

In Ireland 1846 & 1847

*Twelve Months' Residence in Ireland During The Famine and The Public Works, 1846 and 1847.*

By William Henry Smith

Late Conducting Engineer of Public Works

The Following Pages are dedicated to those friends of Ireland who, during the late National Calamity, so nobly aided by their contributions their suffering fellow creatures ; with a view to show, that were its powers *permitted* to develop themselves, THE COUNTRY WITHIN ITSELF CONTAINS AMPLE RESOURCES, without again inflicting so severe a tax upon the benevolence of the people of England ; and with the ardent hope that this little volume may so far aid in enlisting their sympathies, as to lead to the formation of a new Era—the tranquillity and ultimate regeneration of Ireland.

The present unhappy state of Ireland is a subject engrossing such universal attention, that there needs no apology for bringing forward any practical suggestions for alleviating the sufferings of that unfortunate and misguided country. I should probably, however, have refrained from adding to the number of publications, valuable or otherwise, already issued upon the subject, had I not, during the last twelve months, been in a position affording peculiar facilities for investigating the cause and root of the existing evils, and of ascertaining, from personal intercourse and apart from all prejudice, the real grievances of all classes.

A civil engineer, moreover, as dealing largely in human labour, as the groundwork of material productions in almost every variety, and in the numberless combinations of engineering science, connected with the employment of the people and with the improvement of the mechanical part of husbandry, ought to be able to form the best judgment as to whether the deficiency of results is owing to a misapplication of such labour, or a fault in the prime mover itself. This I have had ample opportunity of doing, having had the sole management of a tract of 'country containing from twelve to fifteen thousand labourers, employed on that most irksome and unsatisfactory of all tests,—a new occupation conducted upon new principles.

## I.

### Physical Aspect of The Country.

Approach To Ireland.—Contrast with England. Bay of Dublin—Compared with Naples.—Liffey—City.—Principal Buildings.—Summary and Comparison.

On first approaching the shores of Ireland, *en route* from London *via* Liverpool to Dublin, we are struck by the contrast they present to the busy commerce of those two great emporiums of a trade spanning the entire surface of the globe, possessing relations with every locality where the name of a ship is known. I will endeavour, as far as my limits will admit, to show how little art has effected, and how much nature has done for the country.

Some parts of Ireland are favoured to an extraordinary degree, both in grandeur and sub-limity of scenery and fertility, even to luxuriance. The barrenness and sterility discovered at intervals will admit of ages of employment before the resources of those localities are fully developed, or there exists any necessity for the people's emigration ; to effect in other countries without population the same improvements here required, to precisely the same extent with an immense population in the kingdom itself, and in all surrounding nations.

On arriving in the Bay of Dublin, at about five o'clock on a fine autumnal morning, what a beautiful and yet delusive picture of the bright side of Ireland is presented ! The shores in front studded with villas and mansions in one line, miles in extent, and covered with a forest of noble trees and truly emerald verdure ; the life-giving sun has arisen behind in the east, and the whole of nature

is exhibited in one flood of golden light, with its varied plains of undulating lowlands and swelling eminences,—even some of the most distant of the Dublin mountains, forming the purple amphitheatre of background, may be observed in all their details ; the cottages, their boundaries, and the crops or products of the soil On the left is Bray Head, rising abruptly many hundreds of feet from the sea to its summit, and yet clothed with herbage, except where the yellow quartz shows the surface to be so precipitous that a stone or a plumb-line dropped would fall direct to the sea, which is breaking with subdued violence beneath. Opposite, and about ten or twelve miles separate, spreads the sweeping hill of Howth, of an equal eminence with Bray Head, like the two watch-towers of Ireland. The former, however, by its sear-brown scalp shows the absence of vegetation over a great extent of its surface ; . the extended field of a telescope still further develops that it is covered with heath and loose stones ; and yet, by its gradual slopes and the encroachment of verdure around the cottages, it is obvious that all under a proper system might be profitably improved. These vast hills and mountain-ranges enclose the alternate champaign and undulating country surrounding Dublin ; through the centre glides the meandering Liffey, which, after winding and displaying itself and its shelving banks in a thousand varieties of form, and combinations of curves with a richness of soil and exuberance of production equal to that of the upper Thames, here empties itself into the Bay of Dublin ; and certainly, to the admirer of art, not less beautiful is its course through this noble city, with its splendid quays, streets, and public buildings, in which Dublin is excelled by no other capital in Europe.

This bay has been compared, in its natural beauty, to that of Naples ; which, though wanting an Italian sky and atmosphere, it far exceeds in point of sublimity and grandeur.

