no such disinterestedness can either be expected or asked, and he who looks for it will look in vain. All real services ought to be liberally rewarded for the public, which might be the means of preventing men from disgracing themselves, and injuring their country, by speculation.

Sir John Newport is reported to have said, on the 28th of March, 1809: "In the year 1807, the whole sum expended by the board, including its own establishment, was £21,000. And what do you think out of that trifling sum was paid for the establishment? Why no less than £6000. This went in £500. a piece to five commissioners, £500. more to a secretary, so much for an accountant, a clerk of the minutes, &c.*"

In the month of April, the same year, the following remarks appeared in a respectable literary journal: "It was no longer ago than the end of last March, that Sir John Newport stated in parliament, that of the £500,000. granted at the union, for the inland navigation of Ireland, only about £27,000. have been drawn for in the course of eight years that had since elapsed, of which £6000. had gone in salaries, so that the superintendence of the expenditure of £21,000. for public purposes, had already cost £6000."† The writer of this article was undoubtedly justified in crediting the statement of the ex-chancellor of the exchequer of Ireland, since none of His Majesty's ministers thought proper to contradict it. The facts, however, were, that £349,887. 16s. 3¼d. of the grant had been issued from the treasury, and £27,147. 3s. 6d. more appropriated by the directors, leaving out of the £500,000. originally granted by parliament, a balance of £122,965. 0s. 2¼d. not especially disposed of.‡ Out of the whole money issued, the following sums were not expended in actual inland navigation:

	£	s.	d.
Directors' salary	20,967	19	7
Officers under the board	10,262	15	3½
Engineers	9,148	15	1
Contingencies of the board, including rent and taxes of the house, with incidents in the manage- ment	4,208	14	6
Expenses for services under the orders of the board	1,885	10	6
Law expenses	2,246	11	0
Newry navigation, salaries of officers	4,853	2	3
Carried over	£.53,573	8	2½

* Cobbett's Parliamentary Debates, vol. xiii. p. 380.

† Edinburgh Review, No. xxvii. p. 154.

‡ House of Commons' papers, ordered to be printed 18th April, 1809.

	£	s.	d.
Brought over	53,573	8	2½
Tyrone navigation, salaries of officers	724	12	2
Limerick ditto	3,020	8	11
Shannon ditto	66	17	5
Expense of Surveys	1,151	2	0
Insolvency	700	7	7½
Stoppage in the Treasury for poundage and pells } upon £156,024. 13s. 2d.	4,638	4	8
Total	£ 63,875	1	0

With the last mentioned sum of £4,638. 4s. 8d. the directors have nothing to do; but setting this aside, the other charges appear to be very extravagant, considering the nature of the expenditure. This statement is extracted from a paper ordered to be printed by the House of Commons, 18th April, 1809; and I shall leave the reader to judge whether the following explanation of the journal above quoted in the month of June following can be considered sufficient, especially when the date of the paper referred to is remembered.

“ In our review of Mr. Newenham’s book in the preceding number, we have been led into two slight errors, by following the newspaper account of Sir John Newport’s statements in the house of commons, which we have since been favoured with the means of correcting. The statement given by Sir John, of the expenditure of the navigation board, (referred to at p. 154 of this volume) applied, not, as we formerly imagined, to their whole proceedings since the union, but only to the year 1806, the last then before the house; and the true result of that statement is, that out of a total sum of £144,378. expended under the superintendance of the board, no less than £32,000. had been paid in salaries to directors and other officers, exclusive of engineers,—which, together with £4108. of contingencies charged to the board, amounts to one fourth part of the whole expenditure under its direction.”*

The board was established in 1800, and the annual expense, independently of house-rent, has been £3000. per annum, amounting altogether, in the course of ten years, to about £42,500.

Canals, in my opinion, undertaken by individuals, assisted, in some particular instances, with public money, might be advantageous to a country in an infantile state of improvement. But it may be asked, if public money is advanced for purposes of this kind, how is it to be repaid? Partly by dividends, and partly by keeping down the rate of tonnage. Public commissioners would be a check on the undertakers of such works, and prevent those arbitrary acts, so injurious to trade, and those impositions which are so often practised through avarice and self-

interest. But commissioners ought to be men of tried honour, possessed of general knowledge and cool judgment. I am acquainted with all the members of the present board, and though I entertain a very different opinion of many similar establishments, I am ready to bear testimony to their merit, as I know them to be men well qualified in every respect for their situations. Had they a power to set on foot canals, by offering the loan of public money to a company who would undertake, at a certain rate of tonnage, to form one from any given point to another, they might in this manner be the means of giving birth to works of real national utility, provided the country was sufficiently prepared in other respects, to derive benefit from them.

Having enlarged so far on the expense attending the disbursement of the above grant, for improving the internal communication of Ireland, I think it but just to the Directors to lay before the public their own account of what they have effected.

ACCOUNT of works that have been actually executed under the powers vested in the DIRECTORS GENERAL, by the Act of Geo. III:

“ The canal from Lough Neagh to the sea has been restored, deepened, improved, and finished.

“ The navigable cut from Lough Neagh, across the peninsula of Maghery, to the Black-water, where vessels were constrained to unlade on one side, and re-ship the goods on the other, is finished. The navigable canal from the collieries at Coal Island to the Black-water, opposite to the Maghery cut, and so to Lough Neagh, was finished. A bridge over the navigation, and one of the old locks, have given way and are re-building.

“ The extension of the Royal canal to Coolnahay, six miles beyond Mullingar, with the harbour and aqueduct near Dublin, and the docks and communication with water in the Liffey, are finished.

“ The navigation from the deep water of Lough Derg, above Killaloe, to the city of Limerick, was nearly finished, and would have been given up to the company this season, but in the late sudden and unparalleled floods of the Shannon, the banks of the inland part of the navigation having given way, very considerable damage has been done, which nevertheless it is hoped will be repaired this season.

“ The navigation of the Shannon, from Lough Rea to Lough Derg, is nearly finished, and it is expected will be completed this season under the contract entered into by the Grand Canal Company, with the Directors General.

“ The navigation of the Barrow, from Athy to the tide water, is very far advanced, under the contract between this Board and the Barrow Navigation Company, and will soon be finished.

“ The work comprised in the contract of this Board with the Corporation, for preserving and improving the port of Dublin, in pursuance of the Act of the 43d. of his present Majesty's reign, is finished.”

“ Returned pursuant to an order of the Honourable the House of Commons, dated 17th March, 1809.

“ WILLIAM GREGORY, Secretary.”

The expenditure of this Board, to March 1811, has been as follows :

Royal Canal Company - - - -	£98,831	6	7		
Barrow navigation - - - -	41,881	8	9½		
Grand Canal Company, for the improve- ment of the Middle Shannon - -	} 53,231	17	8		
Corporation of Dublin for improving the Port - - - - -				} 15,463	18	3½
	<hr/>				
	£209,408	11	3½		
The Company have expended on the Limerick navigation, the Newry, the Tyrone, &c. the Upper Shannon na- vigation, and on their own establish- ment - - - - -	} -	-	172,238	17	11½
Sums appropriated, but not paid - - - -	-	-	9,875	0	0
Lodged in the Bank of Ireland - - - -	-	-	9,147	10	6½
Stoppage at the Treasury for poundage and pells, 3 per cent. on the above } - - - -	-	-	5,587	10	2½
Remains of the grant not received or ap- propriated by the Board - - - - -	} -	-	93,742	10	0
	<hr/>				
	Total	£.500,000	0	0	

The Grand and the Royal canals are the only ones of sufficient importance to have a claim to any remarks. This company style themselves “ The Company of *Undertakers* of the Canal Company ;” a title exceedingly appropriate, and most aptly chosen, for they have *buried* more money in the bog of Allen, than would have cut a spacious canal from Dublin to Limerick : but it is in vain to lament over the *dead*.

The grand canal was begun upon a magnificent scale, and extended to a width much greater than any merchandise it could carry required. In its present state, it meets the Shannon too soon, and ought to have taken a southerly direction ; after leaving Monasterevan, it should have proceeded to Roscrea, joining the Shannon to the southward of Limerick, and avoiding the navigation of Lough Derg, and the part-canal and part-river from Killaloe to Limerick. According to its construction it can be considered little else than a canal into the interior, nominally crossing the kingdom. The latter part of the communication is so tedious

and so bad, as to be little used; and the former is employed chiefly for passage-boats, which without other trade can never make it answer. To prove of real benefit, it must join the Shannon so far down the river as to connect Dublin with Limerick. Its greatest utility at present is, to supply the capital with turf; and if this be the case, can it excite surprise that we hear complaints of its unproductiveness, and that it does not even pay its expense? The greatest improvement to this canal, would be to lower the summit level near Robertstown; were this done, the height being 18 feet, the canal would proceed on a level for fifty miles, and drain a considerable part of the bog of Allen. The bog, about Edenderry, is thirty-five feet below the bottom of the canal, and, consequently, the draining of that part of it is impossible.*

The grand canal is reported to be a losing concern; the undertakers having borrowed money, and added to their capital, for the purpose of paying dividends; an advertisement, which has lately appeared,† gives some colour of truth to the report.

The river Barrow navigation, which joins a branch of this canal at Athy, is considered as bad, and therefore is little used. In my opinion, it might be of much more benefit, were it employed merely as a reservoir to fill a canal from Athy to Ross.

The royal canal has been carried too far to the southward, so that it interferes with the grand canal; and this was done at the instance of some great man, who conceived that his estate would be much improved by its running through it. This conduct, which falls under what the Irish term *jobbing*, paralyses many a great work in Ireland, and cannot be too strongly reprobated. The directors-general of inland navigation, in their report on this subject, say: "In the course of their line, the company being desirous to carry it by the town of Maynooth, crossed the river Rye by an aqueduct of very great expense, and did cut through quarries and beds of limestone-rock for a considerable extent. We have repeatedly heard, that these very costly works might have been avoided, by carrying the line in a more northward direction, but the engineer of the company, who laid out and executed these works, being dead, we could not obtain precise information as to this point; but this error, if such it be, is generally supposed to have been one of the early causes of the company's embarrassments." This paragraph excites my astonishment: these

* June 15th, 1809.—CARLOW. Tonnage from this place to Athy, 4s. per ton; to Dublin one guinea. If this be correct, the expense of carriage is as much as from Dublin to London. From Carlow to Ross, the navigation being on a river liable to floods, it is thereby rendered uncertain, and almost useless. Very little more goods are sent by it than before the formation of the company, and they now pay very heavy tolls.

The canal charges are, for flour 10s. 7½d. per ton, to Dublin. Whitehaven coal is, at this place, 32s. per ton; in Dublin 27s. Half the canal charges are paid for back-carriage.

† For the purpose of borrowing after the canal was finished.

gentlemen have lent £95,866. 7s. 10d. in addition to £91,122. 15s. 3d. of grants of public money made to the company; and yet report only that "they have repeatedly heard," upon "general suppositions." Direct evidence could be obtained of so notorious a fact, although the engineer were dead; and the directors-general, in my opinion, ought to have procured it, and reported accordingly. Had they done so, the evil, I believe, would have been found to arise from the partiality and collusion already hinted at.

According to the report of the directors-general of the inland navigation, on the affairs of the Royal Canal company, from the commencement, in the year 1789, to the 31st. of December, 1810,

The total of dividend, interest, annuity, expenditure, and establishment, was	£.
Permanent revenue in these years had produced	1,373,635
And the permanent expenditure, establishment, interest, and annuity, over the permanent revenue, had been	72,131
	355,198

The permanent revenue had produced in each year as follows:

In 1796	£. 108
1797	954
1798	711
1799	996
1800	1,583
1801	1,958
1802	2,724
1803	1,832
1804	2,948
1805	3,306
1806	4,372
1807	9,989
1808	13,021
1809	12,599
1810	15,024

Total £. 72,025

And their debt, at that time, was £1,142,550.

The company, finding their affairs thus embarrassed, presented a petition to parliament, praying for relief, and a committee of the house of commons having been appointed, in the session of 1810-11, to examine the petition, and consider the

propriety of granting further public aid to the company, the following paper was read by Mr. Sankey, on the 10th of June, 1811, in the course of his examination:

“ It appears, from the report of the directors-general, that a complete canal has been executed from the capital to Coolnahay, a navigation of 58 English miles: that government contributed to this undertaking, prior to the union, £91,000.; the subscribers, £172,964. That subsequent to the union, a grant was made by the directors-general, sanctioned by government, to the canal company, of £95,000., to obtain which, they were obliged to reduce their tolls so low, as that the saving to the public, for the year ending the 31st of December, 1809, amounted to £4,363 8s. 5½d. equal to £4. 11s. 3d. per cent.; and that it is but reasonable to expect, if the royal canal be suffered to proceed, that it may produce an amount of reduction equal to legal interest, perhaps considerably more: that, therefore, this £95,000. cannot be considered a grant; on the reverse, a bargain totally in favour of the public: and only for this reduction, the company's income for the last year would have been £19,357. The report states, the company have fairly expended the money on the canal, and that they have confined themselves to the object for which they were incorporated, without being drawn from it by speculation of any kind: that in every step of their progress, they have had the approbation of the directors-general, save in the small dividend of 2 per cent. per annum, in the year 1808. It appears that the public have the advantage of the expenditure: the articles of life are brought cheap to the capital; the market is brought to the door of the farmer; the face of the country has been improved, the tillage increased: a great debt has necessarily been incurred; the public has reaped the benefit. Has not the creditor a fair claim on that public? If an interruption of the payment of the interest (hitherto punctually paid) should take place, the consequences would be melancholy to a degree. The holders of the debentures of the company, for the most part people of a poor description, orphans and widows, which might be calculated at not less than 2000, would be thrown into great distress, many totally ruined. This kind of stock was scarcely ever purchased by speculating people, or dealers in the funds, but by persons in low circumstances, tempted by the high interest; therefore it does not seem unreasonable to calculate a creditor for every four debentures.

“ I beg leave to add, that agreeably to the report and estimate of our engineer, three years, and £186,000. will bring us to Tarmonbury, the place which the charter and act of parliament have pointed out for the royal canal to enter the Shannon. I am convinced our income will increase every step we go; and I do not see any reason why it should not be nearly equal, in a year after we reach the Shannon, to what the grand canal is now. For, though our tolls are low, low tolls will bring more business; and from the information I have had on the subject, I believe, if the grand canal had never speculated in docks or collieries, their income would cover

all their expenses, and allow of a good dividend. Believing myself to be well-founded in this opinion, I beg leave to call the attention of the committee to evidence given on oath before the directors-general. That the line of country we had to go through from Coolnahay to Tarmonbury (which will open us to Lough Allan, and to the counties of Roscommon, Mayo, Sligo, and Leitrim), was a fertile, and a productive one; and that the distance from Dublin to Lough Allan, by the royal canal, was shorter, by thirty-five miles, than by the grand canal. I trust the committee will not think me over sanguine in my expectation, that if we shall be able to reach Tarmonbury, we shall shortly cease to be a weight on the public, as our income will be such as to make it unnecessary for us to call for aid towards the payment of our interest from the public purse."

The committee afterwards drew up a report on the subject, dated June 14th, 1811, in which they observe:

"That the state of the affairs of the company is such as not to warrant any expectations of their being enabled to extricate themselves from the heavy debt in which they are involved, by any means now within their power."

"That in the last year, the income of the company amounted to £15,024.; of which £10,893. 6s. were necessarily appropriated to the maintenance and charges of the works, and the support of their establishment; and that no more than £4,131. 4s. 6d. remained to provide for a debt, the annual interest of which is £49,624. 10s. besides an annuity of £200.

"That there is no fund for the further prosecution of their works; and even admitting the most sanguine hopes of any of those, who have given their evidence on oath before the directors-general of inland navigation, the committee do not find that any speculation affords a prospect of increase to the profits of the company, more than equivalent to the augmentation of the debt they must necessarily incur, to defray the charge of interest during the years that must elapse before the navigation could be completed to the Shannon; without leaving any means of providing for the work itself, or the expenses incidental to it.

"The excess of annual charges beyond the income applicable to them, being at present £45,693. an annual aid from the public to that amount (subject only to such gradual diminution as might arise from an increase of the tolls on their present canal)—would merely enable the company to meet their immediate necessities, without adding any thing to their power of extending the line of their navigation.

"It appears to your committee, that the credit of the company has been fictitiously kept up, first, by the payment of interest on their deposits, from their establishment till the year 1796, when they made a small dividend; secondly, by the payment of dividends on their capital stock, when there were no clear profits from the canal, but, on the contrary, an increasing annual deficiency; and, thirdly, by the regular half-yearly payment of interest upon large sums borrowed from year to year, not-

withstanding there were no means of furnishing the same. except by raising further loans.

“Your committee accordingly find, that of the loans, amounting to £842,550. the sum of £405,629. 9s. has been applied to the payment of interest upon the capital stock, of dividend upon the same, and of interest and annuities upon the loans so borrowed.

“Having referred also to the act of parliament, and to the charter under which the undertakers of this canal were incorporated, it is the duty of your committee further to observe, that the loans contracted by the company, are, for the greater part, in direct violation of the terms of that charter, by which they were restricted from “taking up or borrowing on the credit of the said works, and their estate therein, any sum exceeding the amount of the subscriptions actually expended on the said works.

“The entire sums so subscribed to the capital stock of the company, amounted only to £172,964. 8s. 10d. while the amount of their loans is no less than £842,550.

“Your committee cannot but observe upon the misapplication of the sums so raised by the company, in two important instances particularly; first, in the payment of interest upon their several deposits, from their first establishment; and secondly, in the distribution of a dividend of two per cent. per annum upon those subscriptions, from the year 1808.

“The loan debentures have been granted by the company, on the security of their property in the canal; and the failure of the company must very severely affect the holders of them, who are described by the petitioners as a very numerous body.

“Under a deep impression of the importance of relieving so large a class of sufferers, a great majority of whom, your committee conceive to have been ignorant of the real state of the affairs of the company, when they embarked their property in this undertaking; and considering also, the decided opinion expressed by the board of inland navigation in Ireland, that the further prosecution of this work would be not only of the highest utility to Ireland, but ultimately of essential benefit to the empire; your committee would have been anxious to suggest to the wisdom and liberality of parliament, any measure by which an advance of public money might have been made conducive to objects so desirable. Yet they cannot lose sight of those principles on which parliament has been accustomed to act in the management of the public purse; and when they consider what has been the conduct of the company, and what is the state of their affairs, they cannot feel themselves justified in recommending to the house such an interposition in their favour.

“To this opinion your committee have come reluctantly; but they have come to it upon the fullest conviction. They are obliged also to state, that neither can they feel themselves justified in recommending, under the present circumstances, the adoption of either of the alternative propositions stated in the prayer of the petition: but it is further their duty to report their decided sense, that the pro-

visions of the act of parliament, and the charter under which the Royal Canal company have been incorporated, have been violated in such a manner, as to warrant strong suspicions of impropriety of conduct in the direction of their affairs, as calls for the strictest and most minute investigation."

The date of this report will account for the subject not having been brought before parliament in the course of the last session.* It is one of so much importance, that it must occupy their attention as soon as they meet, for the evidence already printed is sufficient to shew that enormous sums have been raised contrary to the charter of the company: that the company is utterly unable to pay the interest of these sums, much less to repay them, and that a heavy loss must be sustained, let it fall wherever it may. It appears also, from the statement delivered to parliament by the directors, that "the holders of the debentures of the company, for the most part, are people of a poor description, orphans and widows, who may be estimated at no less than 2000." I sincerely trust that these 2000 orphans and widows will be taken care of by parliament; for, if ever directors of a public company deserved to be treated like South Sea directors, those to whom I here allude are certainly the men. Contracting loans in direct violation of the terms of the charter by which they are to act, and not without an idea prevailing in the minds of the committee of the House of Commons, as may be fairly inferred from the questions put to one witness, that the directors themselves were the original loan-holders, who sold at par or a premium, knowing the insolvency of the company, whilst the 2000 widows and orphans were perfectly ignorant of its situation; they deserve, if this statement be correct, not only reprobation, but exemplary punishment, that others may be deterred from similar practices. It will, perhaps, be said, in extenuation of this unwarrantable conduct, that, as an open court of proprietors was held, any person of common judgment and education might have found out a deception, if any was attempted; but I hope no such excuse will be admitted; for, although the fallacious representations made to the unwary, might have been seen, in their true light, by the penetrating eye of those conversant in business and the ways of men, they were involved in impenetrable darkness to these ignorant people, who considered themselves as on the high road to fortune. In my humble opinion, all the money borrowed beyond the sum allowed by the charter of the company, has been borrowed on the private account of the directors; they ought, therefore, to repay it; and if, through any of those quibbles with which our forms of law are so often disgraced, or any of those subterfuges to which men without principle have recourse, in order to silence the voice of truth, the sufferers should not be able to obtain redress, the legislature ought to interpose its authority, and take under its protecting wing these 2000 helpless orphans and widows. It possesses the power of rendering them ample justice; and I hope, for the honour of public faith, that, at any rate, they will direct those who borrowed the money, to restore it to the

* This was written previous to the sessions of 1812.

owners. As this is a subject which cannot be considered with apathy, it will, I have no doubt, excite the attention of every honest member of the house; and if they will only examine the evidence in the Appendix to the Report of the Committee of the Royal Canal Company, ordered to be printed 14th of June, 1811, they will find sufficient cause to join in the opinion I have expressed.

It appears, by the letter of the Directors for inland navigation in Ireland, dated April 22d, 1811, to the lord-lieutenant, that they did, "in the strongest manner, condemn a measure which the Directors of the royal canal company adopted in the year 1808, of distributing money among the individual proprietors, at the rate of two per cent per annum on their capital stock, which money was not paid out of the clear profits of their navigation, but out of money raised by loan at interest." This remark, it is necessary to introduce, for the sake of these unfortunate loan-holders, as it tends not only to illustrate, but to confirm, in the most positive manner, the truth of my observations: the subject may also be examined in another point of view. The canal has reached the western extremity of its summit level, 46 Irish, or upwards of 58 English miles from Dublin. The work is in the middle of its progress; the chief difficulties of the undertaking have been surmounted; there is a continued descent the whole way to the Shannon; consequently, the engineer has an easy command of its levels. It remains, therefore, for parliament to consider what method is the best to be pursued. Must not every one agree with the Report of the Committee of the House of Commons, in the conclusion that, considering the present financial situation of the company, and the misconduct with which, in its corporate capacity, it has acted, it ought not to be intrusted with more of the public money? It has already received £186,999. 3s. 1d. the interest of which is £9,349. per annum. The navigation produced an income, in the last year, of £15,024. 10s. 6d. and, supposing it to continue the same, if we deduct the above interest £9,349, there will remain no more than £4,675. 10s. 6d. for keeping up the canal, and incidental expenses. A doubt, therefore, arises, whether the assets are equivalent to the money for which they are mortgaged to government; the question then is, whether the navigation ought not to be taken possession of by the crown, and maintained out of the public revenue. In this case, if it succeed according to expectation, let the interest on the loan be paid; and, if a surplus should arise, return it to the company. In the mean time, parliament should take especial care of those of whom money has been borrowed, contrary to the stipulations of the company's charter; and, if the original proprietors can ever, at any future period, by refunding the money already advanced by government, in any way best suited to their convenience, satisfy this public debt, to them the navigation ought, of course, to be restored.

These, as far as I am able to judge, are the two first steps to be taken. But there is still another point to be considered, which is, whether the navigation

should be extended, as the directors-general of Inland Navigation state in their report: "that the public have the benefit of a great navigation through a fertile country; and with a capability of extension, from which, ultimately, most important improvement, both to the adjoining country, and to the income of the canal, is fairly to be expected." "And considering that, when it may be opened to the Shannon, it will receive the produce of the confines of that river between Athlone and Lough Allan; that, at Lough Allan, it will be open to the coal and iron mines; and that such a navigation from Tarmonbury to Dublin, would induce all the countries westward of that part of the river to communicate with Tarmonbury, by roads from the interior, giving important encouragement to the counties of Roscommon, Mayo, Sligo, and Leitrim." Now, with every due deference to these gentlemen, for whom I have expressed, what I feel, a great respect, I must beg leave to differ from the opinion which they have ever given. If these are the only reasons which they can urge for an extension of the royal canal, I think they rest on a slender, or rather on a visionary foundation. The coal and iron mines at Arigna, are valueless, they will never export produce sufficient to pay for a single lock in the proposed canal. Roscommon is chiefly a lime-stone county, and is employed in fattening cattle and sheep, which can be driven to market. Leitrim and Sligo are mountainous counties, having the port of the latter, from which their produce may be exported; but little more is supplied than what is necessary for the support of their own inhabitants: Mayo is covered chiefly with moors, and produces still less than the mountains. Let any one examine what articles can be conveyed from this district of country, and then determine how far it would be expedient to incur farther expense in the construction of canals. A grant of public money would only be attended with a certain loss, and effect little good. Whenever this district, the most backward in improvement of any in Ireland, is filled with manufactories, exhibits mines really productive, or becomes clothed with woods capable of supplying timber for useful purposes, the land proprietors will, no doubt, gladly have a canal cut from the interior to join the one in question. Should this ever be accomplished, and the income arising from the royal canal increase, government would, of course, pay any surplus over to the original proprietors in liquidation of their debt, till the whole be cleared off. With the view, therefore, which I take of the subject, I deprecate the expenditure of a single shilling more of public money; and I earnestly recommend to parliament, a strict investigation of this matter; and I must add, that unless the company can arrange their affairs in a satisfactory manner, government should take possession of the navigation, as a necessary security for the large sum of money it has advanced.

In every part of Ireland which I visited, I was told of canals which *ought to be constructed*, at least, in the opinion of those individuals with whom I conversed.

Whenever the trade of this kingdom requires works of this kind, they will, no doubt, be constructed; but it is characteristic of the Irish to cut a canal in the expectation of trade, rather than to wait till trade demands it.

Internal communication by canals must be a desirable object in every commercial country; and their necessity will increase with its trade and general prosperity. On looking over a map of Ireland, there appear to be many lines in which canals might be cut, and, with the improving condition of her inhabitants, something may be effected in the course of a few years; but it is not in my power to give so flattering an account of any canal in the country, one only excepted, as to warrant, or even to encourage, the formation of others. The exception to which I allude, is the short cut from Newry to the sea, which is a ship canal, and which is said to have answered completely.

It is somewhat remarkable, that so little success has hitherto attended canals in Ireland. Mr. Young says, that when he was there, in 1779, the Newry canal was the only one in a flourishing condition, and the case is exactly the same now, in 1811. This writer also adds, with how much truth, I shall leave the reader to judge from what has been said, that “a history of public works in Ireland would be a history of jobs.”* Since his time, the Grand and the Royal canals have swallowed up £2,000,000. sterling.

The Barrow company have expended an immense sum, which I cannot exactly state.

The Belleck Canal has been begun, but stopped, and remains unfinished.

The Belfast Canal, to Lough-Neagh, is also at a stand.

The Coal Island Canal has been finished, but is seldom used.

All these circumstances were foreseen by Mr. Young, and, had his advice been followed, Ireland would have saved three millions of money, a considerable part of which was furnished by advances from the public since he published his *Tour*; and yet it is a general complaint that this country is poor through a deficiency of capital.

This want of public prudence cannot be contemplated without regret. What has been the result of the expenditure of so enormous a sum as three millions of money? The conveyance of a few passengers by canals, instead of by stage coaches, from Dublin to Mullingar, and other places in a country where intercourse between its inhabitants is still very limited; and the supplying of Dublin with turf, a fuel much more expensive than Whitehaven coals; yet the gentlemen of Ireland seem to have been unacquainted with these important facts. So late as the month of March 1809, Lord Wellington, then Sir Arthur Wellesley, minister for Ireland—Sir John Newport, who had filled the situation of Chancellor of the Exchequer—Mr. Parnel,

* *Tour in Ireland*, Part II. p. 66.

whose father had been minister also, all seem to have concurred in acknowledging the utility of canals in their native country—a country which is incapable of raising a revenue sufficient to pay the interest of its national debt. This is a lamentable instance of the want of knowledge in regard to the true state of a country. All these gentlemen admitted the statement of expenditure to be £21,000. instead of £350,000.; and recommended the extension of a system, for which, indeed, in Ireland, there is not the smallest foundation. Could they have laid before the British parliament a favourable account of manufactures, and minerals, in the distant parts of Ireland, requiring the aid of conveyance, and losing a market for the want of it; could they have stated the existence of large inland towns, like Manchester, Birmingham, Preston, and Leeds; could they have referred to veins of bituminous coals lying at a distance from such towns, or pointed out trees spoiling for want of being used, their opinion in regard to canals would have been supported by reason. But the towns in Ireland are all maritime towns; and what maritime towns in England are supplied with fuel by canal? Did none of them know that Ulster, where the manufacture of heavy goods is established, conveys these goods to a market without any complaints for the want of canals? By looking at the map of Ireland, it will be readily seen, that there is no spot at a farther distance from the sea than fifty miles; that canals unemployed pass through it in every direction, while the gates of their locks seldom opened, turn upon hinges covered with rust. Ireland, surrounded by the ocean, abounds with harbours capable of containing vessels of every description, sufficient to convey its produce to any place of destination: yet these gentlemen seem anxious for the expenditure of more money on an object which, the experience of nearly thirty years has already shewn to be useless. In England the chief canals are to be found in the manufacturing districts; the best agricultural ones are without them. Manufactures and trade give birth to canals, and by these only are they supported; of this we have a striking instance in Holland; but that country existed by commerce, and to it alone was indebted for its prosperity. The canals in the other parts of Europe, such as Russia, and those in North America, are no proof that they are necessary to Ireland. Immense countries, in their rudest state, being covered with woods, and furnishing other natural productions, may, from their extent, require canals; but the case is different with a small island, which has neither timber, nor ores of any kind worth the trouble of working; and in which manufactures and commerce are still in their infancy. It was the commerce of ancient Egypt that formed its canals; the canals are still to be seen, but the commerce has vanished. It is the extent and great internal trade of China that has given rise to canals in that immense empire; without them it could not exist; so distant are its different provinces from each other. It would be ridiculous in a dwarf to attempt to imitate the feats of a giant, and it is no less absurd to reverse the natural order of things, by beginning at the wrong end in defiance of reason and experience. The

Irish are too apt to confound cause and effect. Could they restrain their injudicious ardour, and patiently wait for that improvement, which time aided by proper exertion will naturally bring, it would be much better for themselves and their country. When Ireland has acquired commerce, canals, if necessary, will attend upon that commerce; they may now, indeed, be constructed, at a heavy expense to the country, but they will fail in creating that trade, which can alone make them profitable or useful.

The trade on the two chief canals, the Grand and the Royal, scarcely deserves to be mentioned. I saw corn, (not exactly in the same green state as that described by Mr. Oddy, which is floated down the river to Dantzic,)* conveyed to Dublin in open boats, without being put into sacks, or screened from the weather by a tarpawling, or any other covering; a pretty strong proof of what I have asserted: for corn is of much more value at Dublin than at Dantzic; though I am ready to admit that the price varies in different parts of Ireland. But, the question is, would canals alter it? Mr. Burke, one of the directors of inland navigation, wrote to me on the 13th of April 1811, that wheat was then two guineas a barrel in Dublin, and only £1. 14s. 0½d. at Loughrea, in the county of Galway. Oats at the former, were from 17s. to 18s.; at the latter, no more than from 8s. to 9s. Admitting, for the sake of argument, that the samples were of equal quality, which I much doubt, I shall observe, that Mr. Burke's house, if I recollect right, is within nine miles of Shannon Harbour, whence corn may be shipped to either Limerick or Dublin. It never can be argued that a canal is to be cut to every farm; and yet, to afford relief in this case such a measure would be necessary. Mr. Burke's house is within five miles of Loughrea on the one side, and nine miles distant from the canal on the other; yet the price of his corn is only two thirds that of the price at Dublin. It is by the state of society, by the people living on potatoes, by their raising their own food, and receiving scarcely any payment for their labour that this circumstance is explained, and not by the want of a canal. The price of labour at Ballydougan, when I was there in the autumn of 1808, was only 6d. a day in summer, and 5d. in winter. Raise the price of labour, and in a little time there will be a demand of corn for home consumption; some of the most intelligent labourers will soon become buyers; and on account of the difference between the Loughrea and the Dublin prices, will find it worth their while to purchase horses to carry the corn to market. The fact is, as I have already observed, no part of Ireland is very remote from a sea port: the distance is never more than that through which the produce of the greater part of England is conveyed, and when gentlemen ascribe so much benefit to canals, it is incumbent on them to shew that the land in the neighbourhood of the two grand ones are better cultivated than those at a distance. After the fullest

* European Commerce, p. 8.

investigation, I cannot discover any improvement they have effected. Drogheda is the greatest corn market in Ireland, and it is conveyed by land carriage. It is not by canals, but by markets, that the tillage of Ireland is to be improved, and efficient markets will never be created till the habits of the people are changed; till they eat wheaten bread instead of potatoes; till they exchange their homespun rags for decent clothing, purchased by the savings of their labour; and till they reside in brick or stone dwellings, instead of dirty cabins constructed of mud. When the condition of the people has been so far altered, those markets which the gentlemen of Ireland delusively imagine are to be formed by cutting canals, will arise in the natural order of things.

In the letter of the Directors General of inland navigation, dated May 3, 1808, they state, "even in England, we learn, that it is not quite fifty years since the increase of wealth was first turned to the construction of canals;" and in the same letter it is said, "If Ireland be as yet very slightly engaged in many great and lucrative branches of commerce and manufacture, from which wealth is poured into England, she cannot have the floating capitals which in the sister country are free, to be applied to the objects in question." These remarks are undoubtedly just, and what do they prove? That Ireland must wait till she attain commerce and manufactures sufficient to set free a floating capital, for the purpose of constructing canals. Till that period arrive, all speculation on this head is premature. Canals are not wanted, and if companies are established, the result of their operations may be easily foretold, by only taking a view of the present state of the finances of the Royal Canal Company. What benefit can the nation derive from having large companies formed, merely to fall into a state of bankruptcy? If those who unite in recommending an extension of canals, are able to shew that any speculations of this kind have proved a benefit to the undertakers, or contributed to spread cultivation in the countries which they intersect, all my arguments of course fall to the ground.

I have entered so largely into these reflections, because I have read and not without considerable alarm, the report of the Directors General, dated April 28, 1809. It would appear by this document, that it was in contemplation to intersect the whole country with canals, and convert it into a second Holland; it would be well indeed for the country, if a little of the Dutch industry were engrafted on the Irish character, canals would then naturally follow. But to such a pitch of extravagance has this canal system been carried, that these gentlemen indulge the most visionary ideas on the subject, and propose schemes of improvement more suited to an inhabitant of Bedlam, than to rational men, intrusted with the power of laying out money for the benefit of their country. In this letter it is stated, that in one instance "the existing line of the grand canal between Tullamore and the Shannon, is not more distant in any part from the proposed new line, than nine miles at the utmost;" in another, that from Athy to the part opposite Neagany Bridge, the canal will be but about

three quarters of a mile from the Barrow; thence to Carlow, it is but half a mile farther from the river; at Milford it is not above a quarter of a mile; opposite to the Royal Oak it is about a mile; and thence to Gowran it gradually increases its distance, but to no more than two miles and a half. The different lines, which in these several reports are discussed, are almost innumerable; and I should take the trouble to examine them more minutely, did I not consider the whole scheme in the present state of Ireland, one of the wildest that could possibly be conceived. A similar reason prevents me from giving any opinion with regard to the form and size of canals, which, as I have seen almost all those of England, I should do pretty freely, could I bring myself to believe, that any can be attended with utility.

In a letter of his Grace the Duke of Richmond, dated June 16, 1808, and printed by order of the House of Commons, his Grace says, "Being satisfied of the truth and importance of these representations, that considerable immediate benefit would result from the employment which the construction of these great works would afford to the peasantry of the inland part of the country, where restless and turbulent habits arise, in part, at least, from want of a regular and profitable occupation." If this be a sufficient reason for cutting canals, when is this labour to cease? If the object be to prevent idleness and all its consequent evils, the same thing might be effected by filling them up again, or conveying the produce of Ireland from one place to another in wheel-barrows; the fact is, that cutting canals is not a regular, permanent, and profitable employment. And one of the chief objections to canal making is, that it creates for a multitude of persons, a temporary employment which cannot be continued.*

Lord Liverpool, then Lord Hawkesbury, in reply to the statement from which the above passages are quoted on the 15th of November, said, that "he was authorized to inform his Grace of Richmond, that His Majesty's government entirely agreed with him in opinion, that the most beneficial effects may be expected to arise from the extension of inland navigation in Ireland." But let experience, which, in such cases is the best monitor, be consulted, and be suffered on this subject, to guide the public conduct. Ought not the situation of the royal canal, which, after having cost £1,373,635. brings in only £15,000 per annum, to serve as a beacon to prevent any farther losses by the same ruinous and destructive system? Are the finances of the Grand Canal Company in so flourishing a condition as to encourage the extension of that work, or the construction of others? If they are, why are not the accounts made public?—But it is needless to dwell longer on this subject, for I hope I have said enough to convince any unprejudiced mind, that the commerce and ma-

* Mr. Colquhoun, in his work upon Indigence, enumerates among the causes of that evil, "Bodies of labourers discharged from canals and other public works when finished. p. 11.

manufatures of Ireland are not in such a forward state as to call for or warrant any farther extension at présent of inland navigation.

ROADS. I now proceed to the roads in Ireland, which are works of much more utility, and justly celebrated for the excellence of their construction.* There are no by-roads; and all the high-ways are of two widths, a mail coach way being broader than the others. As the sub-stratum of the greater part of the country is lime-stone, these roads are formed of that material broken into small fragments. Formerly, they were cut in lines, "as straight as a gun-barrel" over hill and dale; but time has effected an improvement in the laying out of roads, as well as in other things, and new roads

* The Romans were distinguished by their attention to roads, and the great pains they took to shorten them as much as possible by making them straight, and to render them solid and durable. It is, however, remarkable, that more monuments of these stupendous works are remaining in Britain, than are to be found, perhaps, in any of the countries formerly subject to their dominion. Parts of them still entire, are to be seen in several places, both in England and Scotland.

By the statute of Winchester, in the reign of Edward I. some provision is made for the security of high-ways, by suffering no wood to grow within two hundred feet on either side, that passengers might not be surprised by thieves. In the time of Henry VIII. some laws were enacted for preserving and amending causeways, and for facilitating the construction of new and more commodious roads, by giving to such as made them legally, through their own lands, the property of the soil, and the materials of the old ones; as to the lesser roads between town and town, they were left to the protection of the common law (Knyghton de Eventibus Angliæ ap. x Script. col. 1356, 1357) to which the prescriptive right of regulation still remains, where not expressly altered by statute. *Campbell's Polit. Survey of Great Britain*, vol. ii. p. 251, note.

Some of the French writers on Political Economy, complain of the great waste of land occasioned by the roads in France, which appear to be far too wide for any purpose that can reasonably be required. "Many of the roads which proceed from Paris are 180 feet wide, comprehending the sloping sides. Were they only sixty, they would still exceed the necessary breadth, and might be considered as magnificent, even, for those leading to a large capital.—A space, therefore, of 120 feet, which, for every common league makes fifty acres, might be restored to agriculture." *Traité d'Economie Politique*, par J. B. Say, vol. ii. p. 452.

Some of the missionaries have extolled the roads in China. Mr. Barrow, speaking of the great road to Peking, says, "the middle part of it, for the width of eighteen or twenty feet, was paved with stones of granite, from six to sixteen feet in length, and broad in proportion. Every one of these enormous flag-stones must have been brought, at least, sixty miles; the nearest mountains where quarries of granite are found, being those that divide China from Manchoo Tartary, near the Great Wall." *Travels in China*, p. 91. In another place he observes, "Sensible as the Chinese seem to be of the advantages derived from an easy communication between the different parts of the empire by means of canals, it is the more surprising what the motives could have been that, till this moment, have restrained them from facilitating an intercourse, by means of good roads in such parts of the country, as have no inland navigations. In this respect, they fall short of most civilized nations. Except near the capital, and in some few places where the junction of the grand canal with the navigable rivers is interrupted by mountainous ground, there is scarcely a road in the whole country that can be ranked beyond a foot-path." *Ibid.* p. 513.

A French traveller, Poizze, gives a similar account: "A la Chine les chemins ressemblent a nos sentiers. Les canaux sont plus profitable que les grands chemins; ils portent la fertilité dans les terres; fournissent au peuple une partie de sa subsistance en poisson. Il n'y a aucune proportion entre le fardeau que porte un bateau, et celui qu'on peut charger sur une voiture de terre." *Traité d'Economie Politique*, par Say, vol. ii. p. 453, note.

proceed now along the base of a hill. Some sagacious Irishman discovered that the segment of a circle is not larger when it winds round a hill, than when it extends over its summit. Places are often found, where the old-fashioned paved roads are still in existence. I remember them to have been twenty years ago very general in some counties, but at present they are confined nearly to those of Kilkenny, Kerry, and Wexford, where the roads are the worst in Ireland.

The making or repairing of roads in this country is effected in the following manner: any person who wishes to have a new road constructed, presents a memorial to the Grand Jury at the assizes, with an affidavit of its necessity. A deliberation then takes place upon the subject, and if the jury allow the presentment, the road is either made or repaired, as the case requires; the accounting presentment is sworn to, and must receive the sanction of the judge. The "undertaker," or maker of the road, afterwards procures an order from the Grand Jury to receive the money from the treasurer of the county. In the mean time it is liable to be traversed by any landholder in the barony, on his giving the parish twenty-one days' notice of his intention to oppose it at the assizes.

Mail-coach roads are determined upon by his Majesty's Post-master General, and the expense is defrayed by a tax imposed on the county. The money for other roads is raised by a baronial tax, each barony paying the expense of the roads within its own boundaries, although it receives the authority of the Grand Jury to assess the whole county. A writer in the *Edinburgh Review*,* asks whether this money is levied in an equitable manner throughout the country.† It certainly is not; it is collected according to some obsolete admeasurement, and falls very unequally, as the land tax does in various parts of England. In Ireland it is extremely different in different counties; in some every "plough land," and in others every "carver" pays a certain proportion, some by the acre; but in that case it is frequently collected upon fifty acres, when the owner or occupier possesses as many as 300. In these instances it is supposed that the measure was fixed upon when the nominal quantity was all the cultivated land which the individual possessed, and that the additional quantity,

* No. XXVII. p. 154.

† August 23d, 1809. Farnham.—The county cess in Cavan is not collected per acre, but by a division called a *carver*. A town land is divided into so many *carvers*, each of which, though of a totally different extent, pays an equal portion of money to the cess of the county. The following note which I have copied from Miss Edgeworth's *Castle Rackrent*, p. 211, will explain this more fully: "*cartron* or half *carton*:" according to the old record in the Black Book of Dublin, a *cantred* is said to contain 30 *villatas terras*, which are also called *quarters* of land, (*quarterons*, *cartrons*) every one of which quarters must contain as much ground as will pasture 400 cows and 17 plough lands. A knight's fee was composed of 8 hides, which amount to 160 acres, and that is generally deemed about a *plough* of land. "The editor was favoured by a learned friend, with the above extract, from a MSS. of Lord Totness's in the Lambeth Library." Perhaps *carver* and *cartron* mean the same thing.

then rough and unprofitable, has since been brought to a state of improvement. The greatest objection which can be made to this mode of collection is, that the assessment becomes an acreable tax, from which all housekeepers are exempted, so that the inhabitants of towns enjoy the convenience of good roads without paying a single farthing towards the expense. To levy the money equally upon a valuation would be impossible, the value of landed property being as liable to rapid change as the waves of the turbulent ocean. Those who have acted as magistrates in England at the quarter sessions, have experienced this difficulty in trials for quashing a poor's-rate, when it has been found impossible not to quash the rate, although made upon a very recent valuation; local circumstances, capital, and industry, raising the value of particular parts of a parish in a very short space of time. As to the English land tax, the purchaser or hirer of an estate, is aware that the land is subject to the payment of it, and therefore he makes his bargain on terms commensurate to this burden, and so it is with the Irish "County cess."

The following Table, shewing the Number of Cartrons, or Acres, in each Barony, also the Amount of the Road Presentments separately, and of the Presentments at large, with the Charge on each Barony per Cartron, or per 100 Acres, at Lent Assizes 1811, for the County of Longford, will give the Reader an idea of the Manner in which this Tax is assessed in Ireland:

No.	Baronies.	No. of Cartrons or Acres.	Roads only.				Presentments at Large.				
			Amount of Presentments.	Proportion of Roads on County.	Total.	Charge per Cart or per 100 Acres.	Baronial Charge.	Proportion of County Charge.	Total Amount.	Cess per Cartron or per 100 Acres.	
1	Granard -	190	667 2 1	120 3 0	787 5 1	4 2 10	708 6 6	420 17 5	1129 3 11	5 18 10	
2	Longford	134½	409 13 5	60 1 6	469 14 11	3 9 10	443 15 5	210 8 8	654 4 2	4 17 3	
3	Ardagh -	167	956 1 4	84 2 2	1040 3 6	6 4 7	990 5 4	294 12 2	1284 17 6	7 13 10	
4	Moydow -	140	420 14 3	72 1 9	492 16 0	3 10 5	451 14 10	252 10 5	704 5 3	5 0 7	
5	Rathcline	13950 acres	472 10 2	84 2 2	556 12 4	3 12 8	510 17 9	394 12 2	805 9 11	5 15 6	
6	Abbysshrute County	9252 do.	377 10 6	60 1 6	437 12 0	4 14 7	409 6 0	210 8 8	619 14 8	6 13 11	
							3784 4 0				per 100 Acres.
							5514 5 10	1685 9 7	5197 15 6		

There are few turnpikes in Ireland. On some of the great roads leading from Dublin, which are much used for the conveyance of goods, and frequented by carriages of various kinds, a toll is collected to defray the expense of repairing them. The best roads are those in the neighbourhood of Collon and Drogheda, and on that side of the county of Meath adjacent to Louth. They are formed of a black siliceous kind of stone, procured from quarries in the vicinity, and broken into small pieces for that purpose. It has almost the appearance of coals; and forms so hard and compact

a bottom, that one may travel many miles without experiencing the inconvenience of a rut. Very few roads in Ireland are spoiled by hedge-rows or by trees, which in warm countries are considered as an agreeable shelter, but which here would prevent the wind and the sun from drying them. This is certainly an advantage of some moment, for nothing tends so much to injure roads as the lodgment of water.

In the counties above-mentioned, and in Fermanagh, conspicuous direction posts are every where seen, and contribute by their friendly assistance to prevent strangers from going out of their way. I was informed, that in other places, if erected, the poor would convert them into fuel almost as soon as they were put up; but to the honour of these places, they have been treated with respect, as guides to those who are ignorant of the country, and have remained for years unmolested.

There are few things in Ireland, which astonish a stranger more than the magnificence of its many excellent roads; and as the making of them arrests the attention of most of the country gentlemen, when called upon the grand jury at the assizes of their respective counties, I have taken some pains to form a table, which will shew at one glance, the amount of this heavy county tax. Few tables in this work will probably give more satisfaction to Irish gentlemen, and of none, perhaps, are they better judges. It is much to be regretted, that when parliament orders these returns, some of the county treasurers are negligent to fulfil them. The consequence is, that the perfect account of a single year, has never yet been laid before parliament; but this deficiency my friends have enabled me in some degree to supply.

A TABLE of the Amount of Presentments by the Grand Juries, for the following Counties and Years, abstracted from the Returns to the House of Commons, ordered to be printed 12th February, 1807; 18th March, 1807; 3d of May, and 2d of July, 1809. As these Returns are very defective, I have filled up the blank of Sligo by a Return furnished me by Owen Wynne, Esq. and those of Monaghan and Louth by similar Information procured by John Leslie Foster, Esq; from R. Page, and B. A. Mitchell, Treasurers of those Counties; but the Blanks still left prevent my casting up the Total of more than One Year.

Counties.	1803	1804	1805	1806	1807	Militia.			Acre- able Tax. $\frac{s.}{d.}$
						In 1803, 4, 5, and 6.	$\frac{s.}{d.}$	$\frac{s.}{d.}$	
Antrim* - - -	19265	15999	21540	22774	20938	1958	15	6	1 4
Armagh† - - -	11524	12783	17819	17066	17695	1241	17	9	
Carlow‡ - - -	5803	6309	5910	8456	5615	250	0	0	
Cavan§ - - -	5595	9593	9538	14495	13580	1413	6	0	
Clare - - -	17826	19422	20559	23441	20393	-	-	-	1 3½
Cork|| - - -	33959	34655	45105	43238	36391	90	16	1	
City of Cork - -	9673	11922	14345	12211	13671	1084	0	9	
Donegal¶ - - -	16659	19105	20797	23922	24221	702	19	6	
Down** - - -	18759	19243	20419	21572	22247	-	-	-	
Drogheda - - -	387	561	606	591	529	207	10	0	3 7
Dublin†† - - -	10369	10011	10218	10214	10497	1910	18	10	
City of Dublin -	9346	10854	8404	9762	1481	-	-	-	
Fermanagh‡‡ - -	5823	6703	6874	7760	20048	653	18	6	
Galway§§ - - -	16625	16272	15455	18712	9119	536	8	0	
Kerry||| - - -	14394	11912	14542	16306	15380	2387	4	9	
Kildare¶¶ - - -	10704	10083	9707	11318	10158	-	-	-	1 0½
Kilkenny - - -	12877	13531	12791	12207	14757	823	16	9	1 1½
City of Ditto - -	795	864	945	504	794	-	-	-	1 2½
King's County - -	7067	7214	8089	10969	11616	1068	19	6	1 0½
Leitrim - - -	4599	3782	7704	6815	6469	1542	2	11	1 3½
Limerick City - -	3496	4405	4721	2584	2299	327	12	0	3 4½
Ditto County - -	11646	15512	21447	21574	26245	1336	11	3	1 2½
Derry, City and } County*** - }	15118	17166	15167	19854	19319	1145	6	3	
Longford - - -	6843	6100	5156	5730	6500	274	11	0	
Louth - - -	6617	9693	9390	8910	10254	58	8	9	1 9½
Mayo - - -	12704	5532	10600	14295	11436	1649	3	6	1 3½
Meath - - -	21422	20868	25139	24940	24500	2043	3	9	1 9
Monaghan††† - -	9356	10642	11328	9234	10633	1772	18	10	
Queen's County -	8887	9522	9210	11738	11808	2585	10	9	1 2
Roscommon - - -	10584	9230	9698	8321	12147	2071	7	9	1 0
Tipperary - - -	26541	25641	35769	39839	36872	4880	0	0	1 6
Tyrone‡‡‡ - - -	17498	18105	17490	19609	22508	1475	10	1	1 0½
Sligo§§§ - - -				8993					
Waterford||| - -	8651	12888	13770	13188	14335	-	-	-	
Ditto City - - -	753	2014	1920	2449	3940	10	0	0	
Westmeath - - -	10185	11819	11627	10913	11555	1045	2	6	1 2½
Wexford - - -	13667	11218	13431	10023	10032	171	9	6	
Wicklow - - -	7004	6679	7899	7619	8952	1637	7	11	1 11
Total	£			537036					

The following Remarks are abstracted from those made on the Returns to the House of Commons.

- * ANTRIM. The treasurer not having any document in his possession to enable him to distinguish the taxes laid on lands and those on houses, has been obliged to charge the sums levied upon the farmer, by which the Acreable Tax is made to appear considerably higher than it really is.
- † ARMAGH. There is not any county book of acreable proportion in the hands of the treasurer.
- ‡ CARLOW. County rate per acre not cast out.
- § CAVAN. The assessments in this county are not levied by the acre, but by the Carvagh; a Carvagh contains from one acre to upwards of one hundred.
- || CORK. The treasurer never applots the money to be levied on the acres, but sends out his warrant to each high constable, who applots his levy on the several plough-lands in his barony.
- ¶ DONEGAL. The rate per acre cannot be ascertained, as the grand jury make the apportionment by the parish, each paying a certain rate per pound, proportionate to their size and value, of the total sum to be levied. This is denominated "the Key of the County."
- ** DOWN. The treasurer is not able to make any return of the number of acres or rate per acre, there being no survey finished, or record, or key of the county, to enable him so to do, farther than to apportion the shares the several baronies have to pay of the money presented on the county at large, before a warrant issues to the high constable of each barony to collect the same.
- †† DUBLIN. The baronies pay for their own roads, and vary so much, that the rate per acre to the whole county cannot be given.
- ‡‡ FERMANAGH. It is impossible for the treasurer to state the rate per acre, as the county cesses are not levied per the acre, but by the tate or town-land, most of which, he has been informed, differ in the number of acres, although paying in the same proportion to the county cesses.
- §§ GALWAY. The public money has not been calculated per the acre, but is always rated by the hundred.
- |||| KERRY. The treasurer never applots the money to be raised on each acre; he sends out his warrant to the high constable, who applots the levy on his respective barony.
- ¶¶ KILDARE. There are, in this county, 201,220 profitable acres of land, 41,035 of bog, and 3,000 on the Curragh.
- *** DERRY. The tax imposed by authority of the grand jury is not levied by any rate per the acre, but by the value of property, which value is ascertained by an original survey of the county, which is denominated its key, and which may be found in Sampson's Survey of Derry.
- ††† MONAGHAN. The treasurer cannot return the rate per acre; he issues his warrant to the high constable of each barony, who levies the sum applotted to be raised on each denomination of land at vestries held in each parish for that purpose.
- ‡‡‡ TYRONE. The number of acres at large, including mountain and bog, is 357,175, therefore it is to be considered that the rate per acre is apportioned on the land that pays tax only, which varies very much in different parts of the county, according to the old key, by which the tax is applotted.
- §§§ SLIGO. Those of the blank years have not been returned, nor has any actual rate been stated.
- ||||| WATERFORD. As this county has not been surveyed, the levies are raised by plough-lands, therefore the rate per acre cannot be set forth.
- ¶¶¶ I have printed the tax per acre, as returned to the House of Commons; but, from the above remarks, it is obviously a very incorrect result.

Parishes have a legal power at vestry meetings, of granting as much as forty shillings to make a road from one town;land to another; but the act which conveys this power is become nearly obsolete and little used.

Independently of the roads for common purposes, Government, immediately after the rebellion in 1798, employed the soldiers in constructing military roads through the mountains of Wicklow and Waterford, and in the former they extend from barrack to barrack.* Very little traffic is carried on by these roads; but they are as smooth as gravel walks, and the whole line being executed under the direction of an able engineer they have been made to wind round the sides of the mountains, so as to obviate any sudden rise. A traveller is some considerable time in ascending them; yet the elevation is so gentle as to be hardly perceptible, and to occasion no inconvenience. By these roads a communication has been opened in districts, before impervious; and they may be considered as useful works, which do infinite credit to the projector.

In the majority of the counties, the roads are not only excellent, but numerous; this great advantage has arisen chiefly from the country gentlemen having a just opinion of their usefulness, and on account of the employment of the people in their construction: but like all other benefits, it has its attendant evils; as frequent instances of *road-jobbing* occur, a term given to the making of unnecessary roads, for the purpose of serving a tenant or dependant. The object of the legislature, therefore, should be to retain the beneficial part of this system, and at the same time to get rid of the dirty speculation to which it gives birth.

POSTS. Among the numerous benefits arising from the improvement of public roads, there is one of peculiar utility in a commercial country, which is, that of a speedy and regular correspondence by post. The invention of this establishment is ascribed by Herodotus† to Cyrus the Great, and his account is confirmed by the testimony of Xenophon.‡ This mode of conveying intelligence was afterwards adopted by the Greeks and the Romans, and the excellent roads constructed by the latter, enabled.

* March 15th, 1809. Wicklow.—The military road winds along the mountain, a deep ditch being cut about forty feet from it, to defend it from the mountain torrents. This is a magnificent and well conducted work, which does honour to those who planned it, and is creditable to the empire.

† Τετάρτη ἐν τῷ ἀγγίλῳ ἴσθι ἔθνη ὅ, τι βᾶσων παραγίεται θητόν ἰόν' ὅτω τοῖσι Πέρσῃσι ἰξυέρηται τῦτο. λέγουσι γὰρ ἕως ἔσων ἂν ἡμέριον ἢ πᾶσα ὁδοῖ, τοῦτοτο ἵπποι τι καὶ ἄνδρες διοστᾶσι κατὰ ἡμερήσιον ὁδοῖ ἐκάστην, ἵπποι τι καὶ ἀίη ταγαμίνοσ. Herodot. Hist. lib. viii. cap. 98. edit. Glasg. vol. viii. p. 166.

‡ Σκεψάμενος γὰρ πόσην ἂν ὁδοῖ ἵππων καταύτοι της ἡμέρας ἱλαυνομοιοσ ὥσθι διαρκει, ἰποῖσαστο ἵππωνσ τοῦτο διαλείπειτασ, καὶ ἵππωνσ ἰν' αυτοῖσ κατισσῆσι καὶ τῆσ ἱπιμιλεμίνεσ τῶτων' καὶ ἀδρα εφ' ἐκάστω τῶν τόπων ἴταξι τοι ἱπιτίδιονσ παραδίχεσβαί τὰ φερόμενα γραμματασ, καὶ παραδίδεαι, καὶ παραλαμβάινει τῆσ ἀπιρνώτασ ἵππωνσ καὶ ἀδρῆσπων, καὶ ἄλλησ πικπιονσ νηλεσ. Ἐσθι δ' ὅτι ἔθι τὰσ νυκτὰσ φασοῖ ἴσασθαίσ ταύτησ τῶν περίασ, ἄλλα τῷ ἡμερῶ ἀγγίλωσ τοι πεκτερόνσ διαδίχεσβάι. Xenophon. Cyri Institut. edit. Hutchinson. Lond. 1758. p. 496.

them to render it regular and permanent Charlemagne, it is said, introduced posts into his extensive dominions, and his example was imitated by Louis XI. in France.* But this convenience was intended merely for the service of the prince, and not for the public benefit. The case was the same when posts were first established in England, and the post-houses only furnished horses, the rate of which was settled in the reign of Edward VI. at one penny a mile. In the time of Queen Elizabeth, there was a post-master nominated by government; but the merchants chose one of their own, till disagreeing among themselves, the city requested that one might be appointed by the Queen. For some time after, however, the management of correspondence was in the hands of private persons, who carried it on at their own expense, and for their own advantage.†

It appears that there was no regular post between either Scotland and England, or Ireland and England till 1634; for in that year it is stated in a proclamation of Charles, that there had been before no certain intercourse between the kingdoms of England and Scotland, and he commands his post-master of England for foreign parts, to settle a running post or two, to run night and day between Edinburgh and London, to go thither and come back in six days; to take with them all such letters as shall be directed to any post town in or near that road; and that by-posts be stationed at interval places out of the road, to bring in and carry out letters from and to Lincoln, Hull, and other towns. The postage was fixed at two-pence the single letter, if under 80 miles; four-pence between 80 and 140 miles; six-pence if under 140; and upon the borders of Scotland and in Scotland eight-pence; and so in pro-

* Baron Bielfield says, that "the first idea of posting is very old, since the Theodosian code, under the title *de Cursu Publico*, makes mention of post-horses; but we are not to imagine that this establishment was then regulated, as it is at present among the polished nations of Europe. The modern institution of posts is one of the greatest benefits that could be conferred on mankind. The office of Messenger of Pomerania, &c. still exists in the University of Paris; and formerly a messenger went every year to Pomerania, or other distant countries, to receive letters and parcels sent by the parents of young men, who were prosecuting their studies in that University, which for a long time was the only one in Europe. Posts are said to have been established in France under Louis XI. about the year 1475; but in Germany not till the beginning of the seventeenth century, when they were introduced by Baron Taxis, who, as a reward for this service, received in fief, from the Emperor Mathias, in 1616, the office of Post-master General." *Institutions Politiques*, vol. i. p. 129.

† It is not certain that the Greeks and the Romans had regular posts before the time of Augustus. In the west they were called *Viatores*, and under the emperors of Constantinople, *Cursores*. After the downfall of the empire, the posts were very much neglected in the west. For their re-establishment we are indebted to the University of Paris, which appointed messengers to go to certain towns in the kingdom, for the convenience of the students. When Louis XI. established posts in 1462, throughout all France, the University did not give up its privilege; but in 1719, it resigned it to the King, on condition of receiving a twenty-eighth part of the sum at which the posts were farmed." *Dictionnaire des Origines*, vol. i. p. 329.

† Campbell's Polit. Survey of Great Britain, vol. ii. p. 254, note.

portion for double letters and packets. The like regulations were to be observed to West Chester, Holyhead, and thence to Ireland.*

In 1652, the postage of England, Scotland, and Ireland, was farmed to John Manley, Esq. for £10,000. per annum; and this agreement was confirmed by Cromwel in 1654. From this it has been inferred, that the privilege of franking was not at this time exercised by members of parliament.†

Some new regulations were made for the postage of the three kingdoms of the commonwealth, and these were confirmed at the restoration by Charles II.‡

The rates of postage for England and Ireland were again established by act of parliament in 1660. By this regulation a letter of one sheet from England to Dublin paid six-pence; from Dublin to any part forty miles distant two-pence, and for a greater distance double. Letters of two sheets to pay double, and larger packets in the proportion of quadruple postage per ounce.§

In 1711, the former laws for establishing post-offices in both kingdoms of Scotland and England were repealed, and one general post-office, and also one general post-master, were appointed for the united kingdom, and chief letter offices were erected at Edinburgh, Dublin, New-York and the West-Indies. ||

In 1784, the Irish post-office became independent of that of Great Britain, and in consequence of this change several regulations were enacted for the carriage of letters, newspapers, &c. between the two kingdoms, and for the settlement of accounts between the post-offices.¶

For the accommodation of the trade with Ireland, post-office packets were established between Milford Haven and Waterford** in the year 1787.

At present there are three posts, by which the mail bags for Ireland are conveyed from England to Ireland. One from Port-Patrick to Donaghadee; another from Holyhead to Dublin, and a third from Milford to Bolton, near Waterford. Packets which carry over passengers, sail from Ireland to each of these ports every night when the wind serves, except on Sunday, and from Port-Patrick, Holyhead, and Milford, every day, except that on which the Sunday night's mail coach arrives, but brings no mail bag from London. Between Dublin and Holyhead there are express boats, which are sent out when the weather is so bad that the packets cannot put to sea.

* Rhymer's *Fœdera*, vol. xix. p. 649, and Macpherson's *Annals of Commerce*, vol. ii. p. 383.

† Macpherson's *Annals of Commerce*, vol. ii. p. 450. The right of franking was declared by a resolution of a Committee of the House of Commons, on the 28th of March, 1735, to have been coeval with the establishment of the post.

‡ *Ibid* ib. p. 496.

§ *Ibid* ib.

|| *Ibid*, vol. iii. p. 13.

¶ 24 Geo. III. sess. i. c. 6.—Macpherson's *Annals of Commerce*, vol. iv. p. 43.

** 27 Geo. II. c. 7.—Macpherson's *Annals of Commerce*, vol. iv. p. 123.

From Port-Patrick I have known sixteen mails due, and the Milford packets are by no means so regular as they ought to be. A new harbour is constructing at Hoath on the outside of Dublin bay, intended for a packet station, and it is estimated, that the average passage will be performed in eight hours; at present it requires twelve: that from Port-Patrick* to Donaghadee takes four hours, and crossing from Milford to Bolton employs fifteen.

There are mail coaches dispatched from Dublin to Belfast, Londonderry, Sligo, Galway, Limerick, Cork, Kilkenny, Waterford, and Wexford, which of course pass through many towns, and establish a communication between various places. There is also one cross mail from Cork to Limerick. All these mails drive at a good pace; but much time is wasted by their unnecessary delays.

There are several stage coaches to Drogheda, Newry, and Belfast, one to Sligo, and some to Limerick; but those which pass through the centre of Ireland are much injured by the canal packet.

To Cork and Limerick there are stage coaches; but except those which convey the mails, none proceed to any other part of the south.

Post horses and chaises, such as they are, may be obtained in most parts of Ireland. The latter are called, by way of ridicule *rattle-traps*, and are the most wretched vehicles that can be conceived. Miss Edgeworth's celebrated picture of Irish posting in her late work, entitled "*Ennui*," is an exact description of the carriages that are to be met with in Connaught and many other places.

Inns are of very great importance in a system of internal communication, and nothing affords so striking a proof of the state of trade in a country, as the condition of these houses, and the treatment which travellers experience in them. Ireland, in this respect, seems to be far behind many other parts of the empire. Buildings occupied for this purpose are of a very inferior kind, and the innkeepers know nothing of that civility and marked attention, which form so conspi-

* Dec. 19th, 1810. PORT-PATRICK.—Arrived at this place in three hours and twenty minutes. The boats are of sixty tons burden, and navigated by eight men, and the fare is 10s. 6d. The Holyhead boats have thirteen men. The mail often arrives from London by the way of Donaghadee in seventy-two hours. It is due in sixty-nine. The packets take the ground on both sides of the water when the tide falls, and often lose a trip by not being afloat when the wind is favourable. Very often while waiting for the tide the wind changes and is against them.

+ "It is a just observation," says an eminent writer, "that nothing can afford a clearer indication of a true state of a country and its inhabitants than the public INNS. In some of the chief cities of Germany and the Low Countries, they are highly commended; passable in France, celebrated at Lyons, plentiful and cheap in Switzerland, indifferent in Italy, worse in Spain, and still worse in Poland. In this country they were not formerly what they now are. Business and pleasure support them; and constant emulation hath made them in most, commodious, in some places splendid." *Campbell's Political Survey of Great Britain*, vol. ii. p. 253. Note.

cuous a feature in the character of the same class of men in England, and which, while they console the traveller for all his hardships, are the most certain means of increasing the revenues of their proprietors. In an Irish inn, the eye, as in France and in Spain, is every where disgusted with filthy objects. The olfactory nerves also are often affected by the noxious effluvia arising from the same cause; and if a waiter attend, which is not always the case, he is a being who in general would form an excellent subject for some of our eminent caricaturists. His hair, most commonly, hangs down in a kind of pig-tail, but as it would be troublesome to untie it, he never uses a comb, and of course; none of the covering which nature has there given, is ever lost by cleaning. His hands, perhaps, have not been washed, for a month, though water is far from being scarce in the country; and a clean shirt or clean shoes are considered as things altogether unnecessary.* How different this description from the appearance of the neat country girls who officiate as waiters in many of the houses of entertainment in England. The picture here drawn is applicable to the first rate inns in Ireland; and hence the reader may easily conceive what must be the state of ordinary places of the same kind.

But the inconvenience arising from bad inns, uncleanly waiters, and dirty accommodation, is trifling, when compared with the danger to which travellers are exposed through the defective state of the police. In the year 1808, a new stage coach was advertised as about to start from Dublin to Cork, and as an inducement to passengers to take places, it was emphatically stated, that the vehicle was *lined with copper*, and therefore completely bullet proof. In the course of that summer, a body of banditti under the command of the road-hero of his time, Edward Brennard, who was afterwards hanged at Clonmel, infested the mountains of Tipperary and the eastern parts of Cork, robbing people in the face of day: a practice which they were suffered to continue for several months without molestation, to the no small terror of travellers. The mail coaches carry two guards, properly armed and accoutred.

The next gradation from the post-house in a town (as there is scarcely any intermediate house) is a dry-lodging, to which the traveller is invited by a pole, having a piece of rag placed in a slit at its top, by way of a sign. Here a bed may be procured, but no victuals or drink; the bed, if it deserves that name, is often in a common room on the ground floor, where there are other beds occupied by the landlord and his family. From this account I must except the counties of Carlow and Kilkenny. In the towns of those parts of Ireland, every house is a

* Campbell, in his Philosophical Survey of the South of Ireland, p. 110, has been careful to record, that he met with a cook at the Wheat Sheaf in Kilkenny, who wore ruffles, and who, though an old man, was full of vivacity and politeness.

“house of entertainment;” and it is not uncommon for the same person to unite a shop and an inn under the same roof. At the filthy village of Ballyragget, in Kilkenny, the eye of a stranger is surprised to see a wretched hovel pompously denominated on a painted board “the hotel,” the title given to all the principal inns in Ireland.

But notwithstanding this wretched state of the Irish inns, the landlords appear to be thoroughly acquainted with one part of their business, for if their gain be small, they take care to make up the deficiency by heavy contributions on their customers. The charges in these houses are enormous; equal to those made in the first taverns in London; and the perquisites which the waiters, chambermaids, hostlers, boots, &c. expect, greater than those ever given in England. I know of no comfort to be found in an Irish inn but one, that is clean sheets; and to the honour of the country, I found these in every place which I visited.

These miserable inns, execrable chaises, poor horses, and want of stage coaches, evidently shew, that there is little intercourse or communication in the interior of the country. The Irish are, notwithstanding fond of travelling, and many visit Dublin, London, and Bath; but there are few except officers of the militia regiments, who ever see the inland parts, or are acquainted with the nature of their accommodations. I know many country gentlemen residing within thirty miles of Killarney, who have never gone so far as those lakes, or examined the state of the district around them.

It has been observed by many travellers, that hospitality among nations seems to be in the inverse ratio of civilization. Park found this virtue to exist in an eminent degree among the negro tribes in Africa; and it is allowed that it is practised in the most scrupulous manner by the Arabs,* who, notwithstanding their innate propensity to robbing and plundering, protect the traveller while under their roof; nor do they molest him till he has got beyond the distance which their ideas on this subject induce them to consider as sacred. Whether this observation be at all applicable to Ireland, I shall leave others to determine; I am convinced, however, that hospitality prevails more generally in a poor country than in a rich, where the heart is corrupted by the thirst of gain, and the generous feelings are repressed by

* “Ceux qui n'ont vù les Arabes que sur les grands chemins, et qui ne les connoissent que par leurs rapines, auront de la peine sans doute à s'imaginer qu'il y ait de la bonne foi et de l'hospitalité parmi eux: mais ils ne trouveront point si étrange qu'ils fassent des courses sur les passans, s'ils considerent que c'est le seul partage qui est échu à leur origine, et qu'ils se contentent de prendre les biens, et les hardes sans faire aucun outrage aux gens qu'ils dépouillent, à moins qu'ils ne soient blessés par ceux qu'ils attaquent; car alors ils ne pardonnent pas le sang, et tuent tout ce qu'ils peuvent attraper. Mais quand on va chez eux de bonne foi, on y remarque de choses qui peuvent faire honte aux nations de l'Europe, où l'on ne sauroit, pour ainsi dire, vivre qu'à force d'argent.” *Voyage dans la Palestine par de la Roque*, Amst. 1718. p. 120.

habit and example. Whatever faults may be attributable to the Irish, a want of hospitality is not among the number. It is conspicuous in all ranks, from the highest nobleman to the meanest peasant. Strangers are received at gentlemen's houses with a cordiality and ease, which afford the strongest proof of an undisguised and sincere welcome; and respectable persons may travel from one end of Ireland to the other without putting their foot within the threshold of an inn. But if commerce or manufactures were extended, intercourse between the inhabitants would become too frequent to admit of gratuitous reception. The present state of things, therefore, would be changed, and men would find it worth their while to erect convenient and comfortable inns for the accommodation of traders and travellers. A solitary passenger occasionally stopping at an inn, will hardly pay for house-rent. I have journeyed day after day in many parts of Ireland, and scarcely have met with a single person on the road.

England abounds with stage coaches, which cross it in every direction. In Ireland there is not one which does not emanate from the capital; and there are parts of the country of very great extent, over which no stage, the Londonderry mail excepted, has ever yet passed. There is none between Belfast and Sligo. From Sligo, in a direction southward to Tuam, there is only one common pass into the county of Mayo by Killala: there are miles of country across which no post ever goes. The people told me it was impossible to travel in this direction; yet I passed that way, along good roads, without seeing inns or seats, to the great surprise of the country gentlemen of Mayo, who had never heard of any stranger pursuing the route, which was nearly in a direct line from Boyle to Castlebar. Except the mail coach to Galway, there is no public carriage from Boyle to Limerick. To the eastward of Cork, there is no stage the whole way to Wexford but the Waterford mail, and at the former there is only a mail dilly. It is not for the want of population, for it is abundant; nor for want of towns, for they are numerous; but from want of business and trade, that these districts are so badly supplied with accommodations for travelling.

That there should be no carriage between Belfast, Sligo, Castlebar, Galway, or Limerick, appears rather extraordinary; yet if we compare the present state of internal communication with what it was twenty years ago, we shall find that great improvement has taken place. Mail coaches are a very recent establishment; and ten years ago I was dragged by one miserable pair of garrans from Sligo, through Ballyhannon, Donegal, Raphoe, Derry, Newton Limavady, to Coleraine. At present two pairs of horses, at least, are kept at each of these places.

Considering internal communication by stage coaches as a strong proof of national prosperity, I shall here give a list of all those in Ireland.

MAIL AND STAGE COACHES.

ROYAL MAIL COACH OFFICE, 12, DAWSON-STREET.

Cork mail coach, with a double guard, through Naas, Kilcullen, Castledermot, Carlow, Kilkenny, Clonmel, Clogheen, and Fermoy. Sets out a quarter before eight every night.

New Cork day mail coach, by Athy and Cashel, with a double guard; passes through Naas, Kilcullen, Athy, Stradbally, Abbyelex, Durrow, Littleton, Cashel Cahir, Mitchelstown and Fermoy. Sets out at two o'clock in the afternoon.

Cashel and Tipperary day coach, through Naas, Kilcullen, Castledermot, and Carlow. Sets out every morning.

Cashel and Tipperary day coach, through Naas, Kilcullen, Athy, Stradbally, and Abbyelex. Sets out at seven o'clock in the morning, on Monday, Wednesday, and Friday.

Waterford day coach, through Naas, Kilcullen, Castledermot, Carlow, and Royal Oak. Sets out in the morning.

Kilkenny day coach, through Naas, Kilcullen, Castledermot, and Royal Oak. Sets out in the morning.

ROYAL MAIL COACH OFFICE, HIBERNIAN HOTEL, 40, DAWSON-STREET.

Limerick mail coach, with a double guard, through Naas, Kildare, Monastereven, Maryborough, Mountrath, Borris, Roscrea, and Nenah. Sets out every night at a quarter before eight.

Galway mail coach, through Leixlip, Maynooth, Clonard, Kinnegad, Kilbeggan, Moate, Athlone, Ballinasloe, and Loughrea. Sets out at half past eight.

Sligo mail coach, through Leixlip, Maynooth, Clonard, Kinnegad, Mullingar, Rathown, Edgeworthstown, Longford, Roosky-bridge, Drumsna, Carrick-on-Shannon, Boyle, and Colloony.

Mullingar day coach goes the same road; and sets out every morning.

Limerick day coach sets out every morning at seven o'clock. Another mail coach which sets out at the same hour every morning, passes through Bruff, Castle-Oliver, and Fermoy.

The Athlone day coach, through Leixlip, Maynooth, Clonard, Kinnegad, Kilbeggan, and Moate.

ROYAL MAIL COACH OFFICE, HARRY-STREET.

Wexford mail coach, with a double guard, through Naas, Kilcullen, Timolin, Carlow, Goresbridge, Graig, Ross, and Waterford. Sets out a quarter before eight o'clock every night.

ROYAL MAIL COACH OFFICE AND HOTEL, 97, CAPEL-STREET.

Northern mail coach, with a double guard, through Balbriggan, Drogheda, Dunleer, Castle-Bellingham, Dundalk, Newry, Banbridge, Dromore, Hillsborough, Lisburne, Belfast, and Donaghadee. Sets out at a quarter before eight o'clock every night.—Regular packets, established at Donaghadee and Port Patrick, sail from each place immediately after the arrival of the mail.

Enniskillen mail coach, with a double guard, through Dunshaghlin, Navan, Kells, Virginia, Cavan, Newtown-Butler, Leniskea, and Maguire's-Bridge. Sets out a quarter before eight every evening.

Cavan and Coote-Hill day coach sets out at six o'clock in the morning, on Monday, Wednesday, and Friday.

ROYAL MAIL COACH OFFICE, GOSSON'S HOTEL, 8, BOLTON-STREET.

Londonderry mail coach, with a double guard, through Balbriggan, Drogheda, Collon, Ardee, Carrickmacross, Castle-Blaney, Monaghan, Aughnacloy, Omagh, Strabane, and Derry. Sets out at half past seven o'clock every night.

Newry fly coach, through Balbriggan, Drogheda, Dunleer, Castlebellingham, Dundalk, and Newry; thence with the mail, through Market-Hill and Armagh, to Dungannon. Sets out at half past seven o'clock every night.

Newry day coach sets out at seven every morning, Sunday excepted.

Drogheda long coach sets out every morning at eight o'clock.

LEONARD'S HOTEL, 2, BOLTON-STREET.

Newry day coach sets out at seven o'clock in the morning, on Tuesdays, Thursdays, and Saturdays.

MONK'S HOTEL, 1, DORSET-STREET.

Kells and Navan long day coach sets out every morning at nine o'clock.

England, although its population be not much more than double that of Ireland, has conveyances of this kind almost without number. It is said that twenty-nine stage coaches leave Brighton every day, and including short stages, 1400 set out daily from London. Cross mail-coaches pass through it in every direction, and the carriages of every other kind, which are in constant employment, in transporting goods or conveying passengers from one place to another, either for business or pleasure, must astonish a foreigner, unacquainted with the domestic trade and state of society in Britain.

To shew the nature of this branch of business in England, which is so intimately connected with our commerce and manufactures, I have made the following calcu-

lation of the expenses, from tolerably good authorities, of a stage coach called the Highflyer, which runs from London to York.

The number of horses kept for this coach is 166, each of which consumes four bushels of oats per week, making 83 quarters, at 30s. - - - - -	£124 10 0
Also 56lbs. of hay per week, making 166 trusses, or four loads and 22 trusses per week, at £5. per load - - - - -	23 15 0
Straw I value at nothing, calculating that farmers will find it for the dung	
Expense per week - - - - -	<u>£148 5 0</u>

Now, if the above sum be multiplied by 52, we shall have for the annual expense - - - - -	£7,703 0 0
Eight coachmen, whose places are worth £100. per annum each	800 0 0
And five guards, the same - - - - -	500 0 0
Six coaches, four always on the road, and two spare ones at each end of the journey, value £157. 10s. each - £ 945 0 0	
166 horses, valued at £30. each - - - - -	4,910 0 0
	<u>£5,855 0 0</u>

I calculate the wear and tear of carriages, and the loss by horses at 20 per cent. on the above amount. A set of wheels lasts only two months - - - - -	1,184 0 0
Rent of stables for 166 horses, at 10s. horse - - - - -	83 0 0
Farriers for shoeing, and medicine, &c. to ditto, 40s. - - - - -	332 0 0
I allow for horse-keepers, book-keepers, turnpikes, duty, wear and tear of harness, and incidental expenses - - - - -	1,398 0 0
	<u>£12,000 0 0</u>

This is the most moderate computation that can be made, nothing being allowed for the interest of money, or the profit of the several proprietors.

These horses and carriages run from London to York daily, a distance of 400 miles, which being multiplied by 365, gives 146,000 miles, at 1s. 8d. per mile, making 243,333½ shillings, or £12,166. 13s. 4d.

At present, in the south of Ireland, there is no travelling by the mile: travellers make the best bargain they can with the inn-keeper, and retain the chaise and horses for a

stated time, or till they have arrived at the place of destination ; but the charges are beyond all bounds, and the wretched animals creep along the road at so slow a pace, that a person accustomed to English expedition, is completely tired and disgusted.