Proceeding to the suburbs of the city, the river sweeps around the beautiful and varied Phoenix Park, with its sloping banks and sweeping valleys, overgrown at intervals by a giant description of the red and white thorn of extreme age ; the still more giant timber marking the course of the broad avenues which sweep across its vast extent ; and, towering above all, that immense piece of masonry, the Wellington Testimonial. Every thing appears to be on the same scale of grandeur and profuse liberality. Proceeding forward, we come to a light and beautiful engineering work, the King's Bridge, built in commemoration of King George IV.'s visit to Dublin ; on the left, and nearly opposite to this structure, are the park gates ; and the royal barracks,—a most extensive, well-proportioned, and handsome structure of its kind. On the enclosed green, between the river and the barracks, was erected the first model soup-kitchen of Mr. Soyer, whose efforts, however well meant and philanthropic, and that I believe is beyond dispute, were nevertheless far from efficacious. Any system which keeps a nation in idleness cannot but be vicious ; and it is to be hoped that the people will be required to work for their landlords in return for food, for which the soil in the end will have to pay ; they cannot always eat of the bread of idleness.

On the right of the King's Bridge stands the Kilmmainham Royal Hospital, and the new terminus of the Great Southern and Western Railway, which promises to be a very noble pile, in the Romanesque style of architecture.

At this bridge commence the quays, which run in an uninterrupted line of wall and streets to the extent of nearly eight miles, taking both sides of the river. The quays themselves are of spacious dimensions ; and the narrow river being fenced off by parapet walls, the continuous line of houses on either side gives the appearance of some immense street, with here and there a slightly serpentine course. Lower down, and on the left, are the Four Courts, a magnificent building more resembling some vast ancient temple than the description of edifice which in the present day we find commonly constructed.

On the right again is the venerable Christ Church Cathedral, in which still exists a monument of Strongbow. [1] Likewise St. Patrick's Cathedral, nearly in the same direction, in which are monuments to the memory of Dean Swift, and Mrs. Johnson, the celebrated Stella. Carlisle Bridge is the next important point ; it is the main and rather narrow conductor to the seven leading thoroughfares of the city, and at present the most dangerous site in Dublin. In fact, I should say, the whole ought to be pulled down level with the quays, and covered over with iron girders, in a line with the streets, all the girders springing from the present abutments as a common centre: this should be

continued for the entire breadth of Sackville Street ; and the present balustrade with ornamental cantilevers placed outside as a parapet.

The entire river would pay for arching at a point like that, so valuable as building ground. This will, perhaps, create a smile ; but even in the bridges of former days they made their narrow space still more limited by the erection of houses upon them ; which, if of sufficient width, might have been made a decided ornament, instead of an obstacle and an eyesore. This, the last of seven bridges within the suburbs, has at every point considerable interest ; on the left is Sackville Street ; great breadth and good shops on either side give a noble effect ; in the centre is a large Grecian Doric pillar, in memory of the great Nelson, on the top of which is a statue of the hero ; some idea of its proportions may be estimated from the circum-stance that at the funeral of the illustrious O'Connell, I myself observed a man standing upon the head of the statue, and from his proportional appearance, three or four others might at the same time have found a footing. Opposite to this fine column may be seen the Post-office, a chaste and elegant structure ; on the other side of the bridge, at a short distance, Trinity College entrance ; likewise a part of the Bank of Ireland, formerly the Irish Houses of Parliament, and certainly as handsome a building, with as fine proportions, as exists in any country ; at once bold, chaste, and magnificent. On the quays below the bridge, at the one side may be seen the Corn Market and Conciliation Hall, and on the other the Custom House, another noble and well-proportioned structure of large dimensions ; it contains the offices of the Board of Works ; to the left and right are the shipping and two Docks, a short distance below which the Liffey finally empties itself into the Bay of Dublin, its course yet marked by two light-houses and a great extent of pier or mole, the entrance to the river strongly fortified by powerful batteries.

Such is the metropolis of Ireland, and such its enchanting suburbs ; a faint sketch of which I have endeavoured to give ; but I fear, when placed in juxtaposition with the interior aspect of the country, the contrast will be harsh, although, I trust, not uninteresting to the philanthropist. I have herein endeavoured to show, from what has been done, what may be done ; from a picture of what the people are in some places, what they ought to be every-where. When they have lands at fair prices, they are too often wrested from them ; and when they are fixed at too high a rent they cannot pay for them ; and so become a burden upon the state or the really good landowner, who thus has a double tax to pay. From this it must not be supposed that I intend to espouse any party ; far from it : but this I cannot be blind to, that there is a remunerative market price for produce ; that in no country can it be grown cheaper than in Ireland ; that the lands are untitled, or not tilled to their full extent ; that the land-owners are poor, and the people starving, in a fertile soil ; and these things should not be : the nation is wasting and dying away : all men, of however limited capacity, should join in the effort for her salvation.

Passing westward from Dublin, the country gradually assumes the appearance of less careful tillage, and more frequent sterility ; here and there has been lately developed some really fine sowing, quite in the English style ; well clipped fences, parallel sowing straight fences, and broad trenches, or still more properly curving into Hogarth's line of beauty, and a careful neat style of husbandry which is at once a proof of a good agriculturist. There is no other work in a really English style until we arrive at Athlone.

## II.

Athlone.—The Shannon.—Accident.—Great Central Outfall.—Improvements. Shannon Commissioners.—Lough Ree.—A Boat Excursion.—A Picnic.—Board Accounts.—Storm on The Lough.—Principle of Waves.

The “ sweet town of Athlone,” as Lover has pleased to consider it, is a wretched-looking, irregular, squalid, dirty place, with dingy shops, murky even by bright daylight, unlit at night, and having but one chief thoroughfare, forming the main road to Galway. The Shannon passes through the centre of the town ; giving one half to Leinster and the other to Connaught, or *Ireland*, as it is termed *par excellence*, by the Connaught rangers and general inhabitants of the more pure Milesian province. The streets take all manner of dangerous rises and falls, twists, turns, and contortions, seemingly defying the scouring influence of the mighty river which rolls through, redoubling its noise and efforts, without its cleansing effects being at all visible. And yet this same town, than

which there is none more susceptible of improvement, is one of the largest military-depots in Ireland ; possessing spacious barracks, fine level parade ground, extensive and powerful batteries, and out-work defences, with its old fort, that has done some good service in the time of Ireland's internal warfare, and now constitutes a protection and defence of the pass of the Shannon from an invading army, either by the bridge or the shallows at its base. [2]

The river rushes onward with a deafening roar ; dashing impetuously down a rapid, but in no place precipitous descent, from the vast lake above to the almost level reach beneath. This shallow is very formidable during floods ; it sweeps onward, carrying all before it, and is then dangerous even for boats to pass down. On one occasion a child was swept away by the torrent, and a man wading out to save it was likewise carried out into deep water. They were swept down in front of the quay, where a brother of mine, happening to be at the time, immediately jumped in and brought both to shore : a providential termination to a somewhat dangerous experiment, even for a good swimmer.

When we reflect that this mass of water, four or five hundred feet across, never flows, but is always sweeping down at the rate of from five to ten miles an hour, we may have some idea of its value as forming the great main outlet of the drainage of northern and central Ireland ; and comprising a catch water basin of millions of acres, all improvable, many in a state of most primeval solitude and sterility, and connected with minor rivers, brooks, and vast inland lakes and marshes, frequented and inhabited only by wild-fowl, geese, and even swans in great abundance ; so much so as to cover vast tracks of reclaimable swamps by right of undisputed possession since the creation.

All this requires alteration and improvement. Whilst the government or companies are draining the larger lakes, the landlords, when or where they have the means, should tap the lesser ones. The very Shannon itself might, at this point, be cut to a level with advantage, and thus bring under tillage and power of reclamation an amount of acreage that would pay for the labour threefold.

The first great work of a reproductive character, connected with Ireland, was the improvement of the Shannon ; first, with respect to its navigation, and incidentally, the drainage of the river, its tributaries, and the surrounding districts, by the aid of locks, so as to render this noble river navigable for a distance of two hundred miles. Unfortunately the commissioners were limited in funds, or doubtless much greater improvements could have been carried out ; yet, with the present prospects before the country, everything of a feasible character should be brought forward.

In some cases the Shannon has been deepened, and in others, locks have been placed, in order to save the expense of cutting away the shallows, and yet admit of navigation ; as, for instance, at Athlone, where I doubt not a vast revenue would be derived by cutting away the shallows altogether. By that means the Lough Ree would be lowered, and an amount of land reclaimed that would pay for the construction, were it required, of an entirely new bed to the river. There are thousands of acres of land within eight or ten feet from the surface ; and some of the inner lakes and bights, haying two and three feet of diluvial deposit, after being drained, would require little more outlay than the seed. The vast extent of level water would admit of a fall not too rapid for easy navigation, and I doubt not that these works would yet pay sufficiently well, by running a small embankment across where the water is shallow, and pumping out the water, as they do, on ten times the scale, in Lincolnshire and Holland.

These are most important considerations, and by any other nation would not have been suffered to pass in the first instance unconsidered. Unfortunately, in England generally, when a really liberal sum is expended, it is on works which all condemn, and in utter opposition to public opinion.

As it is, there are some very fine solid works here ; the bridge, the locks, and the weir, do great credit to all parties, both in the skill of design, and care in execution ; they are the only great improvements, west of Dublin, possessing a really English character of magnitude, usefulness, and finish.