POST-OFFICE.—The general post-office was established on its present foundation in 1784, when it became totally independent, as already mentioned, of that of England ; and the mails are dispatched every evening at eight o'clock from Dublin.

Though I have stated the principal modes of conveying the mail-bags by the packets, and by mail-coaches, I must remark, that some are carried on horse-back, and others by men, or boys, on foot. The latter perform their journeys with astonishing expedition, and deliver letters and newspapers, from the mails at all those places which are situated in the vicinity of the cross roads.

I have already had occasion to allude to many abuses in this country, and I am sorry that I must still add to the catalogue. No department, indeed, in Ireland, has been worse managed than that of the post-office. The office of postmaster-general has commonly been bestowed on noblemen who never attended to it, and most of the inferior places have been filled by deputies, or rather sub-deputies, so that those whose duty it is to see the business properly executed, are ignorant of the manner in which its duties are performed. Lord Clancarthy, who once held the appointment, set a laudable example of industry and correctness, by examining minutely into every branch of the department, but no sooner had his successor, Lord Ross, taken his place, than the clerks of the roads were suspended for conduct which will be best explained by the annexed document.

GENERAL POST-OFFICE.

Dublin, April 27th, 1810.

"SIR—The circular which accompanies this, will explain the cause of the increase in the price of the newspapers—an increase laid on by the editors, avowedly for the purpose of *underselling the clerks of the roads*. This being the case, I shall take the liberty of stating some few of the advantages which I can take upon me to promise, if you favour me with a continuance of your commands.—First, that your papers shall be forwarded with *the strictest punctuality*—a promise upon which I trust you can justly rely, my attention to this point since my commencement having been such, as to almost preclude complaint. I shall also feel much pleasure in accommodating you, by changing your papers, when, and as often as you wish, an advantage which no editor can offer. To this let me add, that from *the known regulations of the post-office*, the editors cannot possibly furnish their subscribers with the second editions of the evening papers ; and whenever the parliament happens to be dissolved, and as long as

it continues so, the subscribers to the editor must be totally deprived of the papers, *unless he chooses to pay double postage for them.*

“I flatter myself, Sir, that you will not think these solid and striking advantages to be put in competition with a trifling increase in the price of your newspaper—an increase, which, as I stated before, is laid on by the editor.

I have the honour to be, Sir, your most obedient servant,

WM. JOHNSON, Clk. Ulster Road.
General Post-Office, April 18, 1810.”

It is said, that for many years no accounts have been audited between the post-offices in the country, and the head of the establishment at Dublin. These settlements are all now referred to the Board of Public Accounts, and exhibit instances of the most shameful neglect that ever disgraced the conduct of men in public situations. Robberies without number have of late been committed in this office: this flagrant evil, so intolerable in a commercial country, is the subject of universal complaint, and the whole system appears to have been a labyrinth of confusion. Those who are desirous of seeing a true picture of official abuse, need only take a view of the post-office establishment of Ireland. Public officers receiving salaries, and employing at very inferior wages, substitutes or clerks, who from the penury of their situation, are obliged to seek a livelihood by adventitious means, and become venders of newspapers and other periodical publications. The attention of these people must of course be diverted from its proper object, and a natural contest takes place in the mind between self-interest, and the performance of their public duties. If the source be so polluted, what must be the condition of the branching streams which issue from it? On the 3d of November, 1808, I was detained a day at Cork, on account of my letters which had been lying in these offices untouched for a week, and on the 30th, the case was nearly the same at Limerick. After the arrival of the mail it was impossible to get into the office, and no attention was paid to any application, however urgent, till a short time before the dispatch of the mail going out. This I found to be invariably the case throughout Ireland, and the delivery of letters from cross posts, and even by some of the direct ones, is very uncertain; many that were sent to me I never received. What could be the object for detaining them, I am at a loss to conjecture. It cannot be supposed, that any person of character would violate a letter addressed to another; the blame, therefore, must rest with the post-office department somewhere; and as such conduct is inconsistent with that care and punctuality which are expected in so important an establishment, and for which the public pay in so liberal a manner, it calls loudly for investigation.

The utility of a well regulated post, is so great in a country where commercial

transactions are extensive, and where much depends on a punctual and safe transmission of bills, letters, and orders, that it ought to be one of the chief objects of the attention of government. Nay, it is of little importance what addition it makes to the revenue, provided it renders that service to trade, commerce, and manufactures, which is essential to their existence. I shall add, that it would be a great benefit to Ireland, if the communication by mail-coach were extended to every part of the country.

The office of post-master-general is one of so much importance, that it ought never to be filled but by men of the first character for diligence, probity, and talents. With Lord Ross, who at present holds that situation, I am so slightly acquainted, that I can give no opinion how far he is qualified to discharge its duties with benefit to the country; from general report, I must believe him to be a man attentive to what he undertakes, and therefore, I conclude, that he was chosen as peculiarly adapted to be at the head of a department which requires so much care and inspection. But Lord Ross is a representative peer, and it is impossible for the same person to attend to his duty at the post-office, Dublin, and in the house of peers in London. While his lordship was in London, during the last session of parliament, the following advertisement appeared in the Correspondent newspaper of the 24th April, 1810:

GENERAL POST-OFFICE.

“*Caution.*—In the absence of the post master-general, the secretary of the general post-office feels it to be his duty to caution the person who very recently attempted, by the abuse of the privilege conferred by the legislature, to defraud the post-office revenue, by transmitting under the name of a member of parliament, *two* newspapers, one covering a letter, and a quantity of *wafers*, and round the margin of the other a letter, wrote avowedly to evade the postage duties—to be aware of a repetition of such illegality; otherwise his name will not fail to be held up to public exposure.

“Threatened as the revenue of this office is, by the frequency of such practices, which, particularly on general post nights, from the number of newspapers forwarded by post—and the limited time allowed for their examination, viz. from five until seven o'clock—it is not practicable for the officers appointed for that purpose, in every instance to detect; it is full time that a punishment severer than that prescribed by law, which renders each paper liable to the mere charge of postage, should be resorted to, for their prevention.”

The above document requires very little comment. “In the absence of the

post-master-general, the secretary of the post-office feels it to be his duty"—to do what? To threaten the people of Ireland by a public advertisement, with a *punishment severer than that prescribed by law*. Where was Earl O'Neil, the other post master-general? He also is a representative peer, and colonel of the county of Antrim militia. The fact is, no man can properly discharge the duties of two or three offices in distant places at the same time. No individual ought to be post master-general who cannot personally attend to the office, and to that alone. This advertisement may have been drawn up in so ridiculous and unconstitutional a manner, through the officious zeal of a public officer, anxious to display his vigilance and attention to the interest of the revenue, and on that account, the warmth of his expression may be excused. I shall have occasion to enlarge further on this subject in another part of this work; I only speak of it here as it affects the post-office. This instance of care, may well be supposed to have arisen from a desire to prevent the editors of newspapers from forwarding their journals to their customers through any other medium than that which should yield a profit to these post-office dealers.*

The following is the statement of the Revenue of the Post-Office during the last twelve years, with all the charges against it.

Years ending 25th March. Three Quarters to 5th January.		Gross Produce.	Re-payments.	Management.	Paid in to the Exchequer.
1800		84,040	—	59,216	18,218
1801		66,032	8,593	39,703	18,711
1802		102,293	13,607	56,892	28,141
1803		102,518	14,073	51,935	40,676
1804		108,844	13,548	63,923	25,318
1805		118,429	15,752	63,696	42,135
1806		146,692	17,779	75,872	55,988
1807		149,857	19,278	71,662	54,574
1808		158,749	17,447	73,723	71,392
1809		150,510	17,859	81,512	68,900
1810		150,670	16,721	93,343	57,470
1811		195,531	16,692	100,947	84,000

* In the Ninth Report of the Commissioners of Inquiry, the following statement appears, p. 26.

"While we were making up this report, we were informed that *frauds* affecting the post-office revenue to a *considerable* amount, had been committed by the Clerks of the Roads, in claiming the compensation we have before stated to have been granted to them in 1802; and we were surprised to find that (though the nature and extent of these frauds had been investigated by order of the post masters-general pending our inquiries into the state of this department) instead of being communicated to, *they had been studiously concealed from us*, and that it was not even intended, as it would seem, *to have communicated them to government*. A transaction so extraordinary would naturally have excited our inquiries, but they became more necessary when we found that it was proposed to make up an account between the public and the clerks of the roads, on principles manifestly erroneous," &c.

This is an encouraging account, but it must be recollected, that in the course of the above time, the privilege of franking has been greatly abridged, and hence a most delusive statement is exhibited, in order to prove the prosperity of the country from the revenue of the post-office. One public board which used to receive their letters free of postage have lately paid £13,000. in one year,* towards this branch of the public income. If this be the manner in which the revenue appears increased, it is impossible to draw any conclusions, particularly when coupled with the known fact, that post-office accounts had never been settled since its establishment, up to the 24th of May, 1809.†

CARRIAGE OF HEAVY GOODS.—The next head to be considered is the carriage of heavy goods. Corn is transported to most parts of Ireland on cars drawn by one horse,‡ but a machine called a Scots dray, with high wheels and iron arms, drawn in the same manner, has been introduced of late years, and is general throughout the north; the latter can carry about 22 cwt. More linen is conveyed from the north to Dublin, than from any other part of Ireland; and these drays are universally used for this purpose.

It is generally said in Ireland, that the scarcity of tradesmen and mechanics in the country places, renders it necessary for the lower orders to construct and make every article or implement for themselves, and hence they acquire by habit, a readiness of turning their hand to any thing, though their productions, as might be expected, are rude and clumsy; a family spins, weaves, and manufactures its own linen and frieze: those who use candles make them themselves; and all these people at the same time, cultivate a small piece of land, and raise food sufficient for their maintenance. In a word, as in all uncivilized nations, every man may be said to be his own carpenter and mason. A system of this kind exhibits in a striking point of view the situation of a country; as long as it exists, there can be little encouragement to manufactures; the transit of goods must be very small, and this is actually the case in Ireland.§ A few

* See Mr. Parnell's Speech on the 24th of May, 1809. Cobbett's Parliamentary Debates, vol. xii. p. 682.

† See the Speech of the Right Hon. John Foster, then Chancellor of the Exchequer, on the 24th of May, 1809. Cobbett's Parliamentary Debates, vol. xiii. p. 682.

‡ January 28th, 1809. *Timehaly*.—All grain raised in this neighbourhood is sent to Enniscorthy on the old narrow wheeled cars, which prove a great destruction to roads. Mr. Dawson is anxious to have a canal from the Slaney to the Barrow, which would afford a conveyance from Wexford to Wicklow.

§ A similar state of things prevails in Norway. Professor Fabricius says, "Those who exercise the Mechanical arts are but indifferent workmen; they also require, it is said, a high price for their labour, and I have myself seen that people not only send for chairs and other furniture, but even for shoes, to Dantzic, Lubec, and various foreign places. To this may be added, that the peasants purchase very few of those articles which are made in the towns; partly because they lie at a distance, and because ready money being scarce among them, they are induced to make every thing themselves; a peasant therefore is not only farmer and fisherman, but exercises at the same time every other trade. They do not indeed, make much progress in any of the arts. They, however, are able to supply their own wants, and by these means lessen the consumption of articles manufactured in the towns." *J. C. Fabricius Reise nach Norwegen Hamburg, 1779. Introduct, p. 51.*

years ago, some one had the folly to introduce an English broad-wheeled waggon, but it met with the fate it deserved; for a more barbarous vehicle than the broad-wheeled waggon dragged along by six, and sometimes eight heavy horses, which traverses all parts of England, never disgraced a polished country. Two thirds of the number of Irish garrans yoked to a Scotch dray, will move a much more ponderous load; the former animals, notwithstanding their immense size, can draw only six tons; six Scotch drays, each drawn by a single horse, and carrying only 20 cwt. perform as much work. The comparison thus far relates only to the force employed, but if we take into account the cutting and wearing the roads, which occasion a most enormous expense, the result must be still more in favour of the Scotch drays.

Around Kilrush, in the county of Clare, the roads are excellent; every thing there is carried on horses, which are first used for that purpose when two years old, and by being continually employed in this manner, their backs in the course of time become quite hollow. In that district, conversing with several of the peasants who were conducting these animals, I found that each carried twenty-two stone. Soon after being at Collon, I stopped many Scotch drays drawn by one horse, which were conveying corn to Drogheda market, and on asking how much a horse drew, was told 22 cwt. In the one case, therefore, the animal draws as many cwt. as he carries stones in the former. But at the distance of only nine miles from the last mentioned place, is the seat of the Right Hon. John Foster, and almost the whole country around, the other belongs to a Right Hon. — Vandeleur.

In Fermanagh, Kerry, and some of the mountainous parts of Ireland, a slide-car, as it is called, is used, but in direct violation of an act of parliament, which requires all persons who carry loads on carriages, to furnish them with wheels.

BRIDGES.—The wooden bridges over the Foyle to Londonderry, the Suir at Waterford,* the united waters of the Nore and Barrow at New Ross, the Slaney at Ferry-Carrick, and the Bay of Wexford, excite a grateful remembrance of their builder, an American, named Emanuel Coxé. To shew the construction of these bridges, I shall subjoin Mr. Tighe's account of that of Waterford. "The present bridge, the only one upon the Suir which passes into this county, was constructed previously to that of Ross, and, like it, is of American oak. This bridge has suffered no derangement since it was erected, and has produced twelve per cent to the subscribers. It is 832 feet long, 42 broad; has two sets of piers, each of seven pieces besides cut-waters. The longest pile driven was seventy feet; the depth at low water is thirty-seven feet, and seventeen feet the rise of the highest tides. The purchase of the ferry, and expense of the bridge, including a thousand guineas to the architect, was £30,000. which was subscribed in one day. Of this, the ferry cost £13,000. the tolls produced, in 1800, above £2,800. The foot passage is nine feet wide, and railed.

* The tolls of this bridge let for £3,400. per annum.

Each of these bridges has a draw-bridge for the passage of vessels; the toll here for a chaise is 1*s.*; for a horse 1½*d.* and unladen 1*d.*; a car 2½*d.*; cattle 3*s.* 4*d.* per score, or 2*d.* each; calves, each 1*d.*; fowls 2*d.* per dozen; foot-passengers ½*d.*; a dead pig 1*d.* and a live one, ½*d.*”*

CHAPTER XIII.

MANUFACTURES AND NATIONAL INDUSTRY.

THE establishment of manufactures, in a country which possesses an abundant population, is attended with two advantages; it not only proves a source of general comfort and opulence, but promotes industry, by furnishing the means of employment to a number of persons who might otherwise remain without occupation. Hence we find, that among ancient nations, those which afforded the greatest encouragement to manufactures, were most conspicuous by their riches and the activity which prevailed among every class of their citizens. In this respect, the Egyptians, no less celebrated by the events which give so much interest to their history, than by their knowledge of the arts and the sciences, are pre-eminently distinguished. They carried on many manufactures, as we learn from Pliny, as well as other ancient authors; and a complete account of them, were it possible to be obtained, would afford much gratification to those fond of tracing out the causes and progress of national improvement. With the art of manufacturing flax, they were well acquainted: that plant, indeed, formed one of the most valuable productions of their country, and enabled them to maintain a very extensive trade with various articles, in the preparation of which it was used. It was wove into cloth of different kinds, both fine and coarse; the former of which was employed for dresses, and the latter for ships' sails; nets were made of it for catching wild boars and other animals; and it was even used for making breast-plates, which are supposed to have been somewhat similar, in their construction, to the stays so much worn by our females before they exchanged their old, awkward, and confined mode of dress, for the more convenient fashion taught them by the ladies of Greece. The Egyptians were also skilled in the art of cutting and polishing marble, of which they had various sorts; they formed vases of alabaster, which were highly valued; and they practised glass-making and pottery, the latter of which they seem to have carried to a considerable degree of perfection. In a word, all those arts which are useful in civilized life, or contribute to the gratification of luxury, were cultivated among these people; and different towns, as is the case in modern times, were celebrated for some particular manufacture. Thus Panopolus was distinguished for its

* Tighe's Kilkenny, p. 563.

linen; Mondes for its perfumes, large quantities of which were sent to Greece, Italy, and other countries; Diospolis for its glass articles; and Naucrates for its vessels of earthen-ware, some of which were varnished in such a manner, that they bore a resemblance to silver. Vessels were also made at Coptos, which diffused an agreeable odour, and on that account, were sold exceedingly dear.*

The emperor Adrian, speaking of Alexandria, says, in that city no one lives in idleness. Some make glass, others prepare paper, and some are employed in the manufacturing of linen. In a word, all the inhabitants are so industrious, that there is not a single individual who is not fit to make a figure in any art to which he might apply his talents. The gouty, the blind, and even those who have lost the use of their hands, find the means of employing themselves.†

This character of industry, peculiar to the Egyptians, was, in part, owing to their constitution, and the severe laws established by their first legislators against idleness. An idle person in Egypt was treated as a criminal. Amasis, one of the 'greatest princes who reigned in that country, enacted a law which obliged all the inhabitants to appear, once in every year, before the governor of the province where they resided, and give an account of their profession, and the means by which they were supported. Whoever failed to comply with this requisition, or who was not able to prove that he led an honest and laborious life, was condemned to suffer the punishment of death.‡

Herodotus remarks, that Solon borrowed this law from the Egyptians, and introduced it at Athens, where it was most rigorously enforced. In general, all the states of Greece adopted the same maxims in regard to idleness; they considered beggars as morbid limbs, which it was necessary to separate as soon as possible from the body politic, lest they should spread corruption and disorder throughout the whole state. Plato banished such persons from his republic;§ and the Romans seem to have entertained a similar aversion to idleness, for one of the chief functions of their censors was to restrain vagabonds from roving about, and to cause every citizen to give an account of the manner in which he employed his time. Those who did not comply, were condemned to the mines, or obliged to labour at some of the public works.||

But the ancients, not satisfied with making laws and regulations against vagabonds and mendicants, carried their measures of police still farther. They took care, by procuring for them the means of employment, and rendering labour necessary, that

* Histoire Du Commerce des Egyptiens par Ameillon, p. 258, 259.

† Epist. Adriani ad Servian. Cos. apud Vopisci Saturninum.

‡ Herod. lib. ii. cap. 177.

§ Plato de Repub. lib. viii. edit. Serrani, p. 552. See also Plato de Legibus, lib. xi. edit. Serr. p. 916.

|| Hist. Critique de la Pauvreté, par M. Morin, Mem. de l'Acad. des Belles Lettres, tom. iv. p. 301.

no pretext should be left for idleness. Thus, in Egypt, governors were charged to set on foot, each in his district, some public works, on which all persons who had no occupation were obliged to labour.* Those celebrated pyramids which remain to excite our admiration, though the names of their founders are forgotten; those canals by which Egypt was intersected, and of which traces are still to be seen; and those catacombs or wonderful subterranean structures, which served as repositories for the dead, even including animals, were, in part, as is generally supposed, the result of the exertions of workmen collected in this manner.

This method of causing vagabonds, mendicants, and idlers, to labour on public works, and in manufactories carried on and directed by government, is still successfully pursued in some countries of Europe. It is employed by the Chinese, among whom no beggars are to be seen. Every person in China is occupied on some work or other, not even excepting the blind;† and it is well known, that in that country, manufactures of various kinds have been long established, and carried on to a very great extent. We may boast of our superiority to the ancients in the arts and the sciences, and, in some, we far excel them; but we are indebted to them for many useful inventions, though we are ungrateful enough not always to be willing to confess our obligations.

But if manufactures and their accompanying arts have the advantage of giving employment to a numerous population, they contribute also to enrich a country, by rendering labour as highly productive as possible. The author of the *Spirit of Laws* says, speaking of industry, "An estate produces annually to its owner, only the twentieth part of its value; but, with colours worth a pistole, a painter can finish a picture which will bring him fifty. The case is the same in regard to goldsmiths, manufacturers of woollen and of silk, and to artisans of every other description."‡ This principle is exemplified in a most striking manner in some branches of the hardware manufacture carried on at Birmingham, and in other parts of England, where a piece of metal, worth only a few pence, is, by the labour and ingenuity of the workman, converted into an article which, when finished, is worth as many guineas.

LINEN MANUFACTURE.

The foundation of the linen manufacture in Ireland was laid by the unfortunate Earl of Strafford, during the time he resided in that country as chief governor.§

* Hist. Critique de la Pauvreté par M. Morin, Mem. de l'Acad. des Belles Lettres, tom. iv. p. 299.

† Hist. du Commerce des Egyptiens, p. 296—300.

‡ Montesquieu, Lettres Persanes dans Oeuvres, tom. v. p. 325.

§ The following is an extract from his Lordship's letter on this subject, giving an account of the report he had made to the king and council. The latter is dated July 25th, 1636.

"That there was little or no manufactures among them, but some small beginnings towards a clothing trade, which

Having observed that the soil, in many parts, was suited to the production of flax, that the women were chiefly bred to spinning, and that the price of labour was cheap, he conceived that linen might be made there at such an expense as would enable the manufacturers to undersell, twenty per cent at least, those of Holland and France. Impressed with this idea, he sent to Holland for flax-seed, and to the Netherlands and France for competent workmen. The flax was sown, and succeeded according to expectation; spinners and looms were set to work; and his lordship, to animate others, embarked himself in the business, and expended in promoting it, £30,000. of his private fortune.*

By the troubles, however, which soon after broke out, an entire stop was put to this useful enterprise, until it was again revived by the Duke of Ormonde, who procured several acts of parliament to encourage it, and also for inviting protestant strangers to settle in the kingdom. He dispatched skilful persons to the Netherlands, to make themselves acquainted with the method of cultivating flax in that country; the manner of preparing and weaving it, as well as the process employed in bleaching the cloth, and likewise to engage workmen experienced in the different branches of the art, to settle in Ireland. At the same time he wrote to Sir William Temple, whom he had recommended to the king, as a man fit for the purpose, and who was then ambassador at Brussels, to send him over from Brabant 500 families, who had been employed in this manufacture: he procured others from Rochelle, and the Isle of Rhé; and Sir George Carteret supplied him with a considerable number from Jersey, and the adjacent parts of France. He built tenements for some of these people at Chapel Izod, near Dublin, where in a little time, 300 hands were at work, under the direction of Colonel Lawrence. Cordage, sail-cloth, ticking, and linen, made of Irish yarn, equal in quality

which I had, and so should still, discourage all I could, unless otherwise directed by his Majesty and their lordships; in regard it would trench not only on the clothings of England, being our staple commodity, so as if they should manufacture their own wool, which grew to very great quantities, we should not only lose the profit we made now by in-dressing their wools, but his Majesty loses extremely by his customs, and, in conclusion, it might be feared they might beat us out of the trade itself, by underselling, in which they were able to do. Yet I have endeavoured another way to set them on work, and that is, by bringing in the making of linen cloth; the rather in regard to the women who are naturally bred to spinning; that the Irish earth is apt for the bearing of flax, and that this manufacture would be, in conclusion, rather a benefit than other to this kingdom. I have, therefore, sent for the flax seed into Holland, being of a better sort than we have, and have sown this year, a thousand pounds of it, (finding, by some I sowed the last year, that it takes very well here). I have sent for workmen out of the Low Countries, and south of France, and set up already six or seven looms, which, if it pleases God so to bless us this year, I trust so to invite them to follow it, when they see the great profit arising thereby, as that they shall generally take and employ themselves that way, which, if they do, I am confident it will prove a mighty business."

* Carte's Life of the Duke of Ormonde, vol. ii. p. 85.

to any in Europe, and which could be sold at a less price than that of any other country.

His Grace erected another manufactory at his own town of Carrick, assigning to the workmen one half of the houses in the place, with 500 acres of land contiguous to the walls, for three lives, or thirty-one years, at a pepper corn for the first, and afterwards at two-thirds of the old rent. All plans of improvement among a people just beginning to emerge from barbarity, meet with formidable enemies from prejudice and inveterate habits. It was not therefore to be expected, that this new branch of industry could be introduced among the Irish without considerable labour and exertion. The indolence of the inhabitants, and their ignorance of the art, were the greatest obstacles to the progress of the infant manufacture; but the Duke's perseverance surmounted every difficulty; by his example and encouragement, a spirit of enterprise, to which the country had before been a stranger, was at length excited, and he had the satisfaction, before he quitted the government in the year 1669, of seeing the linen business fully established, and in a promising condition.*

The importance of this branch of industry, soon attracted the attention of parliament, and considerable sums of money were from time to time voted for its support. That the business might be better superintended, a board of trustees, who first met in 1711, was established,† and in order that no encouragement might be wanting, bounties on the exportation of Irish linen were offered, and in 1743 they were distributed.‡

Under the direction of the above-mentioned board, the cambric manufactory was also introduced in 1737, by a Mr. De Joncourt, who brought over workmen for that purpose from France. It was first established at Dundalk, on the estate of Lord Viscount Limerick, afterwards Earl of Clanbrassil, and being supported by a voluntary contribution of £30,000. was, in the year 1770, in a very thriving condition.§ The author of a pamphlet on the Absentees of Ireland, published at Dublin in 1767, says, that at that period, there were upwards of one thousand five hundred looms employed in weaving cambric in the northern part of the country.||

The preparation of the flax plant, and the various operations it undergoes before it is made into cloth, gives employment to so many people in Ireland, and brings into the national coffers so large an annual income, that the linen which is formed from it has, with great propriety, been called the staple manufacture of the country. To give the reader a clearer idea of its extent and importance, I shall subjoin the follow-

* Carte's Life of the Duke of Ormonde, vol. ii. p. 342.

† Crump's Essay on the best Means of providing Employment for the Poor, p. 75.

‡ Lord Sheffield's Observations on the Manufactures of Ireland, p. 75.

§ Boucher's Letters, vol. II. p. 166.

|| List of the Absentees of Ireland, with Observations on the Trade, Manufactures, &c. p. 57.

LINEN MANUFACTURE.

683

ing table, which shews the number of acres sown with flax in the year 1810. It is copied from a return made to the trustees of the linen board; but it appears by a note of the secretary, that it includes pieces of land less than an acre, and as the quantity of small patches employed in raising flax in Ireland must be immense, I am of opinion, that they may be fairly estimated at least at 20,000 acres. If this number be added to the result given by the table, the sum total will be about 100,000 acres, which allowing the average produce to be 30 stone per acre, at 10s. 6d. per stone, the average price in the last seven years will give an annual produce of the raw material worth £1,500,000.

COUNTIES.	Total Number of Acres supposed to be sown with Flax in the Year 1809.	Total Number of Bushels of Flax-Seed supposed to have been saved out of the Crops, without distinction whether the whole of the Bounty will be claimed thereon or not.	Estimated Portion of the Total Number of Bushels contained in the preceding Column, on which Bounty is likely to be claimed.	Rate	Amount.	
				of Bounty, per Bushel.		
	Acres.	Bushels.	Bushels.	5s.	£. s. d.	
Ulster.	Antrim	11,000	3,100	2,900	5s.	725 0 0
	Armagh	15,000	6,000	6,000	5s.	1,500 0 0
	Londonderry	5,000	3,200	3,000	5s.	750 0 0
	Tyrone	10,241	8,460	7,000	5s.	1,750 0 0
	Donegal	6,000	7,200	5,600	5s.	1,400 0 0
	Fermanagh	5,000	5,000	4,400	5s.	1,100 0 0
	Monaghan	3,200	4,000	3,600	5s.	900 0 0
	Cavan	4,300	6,500	700	5s.	175 0 0
	Down	2,700	3,200	3,000	5s.	750 0 0
	Meath	112	842	840	5s.	210 0 0
Leinster.	Louth	1,253	11,590	10,431	5s.	2,607 0 0
	King's County	252	2,000	1,000	5s.	250 0 0
	Longford	1,325	250	240	5s.	60 0 0
	Kildare and Wicklow	36	100	50	5s.	20 0 0
	Queen's County	18	114	48	5s.	12 0 0
	Kilkenny	50	350	50	5s.	12 10 0
	Westmeath	950	3,000	800	5s.	200 0 0
	Carlow and Wexford	111	500	250	5s.	70 0 0
	Dublin	-	-	-	-	-
	Cork	1,462	4,481	1,794	5s.	448 10 0
Munster.	Clare	58	340	340	5s.	85 0 0
	Limerick	1,500	1,100	400	5s.	100 0 0
	Kerry	554	1,572	1,572	5s.	393 0 0
	Tipperary	117	1,600	822	5s.	205 0 0
	Waterford	25	63	19	5s.	4 15 0
	Sligo	654	1,800	600	5s.	150 0 0
	Mayo	1,333	5,308	4,500	5s.	1,202 0 0
	Galway	1,196	9,568	8,372	5s.	2,093 0 0
	Leitrim	1,565	1,300	1,000	5s.	250 0 0
	Roscommon	1,707	1,707	1,707	5s.	426 15 0
Total	76,749	94,145	71,405		17,851 5 0	

Sir Charles Coote, in his Survey of Monaghan, has given a detailed account of the culture and preparation of flax in the north; but as the account is too long to be inserted here, I must refer those who may be desirous of further information, to that work.

A very intelligent manufacturer* who was applied to for information on this subject, in a memorandum transmitted to one of my friends, says, "The spinning of linen yarn by machinery was not practised in Ireland till within these few years; this improvement was introduced into the county of Down by Mr. Cruikshank, who first made the experiment on a very contracted scale. He afterwards tried it at Cork, and at present, (May, 1811), there are several manufactories on this principle in the northern part of the country, though not so many as might have been expected.

"The leading cause against the extension of machinery, is the low price of labour; yarn spun by women is sold here much cheaper than the same article manufactured by machinery in England. In the latter country, the labouring classes have a choice of employments, in consequence of the variety of its manufactures. If one fail them, they can apply to another; with us the case is different; when trade is bad, its worst effects are felt by the poor women, who must sell at the prices of the day, or remain unemployed; and it frequently happens, that they dispose of the worked article for less than the raw materials cost them.

"To one unacquainted with Ireland, the small earnings of the poorer females, frequently not more than two-pence per day, working diligently from morning till night, for months together, must appear very extraordinary, and under such circumstances, it is unlikely that this trade should increase so much as it might, though spurred on in the beginning by offers of large premiums from the linen board.

"With the aid of machinery, one person is fully equal to do the work of ten, and in this the advantage in its favour appears to be great; yet when it is considered, that women are fully competent to bring any description of yarn which we spin, to double the fineness that machinery can, this advantage is much lessened.

"Another thing against us is, that we cannot with any material, let its quality be what it may, exceed the fineness of three hanks, or thirty-six leas in the pound; whereas women, when the flax is good, can run it from twelve to twenty hanks, or from 144 to 240 leas in the pound.

"Our yarn, from the better quality of the raw material is superior; it sells, therefore, considerably higher, and is commonly used as warp for yarn spun by the hand.

"On balancing the account, we believe the advantages are in favour of mill-spinning; and we are of opinion, that this improvement will one time or other become a source of prosperity to the country.

"The wages in the factories may on an average be eight-pence per day, and spinners could not be procured for much less; in their own houses they are satisfied with four-pence or five-pence.

* Mr. Joseph Nicholson, of the county of Armagh.

“ To sum up the whole, the quantity of yarn spun by machinery, the greater price given for it, and the better means of obtaining a market, are in favour of that mode with respect to coarse yarn. On the other hand, the low price of labour, the superior fineness of the wrought material, and the expense of machinery, with its wear and tear, are very great drawbacks; yet it may be estimated, that the balance is in favour of the former, to the amount, it is supposed, of one halfpenny per hank, or twelve leas.

“ The usual earning of weavers in this country is from six shillings to eight shillings per week.”*

* Being desirous of obtaining every possible information in regard to the linen manufactory, and the prices of labour in Monaghan and Antrim, I drew up the following set of queries, to which I received the subjoined answers from the Rev. William Gooch.

QUERIES IN REGARD TO ANTRIM.

- Q. 1st. What work is performed, and how much money is earned by a female spinner in a week?
 A. A female will spin five hanks, the price for which is 2s. 8½d.
 Q. 2d. How much work is done, and how much money earned in the same time by a weaver?
 A. Will weave nine yards, and, for a sixteen hundred web, receives 6s. 4d.
 Q. 3d. What number of spinners will a loom employ?
 A. Four.
 Q. 4th. What is the difference of the earnings of those employed in the manufacture of coarse and of fine linens?
 A. Very little.
 Q. 5th. What quantity of food is consumed by a manufacturing family?—This query can be easily answered by ascertaining the number of the family, and the average weight of potatoes consumed per day.
 A. If there be six in a family, the consumption will be,

	<i>s.</i>	<i>d.</i>
Potatoes, 3½ bushels, at 1s.	3	6
Herrings, 2 per day, at 1d.	1	2
Butter-milk, 9 quarts, at 1d.	0	3
Salt, 1lb.	0	1
	5	0

5 0 per week.

- Q. 6th. The same query in regard to a family, the head of which works at agricultural labour.
 A. The expense will be 7s. 6d. as he will occasionally use meal, milk, and pork.
 Q. 7th. How many cows are kept to families in your neighbourhood? Will they average one cow to four families? If not, what is the proportion?
 A. There is one to a family, excluding towns.

ANSWERS TO THE SAME QUERIES IN MONAGHAN.

A. To Q. 1st. The average of spinners, in this district, will spin about five dozen per week of yarn from a pound of flax; women who engage to do this, get for it their board, and from £3. to £3. 10s. wages per annum; or if they spin at their own houses, they are allowed about six-pence per dozen, that is, they will earn about three shillings a week. Hence, it is cheaper to give out flax to be spun, than to hire servants to perform that work, unless a woman can be boarded for less than three shillings per week.

A. To

Spinning by the hand, in a country like Ireland, where the sedentary occupations of the female must be so often interrupted, not only by domestic, but agricultural labours, is attended with one very striking advantage, namely, that it can be suspended and resumed without any inconvenience, and thus small intervals of time are filled up that would otherwise be lost. A very sagacious writer, says, "There can be no doubt, but all kinds of employment that can be followed without prejudice from interruption; work that can be taken up and laid down often in a day without damage, such as spinning, knitting, weaving, &c. are highly advantageous to a community, because in them may be collected all the produce of those fragments of time that occur in family business, between the constant and necessary parts of it that usually occupy females; as the time between rising and preparing for breakfast, between breakfast and preparing for dinner, &c. The amount of all these fragments is, in the course of a year, very considerable to a single family; to a state proportionably highly profitable; therefore it is, in this case also to follow, that divine direction *gather up the fragments that nothing may be lost*. Lost time is lost subsistence; it is therefore lost treasure.

"Hereby, in several families many yards of linen have been produced from the employment of those fragments only, in one year, though such families were just the same in number as when so employed."*

To this it may be added, that the women in Ireland seem to have a peculiar talent for this kind of work. At least, such is the opinion of a very celebrated writer, who observes, that "of all women the Irish are the aptest, and best calculated to spin linen thread well, who labouring little in any kind with their hands, have their fingers more supple and soft than others of as poor condition among us."†

Yarn spun by the hand is carried to different degrees of fineness, in different parts of the country, according to the nature of the manufactories which have been established there, and the quality of the flax they produce: but in this respect, female labour has certainly the advantage over machinery, as the yarn produced by the former may attain to a degree of fineness which cannot be given to it by the latter. Some instances of the ingenuity of the Irish women in spinning are extraordinary; and the following account, extracted from the Belfast maga-

A. To Q. 2d. It requires about three weeks to weave a web (25 yards), and the pay for it is on an average £1.; hence the weaver earns 6s. 8d. per week; weavers who do this are called good and industrious workmen.

A. To Q. 3d. Three, at about the rate of spinning stated in the answer to question 1st.

A. To Q. 4th. Most is earned by manufacturing that kind of cloth for which there is the greatest demand in the market at the time.

For answers to the 5th, 6th, and 7th queries, see those given in regard to Antrim.

* Franklin's Polit. Fragments in his Works.

† Temple's Miscellanies, edit. 1681, p. 13.

zine, of the performances of Anne M'Quillin, of Comber, in the barony of Castle-reagh, county of Down, which seems, in some measure, to confirm the idea of Sir William Temple, deserves to be recorded.* "Perhaps it may not be amiss to mention, that Anne cannot spin her superfine yarn except in mild weather. Frost, high winds, and excessive drought, are equally unfavourable: she then spins what she calls coarse yarn, that is, from 24 to 30 or 36 hanks in the pound. A few years ago, she could spin a hank of 64 in the pound in four days. Of the finer staple she can now spin a hank in the week, when the weather is favourable; but the superfine, that is about 100 hanks in the pound, requires nearly twice the time. As what I have written may reach the eyes of some, incapable of estimating the fineness of Anne's yarn, from their ignorance of its count and measure, I shall add, that each cut contains 120 threads, and each thread measures $2\frac{1}{2}$ yards. Hence it is evident, that the thread of her yarn, of different hanks from the pound of flax, is in length,

		<i>Miles.</i>	<i>F.</i>	<i>P.</i>	<i>Yds.</i>	
64 hanks,	}	102 . . . 6 . . . 34 . . . 2				Irish measure.
		130 . . . 7 . . . 7 . . . 1				English ditto.
85 hanks,	}	136 . . . 4 . . . 34 . . . 2				Irish.
		173 . . . 6 . . . 36 . . . 2				English.
and						
105 ditto per lb.	}	168 . . . 6 . . . 0 . . . 0				Irish.
no less than		214 . . . 6 . . . 7 . . . 0				English.†

"To the female nobility and gentry of Ireland, Lady Dufferin has set a noble and praiseworthy example: she has repeatedly purchased yarn, had it manufactured into thread by Anne M'Quillin herself, and wrought into lace in the neighbourhood of

* For March 1809.

† Let the reader compare this with the following account of German spinning: "The peasants in the neighbourhood of Bielfeld, Gutterlöhe, and Rittberg, in Westphalia, who wear wooden shoes, spin, with their clumsy fingers which hold the plough, yarn of such a fineness, that a pound of flax produces a thread twenty-three miles in length, each mile of 20,000 feet, (about 88 English miles,) and that sixteen cuts of yarn, or 19,200 threads, each six feet in length, can, when pressed together, be drawn through a common fingering." *Archiv for Statistik Politik og Hausholdnings Videnskaber*, 4 hefte, p. 333.

However strange it may appear to a man of the lower class in Ireland, it is a well-known fact, that the male part of the peasantry, in some districts of Germany, employ their leisure time in spinning. Sussmilch says: "I always reflect with pleasure on the laborious Silesians, and the inhabitants of the neighbouring provinces. These people are temperate in their living, and industrious: in winter they do not sleep away their time, but all spin, men as well as women, without any distinction of sex; none of them are ashamed of this occupation. The peasants in the Mark are of a different way of thinking, and much less industrious: the men would consider spinning as a disgrace, and spend the dark evening and morning hours either in bed or hanging over a warm stove." *Die Göttliche Ordnung in den Veränderungen des Menschlichen Geschlechts*, Berlin, 1775, vol. ii. p. 37.

London. I have in my possession at this moment, a specimen of the thread, manufactured from yarn, of about 70 hanks in the pound; and the lace worked for her ladyship from it, is far superior to any thing of the kind which was ever seen in this country. Would the other ladies of the land follow her steps in the management of our Irish spinstresses, they would call forth Irish ingenuity, render Irish industry active and comfortable, and, by the splendour of their virtues, add real dignity to their titles. *Nobilitas sola est atque unica Virtus.* W. STEEL DICKSON."