The Shannon commissioners might, at the present time, much cleanse and improve the town, and in a manner which would almost come under the head of a reproductive work. For instance, instead of giving the sewers an outlet into all parts of the river where they have made steps for the convenience of persons requiring water, they might have carried them parallel to the river, and allowed them to run out below the rapids. They might also, by encroaching a little on the river, give handsome esplanades, which would, in parts, form valuable frontage for houses ; and other new streets could be built, at little or no cost, up to the new quays or roads ; as those possessing land in these suburbs would be glad to make the most of it by having it converted into important thoroughfares. This is due to the people of Athlone, as the Shannon Commissioners, in their improvements, were compelled to pull down a great many houses, of which there were before too few ; and this deficiency has been lately increased by the two large fires which took place successively, and which, but for the Barrack fire-engines, and the proximity of the Shannon, would probably have removed Athlone from the Connaught side of the river altogether.

The spreading of the Shannon at Lough Ree, above Athlone, is of considerable extent, being in length 20 miles, and in some places at least 14 miles broad. Its depth varies from what may be called shallow waters or banks, to an average of 200 or 300 feet. This scene is most interesting and attractive from many points, with its alternations of flat and unprofitable bog, reedy marshes, dark stone mansions, and sweeping lawns ; rich and varied tints of crops and extensive pastures, or, very rarely, the busy husbandman with his harrow or plough, and the dark tilled earth in heavy, but nevertheless agreeable relief, both to the eye and the mind, from an otherwise wearisome monotony and want of life. In bright contrast are the brilliant waters tinted by the sparkling rays of the sun, and seeming literally alive with flights of wild-fowl, eddying or circling in lines above, or skimming fearlessly upon the glossy surface. This beautiful lake is embosomed in softly undulating boundaries, and studded with islands which agreeably diversify the blue and tranquil surface. Not always, however, so tranquil are its treacherous waters ; like the soil around it, it has its unpropitious seasons, of which I will endeavour to show an instance.

The first opportunity I had of visiting this spot, was after my connection with the public works had ceased. I much regretted leaving, and but for the circumstance of some imperative engagements recalling me to London, my intended sojourn of two or three months, which I originally named to the Commissioners, would probably have been prolonged even beyond what it eventually was, amongst a people whom I saw no reason to fear, even when using necessary severity ; but on the contrary, every reason to admire, from their strongly affection-ate dispositions and resignation in deep suffering : they treated it as the will of God, and murmured, “ Thy will be done.”

In company with some other gentlemen I had taken a boat and proceeded for two miles up the river, as far as the entrance to the lake. As we advanced the weather became more and more rough, until, on rounding a point which brought us unavoidably into the direct and unimpeded sweep of the water, we found, to our surprise, that a heavy swell had arisen ; so much so, that some of the party wished to return, without encountering what to them appeared a tempest ; but within half-a-mile of our destination, Carey or Dillon’s Island, we had no idea of such a step. I had the tiller, and all the management required was to keep the little craft fair head to wind ; had she been permitted to turn side on, we should have been keel uppermost without much effort ; so onwards we went, with the slow and steady stroke of four oarsmen : all amateurs, by the way, and, as generally happens, with very varied ideas and amounts of experience in such matters. I well knew that once under the lee of the island we should have comparatively smooth water ; and this we perceived we were momentarily approaching as it waned out from the combined shadows of evening and the gathering storm. The wind was blowing about north north-east, and the island unfortunately lay a couple of points more east : so that we were in the difficulty of a ship in a gale trying to make some desired haven ; and in the meanwhile receiving the full shock of the sea on her quarters ; with this difference, however, that we, having no pilot-coats or dreadnoughts, were getting the light skimming spray from the waves, or from the unpractised oar of some less skilful of our party ; and every wave, if not perfectly unbroken, threatened to swamp us altogether. Having now to turn still more east towards the island, and not right in the wind’s eye, increased the difficulty. We at last made the land, and running our boat under

a little stone projection, answering the purposes of pier and breakwater, we proceeded direct to the house of the worthy proprietor, Mr. Dillon, a friend of some of the party, and whom we found just adjourn-ing to bed. This, however, with a bachelor and an Irishman, was but a trifling obstacle to our reception, and he welcomed us with much cordiality, merely expressing his surprise at our having ventured out on such a rough night.

The private conversation which then took place between himself and my fellow voyagers I was not permitted to join ; but I afterwards found it related to a proposed dinner on the island on some subsequent day ; and it was not until my health was on that day proposed, with the invariable accessories of speeches and tumult, some real sincerity, but, of course, some wine-inspired enthusiasm, that I discovered the dinner to be given by my brother officers and other friends, entirely as a parting compliment in my honour.

We may as well finish the dinner now, being on the spot. It was not to be compared to a city feast, either in the splendour of its appointments or the famed cooking of Birch or Lovegrove ; but, taking the number of people and the quantity consumed, I think, in point of gastronomic power displayed, it might vie with any since the days of Whittington, even during the celebrated cuisine administration of the most liberal and hospitable Alderman J. Johnson. Those who go to Lord Mayors' dinners have not generally the advantage of a four miles pull up the river, and against the current, as we had. Eels a yard and a half long, as thick as a man's arm, captured in the water at our feet, and mutton from the meadows skirting the Shannon, were the chief dishes of the island ; but there was abundance of every- thing good and homely, except potatoes, for which the substitute here, as well as generally throughout the country, was boiled turnips. Two years previous, they would as soon have thought of the Shannon itself running away, as the potatoes falling. It happened to be Friday ; a serious matter to good Catholics, to whom the rich eels and poor soles could not make amends for the absence of the favourite vegetable. Even Father Mathew's influence had crept in amongst a few, who, I suppose, contented themselves with thinking what a good dinner they might have had, if it were not Friday. Others, not so circumstanced, wished " long life to the Council of Trent, that did not at the same time with the meat, forbid the whiskey," which appeared to make up for all deficiencies.

After dinner we proceeded to the lawn to dessert, *i.e.* whiskey punch, with here and there a solitary and despised bottle of wine. In due form the Board of Works was proposed and acknowledged—as a body springing from the Shannon Commissioners ; a considerable extent of the site of whose labours, was then echoing back their praises on former and present laborious exertion. Many a joke passed as to the minute particularity of the Board's pro-ceedings ; the rejection of some accounts, and saddling the parties themselves with others.

A certain well-meaning but over-zealous chief officer was the cause of some merriment, on account of his confusion of papers and manifold difficulties : in an instance especially, where he had lost all traces of the money sent for expenditure on the Public Works. I came in for my share, having had a bill in due form returned to my office " for explanation," to the amount of about *3s. 6d.* for mending a driving whip, a set of shoe brushes, and a bull's eye for a carriage lamp ; absurdly debited by the tradesman to the Board of Works, instead of to my private account, and forwarded for payment from the Consolidated Fund.

At the same time the opposite principle of delaying, cutting down, or declining fair pay-ment of honest and respectable tradesmen, was discussed, and somewhat more difficult of defence. Some young men were over head and ears in debt, some processed, some forced to have recourse to raffle their horses, and other such expedients, to raise the wind, owing to the delay in the receipt of their salaries, ostensibly from some vaguely hinted informality ; but just as probably from some of the manifold mistakes of the Accountants, or from a rumoured absence of the needful fund in the British Exchequer.

The day passed very cordially. It was gratifying to me to perceive that those whom I feared I might possibly have treated with too much severity, from a necessity of complying with the

Government and the Commissioners' regulations, appeared to have entirely forgotten all feelings of an unpleasant nature, if any such existed : there was no occasion for dissembling, as I was no longer connected with them, and many after that day I never saw again. The remaining hours were spent in boating, shooting, and fishing, with music, upon the lake. The first flute was probably not equal to Weiss or Richardson, nor was the cornopea possibly as clear or brilliant in staccato passages as that of Kœnig ; but, on the whole, I have heard worse performances ; and the open expanse, the still waters, and echoing shores, did more for the harmony and effect than Drury Lane with its many protuberances, angles, and draperies ; all of which might have been ingeniously contrived, as far as possible, to deaden sound, and stay the reacting vibrations.

I had almost forgotten our rowing party left on Dillon's Island, gravely debating whether they should take up their beds there instead of venturing to return, at the probable risk of obtaining them in the more extended accommodation of the Shannon. This question was speedily settled by some of the gentlemen declaring, that as they had peremptory engagements in the morning they must take the boat, and leave the others to remain or swim ashore the next day, if they preferred it. Our misgivings were by no means removed by Mr. Dillon's advising us not to run direct for the point, but to hug the south-eastern shores of the lake ; saying if we managed that, we should soon run home with the wind.

This was a great mistake ; as we found out on getting from under shelter of the island. Our informant had either forgotten or not reflected upon the direction of the wind, and consequent line of the waves, nearly due north and south ; and had thereby placed us in a much more critical position than on our coming up ; besides that we had not the boat so much under our command. At this juncture the bow oarsman missed his stroke, the wave in which he meant to dip his oar having eluded his effort, and, the consequence was, that he immediately became heels upwards in the head of the boat. The unbalanced stroke of the opposite oarsman speedily brought the boat round to the full shock of the surf, which was here breaking upon the shore with alarming violence, and of which the gentleman in the bottom, the cause of the mishap, got the full benefit,—not but that we all had a tolerable share of the same,—the boat at the time rocking, pitching, and labouring so violently as to drive the water frequently over the person entangled in the bottom : one wave thus swept us within a few oars' length of the shore. Fortunately, in the trough of the sea we skimmed a sunken rock, which at once brought her round again ; We had had enough of " hugging the shore," and as her bottom was not stove in, by a quarter of an hour's vigorous pulling we managed to get her into the middle of the lake. Escaping at last the bite of the land, we were enabled to avail ourselves of the power of the storm, which, together with strenuous and united plying of the oars, kept us at the same time in advance of the waves, and sufficiently warm in our wet clothes. And this tempest in miniature gave us a perfect idea of what we might have expected, if with so strong a north-westerly wind we had, like the western fishermen, been without a leeward shelter within some reasonable distance ; and yet I have seen a less depth of wave on the Atlantic itself, in rough weather, than we here experienced.