There are many parts of Ireland where the manufacture extends no farther than to spinning, markets being held in these places for yarn only. The quality of the linen depends upon the fineness of the yarn, and on that account the finest is manufactured in those parts where the finest yarn is spun. In many instances, the flax is raised, spun into yarn, and woven into cloth, by the same person and his family. Taking Ireland, however, in general, the cultivators of flax are much more numerous than the spinners, as is shewn by the exportation of unspun yarn; and the spinners out-number the weavers, as appears by the same list, in the exportation of linen yarn. Linen is woven of different widths, from ten-inch bandle linen made in Kerry, to 5-4 sheetings manufactured in the neighbourhood of Coote-hill, and of different qualities, from coarse thin 3-4 wides in Antrim, which sell for sixpence per yard, to cambrics worth one guinea.

The earnings of the weavers depend upon their ability to manufacture the finest fabrics.* From the accounts I was able to collect, the average earnings of a

* July 4th, 1808.—Lurgan. The price of weaving has not risen for twenty years. Women can earn, by spinning, from 4d. to 6d. per day. Men, by weaving make from 11d. to 13d. Day labour is 16d.

July 6th.—Lisburn. As an encouragement to the linen trade, a law has been made, that, notwithstanding any settlements to the contrary, a lease in perpetuity may be granted of as far as twelve acres and a half, where the place is fit for the erection of a bleach-mill, by the Geo. III. ch. 34. sec. 41.

Sept. 8th.—Donegal. Much of the yarn is spun in the counties of Derry, Antrim, and Tyrone. In the monthly yarn market of Donegal, yarn is sold to the amount of £1,500. In the market of Ardra, yarn is sold every month to the value of £2,000.

Nov. 7th.—Cork, Douglass. Mr. Besnard has a rope-walk 232 feet long. Five men spin ten ton of rope per annum.

Aug. 21st, 1809.—Armagh. The price for weaving a web is 6s. 6d. A good weaver can finish a web in a week. Many of the houses have three looms. The cloth generally made here is six hundreds, 35 inches wide, and from 50 to 52 yards in length. Looms cost from four to five guineas each. One third of a pound of tallow is required to dress a web. Sealing costs 2d. a web, and carriage the same. A hired servant will spin five hanks in a day. Near this place the women spin very little. Flax is spun in Tyrone and Derry, but only a small part of the yarn is wove in these counties: the yarn is sold, and it is wove in Armagh, Down, and Antrim. Children are hired to attend a loom, at from 13s. to 17s. the half-year, with diet, washing, and lodging. They bring a weaver eight guineas per annum. The average earnings of a weaver may be £15. per annum. Weavers estimate that, when working themselves, they gain 10s. per web, and if they worked every day, could weave a web in a week. Jenny yarn makes the best linen, but hand-spinning produces the finest yarn. Coarse cloth is made of the tow. Hucklers divide three stone of flax into tow and lint for spinning

linen-weaver may be estimated at 7*s.* per week ; but it is very difficult to ascertain it exactly, their manufacturing and commercial habits being so much intermixed. A weaver, for instance, buys unspun yarn by the cwt. and his family spin it ; or, he buys so many hanks of spun yarn, and weaves it into cloth. His earnings, in this case, must depend upon the rate at which he purchases the raw material, and that in which he sells it in a manufactured state ; and the latter, for some years past, has been very fluctuating.

It may, perhaps, be thought, that the notes I have collected on this head furnish very little information. I have ascertained the quantity which a good workman can weave in a week ; but, as his earnings depend on the rise or fall of the markets, no decisive result could be obtained, except in the case where a weaver has a capital sufficient to employ looms himself ; and in many instances, even in that case, particularly if the looms be in his own house, it would be attended with considerable difficulty. In such calculations, the journeyman, who is a yearly servant at about eight guineas per annum wages, with board and lodging, must be taken into consideration ; but board, in this country, is not very expensive, and nothing can exhibit in a more striking point of view the miserable manner in which the working hands live, than an examination of the value of the work done by a manufacturing labourer in Armagh, where linens are made of 7-8 width, and of a fineness known by the name of an eight hundred.

Six British shillings are paid for weaving a web 52 yards long, and a man must sit very closely at work to complete this quantity in a week.

Fifty-two weeks, therefore, at 6 <i>s.</i> 6 <i>d.</i> is	£. s. d. 14 6 0
From which deduct a year's wages	10 2 1

And there remains, as his maintenance for a year . £. 4 3 11

From the rate of wages given to females, who spin by the day, or who are yearly servants, it appears that £2. 10*s.* per annum is allowed for the maintenance of each.

This account of spinning is confirmed by the statement of Mr. Dubourdieu, who says, that " a weaver of fine linen will earn, if he be a good hand, from 1*s.* 4*d.* to 1*s.* 6*d.* per day ; and of coarse, from 1*s.* to 1*s.* 3*d.*."* I am not of opinion that the weavers in Kerry and Connaught, or those on any part of the southern coast, can earn nearly so much ; but, on the other hand, the weavers of cambric, lawn, and fine linen, can earn considerably more.†

ning yarn of from four to six hanks ; they divide it into eight pounds of lint and eight pounds of tow : this tow spins into, from one hank in the pound, to twenty hundred. Children of eight years old wind for one loom. Fly shuttles are best for jenny yarn.

* Survey of Down, p. 33.

† July 4th, 1809.—King's County, Durragh. A good deal of dowls and linen is manufactured at this place. It does not appear that the weavers possess superior comforts or wealth, yet a small farmer, who had two

It may be difficult to assign a reason why the manufacturing of linens of certain widths is confined to particular districts. Narrow linens, not exceeding, when bleached, 32 inches, are made in Donegal, Londonderry, Tyrone, and Antrim, and in the latter, all the 3-4 wide linens are manufactured. In the neighbourhood of Belfast, Lisburn, and Lurgan, the fine yard-wide, or cambrics, lawns, and diapers are made; and in Armagh coarser yard-wide cloths, and some 7-8. Near Coote Hill the 5-4 sheetings are wove. Cavan produces a thin linen, for the most part 7-8 wide. Fermanagh and Sligo manufacture 7-8; and in these counties are found most of the bleach-greens, which finish for sale those linens that are sent in a bleached state to England. A strong kind of 7-8 dowlas, some 9-8 and 5-4 sheetings, made in the counties of Louth, Meath, and Dublin, are sold in the market of Drogheda,* and find their way, in an unfinished state, into the country markets of England. A coarse cloth, very much like Scots Osnaburgs, is manufactured in Kerry and Cork, and is used, in the same manner as the Osnaburgs, for negro clothing.

Some of the bundle linen is also exported, but the quantity is small. In the neighbourhood of Dingle, a strong fabrick is made under the name of *box and trap*.† Mr. Goulson, a very ingenious tradesman, carries on a damask manufactory at Lisburn; but I consider this to be a branch distinct from the general linen manufacture

looms at work, assured me that he made by them £60. per annum. I question the accuracy of this account; but it is to be observed, that this man did not calculate what the labour of his two grown up sons on the farm would have amounted to, or that of the two children attending on the looms, or of the family going to market. A loom costs three guineas. A farmer told me, that for his two looms he purchases sevenscore pounds of yarn, which, at present, is 2s. 2d. per lb. He saved several crops of seed, but by these means he injured the flax, which became too dry.

* August 4th, 1809.—Collon. The yarn of the Drogheda linen is cleaned to the amount of one quarter of its weight before it is wove. The linens manufactured here extend to 70 yards long per piece. The price of weaving is 17s. or 18s. They are about the fineness of an eight hundred, and are calendered and sold unbleached. Yarn jobbers buy them up in open market. At present they are worth about 2s. 3d. per lb., and when bleached, sell in England at 4s. 4d. Weavers bleach their own yarn. The weaving of 72 yards requires eight days. Saw a piece, 82 yards long, the warp 15½, and the weft 14½lb. worth 19½d. per lb. Mr. Delahide steeps the linen in warm water, deterges it with bleaching stuff at a wash-mill, and prepares it for bleaching liquor by boiling it two or three times with fine ashes: he then dips it twice in the muriatic acid, and scalds the ashes in soap boiled with the muriatic acid before it is spread out. It is bleached in five or six weeks. The expense is 1½d. per yard, and 10d. per piece finishing. For 7-8 the weft goes across, and is finest. Drogheda sheetings run 9-8, now 23d. 5-4, 2s. 2½d. per yard, 104 yards long, and is cut into two pieces when bleached. Calicoes bleach much more easily than linens.

† Oct. 17th.—Tralee. Yarn is bleached here before it is wove. The weaving of 190 bundles of two feet to the bundle, costs 6s. Weavers of linen for sale dispose of it to the packers who come from Cork, price from 49s. to 50s. for 120 bundles.

Oct. 18th. Much cloth, called box and tray, manufactured here.

Oct. 23d. Towards Dingle, the linen manufactured is 3-4 wide, and sells for 1s. 1d. per yard. Every family, of all classes, sow their own flax. In gentlemen's houses the women servants spin it, and it is given out to be wove. Except table linen, every thing is manufactured at home. The price for weaving table linen and sheeting 1½ yard wide, bleaching is 2½d. per yard; it is done without any apparatus or machinery, as in the North. The poor people bleach only in the thread. Bundle linen is no more than 10 inches wide.

of the country, excepting that the same materials are used. And this observation is applicable also to the manufacture of sail-cloth,* which is confined chiefly to the neighbourhood of Cork.

The rich lands of Limerick and Tipperary produce a kind of flax, very different from that which is raised in the north: it grows to a great height, and appears to me to be exceedingly well adapted for this purpose. To a maritime nation like Britain, where the consumption is so great, the manufacturing of sail-cloth is an object of the utmost importance; and when I reflect on the large sums of money which we pay for this article to Russia and Germany, the hope of seeing one of equal quality, supplied at as cheap a rate by the southern part of Ireland, cannot fail of affording gratification to those who wish well to the prosperity of the empire. To shew, therefore, the extent to which this manufacture has been carried, and the hope it holds forth, I shall subjoin the following account of the bounties paid for it by the linen board:

An Account of the Sums paid by the Linen Board to encourage the manufacture of Sail Cloth, Duck, Canvas, and Drilling, spun by machinery, being a Bounty at the following Rates:

Date of Payment.	Claimants' Names.	Species of Manufacture.			Where Manufactured.	Bounty per Yard.	Sums Paid.		
		Sail Cloth.	Duck & Canvas.	Drilling.			£.	s.	d.
1803, Nov. 1	Julius Besnard	Yards.	Yards.	Yards.	County of Cork	d.	£	s.	d.
1801, Sep. 18	Julius Besnard	-	-	-	Do.	-	518	7	9
1805, Nov. 15	Julius Besnard	71,328	-	-	Do.	3	453	3	6
Dec. 31	Francis Cruikshank	-	16,889	-	Down	3	948	12	0
1806, Jan. 7	Julius Besnard	15,328	-	-	Cork	3	211	2	1
1807, Mar. 24	Samuel Cruikshank	-	15,998	-	Donegal	2	191	12	0
-	Samuel Cruikshank	-	3,800	-	Do.	2	133	6	8
April 20	Peter & John Besnard	-	12,570	-	Cork	2	51	13	4
-	Peter & John Besnard	-	-	14,000	Do.	1½	104	15	0
-	Julius Besnard	66,682	-	-	Do.	2	87	10	0
-	Julius Besnard	-	-	4,853	Do.	1½	555	13	8
June 2	Edmund Shanahan	4,421	-	-	Do.	2	30	6	7
-	Edmund Shanahan	-	-	6,998	Do.	1½	36	16	10
1808, Feb. 2	Sir T. J. Fitzgerald	-	112,782	-	Do.	2	43	14	7
-	Julius Besnard	73,054	-	-	Do.	2	939	17	0
-	Peter & John Besnard	-	50,264	-	Do.	2	608	15	8
-	Peter & John Besnard	-	37,423	-	Do.	2	418	17	4
-	Samuel Cruikshank	-	17,750	-	Do.	1½	233	17	10
Feb. 16	William Pike	-	19,995	-	Donegal	1½	147	12	3
May 3	W. R. Jameson	-	4,846	-	Tyrene	1½	134	19	4
July 19	Dennis Connor	-	24,710	-	Cork	2	40	7	8
						2	205	19	8
							6,067	0	11

* It appears that the Egyptians employed flax for manufacturing sails, which were accounted to be of an excellent quality: they are much praised by Heronippus in Athenæus, and vessels furnished with them were accounted better sailers than any others. Thus Pliny relates (*Lib. xiv. in Pram.*) as very extraordinary circumstances, which he seems to ascribe to the excellency of the sails, made of Egyptian flax, that the Prefect Galerius went from the Strait of Sicily to Alexandria in seven days, Babilius in six, and that Valerius Marianus performed a voyage from Puteoli, called at present Pozzuolo, to Alexandria, in nine days, with a very light wind. *Hist. du Commerce des Egyptiens, par M. Ameilhon, p. 232.*

It is a fortunate circumstance that this manufacture, which is still in its infancy, has been taken up by so active and intelligent a tradesman as Mr. Besnard, from whose exertions the most flattering success may be expected. I looked over his flourishing manufactory with great satisfaction; and must acknowledge, that I was indebted to him for much valuable information on this subject. The service he has done to Ireland, where examples of spirit and enterprise are so much wanted to excite emulation and stimulate industry, has rendered him a most useful member of the community, and entitles him to the thanks of his country. Mr. Coulson also deserves every praise for his damask manufactory; but the extent of the demand for sail-cloth, in comparison of that for figured damask, places the merit of the former in a much more conspicuous light.

The tow is worked up by Mr. Besnard into ropes, and this manufacture has increased during the war, though subject to considerable restriction. On this head, Dr. Stephenson says:* "Our sail-cloth and plain linen may be exported to any country at peace with Great Britain; but cordage, on account of a heavy duty laid on it in England, does not enjoy the same advantage. Checked, striped, printed, stained, and dyed linens, are not allowed to be imported into Britain. These acts are represented by Mr. Arthur Young, as in direct opposition to the compact between Ireland and Great Britain, made in 1698:

"A repeal of these acts made in England, respecting the linen and hempen manufactories in Ireland, which passed into a law in opposition to the most strenuous exertions of the trustees, is earnestly desired."

The bleachers are distinct persons from the manufacturers. The latter carry their webs to market, where they are purchased by the former, in order to be finished. In that state they are sold generally through the medium of factors in Dublin or London, who supply capital, that credit may be given to the purchaser. In Dublin they allow two months' credit, and in London eight.

The linens exported are of a thinner texture than those used in England, and the country trade requires a stouter sort than those sold in London. In England, great suspicions are entertained in regard to the arts practised by the bleachers in Ireland, and on that account, large quantities of linen are imported, either in a brown, or a half bleached state; but even this precaution is not sufficient to obviate fraud, and prevent imposition. It is a melancholy truth, confirmed by daily experience, that mankind, not satisfied with the fair and honourable profit of trade, have recourse to the meanest and most dishonest arts to increase them. Ingenuity supplies its aid to support this system, and as it too often proves successful, the consequence is, the destruction of that confidence which ought to subsist between one man and another in commercial transactions. Ireland is not free from a share in this re-

* Select Papers of the Belfast Literary Society, published in 1808, p. 41.

proach. In that country, large quantities of grease, and sometimes potatoes reduced to pulp, are rubbed into the webs whilst weaving, to make them weigh heavier, and acquire a stouter feel to the hand. Even those who purchase cloth in the half-bleached state, are liable to this imposition; for the linen, without having been boiled or subjected to any preparation by machinery, is merely whitened with cold lime, but the buyers believe that its whiteness is owing to its having been purged in the yarn.

Cloth, purchased in an unfinished or half-finished state, is afterwards bleached in England, but it is not made up with starch or blue, or exposed to a beetling engine, according to the process adopted in Ireland. In the former country, bleaching is carried on to a very great extent. Mr. Reynolds, at Cashalton, near London, has an immense bleach-green, where more business is done than at any five in Ireland; and there is one equally large in the neighbourhood of Manchester.

Linens are bleached, not merely by the action of the air and of water, but by the application of chemical substances; and this branch of art has been carried to great perfection, in consequence of the valuable discoveries made by the chemists, both in this, and in other countries. With the nature and use of these substances, however, the generality of bleachers are but imperfectly acquainted; and the art is often left in the hands of ignorant workmen, who, without any knowledge of scientific principles, pursue a certain routine, which is merely the result of habit.* The price of bleaching varies according to the finishing and width, but it seldom exceeds 4d. per yard.

Those who are desirous of more ample information on the linen manufacture, are referred to a paper by Dr. Stephenson, who, in his zeal for the honour of his country, and the subject on which he writes, seems to hint that it was introduced into Ireland 1400 years before the Christian era†, and in regard to the art of weaving, in particular, I shall refer not only the curious inquirer, but every manufacturer, to an octavo volume, by Duncan, published in London in 1808.

Had the gentlemen who undertook at the request of the Dublin Society, to draw up Surveys of the different counties, followed the example of the Rev. Mr. Sampson, the value of linens in a finished state in each county might have been known. "As to the quantity of linen," says that gentleman, "bleached within this county, an estimate, though an inaccurate one, may be formed, by supposing that every registered bleacher in the country finishes, on an average, 5000 pieces annually.

* June 30, 1808.—Moyallan. There are few bleachers who know any thing of the strength of their alkalies; the trial is left entirely to the foreman, who forms an opinion by tasting the liquor. If he happen to be a Roman Catholic, and makes his experiment on a day when he eats salt fish, this test, which at the best is uncertain, will entirely fail. The foreman is allowed also to determine when the linen is in a fit state to be scoured or rubbed. At Mr. Wakefield's green I saw an hydrometer which he had caused to be made in Dublin, and which determined the strength of the alkali with great precision.

† Papers of the Belfast Literary Society, 1808, p. 1.

According to the list transmitted to me from the linen board, I find the number of bleachers to be sixty-eight; to this must be added the names of two others recently established, but not yet entered on the list. It should also be considered, that some names now standing on the list, may belong to bleachers who have died, or have otherwise discontinued. Taking, however, the whole number at fifty, it will follow, that the pieces bleached in the county of Londonderry, may amount to 250,000; and estimating the value of each piece at £2. 5s. 8d. the actual value of the linen bleached in this county, the value may be estimated at £562,500 sterling.**

I endeavoured to obtain a similar account of the bleach greens on the Bann, the principal river in the county of Down. The information I collected will be found in the subjoined note.†

Of the quantity sent out of the country, an account might be procured from the books of the custom-house; but this information, though important, would by no means be so valuable, as a return of the whole quantity manufactured could be obtained, if every seal master were obliged to transmit to the linen board the number of the webs, for the stamping of which he receives payment in the course of a year.

The quantity of linen sold in Dublin in 1808 and 1809, will be seen by the following statement, taken from the Appendix to the linen board reports.

A return of linen inwards and outwards at the Linen Hall, for one year, ending 1st of March, 1809:

	<i>Packs and boxes.</i>			<i>Average value.</i>
Inwards	10,227	-	-	160, each - - £.1,636,320
Outwards	9,279	-	-	170, each - - 1,738,590
Value remaining in the Hall, on the 1st of March, 1808, - - £.408,615				
From which, deduct linens sent from the Hall in } 50,000				
carts and bags, to merchants' warehouses, &c. }				
More in value outwards than inwards - - 102,227				
				152,227 *
				£.256,388

The packs and boxes are averaged more this year than last, from the advance on linen, and the packs and boxes outwards contain more linen than inwards.

* Survey of Londonderry, p. 357.

† July 5, 1808. The twenty bleach greens on the Bann, bleach on an average, 8000 pieces each. The "ground cost" is 50s. The bleaching of all yard-wide linens costs 8s. that of cambrics 7s.: profit 8½ per cent. Goods are brought hither for warp from Tyrone and Antrim. The above 8000 pieces, multiplied by 20, gives 160,000 as the whole number of pieces, which, at 58s. each, makes £464,000. If to this be added 8½ per cent profit, the total value of the linens annually finished on the Bann, will be £502,666. 13s. 4d.

Comparative view of the linen inwards and outwards, at the Linen Hall, for one year, ending 1st of March, 1809.

				<i>Packs and Boxes.</i>	
Inwards,	Year ending 1st of March, 1809	-	10,227	-	Outwards, 9,279
Inwards,	ditto ditto 1808	-	9,495	-	Ditto - 9,060
				732	219
Increase in 1809				-	732

It is to be remarked, that the custom-house, in estimating the linens exported at 1s. 4d. per yard, adopted a fair valuation, according to the time; but as they have considerably risen since that period, I am convinced that 1s. 6d. British is much nearer the present value. They are packed up in boxes, each of which contains sixty pieces, and each piece in general consists of twenty-five yards. The packs frequently contain either 120 pieces of the same length, or sixty pieces of from fifty to fifty-two yards each. I mention this circumstance, because in most calculations they are reckoned at fifty pieces, according to the manner in which they were formerly made up. The yarn is subjected to inspectors, who attend the markets to examine whether it has been spun and wound up in a proper manner. When it is woven the web is measured by a public officer, who affixes to it his seal, unless where the bleacher gives out the linen yarn to the weaver, and afterwards receives it back himself to be finished, as is the case in the neighbourhood of Drogheda and in the King's County. The bleacher's name is registered, and when he takes out his seal, which he must affix to the goods, when fit to be sold, he enters into a bond, with two securities, to make them up according to act of parliament. But to guard still farther against fraud, the appointment of these officers, and the power of framing various regulations, which are issued from time to time, as circumstances may require, are vested in the hands of a Board of Trustees, consisting of about seventy noblemen and gentlemen, who act without receiving any salaries or remuneration. Among so great a number, there are undoubtedly some who understand the trade; but as many of them are often absent in England, or otherwise engaged, the business is frequently conducted by persons, whose want of practical knowledge, renders it necessary for them to rely on the advice and opinions of the servants of the board; and the consequence is, that one half of the premiums distributed has done more harm than good. A sum amounting nearly to £20,000. is by a vote of parliament, placed annually at their disposal; and there are always many claimants anxiously waiting to participate in this fund. But whether it is in all cases managed with that attention to economy, which ought to be employed in the distribution of public money, will be seen by the following account, exhibiting the current and estimated expense of the board.*

* Extracted from the Reports of the Linen Board, vol. vi. Appendix 18.

"An ACCOUNT of the outstanding Demands upon the Linen Board, for the year ending 5th January, 1809; and an Estimate of the Demands likely to be made upon the Board, for the year ending the 5th January, 1810," extracted from the Proceedings of the Linen Board, vol. 6. appendix 18.

Demands for the year ending January 5, 1809.

	£.	s.	d.	£.	s.	d.
Premiums, already claimed:						
Erecting Spindles -	4,275	0	0			
Manufacture of Duck, Sailcloth, &c.	3,609	8	9½			
Manufacture of Thread-lace -	43	3	7	7,927	7	4½
likely to be claimed:						
Manufacture of Sail-cloth, &c.	583	6	8			
Imitating Bristol Candle-wick -	50	0	0	633	0	0
GRANTS, compensation already ordered:						
G. F. Bushe Esq. -	200	0	0			
Benjamin Pattison -	120	0	0	320	0	3
ESTABLISHMENT:						
Arrear on 1st June, 1807	10	0	0			
1st September	91	5	0			
1st December	114	1	10½			
1st March, 1808	134	1	10½			
1st June	174	1	10½			
1st September	229	1	10½			
One quarter to 1st December, 1808	1,470	2	9½	2,922	14	8½
MISCELLANEOUS:						
Buildings -	1,500	0	0			
Rents and Taxes -	100	0	0			
Law Expenses -	200	0	0			
Printing, Stationery, and advertising	300	0	0			
Postage -	50	0	0			
Incidents -	100	0	0	2,550	0	0
Total demands to 5th January, 1809				£.	13,383	8 9

Demands for the year ending 5th January 1810.

	£.	s.	d.	£.	s.	d.
Premiums: Demands, 1809, brought forward						
Erecting Spindles, as estimated by } the Inspector General - - - - - }	1,560	0	0			
Manufacture of Duck - - - - - Do.	2,000	0	0	13,383	8	9
Searching Hemp - - - - - Do.	300	0	0			
Bristol Candle wick - - - - - Do.	50	0	0			
Manufacture of Thread-lace, Do.	50	0	0	3,960	0	0
GRANTS: Wheels already granted - - - - - }	3,000	0	0			
Branding Wheels, estimated by the } Inspector General - - - - - }	150	0	0			
Branding Flax-seed, Do.	100	0	0	3,250	0	0
ESTABLISHMENT:						
Linen Office -	860	0	0			
Linen Hall -	456	16	6			
Yarn Hall -	157	15	6			
Inspector General -	1,041	5	0			
Provincial -	1,100	0	0			
County -	1,280	0	0			
Port -	200	0	0			
Other Officers -	533	15	0			
Contractors -	200	17	0	5,890	8	10
MISCELLANEOUS: Buildings already due	845	7	10			
Estimated amount of necessary alterations and repairs, recommended in the joint report of the Architect and Chamberlain, dated 7th March, 1809	12,000	0	0			
Rents and Taxes -	400	0	0			
Law Expenses -	300	0	0			
Printing, Stationery, and advertising	1,200	0	0			
Postage -	200	0	0			
Extra Clerks -	30	0	0			
English Hemp Farmers -	300	0	0			
Flaxseed Inspectors in England	300	0	0			
Incidents -	300	0	0	15,878	7	10
Total demands to 5th January, 1810				£.	42,332	5 5

The appointment of seal masters, to prevent frauds, and the establishment of regulations, by which bleachers are obliged to make up their goods in a just and fair manner, under the forfeiture of the bonds into which they enter when their names are registered, is extremely proper; but all this might be done at a twentieth part of the expense now incurred. London, which receives so large a portion of the linens made in Ireland, has no public hall for their sale. The sellers provide warehouses; and however unpopular the measure, the linen hall might be sold, and all the officers attached to that establishment might be dismissed, without the least injury to the trade, or to the interests of the country.

Many of the premiums given for spinning jennies, as far as premiums can be, are wisely offered, and are entitled to every praise. There is a lure, however, held out by the linen board, which deserves to be particularly noticed on account of its probable effects. The following extract from the reports of the linen board,* will sufficiently explain the circumstance to which I allude; but I shall make no farther observation than to remark, that it must have an influence on population, by acting as an incitement to early marriage.

“ FEMALE WEAVERS.”

“ The introduction of the fly shuttle having reduced the labour of weaving linen, so as to render it an occupation not unfit for females, and the trustees having deemed it expedient to encourage their being employed, the following bounties were offered for that purpose:

“ A loom to each female, who proved that she wove 200 yards of linen in the year ending the first of January, 1806.

“ Also, a loom, two fly shuttles, and a spinning wheel, to the female in each parish who wove the greatest quantity of linen in a sound workmanlike manner in the year ending the first of January, 1808, not less than 500 yards.

“ Also, a loom, a shuttle, and a spinning wheel, to the female in each parish who should weave in the year ending the first of January, 1809, the greatest quantity of linen in a sound workmanlike manner, entirely with fly stays, and fly shuttles, not less than 500 yards.

“ They therefore deem it necessary to repeat the caution they gave last year, that if any loom granted as a loan to a female, be at any time used without the stays and a fly shuttle, the loan of it is to cease, and the inspectors are to call it in for the disposal of the board. All inspectors are particularly enjoined to use their utmost diligence by inquiring from time to time into the uses made of such looms, and to report accordingly.”

Those acquainted with the nature of the fly shuttle, cannot fail to applaud the humanity of the board for its judicious distribution among the poor, and for their

* For 1808, vol. 5. appendix.

zeal in endeavouring to bring it into use. It is generally employed in Yorkshire, where by it I have seen the hardest and thickest linens manufactured; and as it possesses superior advantages, it deserves every encouragement. The weaver who uses it can sit in an upright posture: to all persons engaged in this employment this is a great advantage; but more especially to the pregnant female, an object always of peculiar interest, as it prevents the contraction of the body, so injurious in that state when continued for any length of time. But I cannot refrain from adverting to the singular manner in which this premium is announced. If the loom be a bounty it is a free gift, and so it is termed in the subsequent part of the report. How then can the board resume it, under pretence of its not being used in the manner which it prescribes?

In the year 1779, Mr. Young stated the disbursements of the board from 1757 to 1772, to have been £14,000. per annum. To trace the subject farther back than the date of the papers I have copied, might gratify curiosity, but could be attended with little or no utility. What has been said I consider is sufficient for my purpose; but it is necessary to mention, that independently of the sum already stated, there is a grant from parliament of £20,000. the specific purpose of which is to encourage the saving of flax-seed; so, that either in premiums for saving, bounties for importation, or other charges, this manufacture is attended with an enormous expense to the country.

On considering the manner in which the linen trade is conducted, it would appear that there is something very singular in the Irish character; and one is almost inclined to believe, that it is deficient in energy, a feature so conspicuous in that of many other nations. The people of Ireland seem incapable of calling forth their own powers of exertion, unless when stimulated by adventitious assistance. A spinner, to become industrious, must be presented with a wheel; a weaver, before he will work, must be supplied with a loom; and a bleacher cannot carry on business, unless he be furnished with a house in Dublin for the purpose of selling his commodity. Even a gentleman will not plant for his own advantage, or amusement, until he be impelled by some extraordinary inducement. By the sums lavished for the general encouragement of the linen manufacture, one might be led to conclude; that it is the policy of the legislature to extend it over the whole island; a circumstance which, if carried into effect, would, in my opinion, be as great an evil as could possibly be imagined.* To promote a single manufacture at the expense of all the other branches of national industry, is inconsistent with every sound principle of political economy. The author of a celebrated pamphlet on the commercial restraints of Ireland,†

* It is directed by the 19th George II. c. 6. that public warehouses shall be built in every county town.

† Dublin, edit. 1775. p. 145.

has justly observed, that no populous commercial country can subsist by one manufacture; and in this opinion he has been followed by Dr. Crump, in his ingenious essay on the best means of providing employment for the people.* But independently of theoretical opinions, and judging merely from experience, I consider any extension of this kind as highly pernicious, and pregnant with the most serious evils: nay, after the inquiries I have made into the earnings of the manufacturers, and the statement I have given, which incontrovertibly shews, that as things are at present conducted, they are by no means equal to the earnings of agricultural labourers. I will not hesitate to assert, that the general extension of this manufacture, would carry with it an extension of poverty and famine, and that if it could be effected, even for a short period of time, it would prove the greatest curse that could be entailed on an unfortunate country. There are few evils which are not counterbalanced by some advantage. The chief benefit of the linen manufacture falls to the share of the middling classes, who are to be found in the province of Ulster; but these people are engaged either in the finer parts of the business, or in finishing the prepared article for market. The superior and more opulent condition of a great many of the inhabitants of Ulster, has been ascribed to the linen manufacture; but a very few arguments are sufficient to prove, that this opinion is entirely void of foundation. In what district do the people appear to be most comfortable in their circumstances? Forming a circle at the distance of twenty miles from Belfast, it will be seen, that commerce and the cotton manufacture have, by their influence, diffused happiness and prosperity throughout that favoured spot, and given to the people an air of ease and affluence very different from what is observed in other parts of the country. But let us shift the scene for a moment, and expose to view the condition of the poor in the counties of Mayo and Sligo, though abundance of linen is brought to market at Castlebar, and considerable activity is occasioned by the sale of it at Sligo, what has this boasted manufacture done for the miserable inhabitants of these and the adjacent districts? Unfortunately for the cause of truth, mankind are too apt to judge from first appearances; consequences are prematurely deduced from facts partially examined, or viewed through a delusive medium, and hence we account for the number of erroneous opinions which have found currency in all ages, and been handed down as undisputed axioms from one generation to another.†

I shall, perhaps, be told, that the middle orders do not remove to the mountains; that the mountaineers do not weave, and that thus the existence of these middle orders is to be ascribed to this manufacture, as if there were no other causes ope-

* Page 297.

† "A patient pursuit of facts, and cautious combination and comparison of them, is the drudgery to which man is subjected by his Maker." *Jefferson's Notes on Virginia*, p. 71.

rating, to account for this marked difference in the comforts and appearance of these classes of people. Let the reader look forward to the chapter on religious differences, and peruse with attention what is there stated; he will, perhaps, be able to account for the northern presbyterian being happier and more wealthy than the miserable Roman catholic, who has been groaning under a load of oppression, year after year hunted up the mountain, to make room for a protestant freeholder, with little hope of relief, and without any excitement to industry. Do not, therefore, confound causes; exonerate the individual from blame, where no blame ought to be imputed, and let the odium fall on the laws,* those impolitic restraints, which unjustly bound up in fetters the honest industry of man. Take a general and impartial view of the subject, and connect with it those remote circumstances, which, because their operation is not immediate, are often overlooked or neglected; and other reasons will be found than those deduced from the linen manufacture, for the establishment of a middle order of men in Ulster, distinguished by superior comfort and prosperity.

Those who differ from me in opinion, will probably seek to support their arguments by asserting, that it was the weaving branch which created the yeomanry of Fermanagh. But so far is this from being the case, that I was invariably informed, when inquiring into the cause of the superior condition in which I found those people, that it was owing to the advantages of their professing protestantism, and to there being *less of the linen manufacture* in that county than any where else in the neighbourhood. Let it ever be recollected, that linen manufacturers earn less than farming labourers; that the fruits of spinning by the wheel, may supply the means of supporting a miserable and comfortless existence; but that a population with no other resources, must be a useless unproductive mass, destitute of energy, and incapable of that exertion which is necessary to enable a people to rise above the lowest degree in the scale of civilization. In such a state of things, neither arts, literature, or science, can ever flourish; improvement, both physical and moral, must be retarded, and a stoic indifference to every thing great or good, will occupy the place of those generous feelings which animate the heart and enlarge the mind, where human nature has been softened and refined by cultivation, which ought to be the effect of opulence.

It is to be still farther observed, that every county of Ireland through which the linen manufacture has been spread, is incapable of maintaining its own inhabitants; and the farther it is extended, and the more the exportation of linen is increased, the greater is the importation of provisions from other counties. Extend the manufacture, and you extend these importations. Let spinning and weaving become the universal employment of old and young; let them pervade the whole

* The laws to which I allude are, the penal code, repealed in 1793.

country, and from what source are provisions to be obtained for the subsistence of those engaged in these occupations? Let us proceed to the utmost possible extreme, and we shall perceive the fallacy of that pernicious system, for the support and fostering of which the nation is expending immense sums every year. The opinions of Provost Hutchinson the author of the Commercial Restraints, of Dr. Crump, of Mr. Arthur Young, and of Mr. Wallace, all coincide on this important subject; and the arguments adduced by them have met with no opposition but from one writer, Mr. Preston, whose verbose reasoning displays so much weakness, that it would scarcely deserve notice, had it not acquired a fictitious consequence by being admitted into the Transactions of the Royal Irish Academy.

While I express this opinion of the linen manufacture in Ireland, it may, perhaps, be inferred, that I wish to see it entirely annihilated. If any should adopt this opinion they will be cherishing a great error; my only desire is to see it conducted in a different manner. To render it beneficial to the state, the manufacturers ought to be better paid. The introduction of the spinning jennies is certainly an improvement, and may be considered as a step towards the accomplishment of this important object. They are now firmly established; and without assenting to the opinion that the manufacturers should be confined to cities, and banished from country places, I decidedly agree with those who maintain, that they ought not to cultivate any portion of the soil, or engage in the labours of agriculture. Respecting the prevailing idea of the unhealthiness of a sedentary life, and the mischief arising from concentrated population, I am very sceptical. If the reader will turn to a remark of Mr. Dubourdieu, which I have given in a note in the chapter on customs and habits, he will at once perceive in what kind of habitation a first-rate linen weaver resides; and had he seen the dwellings of these people as I have witnessed there, he would not, perhaps, ascribe their squalid appearance so much to their sitting at the loom, as to the miserable cabins in which they are cooped up, without a free circulation of air.

Many writers lay it down as a principle, that every manufacture, of which the country possesses, as they express it, the "primum" ought to be encouraged. But I confess myself incapable of perceiving the truth of this position. If the land which now produces flax, were made to produce food for the inhabitants of Ulster, and these people imported their flax from the West Indies, as they do cotton, would not the manufacture, in that case, give employment to seamen, ship-builders, sail-makers, &c. and to efficient agricultural labourers at home. So far from agreeing with these writers, or placing any reliance on the arguments which they use, I am of opinion that the introduction of the cotton trade in the same country, and the present state of the two manufactures, which have been placed fairly in competition with each other in the same district, affords a strong proof of the benefit that arises from the importation of the raw material. The desire of producing it proceeds from

a selfish consideration, by which statesmen, as well as nations, are sometimes influenced, and which renders them unwilling to draw any thing from foreigners. This consideration, in some cases, will admit of justification, and, in regard to food for a country, I am ready to allow that it ought to have great weight; but I would extend it no farther, for I am convinced that it is highly beneficial to pay even an enemy for the primum, which will afford occupation, and by occupation furnish the means of procuring food and clothing for the population of a country. What injury has Great Britain ever sustained by her importation of Spanish wool? The cultivation of flax in Ireland introduces the habit of blending all sorts of labour together, a system disapproved of by every writer on political economy; and yet this evil seems to have escaped the notice of all the ministers of Ireland, who, like Mr. Preston, may perhaps have considered the increase of exports, as exhibited by the Custom House Ledger, as an irrefragable proof of the greatest national prosperity.* But let those inclined to adopt the opinions of such shallow writers look to the number of acres wasted by the cultivation of flax; let them examine the labour and expense of every kind attending this exportation. Let them attend to the account in this work, of the earnings of spinners and weavers, collected from the best authorities, Mr. Nicholson, the Rev. W. Gooch, Mr. Eusor, of Ardress, County of Armagh, Mr. Dubourdieu in his Survey of Down, &c. &c. let them place by itself, after every necessary deduction has been made, the real profit that accrues to the country; and then let them determine, if this staple manufacture, the raw material of which is of the annual value of £1,500,000. reflects back upon the people, that degree of opulence, comfort, and happiness which, from its nautical amount, it might be supposed to afford.

AN account of the amount of Bounties paid on Linen exported to Foreign Countries, and under the value of 1s. 6d. per yard, being a Bounty of 1½d. per yard, in each of the following years, ending 5th January in each year.

1801.	1802.	1803.	1804.	1805.	1806.	1807.	1808.	1809.	1810.	1811.	1812.
	13,557	8,861	13,064	11,423	13,243	16,973	11,184	7,302	21,768	17,819	

AN account of the amount of Bounties paid on Flax Seed imported in each of the following years, ending 5th January in each year.

1801.	1802.	1803.	1804.	1805.	1806.	1807.	1808.	1809.	1810.	1811.	1812.
									8,068	4,431	

* Transactions of the Royal Irish Acad. vol. ix. p. 161.

I have indulged in these general observations from a conviction that the subject which gives rise to them is of the utmost importance to the country. At the same time, I am aware that they are in contradiction to the opinions of Mr. Foster, a respected and intimate friend of mine, who, when chancellor of the exchequer for Ireland, proposed, in 1809, the sum of £20,000. to be given in bounties for the raising of flax-seed, and in this he was supported by Mr. Grattan and Sir John Newport.* In opposing the united opinion of these gentlemen, I take upon myself considerable responsibility: but I do not speak rashly, and without having given to the subject every consideration in my power. I have viewed it coolly and impartially; and the result is a necessity of deprecating an increase of the manufacture, but the bounty is much more erroneous, even as a means of encouragement. Being in Ulster in the autumn after the bill had passed, I conversed with some hundreds on the measure; and never met with a single individual who did not say, that the 5s. bounty for a bushel of seed would occasion more injury to the flax, by causing it to be kept beyond the proper period of maturity, than would be counterbalanced by every advantage arising from the saving of seed. On this subject I think myself authorized to speak with confidence, in consequence of the communication which I had with cultivators of the plant, up to December 1809; and I must request the reader to turn to the head Flax, where he will find the subject farther elucidated.

COTTON MANUFACTURE.