It is said that a wave takes two or three miles of water to generate ; but I am of opinion that many times that distance is required to give its maximum of violence and momentum, and likewise a depth of from 15 to 20 feet : when it draws near to shallow water, its velocity is impeded ; it gradually curls over and breaks. There are different theories on the formation of a wave. The Encyclopedia Metropolitana, in an article on the subject of Waves, states, that they are of a vermicular action, rolling round the particles of water, which accumulate, like a snow-ball, in its rotatory progress.

This, I think, many will dispute, as, if such were its motion, all matters collected upon it would be engulfed, and whirled round with the water : such, however, is not the effect, as even the lightest substances, such as sea-weed, pieces of wood, or cork, will ride upon the surface, except in coming in shore, when the onward progress is retarded by the bottom ; it then acquires a kind of revolving motion, by the force of which every thing sufficiently small, even stones, in rough weather, will be carried round. I certainly consider that water has a vermicular action ; that the whole surface moves forward as a current ; and the waves gradually increase from the first ripple, passing onwards with an accumulating power and still greater momentum than the

intermediate waters or current, in the same manner as a loose mainsail undulates in the wind without a particle of rotatory motion : it is, in fact, the pressure of the wind from which the water undulates, but does not advance.

### III.

The Bogs and Their Marl Hills, Geologically and Agriculturally.—Tram-ways.—Drainage with Engines, as in Holland and Lincolnshire. Turf and Coal. Theories of Bog Formation.— False System.—Reclamation.—Peat Charcoal.

The country frequently presents an extraordinary appearance to the stranger—extensive tracts of low and upland morasses, uncultivated and uninhabited, skirted by the most fertile parks and uplands, which have obviously at one period presented the same features of desolation and sterility ; in some parts, extensive districts of undulating or hilly commons similar to the downs and wolds of England.

The wilds of Connaught west of the Shannon and bordering upon Tipperary contain, as well as most other parts of Ireland, vast tracts of bog, that for many miles may be traversed without meeting with trees, houses, gardens, or any vegetation other than the brown bog heath, which is so soft that horses or cattle cannot browse upon it, except during the hotter months of summer. Some of the softer tracts are dangerous to traverse on foot in winter, as, by missing the small tufts or *scraws*, as they are termed, the passenger would probably descend at once to the waist in the bog, and have to use considerable expedition to avoid going over head.

Here and there, at intervals, throughout the morass, is found gravel or marl in hills, or sometimes in beds under the surface, in ridges or chains, similar to those of the finer sand mounds formed by the sea on some parts of the coast ; and doubtless these gravel or marl hills have been formed in the same manner, by the operation of floods, carrying in suspension, and at length lodging, the lighter particles of matter on the sides of the channels or lakes of that period. It is wonderful here to recognise the all-wise dispensations of the Creator. These hills contain in themselves the best of all modes for reclaiming the very bog in the centre of which they are frequently located ; by having an inclined plane running down the sides with an endless chain, empty waggons would be drawn up by the descent of those coming laden from the top, through the force of gravity alone. These waggons might run miles across the bog, and thus five-sixths of the cost, viz., that of carriage, might be saved. It is to me matter of some surprise why this plan is not adopted by some of the large agri-culturists, as there can be no tangible objection against its feasibility.

These hills are generally composed of limestone, gravel, sand, clay, marl, or a combination of such materials ; they are the best of all substances for manuring peat, and even in one year will give some return for the expenditure. In a few years, by good farming, the out-lay will be more than repaid.

It has generally been objected, that cropping would do away with the turf, and, vice versâ, turf-cutting would destroy the reclaimed and reclaimable land. In the first place, cultivated land is more productive than bog turf. Bog land costs about 2*s.* or 3*s.* per acre per annum ; good tilled or grazing land, such as I have seen reclaimed, nearer to 2*l.* or 3*l.* per acre. The first thing necessary is, to level the turf ; and even were all in time cut away beneath, what would be the difference between these lands and those of Holland, where hundreds and thousands of acres are lower than the bed of the sea?—the water could, as a matter of course, be pumped out by windmills or steam engines. But the day is now near at hand when coal may be purchased at 12*s.* to 15*s.* per ton as a maximum in the interior of Ireland. In England they can afford to carry it for under 1*d.* per ton per mile. This will put turf out of the market. Coal at 15*s.* per ton is already nearly if not quite as cheap as turf.

On the subject of the formation of Bogs there are many speculative theories. Some say they are the decomposition of a succession of antediluvian forests, and bring forward as a proof the fact of different strata of the largest sized forest trees having been found one immediately over the other,

upright, and with perfect roots, but apparently broken by floods at a short distance above the roots. The objection to this view is, that bogs appear to preserve timber, which, in many cases, is discovered as strong as ever, especially yew, and oak. We are, moreover, at a loss to account for the absence of the various stages of decomposition which should have been found going on amongst the trees of which the bog is said to be composed.

Others, again, imagine them to be an accumulation of weeds and forest timber carried away and deposited by floods, or an ebbing tide, and that the larger trees have formed a dam or pen for the waters which gradually filtered through, whilst the fibrous matters were retained. This has much the same objections as the first supposition : in part, both may be true, but they certainly do not account for the peculiar and uniform formation of the mass of matter of which a bog is composed. That water has flowed in these high situations is proved by the original lodgment of detritus on which the impressions of fern plants, marine shells, fish, and even the feet of aquatic birds, have been discovered. These, in time, became hard-ened : numerous specimens may be seen in our museums.

Without attempting to follow out every ingenious theory, I will content myself with that which appears to me, and can be proved to be in some degree, the correct one. At any rate, it will hold good in every instance ; whereas it would be difficult to show how bogs were created on the tops of mountains by the other process, or, in other words, how the debris were carried from the lower and lodged on the higher levels.

In all fiat, watery, or damp situations, where fresh water is suffered to remain, exude, or decompose, fibrous matter takes root, as exemplified in the duck-weed of a stagnant and shallow pool. In extensive, low, flat, or exposed surfaces, this effect has taken place on a large scale—a long, fibrous weed has taken root, gradually decaying, and in time making way for renewed vegetation. As this operation continues, the body of the bog rises, being fed or nourished with water by capillary attraction ; and this has been compressed by the gradually increasing mass above. It is likely enough that at different periods ranges of forest trees have grown and the tops been torn asunder by the bursting upon them of a body of water : after the lapse of time another stratum of peat has been formed, and an alternate succession of trees have existed and been carried away, the consolidation of the turf arising from the joint action of moisture, time, and pressure.

The greatest depth to which bogs are known to grow is between 30 and 40 feet, and it appears to me that this is the extent of capillary attraction with these substances. Although evaporation and consequent growth goes on to a greater height with some trees, still they have the advantage of their broad leaves and branches exposed to the evaporating powers of the sun and air ; whereas, in the other case, the mere top of the fibrous matter is exposed, and at that height, the attraction of gravitation overcomes the capillary attraction. On the margins of bogs, more especially, are frequently dug up bog fir, oak, yew, and other timber, lying in a nearly horizontal position, as though growing or drifted on to those situations, which is probably generally the fact : their not being so often found in the centre of bogs may be accounted for by the want of proper soil for their growth, in those places.

The turf is, in a great degree, impervious to moisture ; it therefore effectually drains land, and, mixed with clay, forms an excellent puddle for banking up water and other similar purposes. The spongy bog is not used ; it being in a state of transition, turf is not yet formed. It acquires different degrees of consolidation according to the depth or pressure to which it is exposed ; the upper turf burns too quickly, the middle stratum assumes a proper consistence, whilst the lower is heavier and burns like a dull coal. We frequently find black turf on the surface, and this is probably owing to some former local pressure above, such as a body of water might be supposed to effect. Some very interesting matter on these subjects will be found in the “ Reports of the Bog Commissioners.”

In commencing the reclamation of bogs a very false system is at present generally pursued in Ireland. The surface is cut up and burned, and then usually subsoiled and manured for crops. By this mode the carbon is destroyed, the peat being generally burnt to an ash, and thus losing those

nutritious and highly fertilising powers which charcoal is found to give. If a proper process of burning peat were adopted, mixed with clay, marl, or limestone gravel, the most perfect and productive earth would at once be created, and at a very moderate cost. For some very interesting details on the powers of charcoal, as a primary source of vegetation, I refer to a pamphlet by Mr. Rogers, published by Effingham Wilson.

In one place he states, “ The value of peat fuel for making iron has been long proved on the Continent, and England has been behind-hand, because of her abundance of coal. Had she felt the slightest want of fuel for her furnaces, she would long since have sought that which the Irish bog can give her so abundantly.