England has much cause to be proud of giving birth to Sir Richard Arkwright, and every one is anxious to pay a just tribute of gratitude to his respected and departed ingenuity. Possessed of this feeling in common with my countrymen, the reader, I trust, will participate with me in the pleasure I derive from lending my feeble aid to place upon record the names of Robert Joy and Thomas M'Cabe, the fathers of the cotton manufacture in Ireland, which was introduced there by these gentlemen, so lately as the year 1785. The following account of this memorable circumstance, which deserves to be preserved, is copied from the Belfast Magazine, and I have been assured that its accuracy may be fully relied on.†

“Authentic History of the Introduction of the Cotton Machinery into Ulster, from the Belfast News Letter, May 1st, 1805.

“So early as the year 1777, on a tour through North Britain, the late Robert Joy, Esq. conceived the scheme of introducing into this then desponding kingdom the most intricate branches of the cotton manufacture, which had proved unfailing sources of industry and opulence to the sister country. To this he was principally prompted by a desire to render service to the lower orders of the working poor, particularly linen-weavers and spinners, whose livelihoods are often rendered precarious,

* Cobbett's Parliamentary Debates, vol. xiii. p. 768.

† Belfast Magazine for November 1809, No. 16. p. 343.

when a nation depends, as ours then did, almost solely on a single manufacture, sometimes as much depressed as at others prosperous. Having, in conjunction with Thomas M'Cabe, suggested that the spinning of cotton-yarn might, as an introductory step, be a fit and profitable employment for children in the Belfast poor house, several of them were accordingly set to work on the common wheel; but the various machinery in England giving that country so great a superiority, it was found that no benefit could be gained without the introduction of it here. A spinning machine was, therefore, made in Belfast, at *their* instance and expense; under the direction of Mr. N. Grimshaw, cotton and linen printer, from England, who had some time before settled in this country; and shortly after, an experienced spinner was brought over by Mr. Joy from Scotland, to instruct the children in the house also, under the same direction, at the expense of the gentlemen above mentioned. A carding machine was erected to go by water at Mr. Grimshaw's, which was afterwards removed to the poor-house, and wrought by hand.

“After Messrs. Joy and M'Cabe, had in vain solicited the co-operation and pecuniary aid of others in prosecuting a scheme fraught with such national advantage, they proposed a transfer of their machinery at first cost, to the managers of the charitable institution, promising as strict attention to the success of the measure as if the emolument were to be their own. On the refusal of the committee to run the risk of a new undertaking, the original proprietors formed themselves into a company with additional partners, under the firm of Joys, M'Cabe, and M'Cracken, and contracted with the same charitable institution, for the employment of a number of its children, as well as for the use of their vacant rooms. They dispatched a skilful mechanic to England, who at personal risk, and considerable expense, procured a minute knowledge of the most improved British machinery, which the inventors and proprietors intended to have kept a secret, both from this and foreign countries. On his return, they erected a new carding machine of superior structure to the first imperfect one, and a spinning jenny of seventy-two spindles, then reckoned a large one, differing materially in its construction from the other.

“In a memorial to the Dublin Society, praying for aid, from which the substance of this statement of facts is principally extracted, they informed the board, that so far from confining their hopes of gain to themselves, they had encouraged the public to avail itself of their discoveries. They had exposed their machinery to open view, permitted numbers even from distant parts to be taught in their apartments without any charge for such indulgence, and promoted the progress of the manufacture of cotton dimities, and marseilles quilting, equally by example and instruction. The magnitude of those improvements at the time is now to be estimated by comparison. Prior to this period from eight to ten cuts a day were the scanty produce of the most laborious spinner on the common wheel, while in the same time not more than a single pound could be carded by hand. On their jenny of seventy-two

spindles, seventy-two Irish hanks were spun weekly, an increase of fourteen to one; and by their carding machine twenty pounds of rovings were daily thrown off, an increase of twenty to one. These exertions were in time followed on an enlarged scale, by Messrs. Nat. Wilson, and N. Grimshaw, both since deceased. To the talents, property, and adventurous spirit of the former of these two gentlemen, and to the practical knowledge, genius, and industry of the latter, this country stands very highly indebted. The first mill for spinning twist by water in Ireland, was built by them in the year 1784, from which date the Irish cotton manufactures were considered to be firmly established. In the year 1800, only twenty-three years from the origin of the enterprise by Joy and M'Cabe; it appeared in evidence before parliament, that the cotton manufactures which they had thus introduced, gave employment to 13,500 working people; and, including all manner of persons occupied in various ways, to 27,000, within a circuit of only ten miles, but comprehending the towns of Belfast and Lisburn. It deserves remark, that as far as machinery is concerned, a poor-house was the cradle of the cotton trade of Ireland, and that the detail now given, should be a stimulus to the exertions of every individual. It demonstrates how much may be effected by a limited capital, and ardent zeal. In the present instance, the early introduction of a manufacture, already of immense, and increasing importance, has been traced to the perseverance of two members of society, actuated by a wish to create useful employment for unfortunate infants, to assist the working classes at a time when the linen manufacture was in its distressed state, and to render a permanent benefit to the community at large."

Such was the origin and progress of this important branch of manufacture, which is now fully established in Ireland, and which seems to hold out strong hopes of its future success and prosperity, if one may be allowed to judge by the following statement of the importation of cotton, wool, and yarn, taken from the custom-house books:

	Cotton.	Wool.	Cotton.	Yarn.
Average importation for three years, ending 25th March, 1799, being the three years previous to the Union	10	983 cwt.	460	013 lbs.
Average of three years, ending 5th Jan. 1807	17	782	1223	081
5th. Jan. 1810	32	257	1057	115

The above statement affords an agreeable proof of the increased consumption, within twenty years of a sort of clothing which bespeaks the prevalence of a degree of luxury in the country, and of improvement in the condition of its people. But what is of still higher moment in a general point of view, it will be found, on investigation, that the persons engaged in this branch of national industry earn much greater wages than they possibly could do in the manufacture of linen,* an advantage

* Sept. 20th, 1808. Randlestown.—Inspected the ingenious cotton manufactory at this place belonging to Mr. Dickie; it gives employment to 150 persons; women earn five shillings per week, and if they spin by

which may be ascribed to the manner in which it is carried on. Instead of the raw material being purchased by the weaver, and sold afterwards in a manufactured state, the cotton-yarn is either given out by the master manufacturer to the weaver, who receives so much per piece for his labour, or it is wove, as in England, in looms established within the buildings belonging to the manufacturer. Besides, there are here no miserable females employed in spinning for a wretched pittance, scarcely sufficient to procure them support, as is the case in the linen manufacture: all the spinning is performed by machinery, a method which embraces two advantages; the work is not only done at a cheaper rate, but as the persons employed at the jennies must attend to them while going, the fixed number of hours are thus worked out in the course of every week. Those who spin at home on their own account, having no check to prevent their leaving off, either through caprice, or in consequence of some trifling interruption, often suffer their attention to be distracted from the object of their pursuit, and in this manner acquire at length a confirmed habit of indolence.

This manufacture, being similar in some respects to that of linen, made its way with more facility among the lower classes, and in many places it has been, as it were, ingrafted on the latter. In Antrim it is astonishing with what rapidity the linen looms are exchanging for those of cotton, and they are beginning to spread to a considerable distance from Belfast. The cotton trade is in a flourishing condition at Mr. Foster's village of Collon,* and at Stratford, in the county of Wicklow,† and it gives to these places an appearance of superior opulence and industry.

task, they can earn as much as sixteen shillings. The cotton is carded and spun by machinery, after which it is given out to the weavers who have looms of their own in their houses; about 400 are engaged in this part of the manufacture. Mr. Dickie was from home, but the foreman said the buildings and machinery cost £5000.

* August 10th, 1809. Louth. Collon.—There are 1300 looms employed in calico weaving by two persons in this neighbourhood, the cloth is mostly 7-8ths wide. Sixty-three yards, which make two pieces when printed, are called a cut; the cotton yarn is given out to weavers; the web being weighed, and the length of the warp known, one man can weave a cut in a week, and receives for it 12s. 6d.

† March 16th, 1809. Wicklow.—Walked to a calico manufactory at Stratford, at which 500 persons are employed; the yarn is brought from Scotland, and wound and wove in the village; a fancy weaver can earn two guineas per week; common weavers receive for cloth twenty-seven inches wide, 2½d per yard, and can weave twelve yards in a day. Women earn nine-pence per day at winding, and can weave seven or eight yards; when wove, the cloth is run over a piece of red hot iron to take off the nap; and after this curious and delicate operation, which requires great nicety and care, it is bleached and printed. When one colour only is required, patters cut out on a copper roller are used, but when more than one is to be employed, printing blocks are applied by the hand. Those colours which have not sufficient consistence to adhere to the blocks, are laid on them with a hair brush; men earn two guineas per week, women seven shillings, and children three-pence per day. The whole manufactory is heated by the children, in order to make the colours adhere. The drying house belonging to the bleach-yard is constructed of laths, but hung on the sides with heath, which keeps out dirt, but affords free admission to the air. The blocks here are made chiefly of copper, and fixed into a hollow board; on asking why the manufactory was established in this place, I was told "on account of water for the mill, and a perpetuity lease." The manufacturers came from Paisly, in Scotland, and Hillsborough in the county of Down; they removed from the latter for want of a lease. They are for the most part presbyterians, and have a benefit society and a library. The building of the manufactory cost £40,000.

A Scots company have extended this branch of manufacture to muslins, and print their own cottons; I have been informed also that the muslin manufacture has been established by the Quakers at Mountmellick, in the Queen's county, and that it has been introduced at Bandon, in the south-west part of the kingdom.* Mr. Dubour-dieu, who resides in the centre of the district where this manufacture is carried on, says, "muslin is the next manufacture of importance after linen; the rapid progress it has made in this county during the last twenty years, previously 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 would have applied to the latter, finding it much more easy to acquire a knowledge of weaving muslin; and receiving better wages, gave themselves up entirely to that trade. Those, however, who were mere muslin-weavers, suffered 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 of every requisite breadth, many other branches of the cotton trade are carried on; calicoes and wrappings, thicksets, corduroys, and velveteens, are made in various parts. The weavers attend at the warehouses, where the necessary quality of warp and weft are served out to them, which they carry home and return in a manufactured state. 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 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."†

The advantages of the cotton over the linen manufacture are, indeed, obvious; and

* Survey of Cork, p. 30.

† Survey of Down, p. 235.

in regard to those temporary stagnations to which the author of the above quotation alludes, there is no occasion to be under any apprehension, as it has now become customary to use the produce at home. Cotton can be bleached with so much greater ease than linen, that the capital employed in the manufacture of the former, is returned far sooner than that used in the latter. In a word, the former appears to me to possess all the beneficial qualities of the linen manufacture, without any of its disadvantages; and it may be considered a fortunate circumstance, that it was not established in Ireland, till it had been brought to such a state of perfection in England, that the whole process was divided into a certain number of distinct branches,* which facilitates the different manipulations, and renders it much easier for the workmen to acquire a superior degree of expertness. It is this division of labour that gives to the English manufactures the perfection to which they have attained, and which secures them a preference in almost every market of Europe. The same method will of course be adopted by workmen in Ireland, and be encouraged by those who possess capital, as the most effectual means of giving stability to the manufacture, and increasing its prosperity, by placing the proprietors in both countries on a perfect equality. It is only, indeed, where capital supplies the means, that workmen can be employed in different branches of the same manufacture; but even where the capitals are scanty, the cotton manufacture is highly advantageous, because an article, the raw material of which costs very little, and can be worked up by art and ingenuity, so as to become of great value, may be conducted without much ready money, the chief expense arising from the wages of the labourer.†

WOOLLEN MANUFACTURE.

The woollen trade of Ireland has been checked and depressed in a most impolitic manner for many years, through the illiberal jealousy of the woollen manufacturers of England;‡ but thanks to the Act of Union, the two countries are now

* Lord Sheffield gives a curious instance of this division in regard to a dyed velveret, which "passes from the raw material to a finished state, through the following different processes, viz: Bating, picking, washing, drying, carding, roving, shebbing, spinning, winding, doubling, twisting, re-winding, warping, pin-winding, weaving, cutting, scouring, ending, singeing, rubbing, bleaching, dying, and making up. These twenty-three operations are almost always performed in Lancashire by as many different classes of artists. Indeed, it is not unusual for several of them to be again sub-divided into two or more parts, and to be still performed by distinct people. *Observations on the Manufactures of Ireland*, p. 202.

† Lord Sheffield's *Observations on the Manufactures of Ireland*, p. 202. Wallace's *Essay on the Manufactures of Ireland*, p. 196.

‡ If it be any consolation to the Irish, I can assure them, that the acts of parliament which monopolize the growth of English wools to the English manufacturers, are no less oppressive and tyrannical than those which were acted upon against Ireland. At this moment, the farmers in all the maritime counties of this island exist by the negligence and supineness of the officers of the excise, as the act of 1788 has imposed penalties on them for the non-performance of entries, a regulation to which it is impossible for them to conform.

placed in this respect upon an equal footing. Ten years, however, the time elapsed since that fortunate event, are too short a period to admit of any material improvement, or to afford room for enterprise and industry, to shew their beneficial results.

In considering the disadvantages which this manufacture has to encounter, I shall observe, in the first place, that Ireland is by no means a country favourable to the consumption of mutton, as I have remarked in the chapter on habits and manners. The consequence is, that a great number of her sheep, when fit for the butcher, are sent to England, thereby decreasing the supply of the raw material; and the quantity produced in the country is almost all used by the poorer classes, who in general wear dresses made of woollen stuffs and linsey:

As the most important object is to create a demand, which of itself would, in all probability, cause an increase of the raw material, the worst consequence arising from the conduct of England towards Ireland has been, that it has prevented the exportation of wool in a manufactured state. This, and the minute division of land, which renders every man an artificer, making the women become the manufacturers of their own clothing, has been attended with the worst consequences to the woollen trade of Ireland, in every part of the country, except among the northern manufacturers, who wear linen and cotton. All the wool that is shorn is made into frieze and linsey by the proprietors of the stock, who card, spin, weave, dye, and consume it; and, indeed, their own wool is by no means sufficient to supply their wants, for in all the accounts of "conveniences," which I have seen, one article has invariably been for so many stones of wool. In the manufacturing of their cloth and stuffs, these poor people display great ingenuity; instead of using oil in the weaving, as is the case in all woollen manufactories, they extract in the summer time the juice of the fern-root, which they find to answer the purpose; and for dyeing, they employ the indigenous vegetable productions of the country, such as twigs of the alder, walnut, and oak trees, elder berries, &c. &c. Mr. Fraser, in his Survey of Wicklow, published in 1801, says, "in this county a kind of frieze and ratteen, of pretty good quality, is very generally made for domestic uses;"* and Mr. Tighe remarks, "that the common farmers and cotters manufacture frieze and stockings for their own use, and also linseys and flannels; but except in

conform. It was introduced into parliament in consequence of a meeting held at Exeter, March 1st, 1796, when the following regulations were agreed to: "That every grower of wool in the kingdom should register on oath, within ten days after the shearing, the number of fleeces he has shorn, and where lodged." The evidence given then before the House of Commons, particularly that of Sir Joseph Banks and Mr. Young, and the remarks of the council against the bill, who was Mr., now Lord Erskine, were highly important. Were this a proper place I could prove that the woollen manufacturers of England, in consequence of the acts in their favour, pocket annually £3,000,000. of the income of the land owners.

* Page 261.

Iverk, very little for sale.* In Clare also, according to Mr. Dutton, "the usual clothing for the men is frieze, made at home by the wife or daughters, who all manufacture a sufficient quantity for the family, and frequently have some for sale; it is much better than that made by manufacturers for shops. The petticoats of the women are often of this kind, but more frequently of a coarse flannel, dyed a bad red, which they also generally make and dye themselves."†

Breeding flocks are kept in the west of Ireland, and it is by sheep of this description that the greatest quantity of wool is produced; that obtained from sheep fattened for the butcher is trifling in quantity. The wool is sold annually at Ballinasloe and Mullingar; but in such a manner, especially at the former, as deserves to be mentioned, because it tends to exhibit some traits of the national character, and to shew what progress they have made in the manner of transacting business. On this subject I shall borrow the account of Mr. Dutton, which exactly coincides with what was related to myself. "Buyers from Cork and Limerick generally go to the growers' houses and make such bargains as they can, and pay in bills at various dates. This method is much better for both buyer and seller, than losing their time and money, by striving to tease each other into a sale, as is practised at Ballinasloe, at the wool fair in July. It is perfectly ridiculous to see sensible men walking about the streets of Ballinasloe, the buyers on one side and the sellers on the other, for often six weeks and more. This has been carried so far sometimes, that the buyers have made parties to take a tour to Killarney, or elsewhere, for a fortnight or more, thinking to tire the sellers into a bargain. Some regulations have lately been adopted, which, it is hoped, will be for mutual benefit; perhaps, an auction, as has been practised in Dublin for South Down, would be the best method."‡

In the wool trade, in Ireland, there are no persons of that description, known in England under the appellation of wool-breakers. There are plenty of wool-merchants to buy the whole fleeces, but none who understand the art of sorting it. As the laws have allowed the exportation of wool in the state of yarn, the principal part of the Irish wool was purchased by the merchants in the south of Ireland, where it was spun and conveyed to factors in Norwich, who sold it to manufacturers in that city,§ Ipswich, Colchester, Bocking, Braintree, &c. where it was made into

* Survey of Kilkenny, p. 523.

† Survey of Clare, p. 179.

‡ Ibid. p. 133.

§ Oct. 11th, 1808. Tipperary. Castlelaugh.—Women spin worsted in this neighbourhood at one penny per skein. They can spin three skeins per day; eight, ten, or twelve skeins, according to the fineness, make a ball, and a ball weighs a pound and a half.

Nov. 12th. Castlemartyr.—From this place to Brandon, there is a considerable quantity of camblets manufactured, and a large exportation of woollen yarn, chiefly to Norwich. Twenty-four ounces of wool,
according

camblets and baize, for which it appears to be well adapted. Some broad cloth was, and still is, manufactured at Carrick on Suir; but before this trade can be beneficially carried on, there must be an intermediate manufacturer, known in England by the name of the rough cloth maker, who never attempts either to mill or dress the article. The manufactory at Carrick has given rise to one for blankets at Kilkenny, which was first designed to carry off the coarse parts of the fleece; but both these manufactories are on the decline. The following account, drawn up for Mr. Tighe by Mr. Shee, will exhibit the state of the latter a few years ago:

“ State of the broad blanket manufacture at Kilkenny, 10th May, 1800:

Number of working looms which are supposed constantly in employment, as many are generally idle	} - -	50
Two journeymen weavers employed at each loam amounts to - - - - -	} - -	100
Master weavers - - - - -	- - -	30
Number of hands, men and women, employed in other parts of the manufacture - - - - -	} - -	.600
		<hr/>
		Total 780

Average number of pieces wove in the year, at one per week, 2,500; which selling, one with another, at £13. each, produces £32,500. of which the raw material of 22,500 stone of wool, amounts to - - -	} £.21,000	0	0	
7,500 gallons of oil - - - - -		2,250	0	0
12,500lbs. of brimstone for bleaching - - - - -		260	0	0
20,000lbs. of soap - - - - -		588	0	0
Journemen's wages, at 20s. per piece - - - - -		2,500	0	0
Spinning the yarn of each piece, £1. 2s. 9d. 2,500 yards - - - - -	} 2,843	15	0	
Milling and dressing, at 8s. each - - - - -		600	0	0
Leaving a profit to the master manufacturers of about 20s. a piece, or - - - - -	} 2,458	5	0	
		<hr/>		
		Total £.32,500	0	0

according to the fineness, make from nine to eighteen skeins of worsted, by the spinning of which a woman can earn two shillings per week. The fleece is first sorted, it is then washed with soap, and combed; during the latter operation, that part called the pinions, which is similar to tow or hemp, is taken out. Oil, at eight shillings per gallon, is used in this process; 20lbs. require a pint and a half. The wool is bought chiefly at Ballinasloe, and brought hither for this purpose.

WOOLLEN MANUFACTURE.

“The work is done by the piece, two workmen sit at one loom, and might manufacture a piece and a half each week if constantly at work, but they generally do more than one.

“There is also a manufacture of coarse blankets, or cadows, carried on here, but it is on the decline, employing at present about one-tenth or twelfth of the hands the broad blankets do; they are about from 27 to 36 inches wide, and are used in barracks for the army, and by merchants for packing up fine goods.

“The greatest capital supposed at any time to have been employed in woollen manufactures at Kilkenny is £36,000. and to have supported between 200 and 300 families, or about 800 persons.”*

There is a flannel manufactory in the county of Wicklow, and a flannel hall has been built by Earl Fitzwilliam at Rathdrum, which, according to account of Mr. Wainwright, cost £3,500. His lordship receives 2*d.* on the sale of each piece, consisting of twelve yards, of the value of from 1*s.* 2*d.* to 2*s.* 6*d.* per yard; but the trade is not increasing, as will be seen by the following return, which was furnished to me by Mr. Wainwright, through the hands of Lord Milton, to both of whom I beg leave to acknowledge my obligation.

“An account of the number of pieces of flannel that have been admitted into the Flannel Hall at Rathdrum, in the county of Wicklow, from 25th March, 1794, to 25th March, 1809:

		PIECES.	
“From 25th March, 1794, to 25th March, 1795	-	5034	
1795	- - 1796	6121	
1796	- - 1797	6341	
1797	- - 1798	6348	} The country in rebellion, and the Hall, for the most part, occupied by the army.
1798	- - 1799	899	
1802	- - 1803	1329	
1803	- - 1804	3793	
1804	- - 1805	5296	
1805	- - 1806	5853	
1806	- - 1807	5330	
1807	- - 1808	4793	
1808	- - 1809	5905	

Total 55042

“It is to be observed, that the fairs are held on the first Monday in every month, except in July, when the fair is held on the second Monday; and 2*d.* per piece is paid on admission.”

The growth of fine wools in Ireland is as yet confined to a few places, as will appear by the subjoined returns of the annual sale of the two last years.

* Tighe's Survey of Kilkenny, p. 547.

WOOLLEN MANUFACTURE.

713

"ANNUAL SALE OF CLOTHING WOOL GROWN IN IRELAND,

"SOLD BY AUCTION, JULY 17, 1809,

"AT THE WOOL STORES OF JOHN AND WILLIAM BERRY, NORTH ANNE-STREET, DUBLIN.

"We have great pleasure in laying before our readers the annexed statement, as it proves that the measures adopted by the Farming Society of Ireland are likely to be productive of great advantages, both to the woollen manufacture and to the sheep farmers. The manufacturers have taken a liberal view of the subject, and while they contend, with a spirited emulation, for the premiums offered by the Society, they hold out the bounty of high prices for Irish wool of an extraordinary good quality. The statement before us, which is a most useful and important document, furnishes the breeders of fine-woolled sheep with several useful instructions. First, it proves the great advantage of selection, by the superior prices obtained for the best lots of South Down wool. Secondly, the advantage of effectually washing the sheep before they are shorn; for though a loss in weight is thereby occasioned, it is more than compensated by an increase in price, provided the fleeces are carefully made up. Thirdly, it is observable, that the largest lots of wool brought the best prices; a great encouragement to the breeders who have paid attention to the increase and improving of their flocks. Many of the small lots were sold for less than their value, as they were not an object to the purchasers. The finest South Down fleeces, though lightest, were the most valuable."

Owners.	Breed of Sheep.	Quality.	Fleeces.	Weight		Average Weight of each Fleece.	Price per lb.	Price per Stone of 16 lbs.	Amount.
				in lbs.	Avoid.				
Lord Castlereote	South Down		19	Nt.	lb. oz.	s. d.	£. s. d.	£. s. d.	
Mr. Parnell	South Down and Wicklow	best	43	2 5	5 2	4 2 8	11 2 2		
Do.	South Down and Wicklow	second	66	195 3 0	2 5	1 18 8	23 11 3		
Do.	Spanish		192	510 2 12	2 4	1 17 4	59 10 0		
Do.	Half-bred Spanish		29	72 2 8½	8 7	6 17 4	30 18 0		
Do.	South Down		66	155 2 6½	5 0	4 0 0	38 15 0		
Lord Clermont	South Down	best	207	571 2 13½	5 1	4 1 4	145 2 7		
Do.	South Down	second	59	226 4 0	1 8	1 6 6	18 16 8		
Rev. James Symes	South Down	best	96	197 2 2	7 0	3 12 9	68 19 0		
Do.	South Down	second	66	184 2 14	4 2	3 6 8	38 6 8		
Do.	South Down and Wicklow		29	102 3 10	2 6	2 0 0	15 15 0		
Do.	Hogget Fleece, South Down		1	2 2 0	3 8	2 12 0	0 6 6		
Marquis of Sligo	South Down	best	284	687 2 7½	5 3	4 4 0	180 6 9		
Do.	South Down	second	120	377 3 3½	2 6	2 0 0	47 2 6		
Earl of Farnham	Exmore (combing wool)		23	105 4 11	1 7	1 5 4	8 6 3		
Do.	Spanish and Ryland		18	78 4 7	3 0	2 8 0	11 14 0		
Do.	Spanish and Exmore		32	137 4 6½	2 0	1 12 0	18 14 0		
Lord Ashtown	South Down	best	33	96 3 0	3 3	2 12 0	15 12 0		
Do.	South Down	second	16	66 4 4	2 6	2 0 0	8 5 0		
Mr. Rushford	South Down		19	36 2 0	2 3	1 16 0	4 1 0		
Mr. W.	South Down	best	16	44 2 13	2 8	2 2 8	5 17 4		
Do.	South Down	second	15	41 2 13	2 0	1 10 0	4 2 0		
Col. Browne	South Down		28	84 3 1	3 6	2 16 0	14 11 0		
Mr. Mood	South Down		25	63 2 9½	2 9	2 0 0	8 13 3		
Mr. Francis Trench	South Down	best	21	56 2 12	3 2	2 10 8	8 17 0		
Do.	South Down	second	23	101 2 11½	1 10	1 9 4	9 6 9		
Mr. Grierson	South Down	best	211	538 2 9½	6 0	4 16 0	101 8 0		
Do.	South Down	second	54	182 3 7½	2 7	2 1 4	23 10 2		
Do.	South Down	third	8	25 3 4	2 0	1 12 0	2 10 0		
Mr. Wynne	South Down	best	85	186 2 4	8 6	6 16 0	79 1 0		
Do.	South Down	second	105	491 2 12½	5 11	4 14 8	146 2 10		
Do.	South Down	third	76	42 134 3 4	2 10	2 5 4	18 14 0		
Do.	South Down	fourth	33	92 8 0	3 9	3 0 0	17 5 0		
Mr. Stoney	South Down	best	20	62 3 3½	1 7	1 5 4	4 18 2		
Do.	South Down	second	4	12 3 0	1 9	1 8 0	1 1 0		
Mr. Stoney's Friend	South Down		2	6 3 0	9 0	7 4 0	2 14 0		
Mr. Evans	Merino		1	6 6 6	4 9	3 16 0	1 8 6		
Do.	Merino, Ram Fleece		17	41 2 8	2 0	1 12 0	4 2 0		
Mr. Nunn	South Down								
Fleeces			2166	6004				1251 8 1	

Total average price { per lb. - 0 4 2 and a small fraction.
per Stone 3 6 8

“Annual Sale of Clothing Wool grown in Ireland, Sold by Auction, at the Farming Society House, Summer Hill, Dublin, by John and William Berry, August 29th. 1810.”

Owners.	Breed of Sheep.	Quality.	No. of Pieces.	Average Weight of each Fleecce.		Price per lb.		Price per Stone.		Amount.				
				Weight in lbs. Avoid.	lb. oz.	s. d.	d.	£ s. d.	£ s. d.					
Rev. Dean Trench	Spanish and Ryland	best	77	Nl.	267	3	7	2	10	2	5	4		
Do.	Spanish and Ryland	second	30	143	4	12	2	0	1	12	0	13	18	
Do.	Merino	-	1	5	5	0	5	0	4	0	0	1	5	
Earl of Meath	Wicklow	best	114	332	2	14	2	2	1	14	8	35	2	
Do.	Wicklow	second	186	653	3	8	1	9	1	8	0	55	14	
Do.	S. Down, & Wicklow Cross	best	105	270	2	9	4	2	3	6	8	54	15	
Do.	Do. and Do.	second	45	143	3	3	2	2	1	14	8	15	1	
Lord Vis. Clermont	South Down	best	109	299	2	12	5	6	4	8	0	80	6	
Do.	South Down, (sandy)	second	17	54	3	3	3	9	3	0	0	9	18	
Do.	South Down	third	28	119	4	4	2	0	1	12	0	11	12	
Rev. James Symes	South Down	best	29	186	2	0	6	5	6	14	8	76	3	
Do.	South Down	second	53	150	2	13	4	5	3	10	8	32	4	
Do.	Half-bred South Down	-	38	142	3	12	2	6	2	0	0	17	5	
Mr. Green	S. Down, & Wicklow Cross	-	35	85	2	7	4	2	3	6	8	17	5	
Mr. Bolton	South Down	-	12	30	2	8	3	1	2	9	4	4	9	
Do.	S. Down, & Leicester Cross	-	11	44	4	0	1	5	1	2	8	3	0	
Rcv. Mr. Dudley	South Down	-	95	232	2	7	7	0	5	12	0	79	2	
Do.	Merino Ram	-	1	5	0	0	8	9	6	12	0	2	3	
Mr. Aldworth	South Down	-	117	332	2	13	3	7	2	17	4	58	1	
Lord Castlecoote	South Down	-	38	95	2	8	4	4	3	9	4	19	8	
Mr. Rob. Latouche	South Down	best	46	134	3	0	5	0	4	0	0	32	15	
Do.	South Down	second	21	76	3	11	2	0	1	12	0	7	0	
Mr. Stoney	South Down	-	64	189	2	15	3	1	2	9	4	28	7	
Rev. C. C. Beresford	South Down	best	185	422	2	4	7	10	6	5	4	161	7	
Do.	South Down	second	28	87	3	2	2	2	1	14	8	9	4	
Sir Geo. Hill, Bart.	South Down	-	56	183	3	4	2	4	1	17	4	20	15	
Mr. John Trench	South Down	-	35	89	2	9	3	0	2	8	0	13	1	
Lord Vis. Doneraile	South Down	best	116	340	3	0	4	8	3	14	8	77	9	
Do.	South Down	second	45	158	3	8	2	1	1	13	4	16	0	
Lord Dunnaile,	South Down	best	44	137	3	2	2	8	2	2	8	17	4	
Do.	South Down	second	24	94	3	14	1	10	1	9	4	8	8	
Mr. Wm. P. Hayes	Spanish	-	134	341	2	8	4	10	3	17	4	80	9	
Do.	Half-bred Spanish	-	73	211	2	14	3	3	2	12	0	33	9	
Do.	South Down	-	111	280	2	8	3	2	2	10	8	43	4	
Do.	South Down and Wicklow	-	129	338	2	12	1	10	1	9	4	31	10	
Do.	S. Down & Wicklow, (culls)	-	124	424	3	6	1	7	1	5	4	32	5	
Mr. Wynne	South Down	best	150	317	2	2	6	7	5	5	4	101	14	
Do.	South Down	second	182	505	2	12	4	1	3	5	4	100	13	
Do.	Merino	-	13	45	3	7	8	0	6	8	0	17	2	
Marquis of Sligo	South Down	best	90	194	2	2	6	11	5	10	8	65	7	
Do.	South Down	second	288	797	2	12	4	3	3	8	0	165	6	
Do.	South Down	third	156	533	3	6	2	3	1	16	0	58	10	
Mr. Critchley	South Down	best	94	236	2	8	6	6	5	4	0	74	15	
Do.	South Down	second	104	364	3	8	3	0	3	1	4	68	0	
Do.	South Down and Wicklow	-	337	833	2	8	3	6	2	16	0	145	15	
Do.	S. Down, & Leicester Cross	-	34	92	3	13	1	11	1	10	8	8	12	
Lord Ashdown	South Down	-	65	220	3	6	3	4	2	13	4	35	13	
Mr. Grierson	South Down	best	172	363	2	2	5	7	4	9	4	98	16	
Do.	South Down	second	28	85	3	0	4	9	3	16	0	19	14	
Do.	South Down	third	132	416	3	2	3	4	2	13	4	67	14	
Lord Powerscourt	South Down	best	98	287	2	15	4	4	3	9	4	60	13	
Do.	South Down	second	29	112	3	14	2	8	2	1	4	14	10	
Mr. Blashford	South Down	-	24	62	2	9	4	1	3	5	4	12	5	
Do.	South Down and Wicklow	-	15	46	3	0	2	1	1	13	4	4	13	
Do.	Merino	-	1	6	6	0	7	5	5	18	8	2	4	
Mr. Endson	South Down	-	9	24	2	10	4	4	3	9	4	4	19	
Mr. Culburn	South Down	-	11	32	2	14	2	4	1	7	4	3	12	
Mr. Garrett	South Down	-	10	30	3	0	3	4	2	13	4	4	13	
Mr. Brownrigg	South Down	-	14	36	2	9	2	21	2	6	8	5	2	
Mr. Evans	Merino	-	3	26	3	0	8	0	2	6	8	10	0	
Mr. Ferry	Merino	-	4	15	3	12	8	0	6	8	0	6	0	
			4194	12807							2295		18	6

Total average Price, per lb. £0. 8s. 9d. nearly.

Do. Do. per stone 2. 19s. 10¹/₂d.

WOOLLEN MANUFACTURE.

715

LAMBS' WOOL.

Owners.	Breed of Sheep.	Quality.	No. of Fleeces.	Weight in lbs. Avoird.	Average Weight of each Fleece.		Price per lb.		Price per Stone.		Amount.	
					lb. oz.	s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.		
Rev. James Symes	South Down	-	-	31	-	5 2	4 2 8	7 15 0				
Do	South Down and Wicklow	-	-	17	-	4 2	3 6 8	3 10 10				
Mr. Wynne	South Down	-	-	45	-	4 7	3 13 4	10 6 3				
Do.	Do. crossed with Merino	-	-	74	-	6 8	5 6 8	24 0 0				
Mr. Parnell Hayes	Spanish	-	-	88	-	4 9	3 16 0	20 8 6				
Rev. C. C. Beresford	South Down	-	-	104	-	2 3	1 16 0	11 7 3				
Mr. Critchley	South Down	-	-	42	-	5 5	4 6 8	11 2 1				
Mr. Grierson	Do. and Spanish Cross	-	-	78	-	6 2	4 18 8	23 8 8				
Do.	South Down	-	-	75	-	3 7	2 17 4	13 1 7				
				534							2520 18 8	

Total average Price of Lambs Wool, per lb. £0. 4s. 6d.
Do. Do. per stone 3. 12s. 2½d.

To persons in England acquainted with the wool trade, the high prices at the foregoing market must appear very extraordinary; but it is to be observed, that the value of the article is affected by the premium offered by the Farming Society, for the best piece of cloth manufactured of Irish wool. This inducement occasions at present a competition among the buyers; but when an adequate supply is produced, the prices will probably fall to a level with those given for English wool, the free importation of which is allowed by the Act of Union. This point has been very fairly stated in the report of the Society, and as it shews what expectations are to be entertained in regard to the improvement of wool in Ireland, I have here transcribed it.

“ The sale of fine wool, at the Wool Store of the Farming Society of Ireland, Summer Hill, which took place yesterday, presented to the persons assembled, a very interesting scene.

“ The parcels belonged to thirty individuals; chiefly members of the society, and were arranged along the sides, and through the centre of the store, a room 100 feet by 30, well lighted and fitted up, in divisions regularly numbered, and docketed with the names of the grower, the precise number of fleeces, and the particular breed or cross from which they were produced. Small tickets of numbers corresponding with those of the divisions, were thrown into a hat; and, as each ticket was drawn, the parcel to which it referred was set up by auction. The manufacturers bid in a manner which evinced their liberality and public spirit, and before six o'clock, the whole was disposed of. Each pack, previous to the day of sale, had been opened by Mr. John Berry, who conducted this business for the society with the greatest skill and assiduity. The fleeces of the respective parcels were sorted, according to their quality, into two or three lots; and such was the confidence of

the buyers, that they bid with as little hesitation as if they had examined every fleece. This practice was adopted last year, and nothing has tended so much to improve the clothing-wool of Ireland, as the palpable difference in value, between the sorted lots of the same individuals. The sheep farmers now see the great advantage of breeding from fine woolled rams, and are culling their ewes with so much care, that in a few years, no judicious breeder will have a coarse woolled sheep in his flock.

“ The prices were such as must excite in the growers every possible attention to an object of such importance. Those whose superior lots were sold at advanced rates, will naturally continue and extend the practice, by which they have gained such manifest advantage—and those, who had the mortification to fall so far short of their successful competitors upon an article nominally the same, will begin to consider the causes of the deficiency, and to remedy the negligence of their stewards or shepherds, by the interposition of their own judgment; for we cannot suppose the respectable manufacturers who attended the sale (nearly thirty buyers) to have purchased either capriciously or ignorantly; and their avidity to possess good wool at any rate, particularly towards the close of the sale, is a proof that the low-priced parcels must have had in them some inherent blemishes, which the exertions of the grower may hereafter correct. This is to be done by attention to the quality of the fleece, in selecting the individuals put to breed—by keeping the animal in a healthy state—by the most minute care in washing the wool on the sheep’s back—by preserving it clean till the time of shearing, and by making up the fleece neatly and carefully: Though washing in this manner will reduce the average weight of the fleece, it will nevertheless advance the value of the wool in a proportion infinitely more advantageous to the seller.

“ It must be peculiarly gratifying to the society to find that the improvement which they have so zealously promoted in the county of Wicklow, by the donation of South Down rams, and by their premiums for that cross upon the mountain ewe, has been attended with such advantage as the sale of that species of wool yesterday proved; a parcel of 337 fleeces, belonging to Mr. Critchley, having gone at 3*s.* 6*d.* per lb.—and one of the Earl of Meath’s, of 105 fleeces, so high as 4*s.* 2*d.*—A large lot of his Lordship’s wool, taken promiscuously from the Wicklow flock, sold at 2*s.* per lb., which circumstance exhibits an advantage of above 100 per cent. upon the first cross; and if calculated from the native wool to the highest price of South Down, which was above 8*s.* per lb. and to which, by three more crosses, the mountain wool may nearly arrive, the difference in gain would be 300 per cent.: and though it is not expected or wished, that upon future increase of the material, those extraordinary prices should continue, which are now, in a great measure, to be attributed to the emulation with which the manufacturers are contending for the premiums offered by the Farming Society, for Irish superfine cloth, kerseymere, &c.; yet it is obvious,

that the approved quality of the article must always command a superiority, and the more so, when by an overflowing market, the general prices shall be reduced.

“ There is every reason to expect a still further and rapid improvement in the wool of Ireland, by the introduction of the Merino sheep, a large lot of which, of choice quality, has been lately imported and disposed of at Cork.*

“ The Farming Society of Ireland, by deputing some of the committee to attend that sale, have succeeded in keeping the sheep in this country (which might otherwise have been re-shipped for another market), and will be enabled to place the lots they have purchased, in the hands of judicious breeders. Another importation has just arrived, and will, most probably, be disposed of at the fair of Ballinasloe.

“ The Society have also, by several premiums, held out liberal encouragement to the establishment of this most valuable breed.

“ There can be little doubt, therefore, that the next year will add many parcels of the Merino to the sales of fine wool, at the Society's stores. Yesterday but a few small lots and single fleeces were sold for about 8s. per lb. *the quantity not being sufficient to attract the attention of the buyers.* It is worthy of remark, that in the year 1807, about 100 fleeces of fine wool constituted the entire sale, which yesterday comprised 4494.

“ The flock-owner and manufacturer seemed mutually pleased, the one with the price, the other with the quality of what he purchased. The day went off in the most satisfactory manner, and with a spirit ominous of much prosperity to the agricultural and manufacturing interests of Ireland.—*August 30, 1810.*”

A small quantity of broad cloth is manufactured in Dublin, and within these few years, a Yorkshire firm has been driven to Cellbridge in the county of Kildare, where they have established the shearing machinery, which the Yorkshire manufacturers would not permit to be employed in their own country.†

* Upwards of 200 were sold at Ballinasloe, from £2. to £6. each, for ewes.

† November 26, 1809. Castle Brown.—Yesterday I inspected a woollen manufactory lately established at Cellbridge, near this place, by an English firm, Messrs. Atkinson and Co. on the lands of the late Mr. Connolly. They import much of their wool from England, and purchase it in the fleece; the rest is wool produced by the mountain sheep of this country. The first operation is, that of breaking the fleece; the wool is divided according to its fineness and length of staple, or thread, because the shorter wool will bear to be twisted much finer than the long, and consequently is employed for superfine cloths, while the long is manufactured into stuffs: the coarser fleeces are used for making blankets and worsted yarn. The fine sorts are dyed with woad, indigo, &c. which is ground with machinery. When the wool is dyed, it is spread out on a sort of table, and taken up by a revolving wheel, furnished with teeth; it passes through a great number of these wheels, and this operation, which is ordinarily done by hand, is called carding. It is then subjected to another machine, which delivers it in the form of ropes, but exceedingly loose; and it is then carried by children to another part of the manufactory, where it is spun by machinery in the same manner as cotton and linen yarn, and twisted into bobbins; all this is performed by machinery, and children, with the assistance of a few women who attend them. The children earn from 3s. 6d. to 4s. per week; after these operations, the yarn

It will be seen in the chapter on agriculture, that I have expressed an opinion, that a great part of the south of Ireland is, by nature, favourable to the production of wool; but, notwithstanding this advantage, every thing belonging to the manufacture of broad cloth, is still in its infancy, and there are not more fine woolled sheep in the whole country, than may be found in the possession of many individuals, both in Norfolk and in Sussex. Besides the manufacturers who have commenced this branch of business in Ireland, do not thoroughly understand it in any of its stages, and even those gentlemen established at Cellbridge are from a part of England where none but coarse cloths are made. It is in the west that the fine broad cloth is prepared; and it is only by employing persons who have been regularly brought up there to this branch of industry, that it can ever be carried to any degree of perfection.

The goods of this kind imported, will be seen in the general table of imports, inserted in the chapter on commerce.

The importation, on the first view, must appear immense, and affords a strong proof, either that the woollen manufacture in Ireland is very much on the decline, or that population, and a taste for a superior mode of living, have considerably increased in that country. But although the manufacture may have decreased at Middleton, Carrick, and Kilkenny, it is evidently upon the increase, and, therefore, it may be fairly concluded, that this great demand for woollen articles arises from an increase of numbers, or a greater degree of luxury among the inhabitants, who, through a change of habits arising from a degree of comparative opulence, are induced to supply themselves with many comforts, to which they were before strangers.

Lord Sheffield has made some excellent remarks on this manufacture, which have been transcribed without any acknowledgment, into Wallace's Essay, and by Mr. Nixon, in Observations on the Growth of Wool, whence they have been re-copied into Archer's Survey of Dublin.*

The work of the noble Lord deserves to be consulted by those who are desi-

is wove into broad cloth by the yard. At task work, a good weaver can earn a guinea per week. The nap is finally sheared off by machinery. The cloth being spread out on a cushion, an immense pair of shears is stretched across the cloth, one blade of which moves very gently lengthwise, while the other is made to move with great rapidity, both acting in the same manner as a pair of scissars when cutting. The long wool is carried to another part of the manufactory, where it is made into stuffs, which are dyed after they are wove. The whole is sold in Dublin, where the demand exceeds the quantity manufactured. As no dust is produced by the woollen manufacture, it is not considered to be so unhealthy as that of cotton or linen. The working day consists of thirteen hours, out of which the people employed are allowed half an hour for breakfast, and an hour for dinner. The buildings are warmed by means of flues, through which steam is conducted to the different apartments. An attempt was made to introduce a part of this machinery into Yorkshire, but the narrow policy and ignorance of the manufacturers would not suffer it to be used. The buildings are lighted with candles and oil, but the proprietor has it in contemplation to make a trial of gas.

* Page 162, see p. 170, MSS.

rous of farther information on this subject; but I cannot help remarking upon a note, in which his Lordship recommends a cross of Mr. Bakewell's rams with the South Down sheep.* His Lordship, who had long paid a close attention to the woollen trade, must, I presume, have altered this opinion; for it is well known, that in fine cloths, the texture depends very much on the shortness of the pile, by which the greatest number of ends are left.† Wool, of a fine long staple, is scarcely fit for any part of the manufacture except stuffs, and therefore, the effect of crossing with the Leicestershire breed, or the South Down, would be the adding to the length of its pile; this system, if pursued, would in the end, render the fleece, like the long coarse Lincolnshire, fit only for blankets or worsted yarn. Mr. Bakewell never considered wool as an object, and he has frequently been heard to say, that as mutton was his aim, he did not care if the animal had no fleece. The introduction of this breed into Sussex, might produce an alteration, but would not certainly be attended with improvement.

To those desirous of becoming acquainted with the woollen trade, the invaluable tracts collected by Dr. John Smith,‡ will afford ample information; but to those whose object is the improvement of the fleece, or the acquirement of a knowledge of the state of the English wool, I would strongly recommend the recent publication of Mr. John Luccock, of Leeds.§ The celebrated and philanthropic Day, is also the author of some excellent tracts upon this subject.

One thing in regard to the improvement of wool, which deserves particular notice, is the effect produced by the distribution of premiums. If the Farming Society of Ireland would attentively consider the observations made by Mr. Young, on the Dublin Society,|| they would, undoubtedly, be convinced of the serious injury which the premiums of the latter once did to the interest of the woollen manufacture in Ireland. Any one acquainted with this subject, who has seen that country, and examined its local advantages, might easily suggest a plan far superior to that of offering premiums, and much better calculated to promote the desired end. Instead of raising the price of fine wool to the manufacturer, as is done by the present system, if the Society would establish a South Down breeder on the Wicklow mountains, with a flock of five or six hundred ewes, which would be sufficiently numerous to admit of selection, these barren and useless tracts, however unpromising their aspect, would soon afford the means of clothing, in home-manufacture, to the upper ranks in Ireland. In the course of a few years, these unprofitable hills, covered with flocks, would pre-

* Page 163.

† This is explained by the memoir of Mr. Nixon, who was a manufacturer in Archer's Survey of Dublin, page 65.

‡ Published at London, 1747.

§ Luccock on Wool, published in 1805.

|| Tour in Ireland, Part ii. p. 68.

sent a more grateful spectacle to the eye ; and new activity would be communicated to the woollen manufactories throughout the whole country. Workmen might easily be obtained, and skill can be acquired by practice ; nothing, therefore, is wanted, but a little more enterprise, and the example of some liberal-minded person to excite a spirit of emulation. It is well known how much has been done in England by one intelligent individual, Mr. Ellman. Another Ellman is not every day to be expected ; but one of inferior talents, if inspired with only a part of his ardour for improvement, would effect more in a short space of time, than can be accomplished in twenty years, by the occasional purchases of a few South Down sheep by gentlemen at Woburn. A small number of fine woollled sheep in the possession of one of these gentlemen, let him be ever so good a judge, will be attended with very little advantage. The plan must be taken up and conducted on a more extensive scale. It is only by unremitting attention, and by having plenty of room for drafting ewes, adapted to the proper sires, that the breed can be finally established. The present attempts to introduce the Merino sheep, seem to be commencing at the wrong end. Man must creep before he can walk ; and he who strives to run, unless he has been properly accustomed to the use of his limbs, will, undoubtedly, meet with disappointment.

It appears that the French government have been seized with this mania ; but Talleyrand is no longer minister, and the childish ignorance it has betrayed in attempts to create the raw material, employed in various kinds of manufacture, exceeds all belief. I have now before me a report of M. Montalivet, the minister of the interior, on the subject of Spanish sheep ; and a greater display of erroneous principles could not, in my opinion, have been drawn up. It begins with recommending that all the Merino male lambs should be preserved as rams. I saw the same system pursued a few years ago in this country, with the flock belonging to His Majesty. But the absurdity is so apparent, on the slightest examination, that it is impossible to conceive how it could have met with the smallest countenance or support. We have in England two established breeds brought to perfection, and now widely distributed throughout the empire ; and it will be found, on inquiring into the means by which this has been effected, that a system directly opposite to that recommended in the French report, has been pursued.

No male lambs are saved from any ewes but those of the best kind ; and of those that are saved, I think I may venture to assert, that not above one in eight is ever used for the purpose of breeding ; and it is very probable that neither Mr. Ellman himself, nor the Leicester society, would use more than one in a hundred of those which they rear. Nicety of selection has brought these kinds of sheep to perfection in England, and, consequently, neglect of this principle, would render them a race of animals as disgraceful as they are now creditable to the country, and seven years of saving all male lambs for procreation would cause them to degenerate.

TANNERIES.

In countries where the breeding of cattle has been considered of importance, the preparing of leather, for the various purposes of human comfort, has generally been practised with comparative success. This is the case, in particular, in Russia, where cattle are numerous, and where other animals, such as the elk and the buffalo, furnish abundance of the raw material to this branch of industry. At what period the Russians became acquainted with the process of tanning is not certain; but they manufacture, besides that kind of leather so well known under the name of Russia, white and brown leather for gloves, yellow chamois leather, and all sorts fit for boots, shoes, &c.

In Ireland, notwithstanding the number of cattle slaughtered every year, especially in the time of war, it does not appear that this occupation is carried on to such an extent as might be expected.

The want of oak bark is a great impediment to tanning in Ireland. Birch and alder bark are very much used as a substitute, but the chief obstacle to the good preparation of leather in that country, is the levying of the duty on the pit, in place of on the skin, as in England; this makes it the interest of the tanner to run as many hides through the same liquor as possible, whereby the skins are imperfectly prepared, the process being but half performed.

The importation of bark will be seen in the general table of imports.

An Account of the Amount of Bounties paid on Bark, imported in each of the following Years, ending 5th January in each Year.

	1801.	1802.	1803.	1804.	1805.	1806.	1807.	1808.	1809.	1810.	1811.	1812.
£.		936	1,968	3,275	3,777	8,708	9,402	6,111	1,232	1,868	1,381	

Of late years, a considerable improvement has been introduced into the tan-yards in England, being machinery employed for breaking the bark, and for separating the bad parts from the good. I saw none of this sort in Ireland. The astringent qualities of the bark are now chemically understood, and applied to tanning in a scientific manner, according to the latest improvements; but this business in Ireland is still in a state of infancy.

Gloves are manufactured in Ireland, but not to a great extent. Those called Limerick gloves are made of the skins of calves taken from fat cows when they are slaughtered, and sold at from 2s. to 3s. per head.

The stocking manufacture is carried on chiefly in Dublin, and is very much con-

fined to the preparation of coarse woollen articles, though it is certain that this branch might be very much extended. Lord Sheffield says, that above £7,500. went out of the country for thread stockings; above £3,000. for cotton; and above £2,000. for worsted, in the year ending 25th of March, 1783.*

Lace is not manufactured on a large scale in Ireland. I saw some poor children who were taught lace weaving by the daughters of a clergyman; and Mr. Tighe mentions a school in Kilkenny, where twelve girls were instructed in the same art.† At Abbeyleix there is a lace manufactory, but the quantity made is not of much importance.‡

Some *silk manufacture* was formerly carried on in Dublin; and at the time Lord Sheffield wrote his observations, the number of silk-weavers in that city was computed at 1,500, but I believe this branch is now very much on the decline. Mr. Wallace extols greatly the Irish silk handkerchiefs, as having "long enjoyed celebrity throughout Europe;"§ and Lord Sheffield, who thought the silk manufactures of Ireland not to be despised, says, "her white damasks and her lutestringes are very good; her silk pocket handkerchiefs are at least as good as any; her mixtures of silk are beautiful; her colours excel those of England, and her tabinets and poplins are well known and admired every where."||

Iron.—The second manufacture in England is that of iron, which arises from the great use made of this metal in the arts, and the many purposes to which it is now applied, that were unknown to our ancestors. This branch of industry

* Observations on the Manufactures, &c. of Ireland, p. 247.

† Survey of Kilkenny, p. 554.

‡ "The art of manufacturing lace was introduced into the Duchy of Holstein in 1647, from Dortmund, by the celebrated Steinbeck. It gives employment there to upwards of 10,000 females, in the neighbourhood of Tondern, some of whom earn by it from 40 to 60 dollars a year. Some of the lace is sold for from five to eight dollars per ell, (of two feet,) and is exported to Russia and other countries: the thread is brought from Brabant, Holland, and Westphalia, and the quantity annually used in the duchy costs about 70,000 dollars. In Tondern there are 13 manufactories, but in the adjacent district there are a great many, which give employment to a number of girls, and keep in their service men who go about with boxes under their arm, containing lace sometimes to the value of 1000 dollars, which they sell throughout the country." The author from whom this account is extracted, seems to doubt whether this branch of industry be beneficial to the state, because the women prefer lace working, by which they can gain considerable sums of money, to the more severe labours of agriculture, which are less profitable. He remarks also, that in consequence of their sedentary life, they conceive an attachment to coffee and tobacco, become weak and sickly, and either remain unmarried, or, if they change their condition, experience, when mothers, the most serious effects from their former confined mode of life. But, according to this way of reasoning, women should be interdicted from all occupations which confine them to sedentary occupations; for the same objections are applicable to spinning, as well as to needlework, and many other kinds of employment. See *L. M. Medels Reise igiennem de betydeligste og skioneste Egne af de Danske Provindser i aaren, 1779*, 1800, 1801. Kiøbenhavn, 1803, Andet hefte, p. 65.

§ An Essay on the Manufactures of Ireland, p. 203.

|| Observations on the Manufactures, &c. of Ireland, p. 193.

is particularly favoured by the inexhaustible supply of coals obtained from our numerous mines, and the great perfection to which machinery of every kind has been brought during the last fifty years. It may appear astonishing, therefore, that it has made so little progress in the sister kingdom. "In no country of Europe," says Mr. Wallace, "is better iron to be met with than Ireland may produce for all the common purposes, to which this metal is applicable; but this, like many other advantages placed by nature within our reach, we have, till very lately, suffered to lie unimproved."*

All the Irish historians, and writers on the resources of the country, but particularly Boate, speak of the manufacture of iron as having been in a most flourishing condition in Ireland, when its woods were in existence and afforded the necessary fuel. There can be no doubt that inexhaustible veins of iron ore are here to be found; but to convert it to any useful purpose, requires not only an abundant, but a cheap supply of fuel. By perusing the chapter on trees and planting, it will be seen, that when the forests of Ireland were destroyed, she lost the benefit of this manufacture, which is still carried on with great advantage in Sweden and Russia, where, in some parts, wood is considered an encumbrance. The bituminous coals of South Wales have established it in England; and the coals of Stirlingshire have afforded the means of carrying it on to a very great extent at Carron, a place which is now well known all over Europe. An attempt has been made at Arigna, in the county of Roscommon, to erect iron works on a considerable scale, and a report on the local advantages of the place, and the prospects it afforded, was drawn up by John Grieve, and has found its way into various publications in England: it is copied into "Frazer's Gleanings," published in 1802, and I should have allowed it a place here, had there been any probability of its proving useful; but the Messrs. Latouches, to whom this work belongs, have given it a fair and sufficient trial, under the direction of a gentleman experienced in the business, who informed me, in 1809, that there was little probability of its success; and I learned from Mr. Weaver, in 1811, that the further prosecution of the design had been abandoned.

Taking a comprehensive view, I consider the iron manufacture as lost to Ireland, through the want of fuel; and this, were proof necessary, furnishes a very convincing one, of the dearth of turf in that country.

To the same cause I ascribe the want of potteries for earthenware, similar to those which have succeeded in such an astonishing manner in Staffordshire, from their contiguity to the coal-pits of that county. Ireland possesses abundance of clay well adapted for the purpose, but till veins of bituminous coals are discovered in the country, such works cannot be contemplated with any hopes of success.

* Essay on the Manufactures of Ireland, p. 219.

Ireland is not without various other metals, but their advantageous application is prevented by the same circumstance. All the copper which was raised at Killarney, and in the county of Wicklow, was sent to Swansea to be smelted, the company finding it much cheaper to export the ore as taken from the mine, than to import coals to manufacture it. A stranger, however, who visits Ireland, will be amused with accounts of a very different kind. The people are all impressed with an idea that there is coal in various parts of the country; and they look at England with a jealous eye, for being in possession of manufactures, which they consider as belonging exclusively to them. When entertained with tales of this kind, I always observed, "If nature has supplied you with this coal, why do you not dig for it?—you might certainly afford to sell it at as low a price as coals are sold for in Wales, or in Staffordshire." But instead of answering this question, which they would have found it difficult to do in a satisfactory manner, a new objection was invariably started—namely, the want of capital, with them another term for the want of industry.

In regard to the Kilkenny coal, which is a stone coal, it is asserted, that it cannot be dug up at a less expense than would raise the price of it to three times the sum at which coals are sold at the pits at Swansea and Neath. But without enlarging on this subject, it may be admitted as certain, that Ireland, at present, is incapable of furnishing such a supply of fuel as is necessary for carrying on those manufactures for which large quantities are required. Under the head Fuel, I have particularly adverted to charred turf; but I am of opinion, that there are insurmountable objections to turf ever becoming a fuel to be placed in competition with bituminous coal; yet the best iron is made with charcoal, or rather charred wood. The difference of expense, however, between charred wood and charred turf, is a matter of some importance, and still remains to be determined. Park, the unfortunate African traveller, describes the ingenuity displayed by some nations in that unexplored continent, in the smelting of iron;* and the process they employ, shews, in a striking manner, what singular resources the untutored savage finds, when necessity stimulates his inventive powers. In a country where manufactures are so much in their infancy, as in Ireland, a similar plan might, perhaps, answer with charred turf: it could be pursued without sinking, in works and other buildings, in the first instance, an immense capital; and, as iron ore is every where found in abundance, if it succeeded, the manufacture might be established, at least on a small scale, in various places.

Hardware articles are manufactured in Dublin; and some coarse implements, such as reaping-hooks, scythes, or sheers, are made in the town of Carlow. In other towns of Ireland nothing of the kind is attempted; and yet it ought to be re-

* Travels in Africa, p. 283.

collected, that English coals can be purchased cheaper, even in the interior of the country, than in London, where, it is well known, many of the finer branches of this manufacture are pursued with great success. It is to be observed also, that there is a considerable difference between manufacturing coarse articles, which, to ensure a sale, must be low priced, and the preparing more highly finished ones, which render labour so exceedingly productive: those who manufacture the latter can afford to pay more for fuel, than those who carry on the coarser branches, which are less profitable. Lord Sheffield remarks, "that iron has this peculiar recommendation above almost all other manufactures, that, in every shape of it, its value is simply the product of the labour bestowed on it."* To convey the copper and lead ores of Ireland to an English coal-pit to be smelted, has been found more advantageous, than to transport coals to the place where the ores are dug up. But iron is of too little value to pay the price of transit; and, on that account, unless found in the neighbourhood of coals or wood, it cannot be afforded to the public at a vendible price. If the finer parts of the hardware manufacture, however, answer in London, there seems to be no reason why they should not answer in Dublin, or in any other place where English coals could be procured at an equally reasonable rate. This, indeed, would confine the trade within a very narrow compass, to the exclusion of the large articles, such as guns, cannon, naval and military stores, with every thing else which is made in our great manufactories. Disadvantages of this kind may be felt and regretted; but as Providence has distributed the gifts of nature in such a manner as to create a mutual dependence, we ought to be contented with our lot, and industry will always procure what we may, at first, consider as a deficiency. Every country enjoys some advantages which are not possessed by another. England has its wool and its coals; France, Spain, and Portugal, their wines; Italy and Turkey, their silk; Russia and Sweden, their iron and timber; America its tobacco; the West India Islands, their cotton and sugar; and China its tea. The productions of one region cannot be transplanted to another, according to the caprice of mortals; climate, and other local circumstances oppose it; and, if the attempt be made, they either cost too much labour and expense, or never attain to perfection. In consequence of this wise arrangement, the great family of mankind, however widely dispersed over the face of the earth, and separated by deserts, wilds, and extensive seas, are connected together in friendly intercourse, by means of that exchange of commodities, which is called commerce. Hence we are naturally led to a principle in political economy, which, though of very great importance, does not always meet with that attention which it deserves. When a country can import either the raw material, or the manufactured article, cheaper than it can produce them itself, im-

* Observations on the Manufactures, &c. of Ireland, p. 213.

portation becomes most advantageous, and ought to be preferred.* This is a maxim which should be pointed out to the people of Ireland, who, without allowing themselves time to reflect, always exclaim so loudly against importation from England. But this subject has been placed in such a clear light, and illustrated in so familiar a manner, by a late writer,† that, I flatter myself, it will be rendering a service to some of my readers, who may not, perhaps, have an opportunity of seeing the work itself, to transcribe the passage to which I allude. “Soil, climate, habitual direction of industry, and other particulars, render certain countries peculiarly fit for the production of certain commodities. The foreign commerce of a country may generally be said to consist in the exportation of the excess which it has produced of such commodities above the demand for home consumption, and in the importation of other commodities, to the production of which other countries are better adapted. An example will best explain the benefit of such interchanges to the several parties concerned in them.

“If England would, like France, devote her finest fields and vast quantities of manure to the growth of tobacco, without doubt she might produce enough of that article to supply her consumption, without any importation of it from Virginia. But as the climate of England is particularly favourable to pasturage, and consequently to the breeding of sheep; and on the contrary, the scorching sun of Virginia, and her extent of virgin soil, are ill adapted to pasturage, but yield tobacco of a superior quality to any grown in Europe; can there be a doubt, that both England and Virginia are gainers by exchanging the surplus wool of the one, for the surplus tobacco of the other?

“To make this still clearer, let us vary the terms by which value is usually designated, and instead of *pounds sterling* and dollars, speak of *days' labour*. Then I say:

“1st.—England parts with a thousand cwts. of woollen goods, which cost her a thousand days' labour in exchange for a quantity of tobacco, which would have cost her two hundred thousand, if she had raised it at home.

“2d.—Virginia, in exchange for tobacco, which only stood her one hundred thousand days' labour, receives woollen goods which would have required two hundred thousand, if in order to produce them she had converted her tobacco grounds into pastures, and her field labourers into spinners and weavers.

“In the like manner, the natural advantages of, perhaps, every branch of foreign commerce might be demonstrated, if the pieces of gold and silver transferred in the course of it were considered in their true character;—merely as counters employed to indicate value, and facilitate the operations of barter.”

* Mr. Huskinson adverts to this point in his Pamphlet on the Depreciation of Paper Currency, p. 65.

† Sir Francis D'Ivernois, in Effects of the Continental Blockade upon the Commerce, &c. of the British Islands, London, 1810, p. 7.

“ If governments,” continues the author, “ could, in stating their public accounts of commercial transactions, exhibit the value of commodities imported and exported in *days' labour* instead of *money*, the world would then perceive foreign commerce to be what it really is; a source of great mutual profit to all nations who carry it on, although some conceive that they gain nothing by it. Nay, even those which fancy that they are losers by it, would immediately perceive that they import the articles for which they have occasion, at much less cost than would be incurred to produce them at home, and that they receive for their surplus produce exported, considerably more than they could obtain by diverting to other objects the labour employed in producing those articles of export.”

Gunpowder. — Of this article there is no manufactory in Ireland, but that belonging to government, in the neighbourhood of Cork. Some particulars respecting it will be found under the head of national defence.

DISTILLATION.

Distilling, brewing, grinding corn, and curing provisions, though they do not properly fall under the denomination of manufactures, may be introduced here; because they are occupations, which, like manufactures, contribute to give employment to the people, and to render labour productive.

Of the arts exercised by mankind for the sake of gain, none, perhaps, considered in all its consequences, both immediate and remote, is attended with more pernicious effects to the interests of society, than that of distillation. The benefit which arises from it to the revenue, by increasing the amount of the excise, is always considered an advantage: but this is a fact which I deny, believing that the total revenue is lessened by the mass of vice, idleness, and misery, which this addition to the excise creates. The use of strong liquors, when they become general, is seldom confined within the bounds of moderation: besides injuring the health, and checking population, it tends in no small degree to vitiate the heart, and corrupt the morals, for it not only inflames the passions, and gives rise to quarrelling and broils, but in consequence of the temptation which it holds out to elude the duty by the establishment of private stills, introduces a regular system of fraud; and men, losing all sense of moral obligation, become bad citizens, habituated to a contempt for the laws. If the duty imposed is high, the inducement to pursue illicit distillation is rendered stronger; if it be lowered, facility to purchase spirits is increased, and the inferior classes, indulging in them without restraint, become melancholy victims to disease, wickedness, and poverty.

For the invention of this art, if any obligation can in such a case exist, we are indebted to the Arabians. About the end of the 13th century, the celebrated Raymond Lulli obtained a knowledge of it from these people, and communicated it to Arnold de Villanova. By the latter it was made known to some Genoese merchants,

who converted it to a source of profit, as they employed it in the preparation of brandy, which they put into small phials, and sold at a dear rate, throughout every part of Europe, as a valuable balsam, under the name of *aqua vite*. At first, this balsam, as it was called, was distilled from wine lees; but the Genoese soon discovered the method of preparing it from juicy fruits, and even from grain; and in the fifteenth century, on the decline of the Genoese trade, the secret was carried to other countries; but for a long time, these spiritous liquors were confined to the apothecaries' shops, where they were sold only as a medicine. They were not brought into general use till the sixteenth century, and seem first to have been introduced among the northern nations, where a strong inclination for them has since prevailed.* Storch thinks that they were made known to the Russians from the Crimea, at the period when it was in possession of the Genoese, and that as all savage nations are much attached to intoxicating things of every kind, they were substituted by them in the stead of mead, a liquor which they before used, and of which they were exceedingly fond.†

The distilleries in Ireland may be divided into two classes, the legal and the illicit; the former working under a license obtained from the government, and the latter privately, without paying duty. The suppression of the illegal stills, those sources of loss to the revenue, particularly when the duty is high, and the temptation to fraud great, has at all times engaged the attention of the legislature, and various means have been devised, and numerous laws enacted, with a view to remedy the evil. At one time, stills were allowed to be of any size, according to the option of the persons to whom they belonged; at another, they were limited, and during the period I was in Ireland, distillation was prohibited altogether, except from sugar, and even the drawing spirit from that article was restricted to some distilleries in Dublin. But, although the legal distilleries were thus nearly stopped, distillation from grain was carried on to a very great extent by the numerous adventurers who were making "pocheen" throughout all the northern counties; and this practice is now extending to the south, having long been established in Cavan, Fermanagh, Sligo, Donegal, and Tyrone. In whatever point of view the subject is considered, it has so great an influence on the manners and habits of a people, as, doubtless, to become a very important subject of investigation, and an inquiry into the causes of its increase, can alone lead to the means of restraining it. The principal reason of its extension, is, in my opinion, from the nature of the food used by a great portion of the inhabitants. Living partly on oatmeal, they get their corn ground without exciting any suspicion, which would instantly arise in other parts of Ireland; and to this may be added, the advantage of kilns for

* Treuers Erfindungsgeschichte des Branntweins in Scözers Briefwechsel. No. 37, p. 3. Leidenfrost's Revolutionen der Diät in Europa. Ibid. No. 44, p. 93.

† Hist. Stat. Gemälde des Russischen Reichs, vol. iii. p. 263.

drying their corn, which are universal throughout these counties, and in which both oats and barley are dried, previous to distillation. The law also, which imposes a fine of £50. on a town-land, parish, barony, or county, according to circumstances, on the discovery of an illicit still at work therein, instead of answering the purpose for which it was intended, has produced a contrary effect, and acted as an encouragement to the erection of new ones. Many a still, which was purchased originally for three guineas, has been sold, when burned out, for £50.* Had a reward been offered to the parish-officers for the discovery of stills, instead of subjecting them to a fine for one being found within their jurisdiction, they would have been as anxious to search for them, as they are now careful to conceal them from the officers of the revenue. It is a well-known fact, that the latter receive a more regular rent while the still is at work, than any landlord does for his land, and they often divide with the proprietor half the value of its sale, by the receipt of the fine.

The farmers encourage it on account of the great market which it holds out for his grain, and the distillers are induced to brave every risk in consequence of the ready sale which this noxious beverage finds among persons of every description. Whisky from illicit stills is sold as openly as if it had been gauged by the excise-officer; it has a peculiar smoky taste, different from that which has been regularly and carefully distilled, and which the people imagine to have acquired its white colour from vitriol: were one to find fault with the whisky in the northern counties, the immediate reply would be, "It's as good 'pocheen' as any in Ulster, for it never paid a happ'eth of duty."

Illicit stills are completely established in all the north-western counties, and afford a striking proof that a branch of industry may flourish, and be extended, without the aid of premiums. The late restrictions, which prohibited legal stills from using corn, have given more stability to this kind of distillation; and I am convinced, whatever penal laws or regulations may be made, that it is almost impossible to extirpate illicit distilleries from the mountains. It has been represented to me, and I believe with truth, that they are erected in the kitchens of baronets, and in the stables of clergymen. The mountains are covered with them, and they are to be met with in the very last places where an English excise-officer would expect to discover them.

A very great profit arises from this trade,[†] hence the strong temptation to

* This law is now repealed. It is impossible for the most rapid writer or printer to keep pace with the progress of the distillery laws in Ireland. Those made in one month, are seldom those of the next.

† August 29, 1808. Belleisle.—It is estimated that four stone of barley, or six of oats, will make a gallon of whisky. A sack of barley, which contains 24 stone, will, however, be sufficient for 10 gallons. The expenses are as follow: Malting 5s., grinding 2s., carrying to the mill 2s., mashing and distilling 5s. 5d., hire of vessels 5s. 5d., fuel 3s., barley 5s. A tin still costs three guineas, a copper worm three guineas, a copper still five guineas; a still will hold 70 gallons. It is reckoned that a copper still makes the best whisky.

DISTILLATION.

pursue it, and the means by which persons engaged in it are enabled, by bribing the officers, to elude detection; but this profit is sometimes uncertain, depending on the price of corn and the success of the subsequent sale of the spirit. There is also a great waste of wash and of grains, which in many cases are thrown away and buried, in order to prevent discovery.

Some idea of the magnitude of this evil may be formed from the following table, which contains the number of unlicensed stills that appear to have been seized in the course of five years, from 1802 to June, 1806.*

	Stills.	Heads.	Worms.
1802	4,131 . .	3,190 . .	2,809
1803	2,573 . .	2,018 . .	1,744
1804	2,360 . .	2,021 . .	1,732
1805	2,974 . .	2,656 . .	2,373
Six months, to June 1806	1,401 . .	1,213 . .	1,074
	Total 13,439	11,098	9,732

The report, from which this account is extracted, states, that as the extent of country occupied by the unlicensed distilleries, comprises some of the most wealthy and populous districts of Ireland, it will not be too much to assume upon a point where no correct calculation can be formed, that the unlicensed distilleries supply one-third of the spirits consumed in the country; and to shew the probable loss sustained by the revenue from frauds both in the licensed and illicit distillery, the following calculation is given:

It appears from official returns, that the duty paid on home-made spirits was, on an average of the two last years £714,241. 10s. 7d., and that during the same time a quantity was exported from the king's warehouses, on which the duty, if payable, would have amounted to £141,820. 18s. per annum. It is also in evidence, that the licensed distillers evaded duty in one year on a quantity of spirits, equal as well to that on which they had paid duty, as upon that which had been exported from the king's warehouses; by which it is probable, as we have before endeavoured to shew, that a loss of revenue was sustained to the amount of £856,000. per annum. Besides the export from the king's warehouses,

September 11th. Ards.—The illicit distillers malt their own barley, by putting it into a dunghill, where it vegetates. They then dry it. The gauger receives a regular rent from all the stills within his district. One of them has saved between five and six thousand pounds. These people are allowed very handsome salaries from government, yet employ fraud to increase them. Some stills hold only 40 gallons; 25 stone of barley makes 10 gallons of spirit, to which is added, one third of water to convert it into whisky.

* Fifth Report of the Commissioners on Fees, Gratuities, &c. of Public Offices in Ireland, ordered to be printed March 18th, 1807, p. 106.

it appears, that 231,646 gallons of spirits were, on an average of the two last years, exported from private stores, on which the draw-back of the spirit duty, at 4s. 4d. per gallon, amounted to £50,189. 19s. 4d.; this sum, deducted from £714,241. 10s. 7d. will leave £664,051. 11s. 3d. as the whole receipt of duty on home-made spirits consumed in Ireland; to which, if the above sum of £856,000. be added, the entire duty which ought to have been received from the licensed distillers of spirits consumed in Ireland will amount to £1,520,051. 11s. 3d.; and if it be granted that one-third of the consumption is supplied by unlicensed distillation, we shall be entitled to add £760,025. 15s. 7d½. as a duty which that portion ought annually to have paid; making the entire duty which should have been paid on home-made spirits consumed in Ireland to amount to upwards of £2,280,000. per annum, while the duty actually received thereon was little more than £664,000.*

The legislature have, from time to time, made various provisions and regulations, some of them exceedingly severe, in order to suppress illegal stills; but the means employed to counteract them are conducted in so systematic a manner, and in some places with such a determined spirit of opposition, that they do not appear to have answered the proposed end. This, added to the collusion of the officers, render it exceedingly difficult to carry into execution any measures likely to be attended with effect. Private stills are, for the most part, erected in bogs, mountains, and retired places,† and in many parts, they cannot be suppressed for want of a sufficient military force to assist the officer. Excise officers are frequently in the pay of the private distillers in their respective walks, and on that account do not discharge their duty. Notice is frequently sent to those feed officers, when an old still is worn out, and become useless, that they may be enabled, by seizing it, to obtain the reward given by the excise; and officers, when they make a real seizure, seldom spill the pot-ale, or break the different vessels, though they are by law expressly required so to do, except in some instances where an old vessel is designedly left for that purpose; and they often permit the soldiers to sell to the distiller the vessels that are seized.‡

But even when officers, who conscientiously discharge their duty, search for stills, the whole country is alarmed by the sounding of horns and firing of muskets and other arms, so that every thing is frequently entirely removed from the premises before the officer arrives; for, as these stills are never fixed, but placed upon loose stones, they are easily conveyed away, and sometimes are thrown into bogs and other unfrequented places, where they are covered with earth and sods.§ As officers, known to be faithful to their trust, dare not venture to visit places suspected of unlicensed distillery, unless supported by a body of soldiers, their approach is soon perceived; especially as the private distillers, in general, have a sentinel

* Report, p. 167.

† Ibid, p. 229.

‡ Ibid, 229.

§ Ibid, *ibid.*

placed in certain stations, to give them notice when the enemy appears; thus they are better enabled to get their whole apparatus removed to a place of safety before the officer approaches.

Legal distilleries are established at Limerick* and Cork.† There are licensed distilleries, also at Ross, Dublin, Drogheda; and in consequence of the bounty held out to those who used large stills, there was a probability of their being confined to these places. A great deal of their spirit is extracted from malt; but they intermix as much oats as they can. The greater part of the illegal distillation is from the latter.

The fifth report of the commissioners on fees, gratuities, &c. of public officers of Ireland, already quoted, presents a very curious picture of the frauds practised both by the excise officers and distillers, in order to render the laws on this subject ineffectual. In many instances the visits of the gaugers are accommodated to the convenience of the distiller, who is thus enabled to regulate his work in such a manner as to have his premises apparently correct on these occasions; and if the time of the officer's coming be inconvenient, he goes away, and returns at an appointed hour. It is stated, also, that frequently the entries made in their books are altogether fictitious, particularly those of their evening visits, and written with a preparation

* DEC. 1st, 1808. LIMERICK.—There are here two distilleries.

† —Cork.—Called on Mr. Walker, the greatest distiller in the kingdom. He has two stills, which contain each 1,500 gallons; and he makes 17,000 gallons of spirit per week, and works his stills from nine to ten months in the year. Twelve stone of grain are allowed to every six gallons of spirit. Messrs. Hewson and Co. have a still which holds 1,780 gallons, and make 9,000 gallons of spirit per week. Government allow one-eighth for expansion, there remain 1,560 gallons of spirit. Two-fifths, or 624 gallons for each doubling, multiplied by 58, give 36,192 gallons of spirit to be made every 28 days. The distiller must either make it, or pay duty; if once begun, 200 barrels of grain, of 12 stone each, make the 1,750 gallons. In Ireland, it is necessary to brew ferment, and distil in the course of 624 hours; in England, there is no limits to distilleries, only they must work 32 weeks in the year. The distillers here seldom use their grains and their wash, the former are sold by the kilderkin. Twelve stone, of 14 pounds each, of dry grain, are put into the mash-tub, the value from 1s. to 1s. 1d. a kilderkin, according to its quality, whether oats or barley. The casks are made of American timber. A quarter of barley, weighing in England, about 50lbs. to the bushel, or 400 lbs. sells by the last market return for 48s. In Ireland it is bought by the barrel, containing 36 stone of 14lbs. to the stone, or 404lbs. The present price is 41s., but screening and drying adds ten per cent. It is still a great deal cheaper, but on weighing a bushel it was found to be barely 48lbs. A barrel of oats, containing 33 stone of 14lbs. each, or 462lbs., sells for 32s. and 35s., to which must be added ten per cent for screening and drying. In England, a quarter, or eight bushels, of 39½lbs. is at present 40s. The malster sells by weight, and hence his barley is not half malted. In Cork there are five or six rectifiers, who work under special license from the commissioners of excise. Mr. Walker says distillation was first carried on in the north, and was introduced into the south within the last twenty years. Sugar will never be used here; as the market is in England, the expense of transporting it becomes too great. No gross distiller in Ireland is allowed to be a rectifier. There are three other distilleries in Cork, two of which have stills capable of holding 1,500 gallons, and one, the still of which holds 500.

of ink easy to be discharged, in order to substitute false entries;* and it appears from the deposition of several eminent distillers, that government, by collusions of this kind, sustain a loss, the extent of which is immense. One distiller candidly acknowledged, that he frequently made 5,300 gallons of spirits in a week, at a time when he was charged with 2,075 only; another, that he annually made 9,000 or 10,000 gallons of spirits weekly, when his charge was but 4,970 gallons, and that had it not been for some defect in the apparatus, he could have made a still greater quantity; a third, that he made, on an average, 6,500 gallons, and sometimes 7,000 weekly, when charged with no more than 3,500; and a fourth stated it as his belief, that the spirits privately made by distillers in general, were, at the least, equal in quantity to the spirits with which they were chargeable. The commissioners, therefore, say, "When we find all the examinations concur in stating, that the distillers every where made considerable quantities of private spirits, we probably shall not exaggerate, if we compute the private spirits made by licensed distillers, to have been more than equal, both to those which paid duty, and those exported from the king's warehouses. The average amount of duty paid in the two years, ending 29th Sept. 1806, was £714,241. 10s. 7d.; and the quantity of spirits exported from the king's stores on the average of two years, ending the 10th of October, 1806, was 654,558 gallons, the duty on which would have amounted to £141,820. 18s. If, therefore, we are well founded in the computation of the quantity of private spirits made by distillers, of which their testimony can leave little doubt, it will follow, that by the frauds of licensed distillers alone, the revenue has, on the average, sustained a loss of £856,000. and upwards, for each of the two last, and, perhaps, preceding years. This monstrous fraud on the revenue, we are sorry to remark, could not have been effected but by the collusion and connivance of the officers, whose corrupt intercourse with the distillers, appears to have been general, and would, almost without any other evidence, be manifested by the enormous amount of their fees."†

* Report, p. 148.