“ For the manufacture and forging of all descriptions of iron work, peat charcoal possesses singularly desirable qualities : the iron is improved by the action of the carbon, and its strength and malleability increased ; while the caloric effect of the charcoal is considerably greater than any smith’s coal ; its cost, therefore, is not more in reality. In fact, inferior iron, forged by peat charcoal, is more capable of being worked into difficult forms than superior forged by coal, and is sounder and more fitted for resisting concussion ; a circumstance invaluable at the present time, when the want of strength and soundness in iron work upon the railways may cause such fearful loss of life.

“ For the smelting of all metals, also, the advantage of peat charcoal must be nearly equal ; for upon each the action of sulphur from the coal is injurious in a greater or lesser degree.

“ But there is a further use for peat charcoal, which will not only make its demand certain and progressive, but will confer on the agricultural interests of England considerable benefit. It has been proved by unquestionable experiments, commenced some years since at Munich, that *carbon* or *charcoal*, applied as a manure or fertiliser, produced great advantage to vegetation ; and by a succession of trials since, it has been incontestably established that peat charcoal is one of the most valuable general fertilisers now known—one that cannot produce injury by over use, while almost the smallest quantity will yield a certain amount of good. It is lasting in its effect, and general in its action, not being confined, like most other fertilisers, to an isolated capability. It supplies to the root, in ample abundance, that carbon of which most vegetables contain from forty to fifty per cent ; and to obtain which they are now left dependent almost solely on the atmosphere.”

I can follow him to the fullest extent as to the general value of peat, to employ the poor in procuring it as an article of fuel, though I look upon this as very secondary to the improvement and tillage of land. We cannot export it as an article of fuel ; it would be too light to pay for freight, and, as a matter of course, its consumption in this country is limited by the population : thus a very small proportion of the national labour could be expended upon it. On the other hand, by cutting the bogs to a level, reclaiming, and putting them under tillage, there would be a vast accession of labour ; for each improvement, cent per cent of increased production and annual surplus exports. How is it that English grain is the finest in ear and in sample ? Because the land is better drained, tilled, and manured. With proper management, Ireland’s crops should be the finest, as they are the most abundant ; and her agriculturists should rival in opulence the manufacturers of England. At any future time, when the vast and still unreclaimed turf fields became exhausted in any particular district, the bog land could be easily lowered and the earth respread upon them. Carbonised peat is of the highest value in the smelting of iron; when iron is charcoaled its value infinitely increases ; and this is what renders the foreign Swedish iron so superior to our own. So much was this thought of, that it is said the manufacture of cutlery originally existed in the neighbourhood of Nottingham, and gradually proceeded northwards, via Mansfield, following the course of the forests, until it at last travelled to the site of the present town of Sheffield, where it became a fixed and staple trade ; owing, so it is stated, to the destruction of the timber forests, so necessary to the formation rather inclined to think, to the vast cost of the timber thus consumed, and, likewise, the improved application of coal, which was gradually brought into its manufacture, and as about that neighbourhood the great central coal field terminated or branched off. In this belief I am strengthened from the existence of extensive woods beyond Sheffield ; even to this day one exists nearly seven miles in length running north from

that town. All this goes as proof of the great value of charcoal, and, consequently, of the Irish bogs, in the improved smelting and manufacture of iron, which is fully detailed in the above-mentioned treatise, “ respecting the value of peat and peat charcoal as a fuel and fertiliser.” Carbon, however, in itself is not a manure, but possesses the powers of absorbing gases to the fullest extent, particularly those necessary to the healthy development of plants,—assisting them, in fact, in the respiratory process, particularly in close, confined, or clayey soils.

I have dwelt at some length on this subject, as being the peculiar natural phenomena in Ireland, and the features most requiring agricultural development : I am of opinion that they are susceptible of the highest cultivation, and with the greatest advantage ; and that a fair trial of a large tract of bog, with all modern and scientific appliances, and proceeding upon a system of rigorous but not false economy, would establish the principle of bog culture.

[1] About twenty years ago, a most dreadful accident was said to have occurred in the vaults under this church, which were infested with rats. An officer was attending a funeral in the vaults, and after the ceremony he continued to stroll about musing,—so it is supposed ; the party left without him. He was not then missed, the entrance was closed, and all his efforts to be heard, or obtain egress, through the strongly-barred doors, were unavailing. In the morning search was made by his alarmed friends, and, dreadful to relate, his clothes and skeleton were alone found. He had evidently been attacked alive by the rats, unused to have their haunts invaded singly ; and his hacked sword and the numbers of rats destroyed around showed too plainly that he felt all the horrors of his situation, and the nature of the encounter in which he was unsuccessfully engaged.

[2] The state of Athlone is surprising, considering the character for spirit and enterprise of its hospitable inhabitants.

A twelve month' residence in Ireland, during the famine and the public works, 1846 and 1847 ... (1848)

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