† The surveyors' fees are rated at about twenty guineas per month from each distiller; gaugers are said to have received ten, and sometimes twenty guineas a month for a 500 gallon still, and 20 guineas per month for 1,000 gallon still, besides one guinea for every puncheon of private spirits removed under cover of a fraudulent permit. Report, p. 154.

DISTILLATION.

Number of Gallons of Irish Spirits exported from the several Ports of Ireland, for the years ending the 10th of October 1802, 1803, 1804, 1805, and 1806.*

Ports.	1802.	1803.	1804.	1805.	1806.
Baltimore -	1,250	- -	2,431	- -	16,156
Belfast -	3,415	231	- -	6,139	- -
Cork -	185,059	492,665	340,965	311,241	199,027
Drogheda -	- -	18,386	43,465	96,795	119,190
Dublin -	736,258	475,255	524,161	712,475	216,028
Galway -	- -	127	- -	- -	- -
Limerick -	13,156	4,234	5,947	26,381	- -
Newry -	1,485	- -	- -	8,554	- -
Ross -	- -	- -	- -	27,062	- -
Sligo -	- -	- -	- -	9,795	- -
Waterford -	9,559	- -	507	23,193	- -
Totals	950,180	990,898	917,476	1,121,968	550,441

Quantity of Irish Spirits exported from the King's Warehouses, for two years, ending 10th of October 1805 and 1806.

1805, Gallons 838,105.

1806, Gallons 471,012.

Average Quantity exported from private stores :

In 1805 and 1806, Gallons 231,646.

An Account of the Amount of Bounties paid to Distillers in each of the following years, ending 5th of January, in each year, being a bounty on large stills beyond a certain size, and of a bounty paid to spirit retailers :

Distillers.	Spirit Retailers.
1807, £. 6,948 14 9½	£. 10,009 10 5
1808, - 101,121 2 8½	224 0 8
1809, - 110,705 17 3½	23 16 8
1810, } 1811, } 1812, }	These bounties were discontinued.

* Fifth Report of the Commissioners, p. 236.

In the year 1809, the minister was severely attacked in the House of Commons, for continuing that system in regard to distillation, which had been found to be so injurious to the public. Considerable discontent prevailed, arising from a combination of circumstances, and fomented by different classes of men, who conceived their interests to be more or less affected. The country gentlemen feared that their tenants would lose a sale for their grain, and by these means their rents might be diminished; the sums levied at every assize by way of fine for illicit stills, created fresh murmurs; and the voices of those who opposed, merely for the sake of opposition, added to the general clamour. Mr. Foster accordingly gave way to what appeared to be the prevailing sentiment, and a new act was passed for lowering the duties and allowing the erection of small stills. This plan may appear to its authors and supporters, to possess great merit: as yet it has not had a sufficient trial; but without pretending to much foresight, I will venture to predict, whoever may be minister, that it will not answer the purpose, and must, before the expiration of a few years, be abandoned.

Although I have enlarged so much on the Irish distilleries, I am far from having any wish to recommend their encouragement. They may be said to afford the means of exporting corn in the form of spirit; but the benefit arising from such demand, is far outweighed by the incalculable mischief which it occasions to the health and morals of the people, especially as the lowness of the duty on spirits places them more within the reach of the inferior classes, who are most apt to indulge in their excessive use. One, indeed, cannot read the report from the committee on the petition of the brewers of the cities of Dublin, Cork, and Waterford, ordered to be printed by the House of Commons, June 6th, 1811, without the most melancholy sensations. It appears there, by the most incontrovertible evidence, that the excessive use of spiritous liquors, has of late much increased in different parts of Ireland, and that the cause of this excess is the cheapness of the article. Nay, to such a height has its baneful influence arisen, that it has already begun to produce a physical effect on the labouring classes at Dublin, where it is observed that the bodily strength of the male population is impaired by the increasing quantity of spirits which they consume. The medical attendants of the Fever Hospital and General Dispensary of the City of Waterford give it as their opinion, that the excessive use of spiritous liquors among the common people of that district, caused by the late reduction of their price, has been visibly productive of increased disease; and they farther state, that they have observed, with extreme regret, an evident increase of wretchedness and misery in the habitations of these orders in that city, which they ascribe to the misapplication of the produce of their labour in the purchase of spiritous liquors.† The evidence of the coroners of the city of Dublin, dated

‡ Report of the Committee, p. 3.

† Ibid, p. 11.

May 21st, 1811, is no less conclusive, for they certify, that the number of deaths occasioned by the excessive drinking of spiritous liquors has greatly increased within the last twelve months; and that they consider this evil to have arisen from the reduced price of whisky, which has tempted the working classes to indulge in a gratification attended with consequences so destructive.* But if more authorities were required to shew the deleterious effects produced by this reduction in the price of so noxious a beverage, the following extract from the Report published by the Sick Poor Institution of Dublin might be produced as no mean authority: "The year 1810 shews a number of patients on the books of the Institution, of 1,006 more than the year 1809. The want of employment felt by the poor in this period, and the reduction of the price of spiritous liquors from the effects of the distillery regulations of last year, must, the committee conceive, have had a tendency to produce this increase of drunkenness, which appears prevalent to an alarming degree, making the body more susceptible of disease, and less able of support under it."†

By the Reports of the great Fever Hospital in Cork-street, Dublin, it appears, that in nine months, since spirits became so cheap, the average monthly number of patients admitted has been 167; and the average number of deaths, 14 in each month. Whereas, in the twenty months preceding, during which time spirits were very dear, the monthly average number of patients admitted was only 85; and the average of deaths only 6 in each month.‡

The following extract, from the Physicians' Report of the above Hospital, dated 4th January, 1811, gives a no less distressing picture of the ruinous effects occasioned by the low price of spiritous liquors:—"In the progress of this year, 1810, the prevailing fever assumed an aspect so formidable, and a range so extensive, that great and well-founded alarm was excited in many parts of Ireland; but especially in this city, where, among the poorer inhabitants, every cause that in our climate and local position could combine to disseminate infection, existed in full vigour; an overthronged population, depressed and debilitated by want of employment and want of food, enervated more or less by previous habits of intemperance, uncleanly in their persons and apartments; of many the whole mode of life reckless or spondent: a gleam of joy, or even the tranquil smile of well-fed content, is seldom seen to play on the countenance of the Dublin manufacturer; but at this melancholy period all was gloom. At the same time, whisky, that bane to industry, health, and morals, became, on a sudden, cheap and abundant: to the purchase of this poisonous liquor the finances of the poor were instantly and very generally devoted;

*Report, p. 12.

† Statement of Facts and Arguments, humbly submitted by the Brewers of Dublin, Cork, and Waterford, in support of their Petition, p. 2.

‡ Ibid, p. 2.

and the scanty stipend of casual labour, even the pittance bestowed by the hand of charity to relieve urgent want, was converted into the means of self-destruction.*

The certificate of the Mayor and Corporation of Dublin, dated May 22, 1811, is equally strong. It is there stated, that within the last twelve months there has been a deplorable increase of profligacy among the lower orders of the people in the metropolis and its neighbourhood; they consider this effect as having arisen from the very low price of spiritous liquors during the above period; and they are decidedly of opinion, that in proportion as a facility of intoxication is afforded to these orders of society, the industry of that class will be relaxed, their health impaired, and their crimes multiplied.†

In the statement of facts and arguments already quoted, it is observed, that "the very low price of spirits has been an irresistible inducement to the lower orders to indulge in them to such a degree of excess, that drunkenness, idleness, immorality, and disease, have suddenly increased to an extent truly shocking and alarming. So prevalent has idleness become, that the artisans and labourers cannot be induced to attend to their work, as is loudly testified by the complaints of their employers. The demand for all the necessaries and comforts of life has been prodigiously lessened; the lower orders being unable to purchase them, as their time and money are expended in spiritous liquors, by which numbers of respectable traders and shopkeepers are reduced to indigence; and, among other articles greatly lessened in consumption, that of malt is reduced to less than one half of what it has usually been."‡

Can any one, not void of feeling, who reads these melancholy details, forbear from execrating a system so pregnant with the worst evils to society? A measure which facilitates the means of self-destruction; which places in the hands of the poor the poisoned cup, and encourages them to acquire habits that must entail misery on future beings, ought not to be suffered to pass without the severest reprobation.

It is always my wish to put as favourable a construction as possible on the conduct of public men; I have no desire, therefore, to impeach the rectitude of intention of those by whom this measure was brought forward and supported; but, although I allow them full credit for the motives by which they were guided, there is certainly no reason why I should compliment them for their political wisdom. The health and morals of the people ought to be the first care of a legislator. He who does not use his utmost endeavours to avert whatever tends to destroy these, and to encourage every plan calculated to preserve them, performs not his duty. Xerxes, when he reviewed on the shores of the Hellespont, his naval and military forces destined for the conquest of Greece, is said to have shed tears, reflecting, that before the expiration of a century, every individual in those immense armies would be mouldering into dust.§ Could our

* Statement of Facts, p. 2. † Report of the Committee, p. 9. ‡ Statement of Facts.

§ Herodot. Hist. lib. vii. cap. 45. edit. Glasg. tom. vii. p. 106.

legislators survey at one glance, the thousands of miserable beings, in their moments of intemperance, who, feeble and emaciated, have become slaves, and must ultimately fall victims to their passion for spiritous liquors, now so much within their reach, they might, perhaps, be aroused to feel for the cause of degraded humanity, and imitate the example of the mighty monarch of Persia. But, if they gave way to a similar sensation, they could boast of a much nobler motive; for the tear shed over real misfortune, is far more honourable than those extorted from the eye of pride, by the humiliating pangs of mortified ambition.

With what colour of justice can a government inflict punishment on deluded wretches for crimes the consequence of intoxication, when the strongest temptations have been held out to them to indulge in that pernicious vice? Salutory regulations for preventing evil prove more effectual in rendering men good citizens, than the severest code of penal laws that can be framed. Those who adopt Machiavellian principles may conceive, that the easiest method of governing a people is by debasing them. But that state in which the people are debased, cannot long flourish.—A debauched and degraded population is the most unstable support upon which a government can depend;—numbers do not constitute strength; the strength of a nation is in the moral mind of its people, and when that principle is debilitated, the country is fast approaching to slavery, and the government into that predicament which must appal the stoutest heart.

The paltry advantage of increased revenue, can never compensate for the evils which the immoderate use of spiritous liquors produces. Wretched, indeed, must that country be, which cannot raise the necessary supplies, without having recourse to means which tend to destroy the health and to vitiate the morals of its people. To be convinced of the mischief which is occasioned by this destructive measure of finance, we need only turn our eyes to Russia, where the right of selling spirits is a monopoly of the crown, though some private persons, and particularly among the nobility, have permission to distil it. This monopoly may bring money into the treasury; but the benefit which government derives from so infamous a source is more than counterbalanced, (independently of other evils, from the waste of grain, which is thus perverted from its proper destination, that of supplying food to man and animals,*) by the extraordinary check given to the population of the empire. Storch, in his *Statistical View of Russia*, has placed this subject in a very clear point of view by the following calculation, which

* The author of the *Statistical View of the Russian Empire*, says, "Among the northern provinces Livonia and Esthonia are distinguished by their extensive distilleries. Not only is all the corn which these provinces produce, employed for this purpose, but considerable quantities are procured from other parts of the empire; Livonia, therefore, is no longer, as formerly, the granary of the north: the corn shipped in its harbours comes from remote districts on the Duna. *Hist. Stat. Gemälde des Russischen Reichs*, von H. Storch, vol. iii. p. 269.

certainly deserves the most serious consideration of every legislator in countries where similar expedients are adopted. Estimating the annual number of births in the Russian empire at 1,385,000, this writer says: "Of 1,000 children born at Petersburg in the course of a year, 184 on an average die before they attain to the age of twelve months. This mortality, for a city like Petersburg, is exceedingly small, since it appears that, in Berlin for example, 276 die in the same period; and in London, 320; and even in country places the number in general is reckoned to be not less than 211. If the proportion in the capital be so favourable, it must be much more so in the provinces, where mothers suckle their children themselves; we shall therefore, perhaps, not be far from the truth if we apply it to the population in general. The result will be, that Russia, of the whole number of children born annually, loses 255,000 in the first year of life.

"Of 1,000 children a year old, 809 attain to their fifteenth year; but 191 die in the intervening period. The loss, then, which the state sustains upon the whole is 216,000 children; and at the end of the fifteenth year it has still left 914,000 boys and girls, about to enter into the bloom of life.

"But the greater the hope which this uncommon vitality encourages, the more unexpected is the melancholy result exhibited by the succeeding period: of 1,000 persons at Petersburg, 817 die between their twentieth and sixtieth year. Of 1,000 persons, therefore, twenty years of age, 183 only can hope to attain to the age of 60. There die, therefore, during that period, 273 persons more than is generally the case in the same number in other countries, and 97 more than in London, which is distinguished above all other great cities by its excessive mortality. So striking and remarkable a circumstance is of so much importance, that its causes deserve to be examined.

"The source of this dreadful mortality cannot certainly lie in nature, as it takes place immediately after an extraordinary vitality. If the bodily conformation of the people, or the physical nature of the country, had any influence in this respect, their effects must have been manifested during the tender years of life, which are every where exposed to a greater degree of mortality; but among the Russians the direct contrary takes place, as has been shewn by a comparison with other countries. The source of this evil then must be some unnatural cause, and can proceed only from the manner in which the people live. Unfortunately, the bills of mortality leave us in no doubt on this subject; they shew that this great mortality affects mostly the male sex; and that it is occasioned chiefly by inflammatory fevers and consumptions, that is, by diseases, the immediate consequence of the immoderate use of strong liquors.

"It is against distilled spirits then that we must exclaim, on account of these direful effects. But to render the loss which the state sustains in its population by this liquor more perceptible, I shall suppose that the mortality, from the fifteenth to the twentieth year of life, follows the same proportion which it does in general from the

time of birth to the fifteenth: in this case, the sum of the deaths will be 628,000; and the state has still remaining 757,000 young citizens, who may become active and useful members of society. Of this number, no fewer than 618,000 individuals are lost during the most valuable period of life; and of the whole number of persons born, there remain at the end of the sixtieth year, only 139,000 veterans, whose temperance, or stronger constitution, encourages the hope of a farther prolongation of life; on the other hand, if the mortality which prevails during this period, followed the same proportion that it commonly does in other countries, the loss at the expiration of it would be only 412,000; consequently, there would remain 206,000 more persons of sixty years of age, who, according to the present state of things, are immaturely swept from the stage of life by intemperance.*

Of the fatal effects of the immoderate use of spiritous liquors, several striking instances have occurred in England. In a collection of the yearly bills of mortality in London, from 1657 to 1758, published in the year 1759, it is observed, that it is a serious truth, beyond all contradiction, "that ever since the enormous use of spiritous liquors, the christenings have proceeded in a continually decreasing proportion in respect to the burials." In the year 1724, the use of spiritous liquors had become so common in the city of London, as to occasion from the College of Physicians, a representation on their fatal effects;† but so inveterate was the habit, that common means were insufficient to repress it; and, in 1736, legislative interference was thought necessary to put a stop to this destructive and spreading evil. In consequence of a petition from the justices of peace for the county of Middlesex, setting forth, that the drinking of gin, and other distilled spiritous liquors, had for some years greatly increased, especially among the people of inferior rank; and that their constant and excessive use had already destroyed thousands of His Majesty's subjects,‡ and rendered great numbers unfit for every kind of labour; debauching, at the same time, their morals, and driving them into all manner of vice and wickedness.§ A bill was brought into the house for restrain-

* Hist. Stat. Gemälde des Russischen Reichs, von H. Storch, vol. i. p. 351.

† Essay towards a Nat. Hist. of the County of Dublin, by J. Rutty, M. D. vol. i. p. 26, 27.

‡ It was observed, that, though the yearly christenings in London between 1680 and 1724 had risen from 12,747 to 19,370; between the years 1724 and 1750 they had continually decreased, so as to be reduced for the ten last years of that period to 14,457, and for the three last years to 14,320. *Bishop of Worcester's Sermon*, published in 1750.

§ In the presentment of the London Grand Jury, on this occasion, it is stated, that "the lower kind of people, by this pernicious practice, were enfeebled and disabled, having neither the will nor power to labour for an honest livelihood; that servants were corrupted and bribed to cheat and rob their masters; and that more fires had happened than in former years. It was added, also, that "most of the murders and robberies lately committed had been laid and concerted at gin-shops; and that profligate men, fired with hot spirits, were ready to execute the boldest and most daring attempts." *Distilled Spiritous Liquors the Bane of the Nation*, London, 1736, Appendix, p. 3, 4.

ing the use of spiritous liquors, and, notwithstanding great opposition made to it by the merchants of Bristol and Liverpool, connected with the West India trade, it was finally agreed to, and established into a law. By the provisions of this bill, a duty of twenty shillings per gallon was imposed on all spiritous liquors; and every person keeping a public brandy-shop, victualling-house, coffee-house, or ale-house, or who sold such spiritous liquors, was obliged to take out a license, for which the yearly sum of £50. was to be paid.*

Dr. Rutty, alluding to this circumstance, says, "it is also to be observed, that with us in Dublin, the use of spiritous liquors, nearly from the same fatal era, 1724, begun to prevail, and thence to the present time hath gradually prevailed to a most enormous degree; so that even our women of the lower class, on whose fertility depends a succession of the laborious members of the state, became so far infatuated with this bewitching draught, that to see them drink in our streets ceased to be a wonder. Such was the pernicious spread of the use of this pernicious poison, the curse and punishment of the world, destroying our lives and morals, and even debasing the breed of men;" in the words of that great friend of mankind, Doctor Stephen Hale, whose zeal in discouraging this evil, together with that of Doctor William Harvey, of this kingdom, deserves the most grateful commemoration.

"But this evil, as I am informed, hath been in a great measure redressed by the reasonable interposition of the legislature of England, which loudly calls upon us here to a like attention to this matter.

"For as it appears from their observations in London, that the christenings have

The Middlesex Grand Jury say, "It is visible that by this destructive practice the strength and constitution of numbers is greatly weakened and destroyed; and many are thereby rendered useless to themselves as well as to the community; many die suddenly by drinking to excess, and infinite numbers lay the foundation of distempers which shorten their lives or make them miserable, weak, feeble, unable, and unwilling to work, a scandal and burthen to their country.

"But it does not stop here; the unhappy influence reaches to the posterity of those poor wretches; to the children yet unborn, who come half burnt and shrivelled into the world; who, as soon as born, suck in this deadly spiritous poison with their nurse's milk; the barbarous mothers also often give the detestable spirits to poor infants in their arms; so that, if the infection spreads as it has lately done, it must needs make a general havoc, especially among the laborious part of mankind, who are seen manifestly to degenerate from the more manly and robust constitutions of preceding generations." *Ibid. ib. p. 7, 8.*

In the Report of the Justices at Hicks's Hall, it is remarked, that "gin was sold not only by distillers, and in gin-shops, but also by above fourscore other inferior trades, as appeared by the constables' returns, particularly by all chandlers, many weavers, several tobacconists, shoemakers, carpenters, barbers, tailors, dyers, labourers, and others; there being in the hamlet of Bethnal Green upwards of ninety weavers who sold this liquor." *Ibid. p. 17.* It is stated, also, that "the profligate, when their spirits were raised by drinking to excess, became bold and daring in committing robberies and other offences for an immediate livelihood; and that, by families spending their money in gin-shops, their children were starved, which was conceived to be one of the chief causes of the vast increase of thieves and pilferers of all kinds." *Ibid. ib. p. 18, 19.*

- Parliamentary Debates, vol. iii. p. 347—434.

been in a continually decreasing proportion in respect to the burials, ever since the enormous use of spiritous liquors; so it is no less certain, from the observations on the baptisms in Dublin, not for seven or ten years only, but for forty-one years, that the proportion of the masculine part of the human race, to the feminine, hath been also gradually decreasing ever since the same enormous use of spiritous liquors in this city; so that it is no rash conclusion of Doctor Stephen Hales, that it debases the breed of mankind, an evil which this author says had its rise with the introduction, and continues with the progress of this pernicious practice, still prevalent among the lower classes; who, till debauched by these liquors, used to supply a vigorous race of labourers, soldiers, and marines, but would cease so to do unless some restraint were laid upon the use of this poison."*

Even in Scotland, where the people are so much distinguished by their regularity, and the influence which religious principles have over their conduct, the excessive use of spiritous liquors begins to be attended with the most baneful effects. For a proof of this fact, I need only refer to the Statistical Account of that country, where instances are given sufficient to excite the most melancholy reflections. The author of the account of the parish of Paisley, says, "Dram drinking is common; ale-houses are numerous. They are the resort of the vagrant, the idle, and the profligate; they gradually become a snare to the sober and industrious, and are producing the worst effects upon the health, the morals, and domestic comforts of the people."†

After what has been here said, much farther observations on this subject will be needless. In the early part of 1808, when the question of distillation was under discussion in the House of Commons, I gave an opinion in favour of distillation from *corn*, the produce of Ireland, rather than from *sugar*, the produce of Trinidad. In regard to the general effect produced by the encouragement given to the distillation of spirits, considered both in a moral and political view, my sentiments were the same then as they are at present. Two evils being presented for choice, I preferred the less, but no inference can be thence drawn that I approved of either. It will, perhaps, be asked, would you prohibit distillation altogether? I unequivocally reply, yes. Encourage the growth of corn; by doing so you encourage industry and strengthen the resources of the empire; but do not convert it into a poison for the Irish populace, while the English, without the importation of foreign grain, would be reduced to a state of famine. The land which is now set apart for raising crops to supply the distilleries, might be much more usefully employed in the production of food for the people of England. But if this should be admitted, the West India interest come forward with their petitions, requesting that this market should be given to them. Interest is always a powerful but seldom an honest motive, and when an opportunity

* Nat. Hist. of Dublin, vol. i. p. 26--29.

† Sir John Sinclair's Stat. Account, vol. vii. p. 89. For further proof, see vol. vi. p. 485; vol. ix. p. 285; vol. x. p. 339; vol. xii. p. 55, and 126; vol. xiii. p. 43; vol. xviii. p. 57.

of promoting it occurs, men in general are not over delicate in regard to the means. The slave trade was carried on for ages without a blush, and the evil arising from distilleries seems to excite as little regret as did the sorrows of the poor Africans for a long series of years; but if our spirit manufacture is to be tolerated, let it be to the encouragement of the farmer at home. After every consideration of the subject, I am of opinion that the best method would be to suppress them altogether; to put an end to illicit distillation would, under any circumstances, require a considerable lapse of time; but while distillation is permitted, any attempts to restrain it will be fruitless.

I have been accused of hostility towards the West India planters, and a wish to discourage colonial improvement; but in this I have been grossly misrepresented. I am aware, I trust, of the true value of the West Indies to the empire; but when the question is, Ireland, or the West Indies, "the cradle or the grave of so many of our brave soldiers,"* if it were only from a feeling of gratitude, I would much rather rock the former than lend a hand in digging the latter.

BREWERIES.

The art of preparing a potable liquor from barley, which seems to have been used as a substitute for the use of the grape, was known to the ancient Egyptians. Its discovery is ascribed by Diodorus Siculus to Osiris, who is said to have communicated it to various other nations, where the climate was unfavourable to the growth of the vine.† It is mentioned also by Strabo‡ and he remarks, that though this beverage was peculiar to the Egyptians, it was common among other people, who employed different methods in making it.§ According to the same author, it was used by the ancient Lusitanians, because they had very little wine.¶

* Mr. Burke also says, "In these adventures, it was not an enemy we had to vanquish, but a cemetery to conquer. In carrying on the war in the West Indies, the hostile sword is merciful; the country in which we engage is the dreadful enemy. There the European conqueror finds a cruel defeat in the very fruits of his success. Every advantage is but a new demand on England for recruits to the West Indian grave." *Letters on a Regicide Peace, in his Works*, 8vo. edit. vol. viii. p. 228.

† Εἰ δὲ τις χώρα το φυτόν τος ἀμπέλου μὴ περιδύχοντο διδάξαι τὸ ἐκ κριθῆς κατασκευαζομένου πόμα, διηπόμειοι ἢ πάλυ τος περὶ τον οἶνον ἰουδαίας τε καὶ δυνάμειος. *Diod. Siculi, Biblioth.* lib. i. edit. Wesseling. tom. i. p. 24. It is mentioned also by Herodotus, who speaking of the Egyptians, says, lib. ii. cap. 77. edit. Glasg. vol. ii. p. 163. οἶνον δὲ ἐκ κριθῶν ποιοημένον διαχρίνεται ἢ γὰρ σφίσις ἐν τῇ χώρῃ ἀμπέλου.

Æschylus likewise alludes to this liquor among the Egyptians, in his *Suppluces*, where the king of the Argives tells the herald, sent to require that the daughter of Danaus should be given up:

Ἄλλ' ἄρσινάς τοι τῆσδε γῆς οἰκῆτορας
 Ευρήσιντ' ἢ πίνοντας ἐκ κριθῶν μίθου.

v. 959.

‡ *Geog. lib. xvii. edit. Amel. Amst. 1707. vol. ii. p. 824.*

§ *βρῦνται δὲ καὶ ζύβει' οἶνον δὲ σπασίζονται. Ibid. lib. iii. vol. i. p. 155.*

Athenæus gives it the name of brytum; and he states, as something singular, that those who got intoxicated with it fell upon their backs, whereas those inebriated with any other liquor fell in various ways.*

It appears that a liquor of this kind was used by the ancient Germans,† who, according to Tacitus, prepared it both from barley and from wheat. The emperor Valens, a native of Pannonia, in consequence of his fondness for a similar beverage called *sabaia*, is said to have been named in derision *Sabaiarius*.‡

It is remarked by Eumenius, in his panegyric upon Constantius, that Britain produced such abundance of corn, that it was sufficient to supply not only bread, but also drink which was comparable to wine.§

About the year 500, ale is said to have been a common drink in Ireland,|| and it appears that it was held in high estimation among the Nordmen, or ancient Norwegians, for King Alreck, of Hordoland, chose Geirhild for his queen, because she excelled in the art of brewing ale.¶

It is not many years since public breweries were introduced into Ireland, but at present they are pretty general; there are establishments at Cork,** Fermoy, Limerick, Waterford, Roscrea, Dublin, Belfast, Navan,†† Armagh, Donoughmore, and Dungan-

* Athen. Deipnosoph. lib. x. cap. 16.

† Potui humor ex hordeo aut frumento, in quamdam similitudinem vini corruptus. *De Morib. German.* cap. 23. in Op. edit. Oberlini Lips. 1801, p. 715.

‡ Exindeque profectus, oppugnationi Chalcedonis magnis viribus insistebat: cujus e muris probra in eum jaciebantur, et injuriose compellabatur ut Sabaiarius. Est autem sabaja ex hordeo vel frumento in liquorem conversus paupertinus in Illyrico potus. *Ammian. Marcellinus.* lib. xxvi. cap. 8. edit. Bipont. vol. ii. p. 89.

§ Segetem tanta fecunditas, ut muneribus utriusque sufficeret et Cereris et Liberi. *Macpherson's Annals of Commerce*, vol. i. p. 205.

|| Cogitasi Vita Brigitæ ap. Messingham. c. 4. *Adamnani Vita Columbæ.* MSS. Bib. Reg. lib. ii. cap. 1.

¶ Samlinger om Agerdyrkning og Landvæsen. *Kiøbenhavn, 1724. Fjerde Hefte.* p. 226.

** August 18th, 1809. Cork.—Beamish and Crawford brew 2,000 barrels of 46 gallons each, per week, which they sell at 10d. per gallon. Guinness is the second brewer in Ireland, and Madden the third. Green and Co. have the largest premises. All these brewers are established at Dublin. Guinness uses 1,200 barrels of malt per week; 8 stone of malt will make a barrel of beer. A barrel of malt, which is 12 stone, makes 1½ barrel of porter; 3½ lbs. of hops are allowed to the barrel. American staves are very scarce, and cannot be purchased but at three times their value.

Nov. 3d, 1808. Cork.—Inspected the principal brewery, belonging to Beamish and Crawford, who brew upwards of 100,000 barrels per annum. They malt their own barley, and pay duty by weight, as paying it by measure did not answer. They purchase no public-houses, but advance money for licenses: 30 guineas is the price of a license in the city. Publicans keep no stock by them, because they have not cellars, and this saves any loss of casks. Staves are imported from America, and iron is obtained from Dublin. The Irish barley does not make so good malt as the English, and is bought in numerous small quantities. The demand for barrels is increasing.

†† At Mr. Grainger's brew-house, 60 barrels are brewed per week; porter and small beer are brewed here also.

non, &c. Formerly, beer was imported from England; but there is every reason to conclude that this beverage may be made in sufficient quantity in the country, as there are many circumstances favourable to the success of breweries in Ireland. In the first place, the whole duty is levied on the malt, and, therefore, no encouragement is held out for housekeepers to brew their own beer, as is the case in England, where the duty is collected partly from the beer brewed at the public breweries, and partly from malt; in the next place, the brewers are not under the necessity of purchasing public-houses, which prove a heavy tax on their trade in England; and as the publicans have no cellar-room to enable them to lay in a large stock, they are served as occasion requires, and by these means there is no loss of casks, which are articles of the greatest expense to an English brewer. The chief obstacle to brewing in Ireland is the bad quality of the malt, and this defect is found both in that which is made, and in that which is purchased. Mr. Connolly of Dublin, who prepares his own malt with every possible care, in order to lessen this evil, is of opinion, that the difference between Irish and English malt is 20 per cent. in favour of the latter. Amber malt is made from barley dried in a kiln, heated with wood instead of coal; the want of wood in Ireland prevents this from being done, and, consequently, there is no amber malt in that country.

The brewers, for want of amber malt, are obliged, in the preparation of their beer, to use colouring substances; those chiefly employed for this purpose are highly dried malt or burnt sugar; and it would be a happy circumstance if no ingredients but such as are equally harmless were infused into a beverage, which when pure, is so healthful and invigorating. But avarice, and the inordinate thirst of gain, tempt men, regardless of the consequences to their fellow-creatures, to convert this wholesome liquor into a slow poison, and particularly by the admixture of two drugs; opium, which produces stupefaction, and black strap, as it is called, that is, the essence of *lignum vitæ*, which, indeed, gives a high colour to beer, but is of a most noxious and deleterious nature.

Malt is prepared by the brewers themselves, and never purchased from maltsters who follow that business exclusively, as is the case in England. When the distillers worked from corn, there were large malting-houses at Wexford and at Monaster-evan, in the Queen's County; but at the time I was in Ireland, the malting-houses were entirely stopped. Last sessions a bill was brought in and passed, to allow the importation of English malt into Ireland; an evident proof that former acts must have been drawn up in a careless manner, or such a measure would have been altogether unnecessary. Corn could be imported, but not malt. Such a regulation was something similar to permitting the importation of wool, but prohibiting that of woollen yarn. If it be true policy to allow the importation of corn, no distinction ought to be made as to the state in which it may be brought.

Dr. Rutton, in his Natural History of the county of Dublin, adverts to the dif-

ference between the English and the Irish malt, the latter of which is so inferior, that two barrels of the former will produce as much as three of the other, and of better quality.* In England, an instrument is used to ascertain the quantity of saccharine spirit which malt yields.† This instrument is in the hands of most brewers, and is highly useful in determining the different qualities of malt; this it does to a very great precision; any opinion on this subject, formed from the weight, it has been clearly demonstrated, is liable to error. The English barley raised in 1810, when made into malt, produced a far greater profit than that of 1809, though the latter was not in the least inferior in weight. Without an instrument of this kind, a brewer can never be completely master of his business; but in Ireland, notwithstanding all my inquiries, I could not meet with any person who had ever heard of one.

Some cider is made throughout the south of Ireland, but not in such quantities as will render it a common beverage among the people, as it is in the west of England. The cacagee cider, made in Clare, is highly extolled, and held in great estimation. Some particulars respecting it will be found in the memoranda inserted in the chapter on planting and trees.

The business of converting wheat into flour is increasing in Ireland; a considerable change with respect to food, having taken place in the habits of the people in many parts of the country, wheaten bread begins now to be much more used than it was formerly.

Although corn may be imported into Ireland in its natural state, in the ground state it is prohibited; and were this law extended to England, she would purchase flour of the Irish miller in preference to the American. An inducement would thus be held out to the Irish to raise wheat, and encouragement given to a more improved mode of cultivation. Of late years a great sale has arisen for bran, which is carried to the manufacturing parts of England, where it is used in the printing of cottons.‡

There are regular flour factors in Dublin; the flour is sent thither by country millers, in bags, containing each two cwt. and the person to whom it is consigned, is responsible for the solvency of the buyer; he gives four months' credit to the baker, and charges his employers five per cent. commission for his trouble. Many bakers in Dublin use so much as 100 bags per week. On the 19th of May, 1809, the price was about £3. sterling per bag, so that the returns of some of these tradesmen were above £1,500. per annum. The persons who sell flour by commission often trust an individual baker to the amount of £500., and sometimes to the extent of £1,000.

* Vol. i. p. 11.

† I shall refer those desirous of information on this subject, to an excellent Essay by Mr. Collier, in *Memoirs of the Phil. Society of Manchester*, vol. v.

‡ When Mr. Connolly first erected his mills near Carlow, there was no sale for the bran; at present, it produces £1,800. per annum.

The baker gives his acceptance at two months, but he does not sell his bread to the consumers, as is the case in London. Between the baker and the housekeeper there is an intermediate huckster, whose acceptance the baker receives in lieu of prompt payment, and the huckster takes a note from the housekeeper. But these notes are often dishonoured, and thus abundance of employment is provided for the notary public.

In regard to their supply of flour, London and Dublin are very differently situated; London receives the greater part of the corn produced in the maritime counties of Kent, Essex, Suffolk, and Norfolk, and sells wheat to the millers in the interior. The districts on the sea coast, either north or south of Dublin, do little more than feed their own inhabitants. The wheat market of Dublin is very inconsiderable, the weekly consumption of flour in that capital being only about 5,000 bags, or 10,000 cwt. It is supplied by mills, the proprietors of which purchase wheat for grinding, at their own doors, and the flour is sent to Dublin by the canal. It is to be recollected, that in Ireland wheat undergoes a double process, on account of its being so badly dressed. In general, it is threshed on the ground; but as it is sold by weight, the farmers entertain a belief that no loss is sustained in consequence of the addition of dirt. In this, however, they are egregiously mistaken; for the millers, of course, buy according to the quality; and all the Irish wheat is screened and kiln dried before it is ground, which occasions a waste of full 10 per cent.

The same admixture of dirt is found universally in the oats ground by the northern millers, whose mills are employed chiefly for that kind of grain, and who purchase the meslin produced in the neighbourhood of Drogheda.

Mr. Barret's flour mill at Navan, grinds 15,000, Mr. Crainger's 15,000, Mr. Jebb's 20,000, and other small mills 10,000 barrels per annum, all of which is produced in the county of Meath; and the flour is sold on the spot to northern shopkeepers, who supply the bakers. Mr. Jebb's mill has six pair of stones, of which seldom more than four are going at the same time. Each pair grinds 15 bushels an hour. The flour is sold chiefly to shopkeepers in the county of Cavan, whatever remains is sent to Dublin. This mill has ground, for six months successively, 800 barrels per month. There is a great sale for bran and pollard, which are used in Lancashire in the dyeing of cotton; and in consequence of this demand, Mr. Jebb now obtains 5*d.* per stone for these articles, which formerly produced but a fifth part of that price. He has an immense fan and dressing machine, and the whole mill, forty years ago, cost £35,000. ; but in the course of that period, it has paid itself three times over. There are other mills on the Blackwater, near Navan, which grind annually 9,000 barrels of wheat and 10,000 of oats.

There is a mill in the same neighbourhood, which grinds 8,000 bushels of wheat per annum, the greater part of which is sold in the surrounding districts, and the rest sent to Dublin.

Mr. Grainger's mill stands in a most advantageous situation. It is placed in a hollow, in such a manner, that the summit of the building, being on a level with the road, the corn is delivered at the top, and passing through the mill in the course of preparation, is thus conveyed to the bottom, which is on a level with the canal. The weir is 100 yards long, and the whole premises cover three acres and a half of ground. Mr. Jebb offered a premium of 1s. per barrel for wheat threshed upon boards, but no one ever appeared to claim it. He finds it necessary to kiln-dry and dress all the wheat which he buys.

When Mr. Young was in Ireland, there were no flour mills north of the Boyne: Mr. Jebb sold his flour in Dublin, or sent it to England; and the mills in that kingdom were so few, that he was able to collect an account of their number, and the quantity of flour which they ground; but, at present, they are so multiplied, that I found it impracticable to obtain a list of them. Mr. Jebb's mill was then the only one on the Boyne; now there are three or four more in the neighbourhood; and, instead of sending the flour to be sold at a distance, they find a rapid sale for it at the door. Armagh, Belfast, and Derry, all have mills, but to the north-west of Navan, none have yet been erected; and to this may, in some measure, be ascribed the existence of illicit distilleries in Cavan and Fermanagh; for I was assured by Mr. Saunders, a gentleman residing in the former, that if he were to sow wheat he should find no sale for it.

Breweries are still scarce throughout Connaught, and many parts of the interior; and the habit of brewing at home, as in England, being no where prevalent, spirit yeast, which is easily obtained from the illicit distilleries, is employed in the baking of bread, and communicates to it a peculiar flavour.

There are so many mills in the south of Ireland, that it would be tedious to particularize them. The Rev. Horace Townsend, in his recent survey of the county of Cork, speaks of a great many flour mills erected of late years, and mentions also several breweries.

SALTING PROVISIONS.

A Danish writer says, that the method of salting beef and other provisions, was discovered in 1347, by William Bockeld of Viervliet; and, therefore, the Germans, in honour of his memory, have given to meat, cured in this manner, the name of *böckelfleish*.* This celebrated personage, to whom the Dutch are under so great obligations for teaching them to cure herrings, may, indeed, have made some improvement in the art, but we know, from various authors, that it was practised by ancient nations many ages ago. Diodorus Siculus mentions a savage tribe residing in caves

* Samlinger om Agerdyrking og Landvæsen Kiøbenhavn, 1796, Fierde hefte. p. 259.

among the mountains, between the river Eulæus and Media, who lived on acorns, mushrooms, and the salted flesh of wild animals.*

He speaks, also, of a people in Ethiopia, who fed upon salted locusts. When the locusts were driven into their country by the winds, they kindled heaps of dried grass, the smoke of which smothered these animals, and caused them to fall to the earth: they were then collected, and preserved by means of brine procured from saline ponds in the neighbourhood. Strabo gives a similar account, but with this difference, that the locusts, when mixed with the brine, were kneaded into a solid mass.† According to Herodotus, the Egyptians used, as part of their food, ducks and quails, which they ate raw, after they had been salted and dried.‡

To the moderns, however, this art is of greater utility, on account of the long sea voyages they undertake, and the necessity that thence arises of having such a supply of provisions as will keep for a considerable length of time. At present, it is not confined to articles indispensable to the support of life: it is applied to the preparation of many delicacies, which add to the gratification of the epicure, and give variety to our public and private entertainments. Hamburg beef and Westphalia hams are well known to every Apicius; and salted tongues are always acceptable to those who delight to indulge in the pleasures of the table. Birds, also, are cured and preserved in the same manner. The inhabitants of the Feroe Islands salt some of the sea fowl which they catch among the rocks, and save them as food during the winter.§ The people of the Orkneys salt and smoke geese, which in that state are exported;|| and the case is the same with the Pomeranians, whose smoked geese are highly esteemed, and have a most delicate flavour.¶

* Αὐτομοὶ γὰρ ὄντες ἐκ παλαιῶν χρόνων κωλυομένων ἐσπιδαισίου προσφέρονται, διὲ Βαλανὸς καὶ μύκητας ἔτι δὲ τεταριχιμίνας κρέα τῶν ἀγρίων ζῴων. Diod. Sic. Biblioth. edit. Wesseling, tom. ii, p. 332.

† Diod. Sic. tom. i. p. 184. Strabo, tom. ii. p. 1118. Almeloveen, Amst. 1707. Συγκόψαντες δ' αὐτάς μεθ' ἄλμυριδος μάζας ποιοῦνται καὶ χρῶνται.

‡ Ὅριθων δι τούς τι ἔρτυγας καὶ τας ῥήσας καὶ τὰ μικρὰ τῶν ὀρνίθων ὡμὰ σιτίονται προταριχιύσαντις. Herodot. tom. ii. p. 162. edit. Glasg. 1761.

§ Landt's Descript. of the Feroe Islands, p. 343.

|| Barry's Hist. of the Orkney Islands, p. 309.

¶ Geese are salted in the North in the following manner: they are cut in two through the back-bone and the breast, or the breast only is cut up, and, being well rubbed with salt, are suffered to remain in it for two days; the bloody brine is then poured off, and they are packed into casks, with a sprinkling of salt between each layer. They are afterwards pressed down by means of a heavy stone placed above them on a piece of board. *Samlinger om Agerdykning, Kiob. 1794, Fierde Hefte*, p. 260. The Pomeranian geese are fed with barley, oats, boiled carrots, turnips, and sea-sand. After they have been killed, plucked, and singed, they are cut up, washed with vinegar, and salted with one part of saltpetre and two of common salt, in which they are suffered to remain three or four days; when taken out, wheat bran is thickly strewed over them, and they are hung up for ten or twelve days in the smoke, but at such a distance from the fire as to prevent its having any influence upon them. They are next suspended, for eight days, in some place where there

Lord Sheffield says, that "provisions are a natural staple article of commerce for Ireland, because her climate is better adapted to it than any other; her cattle can remain longer in the field, and her beef can be cured a greater part of the year than elsewhere, from the temperature of her seasons, neither frost nor heat interrupting that business for a long time."^{*}

The principal part of the provision trade is confined to the city of Cork, whence most of the beef, pork, and butter, produced in the southern districts of Ireland is exported. The average number of oxen slaughtered is calculated at 10,000, and that of cows is 8,000. The beef cured is divided into three different sorts; planters' beef, India beef, and common beef. The planters' beef has among it no part of the head, neck, or shoulders, and the same parts, with the back-bone and shanks, are separated from the India beef. The common beef is packed up with the addition of those coarse parts, which have been taken from the planters' and India beef. The merchant purchases the carcase of the grazier by weight; cows, and small lean cattle bring the least price, and fat oxen of six years old the greatest. The prices, in December 1808, were, for the most part, from 36s. to 44s. per cwt. When made up, planters' beef sells at 4s. per cwt. higher than the India beef, and the latter 4s. higher than the common. It is packed either into tierces or barrels; the former containing 300lbs. and the latter 200lbs. of meat, independently of salt. The meat is suffered to remain seven or eight days in salt before it is packed. The expedition with which the animals are slaughtered, the meat cut up and salted, and afterwards packed, is astonishing. As the people employed in this business have acquired great expertness by habit, every part of it is conducted with the utmost regularity and dispatch. When the animals are killed, the hides are returned to the grazier for sale. The price in 1808, was, from 38s. to 50s. per cwt. The oldest cattle furnish the lightest hides, and these, of course, sell for the least money. The fat he disposes of to the tallow merchant, at from 11s. 6d. to 12s. per stone, of 16lbs.

Pork is packed up in the same manner. St. Ubes' salt, on account of the coarseness of the grain, is preferred to any other. It is slower in dissolving, and, consequently, the meat at the top of the barrel is preserved much longer than if the salt dissolved immediately, and sunk down to the bottom. At present, it costs 10s. 6d. per cwt.

The wood, of which the barrels and tierces are made, is imported from America.

is a free circulation of air; the bran is then brushed off, and they are packed up in beech ashes, or dry oats, in which they will keep a long time. Fleischer, in his Natural History, says, "goose-breasts, if cured with a mixture of sugar and common salt, acquire a most delicious flavour." *Samlinger om Agerdyrking, Tredie hefte*, p. 225.

^{*} Observations on the Manufactures, &c. of Ireland, p. 95.

The number of bullocks slaughtered in Ireland has much decreased since the American war. At that time, the annual number was 50,000. This diminution is ascribed, by the merchants, to the increased consumption of meat at home, and the extension of tillage; but, in all probability, they are not aware, that our blockading system renders necessary a very great supply of live cattle, for the use of our fleets and ships of war in the European seas, which has hitherto been confined to England. This circumstance, no doubt, has tended to increase the exportation of fat cattle, in a live state, from Drogheda, Dublin, and Waterford, to Liverpool, Milford, and Bristol.

To give a general idea of the weight and prices of fat beasts, I shall subjoin a bill of sale of Mr. Lyon's fat oxen in 1808.

Weight and quantity of 421 bullocks delivered at Cork by Dennis Lyons, November, 1808:

	Cwt. qrs. lbs.	Average	Cwt. qrs. lbs.
307 carcasses of planters' beef to Cuthbert and Hare	2,108 0 25	- -	6 3 13
6 ditto - India ditto - - - -	37 2 24		
94 ditto - ditto ditto, to Church and Co. -	594 0 17		
14 ditto - Navy ditto - - - -	78 2 25		
	2,818 3 7	Average of the whole	6 2 22

There were 3,022 stone 10lbs. of tallow, 16lbs. to the stone, average 7 stone 3lbs. Hides 379cwt. 2qrs. 24lbs. average 3qrs. 17lbs.

Paid for slaughtering 3s. 9½d. each, with the entrails, hearts and bellies. The merchant gets the head and tongue. The butcher cuts up and carts the whole to the stores of the merchant, tallow-chandler, and tanner. Eighteen men can kill and flay three bullocks in eighteen minutes. Planters' beef must have a certain degree of fatness, which cannot be attained till the animal is five years old. Hides sell at from 42s. to 58s. the cwt. This year the fat sold for 5s. the stone, and the beef at 6s. more than they did the preceding year.

One half of the hides procured at Cork are exported; the heavy ones are retained at home for shoe leather. In 1807, about 3,600 head of cattle were killed, and 50,000 hogs, but it appears that the slaughtering of the former is on the decline, while that of the latter increases. In the provision trade, Dublin seems to be gaining both upon Cork and Limerick. A barrel for pork costs 11s. 6d. and salt 8s. The expense of a tierce is from 16s. to 18s.; salt costs from 10s. to 11s.; coopering from 1s. to 1s. 6d. each. Had the St. Ubes' salt failed, as was expected in consequence of the invasion of Portugal by the French, the salt of the Cape de Verd Islands would have been used.

Bacon and hams are salted on an extensive scale at Limerick,* Clonmell† and Waterford,‡ whence they are shipped to London, where they are finally cured and dried, by means of fires made with shavings of different kinds of wood, each of which gives them a distinct flavour. Hence you may buy a Westphalia or a Yorkshire ham made from a hog salted in Ireland.

An Account of the Amount of Bounties paid on Beef and Pork exported in each of the following Years, ending 5th January in each year.

1801.	1802.	1803.	1804.	1805.	1806.	1807.	1808.	1809.	1810.	1811.	1812.
£.								5,009	4,555	5,523	

Glue is made at Cork and at Limerick, the best is prepared from the ears and the genitals of bulls. The hoofs of cattle are an article of exportation, being sent to Birmingham, where they are converted into snuff-boxes. In Ireland, the horns are softened by the application of heat, and made into lanterns, knife-handles, combs, &c.

A great deal of bone is burnt into ivory black, particularly at Dublin.

Coarse hats are manufactured in various parts of Ireland; they are made chiefly of wool, some are made also of goats' hair, but though goat-skins are abundant in that country, I never heard of any manufactory there for the preparation of cha-mois leather, like those established in Spain, Russia, and other countries.

Though it does not properly come under the head manufactures, it may not be improper to mention, that the collecting of feathers gives occupation to a great num-

* DEC. 28th, 1808. LIMERICK. CROOM.—A barrel and salt for a barrel of pork cost 25s. ditto, ditto, for a tierce, 36s.

† DEC. 6th. CLONMELL.—There is here an immense establishment for the pickling of bacon; 1,200 hogs are slaughtered per annum. Liverpool salt is used. The warehouse in which it is pickled will hold 100 tons; it is paved with flags, and has kennels to convey the pickle into a cistern in the centre. The introduction of the English breed has been found very advantageous, there being much less offal, which brings only one guinea per cwt. The bacon is not dried here, but sent to England in a pickled state packed up in cloths. The pork merchants are chiefly quakers.

‡ MARCH 28th, 1809. WATERFORD.—Toll was paid here for 170,000 hogs which passed over the bridge last year. It is supposed that 100,000 more, at least, come alive into Waterford from the country, or are conveyed thither when killed. The whole 270,000 are worth on an average four pounds each. They are all employed for making bacon and hams, which are exported in a green state, that is, not dried but salted. They are afterwards cured in London, by fires made from different chips, which give them different flavours.

ber of the lower classes in this country.* The feathers are obtained chiefly from geese, which are plucked twice in the year, and in consequence of this barbarous practice,† the traveller is every where shocked by the sight of these miserable birds, literally corresponding with Plato's supposed definition of man; "A featherless two legged animal,"‡ wandering about on the high roads, and running sometimes under your horses' feet.

Large quantities of kelp§ are manufactured on the western coast of Ireland, where the proprietors of some estates have considerably increased their rents, by letting such parts of the shore their property, as abound with the marine plants proper for the manufacture of this article. "Kelp," says Dr. Barry, "is a substance composed of different materials, of which the fossil or mineral alkali, or as it is commonly called, soda, is the chief. This ingredient renders it useful in the composition of soap, in the manufacture of alum, and in the formation of crown and bottle glass: in these works, kelp answers all the purposes of the very best potash, which cannot be procured but at a great expense from abroad, while the former is

* Oct. 28th, 1809.—Persons go about here collecting feathers, they give five-pence for a pluck, and strip the geese themselves, leaving on the poor animals scarcely a single feather. They divide the pluck into three sorts; the breast feathers bring the highest price. The flesh of a goose that has been plucked will not sell for so much as one which has never been subjected to that cruel operation.

† Formerly the Irish were accustomed to pull the wool from the backs of their live sheep, but a law was made to restrain this cruel practice. The 10th and 11th Charles I. sect. 4. chap. 5. *Lee's Statute of Law in Ireland*, p. 167.

Dr. Barry mentions a similar practice in regard to the sheep in the Orkney Islands, and as prevalent also in Iceland. *Hist. of the Orkney Islands*, p. 327. It exists likewise in the Feroe Islands. See *Land's Description*, p. 322.

‡ ἄνθρωπος ἑστὶ ζῴον δίπους ἄπτερον. This definition being applauded by Plato's scholars, Diogenes carried a cock stripped of its feathers to the philosopher's school, and presenting the animal in that state, exclaimed, "Behold the man of Plato." In consequence of this sarcasm, the definition was amended, by adding the words το πλατύπυλον, that is to say, "with broad nails," a character not applicable to birds. *Diog. Laertius de vitis Philosoph.* edit. H. Steph. 1570. p. 213. See also *Erasmii Apotheg.* Amst. 1761. p. 190.

§ The progress of the bleaching linen cloth in Ireland, first gave rise to the manufacture of kelp in that kingdom, and from Ireland it was transferred to the Hebrides only at a very recent period. The first kelp manufactured in the Western islands, as far as appears, was in the island of Tirey, by an Irish undertaker, in the year 1746. Macleod of Bernera, about the year 1748, gave leave to some Irish people to make kelp on his shores, for the payment of two shillings sterling, for each ton they manufactured. Mr. Hector Maclean, the venerable minister of the island of Coll, with whom Dr. Johnson had so long an intercourse, sold the liberty of the kelp on his farm in the year 1754, to an Irish manufacturer for two guineas.*

The

* Prize Essays of the Highland Society, vol. i. p. 206.

obtained by the industry of our own people on our own shores. It is formed of the ashes of marine plants, cut from the rocks with a hook, collected on shore for that purpose, and dried on the beach to a certain extent; they are afterwards dried in a kiln in considerable quantity, in which they are strongly stirred with an iron rake into a fluid state; when cool, the ashes condense into a dark blue or whitish coloured mass, nearly of the hardness and solidity of a fragment of rock. The kilns employed in this operation are rudely constructed of stones in a circular form, four or five feet in diameter, and about one in depth; in each of them at a time are commonly burnt from two to six hundred weight of kelp, which would, perhaps, be improved in quality as well as increased in quantity were they of still larger dimensions.*

Dr. Barry remarks that the three numerous genera of *fucus*, *ulva*, and *conferva*, all possess qualities which render them capable of being converted into this substance; but the whole quantity of kelp produced in the Orkney Islands is furnished by sub-marine plants of the four following kinds, the *fucus nodosus*, *serratus*, *vesiculosus*, and *digitatus*.

This branch of manufacture was introduced into these islands about the year 1720, and since that time has been continually on the increase, so that the quantity made has some years amounted to three thousand tons; and as the price has been nine pounds, nine guineas, and even ten pounds, it has sometimes brought into them nearly thirty thousand pounds in one season. Dr. Barry estimates the whole sum gained between the years 1720 and 1780 by this article to be £595,000. sterling.†

Kelp is used by the Irish bleachers, and is made along the coast of Clare, Galway, Mayo, Sligo, and Donegal. Mr. MORONY, in Clare, lets his part of the shore for £60. per annum to persons who collect the sea weed for the preparation of this article; and I was told by Mr. Trench, that the principal part of the rents of some of the shore estates in the county of Galway arises from this kind of manufacture. As it has done much good in the Orkney islands, by exciting the people to habits of industry, an exten-

The following appears by the same work to have been the average price of kelp :

		£.	s.
From 1740 to 1760	- - - - -	2	5
1760 to 1770	- - - - -	4	4
1770 to 1780	- - - - -	5	0
1780 to 1790	- - - - -	6	0

Since the year 1791, its price has greatly risen, owing to the war, which prevented the importation of Brazil. It has been as high as eleven or twelve pounds.‡

* Barry's Hist. of the Orkney Islands, p. 377.

† Ibid. p. 383.

sion of it might, perhaps, produce similar effects in some parts of Ireland. "In the Orkneys, formerly, the inhabitants were poor, indolent, dejected creatures, in want of ten of the necessaries, and almost always of the comforts, of life. At present, the case is otherwise; for they are now much better fed, cleaner in their persons, and far better clothed; their houses are neater, warmer, and more commodious: and in proportion as they find themselves more comfortable, they are rising to know their own worth, to shake off that servility that never fails to debase the character, and to discover more independence of spirit. Neither is this spirit confined to those who are immediately connected with this business; for it is pleasant to observe that it has diffused itself in some degree among the whole body of the people, who know their rights much better than they were accustomed to do, and consider themselves of more importance."*

In the north of Ireland, at Lisburn, Belfast, and Moyallan, there are vitriol manufactories, the proprietors of which make muriatic acid and Glauber's salts.

Glass manufactories are established at Dublin, Waterford, and Belfast; but the use of English glass is very prevalent in Ireland, and the reason assigned for it is the want of fuel. This, however, can certainly be no excuse for the Irish neglecting so useful a branch of industry; since in London there are many large glass-houses which bring abundant profit, though coals are dearer there than in most parts of Ireland.

Lord Sheffield says, that the heavy duty laid upon glass in Great Britain, gave Ireland a great advantage in this manufacture, of which it before possessed very little, and which on that account made an extraordinary progress. He states that nine glass-houses had suddenly arisen in that country, in consequence of this circumstance. He adds, that the table glass made in Ireland is not only very handsome, but apparently as good as the best English, and that the drinking glasses are three or four shillings per dozen cheaper than those made in England. Before 1780, no glass was exported from Ireland.†

Sugar is refined, and houses are established for that purpose both at Belfast and at Dublin.

Ireland possesses clay of various kinds fit for the use of the potter, but it is deficient in fuel; and this, perhaps, will account for the little progress which the Irish have made in this branch of manufacture: coarse earthenware and tiles are made in some places, but on so confined a scale as scarcely to be worth notice.

Stone quarries are so common in this country that bricks are very little used, though they are not subject here to an excise duty, as in England. The Irish bricks, however, are inferior to the English, as has been already remarked in speaking of clay, under the head Minerals; and, besides other defects, they are so badly burnt in

* Barry's Hist. of the Orkney Islands, p. 385.

† Observations on the Manufactures of Ireland, p. 237, 238.

the clamp, that one half of them are scarcely good for any thing. The expense of labour in making them is 12s. per 1,000, which, added to that of culm, raises the whole to 25s.*

Salt is a substance so necessary in the preparation of many important articles of commerce, and so much used for domestic purposes among civilized nations, that it forms an object of no little moment in the political economy of the different countries of Europe. This is particularly the case in Russia, where the utmost attention is paid by government to their salt-works, which are managed according to regulations drawn up for that purpose, under Catherine II. and consisting of no less than 104 articles. Russia obtains its salt from mines; from saline lakes, where it crystallizes of itself; and from salt springs, by the usual process of boiling: but, notwithstanding all these sources of supply, the consumption is so great, that large quantities are imported from abroad, and chiefly in the harbours of Livonia and Finland. According to Guldenstädt, the amount of this importation, in 1768, was equal in value to 49,000 rubles. It is preserved in magazines scattered throughout the provinces, and sold to the people according as their wants may require.†

* APRIL 2d, 1800. LITTLETON GLEBE.—The ashes of the sulphureous coal called stone, when mixed with clay, make the hardest bricks I ever saw.

JUNE 26th.—Colonel Rochford's bricks, like the greater part of those in Ireland, are made of clay mixed with sand instead of ashes, and sell for a guinea and a half per thousand. He pays ten shillings and sixpence per thousand for making them, and burns with culm. The size of the bricks is nine, four, and three inches.

† Salt is an article so necessary to the comfort and convenience of life, that Providence has scattered it with a liberal hand throughout every part of the world; for besides that held in solution by the ocean, saline springs, and briny lakes, it is found in a fossil state in almost every country with which we are acquainted. To some ancient nations, it seems to have been an article of very great importance, for we are told by Strabo, that the possession of salt-springs, from the water of which salt was formed by deposition, in the course of a few days, gave rise to a war between the Auloriæ and the Ardiziæ, two tribes who inhabited a part of Illyria.* The same author speaks of a briny lake in Phrygia, called Tatta, into which, if a piece of rope was immersed, it became covered with an incrustation of salt; a similar effect was produced on the wings of birds if they happened to touch its surface, which in a little time grew so stiff that the animals were unable to fly.† In a lake called Spauta, near the Caspian Sea, salt crystallized of itself, and was collected by the inhabitants.‡ The accounts which we read in all African travels are a proof of the great quantity of salt used by the negroes; § and Barrow relates, that he saw at Tien Sing in China, salt tied up in sacks of matting, sufficient, according to estimation for the consumption of thirty millions of people.||

Strabo speaks of fossil salt in the island of Rhodes,¶ and also near the river Halys.** He mentions a mountain

* Strab. Geogr. edit. Ameloveen, Amst. 1707, tom. i. p. 489.

† Ibid. tom. ii. p. 832.

‡ Ibid. p. 794.

§ Horneman's Travels p. 15. Park's Travels, p. 27, 21. 141, 160, 258.

|| Travels in China, 4th edit. 1804, p. 78.

¶ Tom. i. edit. Ameloveen, Amst. 1707. p. 342.

** Ibid. tom. ii. p. 840.

In Ireland there are few salt manufactories. Those of Waterford only purify the Cheshire rock salt, and bring it into a state fit for use. From the manner in which

mountain of salt in Caramania,* and a people of Arabia living in a town called Gerria, whose houses were built of salt.† Salt was dug from a mountain in the country of the Sapithi in India.‡

The beds of fossil rock salt in Cheshire were first discovered in 1670, about a mile north of Northwich, and this discovery led to further researches, which proved successful; but it is only from the pits in the neighbourhood of Northwich, that salt is procured at present. There are ten or twelve pits, the shafts of which are usually square, and constructed of timber; but about a mile from Northwich, there is one circular and of brick. The salt is obtained by blasting, and the use of those mechanical instruments commonly employed in mining. No support is required for the roof of the cavities, the salt being sufficiently solid to remain suspended, without any danger of falling in. The cavities thus formed present a striking appearance, and when illuminated by candles fixed in the rock, the effect is highly brilliant. In some of the pits, the roof is supported by pillars, eight or ten yards square, which, in general, are regularly disposed; others are worked out in aisles; the choice here, however, seems to be wholly arbitrary. Salt is made also in Cheshire, and near Durham, by evaporating the water of briny springs. The pans used are of wrought iron, and contain, in general, from 600 to 800 square feet.§

The salt-mines of Wielitska, in Poland, eight miles from Cracow, have been long celebrated. The known depth of the mine, which has several apertures, is 1,115 feet, its length 6,691, and depth 743. The salt being almost as hard as stone, is hewn out with pick-axes and hatchets, by a tedious operation, into large blocks, many of which weigh six or seven hundred pounds. Before the partition of Poland, they brought to the king an annual revenue of about £97,000 sterling. Among the most remarkable curiosities of this place, may be mentioned several small chapels excavated in the salt, in which mass is performed on certain days of the year. One of these chapels is above 30 feet long, and 25 broad: the altar, the crucifix, the ornaments of the church, and the statues of several saints, are all carved out of the salt.|| There are salt-mines also in Upper Hungary, an account of which may be seen in the *Phil. Trans.* vol. xxxvi. p. 260-264. Russia abounds with salt-mines, but those only on the Ilek, sixty wersts from Orenburg are worked. It has likewise saline lakes without number, where the salt crystallizes naturally.†† That of Yelton, in the government of Saratof, produces annually on an average, five and a half millions of poods, of about 40 pounds each.‡‡ Barrow describes some salt-lakes in the Colony of the Cape of Good Hope, one of which, situated on a plain at a considerable height above the level of the sea, was covered with one continued crust of salt, like a sheet of ice. He speaks of others which deposit their salt only in very dry summers, and he mentions one, the salt of which is tinged of ruby colour with iron.*§ To enumerate all the salt-mines and saline lakes from which salt is obtained, would be undertaking a tedious and useless task; but I cannot help here adverting to the superiority of the English to the Polish mines, in a commercial point of view; for it is a fact, that many thousand tons of rock salt are annually sent from Cheshire to those parts of the Prussian coast, which are most adjacent to Poland, independently of the large supplies of the English manufactured white salt, which are exported to the same country.††

* Tom. I. edit. Almevlecn Amst. 1707, p. 1157. + Ibid, p. 1110. † Ibid, p. 1025.

‡ For a minute account of this manufacture and the salt mines, see Holland's View of the Agriculture of Cheshire, page 19—71.

|| Cox's Travels, fourth edit. vol. i. p. 196-201.

‡ Hist. Stat. Gemälde des Russischen Reichs von H. Storch, vol. ii. p. 541, 542.

*§ Travels in Southern Africa, vol. i. p. 122.

†† See a Comparative View of the Cheshire and Continental Salt Mines in the Transact. of the Geolog. Society, vol. i. p. 55.

it is mentioned by Dr. Smith, in his Survey of that county, one might be induced to expect to find it in its fossil state. He mentions also salt works at Dungarvon, but I did not visit that town; and, therefore, I cannot say how far this information is correct, and whether there be any there at present. There are salt works, however, at Sligo.

When I was in Ireland in the summer of 1808, the French were in possession of Portugal, and great alarm was spread among the provision merchants, about St. Ubes' salt, which they consider as superior in curing beef and pork to every other. In the preparation of bacon and hams, the Cheshire salt is found to answer exceedingly well; but as it readily dissolves, when strewed over meat in barrels, it soon sinks to the bottom, leaving the upper strata bare, which in a little time spoils. The St. Ubes' salt being longer in dissolving, is preferable; and as the provision merchants reckon the Cape de Verd next in quality, they had it in contemplation to employ it, had they been debarred by the events of the war from the use of the former.*

The Journal des Mines gives a process for obtaining salt from sea-sand, and the Edinburgh Reviewers remark, that a similar manufactory is carried on in Dumfrireshire. As the consumption of this article is so general and extensive, and as it is an object of very great importance to the poor, every hint which may lead towards the means of preparing it at a cheap rate, undoubtedly, deserves attention.

Taking a general view of the manufactures of Ireland, it may be estimated that, except in the eastern part of the province of Ulster, the domestic manufacture of woollen goods is every where prevalent, without that due division of labour which can render it of any benefit to the country.

The linen manufacture flourishes most in Ulster, but it is established also in Galway, Mayo, and Sligo, and towards the south in the whole neighbourhood of Drogheda; it is found also in the King's County, Kerry, and along the coast of Cork; in a word, it may be said, in some measure, to extend to every part of Ireland, except Wexford and Wicklow, where it is almost unknown. In every other district there is the same domestic manufacture of linen as of woollen, for most families raise flax, and prepare from it all those articles which are necessary for their own comfort and use.

* It appears, however, that the Irish have no occasion to be under any uneasiness respecting supplies of foreign salt, as some equally good may be procured at home. "This experience," says Mr. Holland, "we have on an extensive scale at the navy-office at Deptford, where the large grained salt manufactured in Britain, from natural brine springs, has, for several years, been the only salt used for packing provisions; after they have been first salted with common salt, or that prepared by a heat of 180 degrees. Though these provisions have been afterwards carried to the hottest climates, the strength and purity of the salt used have never been called in question. The provisions have kept perfectly well; and it has never been doubted that the salt here used was, in every respect, equal to the St. Ubes' salt, or to any other salt prepared from sea-water, by the natural heat of the sun." *Holland's View of the Agriculture of Cheshire*, p. 70.

The cotton manufacture seems to be established chiefly at Belfast; but it has spread to Dublin, Kildare, and even to Wicklow and Wexford manufactories; having been formed at Stratford and Enniscorthy; I know of none, however, to the west, or farther south, than these places.

Broad cloth and blanket manufactories are established no where north of Dublin, flannels are made in Wicklow, blankets in Kilkenny, and broad cloths at Middleton and Cork.

In the neighbourhood of Cork, and along the coast of that county, stuffs are manufactured, and the spinning of wool into yarn is much followed by the women in the north-west parts of the island. In the same districts, illicit distillation gives employment to a great number of people, the legal distilleries being chiefly in the south.

The salting of provisions is confined almost to a line south of Dublin. Mills, for the grinding of wheat, have not yet been erected in Cavan, Fermanagh, Tyrone, Donegal, Sligo, Leitrim, Mayo, Roscommon, or Galway; but mills for grinding oats are common.

Mr. Wallace, who wrote in the year 1798, has stated some facts, which, if correct, seem to account for certain manufactures not having flourished in Ireland. He complains, in particular, that the progress of Irish manufactures has been retarded by the Irish workmen claiming higher wages than are given to people of the same description in England. Yet the English workmen earn more at the week's end than the Irish. He states also, that the price of hosiers' work is much higher in Ireland than in England, and that the labour of persons in the cotton manufactures is fifteen per cent. dearer in the former than in the latter; he adds, that the rate of wages in the glass manufactories is considerably higher in Ireland, all which circumstances, if true, must be ascribed to want of skill and industry.

From a general consideration of the manufactures of Ireland, it is evident, that fuel, cotton, fine wool, bark, iron, and salt, after they have undergone a certain degree of preparation, must necessarily be imported, in order to carry them on, and that few or none of these raw materials are ever likely to be supplied by the country. To those who imagine that fuel may be supplied by the growth of timber, I beg leave to observe, that when population has made such progress in a country as it has in Ireland, it is very unlikely that trees will ever be substituted in the place of corn. This would be a complete inversion of that order of things, which we know to have taken place in every country of the world, and of which sufficient proof is afforded by Russia and other northern states. Without fuel the Irish cannot obtain iron from their own ores; and even if they import it, the want of that necessary article would exclude them from many important branches of industry, which might otherwise be established among them. The case, however, is widely different in regard to cotton and fine wool; these may be imported with great advantage. Salt, also, which, be-

sides its use in domestic economy, is so necessary in salting fish and curing provisions, must be obtained from foreign countries, unless veins, in a fossil state, similar to those of Northwich in Cheshire, should be discovered in the country. Salt, indeed, applicable to every purpose, may be prepared by evaporating the water of briny springs, or the salt water of the ocean; but no attempt of this kind can be made, where there is not a cheap and abundant supply of fuel. For a similar reason, it would be much better for the Irish to import their malt than to be at the trouble and expense of making it.

But even if Ireland should avail herself of imports from England, little progress can be made in manufactures without a proper division of labour, which is still a great deficiency in that country. In every large undertaking recourse is always had to the assistance of some director or overseer, even when the labour is performed by task-work; because such a person, possessing competent skill and experience, takes a more comprehensive view of the whole business than any common workman can be supposed capable of doing. Hence he is enabled to distribute the different parts of the work to those best qualified for the execution of them, and to assign to each labourer his just proportion, by which means the whole is completed in a shorter time and in a much better manner. In manufactures, the same plan must be followed before they can attain to perfection; the labour must be divided, and not performed by one person, as has been ably shewn by Dr. Adam Smith, Sir James Stewart, and other writers on political economy. But in Ireland, the minute division of land, and the manner in which the inhabitants are scattered over the country, render it necessary for labour of various kinds to be combined in the same individual; and thus each family become the manufacturers of their own clothing, and of every thing else which they use. Most of the raw materials being supplied either by their flocks, or the produce of their land, they are better able to continue this system, and to dispense with the use of articles imported or made by regular workmen. In arts, carried on in this manner, improvement is impossible; and while the same system exists, no taste can be excited for a superior mode of life, nor will much encouragement be given to the establishment of manufactories. Except in the cotton branches and the curing of provisions, this pernicious system is every where observed; it pervades all ranks, from the nobleman, who makes his own candles, cultivates his own patch of flax, and has it spun by his servants, to the cotter, whose wife and daughters spin and manufacture the frieze and woollen stuffs, which serve them as clothing.

This system is an evident mark of the slow progress of civilization; it prevails in all savage countries; and Horneman* displays a knowledge of political economy, when he mentions, as a proof of an African nation being in a state of barbarism, that

* Horneman's Travels, p. 70.

he saw the same man shoeing the sultan's horse and making ear-rings for the sultana. Much less of this system is seen about Belfast than in other parts of Ireland; but in that neighbourhood the linen manufacture has given a different turn to the habits of the people, and brought about a striking alteration in their way of life. This part of the island suggests a very useful hint for the improvement of the country; the people should be taught to feel new wants. A certain degree of luxury must be introduced among them, and they must be imperceptibly led to despise their home-spun manufactures, and to place more value upon fashion and dress. Example has sometimes a wonderful effect. The settlement of a few respectable families in a poor district, by arousing that natural pride which mankind in general have of equalling those of higher rank, might induce the great mass to adopt different ideas, and to seek for those harmless gratifications to which they were before strangers. A desire of attaining superior comforts being once excited, will act as a stimulus to industry; and industry, when it becomes general, must, of necessity, encourage as well as assist manufactures and trade.*

Swift, who with all his genius and knowledge, appears to have been totally ignorant of the true principles of political economy, was the great originator of the clamour against importation. It is a legacy which he has left to the people of Ireland, who from a mistaken idea, confound this measure with that of a free trade,† which was so strenuously pleaded for by Molineux, in his "Case of Ireland Considered." The same thing has led some modern writers astray; and it forms one of those subjects which uniformly awakens discontent, and to which those who cherish

* Dr. Franklin, whose familiar way of conveying useful information is so well calculated to make an impression on common readers, has illustrated this subject in his usual happy manner: "Is not the hope of being one day able to purchase and enjoy luxuries, a great spur to industry? May not luxury, therefore, produce more than it consumes; if without such a spur, people would be, as they are naturally enough inclined to be, lazy and indolent? To this purpose, I remember a circumstance: the skipper of a shallop, employed between Cape May and Philadelphia, had done us some small service, for which he refused to be paid. My wife, understanding that he had a daughter, sent her a present of a new-fashioned cap. Three years after, this skipper being at my house, with an old farmer of Cape May, his passenger, he mentioned the cap, and how much his daughter had been pleased with it. 'But,' said he, 'it proved a dear cap to our congregation.' 'How so?' 'When my daughter appeared with it at meeting, it was so much admired, that all the girls resolved to get such caps from Philadelphia; and my wife and I computed that the whole could not have cost less than a hundred pounds.' 'True,' said the farmer, 'but you do not tell all the story. I think the cap was nevertheless an advantage to us, for it was the first thing that put our girls upon knitting worsted mittens for sale at Philadelphia, that they might have wherewithal to buy caps and ribbons there, and you know that that industry has continued, and is likely to continue and increase to a much greater value, and answer better purposes.' Upon the whole, I was more reconciled to this little piece of luxury, since not only the girls were made happier by having fine caps, but the Philadelphians by the supply of warm mittens." *Papers on General Politics, Franklin's Works*, vol. ii. p. 425.

† There is a very able paper of the Count de Mirabeau's, in the *Annals of Agriculture*, vol. xii. p. 111, and this subject is there fully discussed at p. 113, 114, and 302.

the idea of national independence, as well as those who are ignorant of such a patriotic principle, are ever ready to give implicit credit. "Trade alone can be won; manufactures can be attained by no other system than the equitable exertion of superior talents, skill, capital, and industry."*

Since Ireland, therefore, is so deficient in regard to articles of the first necessity, without which manufactures can never be carried on to any extent, is it not astonishing that there should be people in that country who wish to see it separated from England, as if it were capable of supporting itself by its own energy and productions, and of remaining in a state of independence? Those who entertain such ideas cannot be supposed to be deeply read in political arithmetic, and in all nations there are those who suffer their imagination to overrule their judgment. Hence the most erroneous opinions are formed and promulgated with an air of importance, which gives them currency among the weak. Mankind, in general, are apt to receive assertions without duly examining their value; in this manner they pass current, and are received with as much confidence as were the decisions of the ancient oracles, till exposed by time, or the talents of some favoured genius.

But notwithstanding there are persons in Ireland, who are so far infatuated with their own opinions, as to argue in favour of independence, and to lament that Ireland has become an integrant part of the united empire. Such, however, are the sentiments of many of the natives of a country which is destitute of fuel, which possesses neither ships, nor materials for building them—a country where a great portion of the inhabitants are still in a state bordering on barbarism; and who, therefore, it may be supposed, would be benefited by being incorporated with a people, from whom they may acquire a superior knowledge of the arts, and all those valuable qualities conferred by civilization.

* Sketches of Irish History, *Lond.* 1811, *Murray.* p. 20.

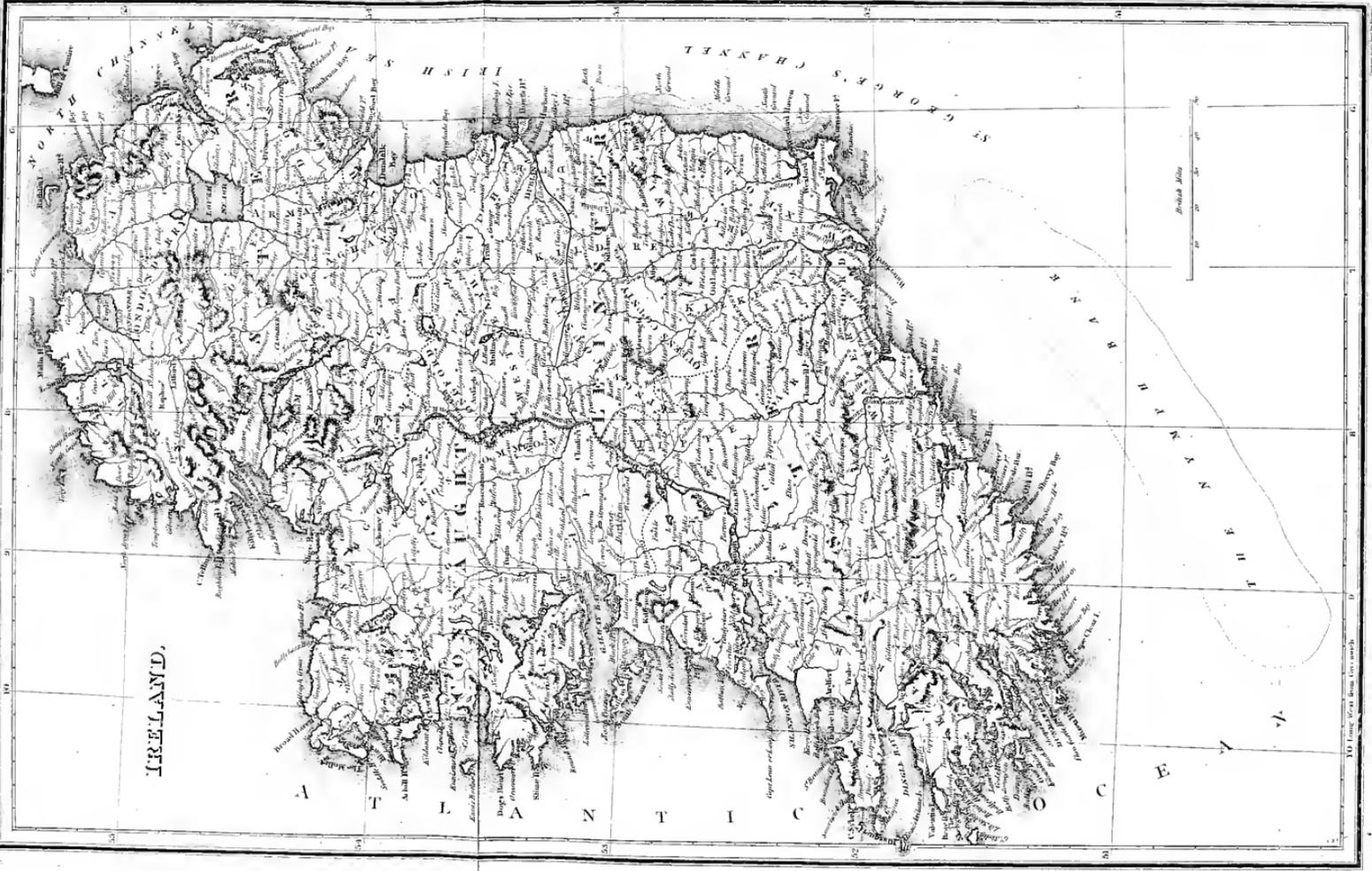
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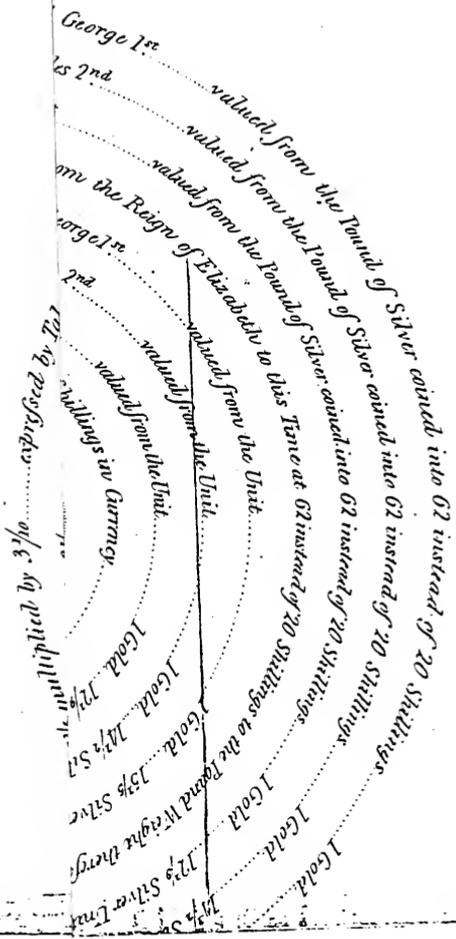
* Sketches of Irish History, Lond. 1811. Murray. p. 20.

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