

A BRIEF

E S S A Y

ON THE

NATURE OF BOGS,

AND

The Method of Reclaiming them.

HUMBLY ADDRESSED

TO THE

Right HONOURABLE and HONOURABLE the

DUBLIN SOCIETY,

By their Grateful and Faithful Servant,

HENRY BROOKE.

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Houses of the Oireachtas

A B R I E F

E S S A Y

O N T H E

Nature of Bogs, and the Method
of reclaiming them.

I HAVE heard it estimated by several judicious and accurate Calculators, that near a fourth of this Kingdom is overspread with Bogs. This not only deducts near a fourth from the National value of Lands, but the Evil is further aggravated by intercepting the Benefits of Commerce, and Communication between Market and Market, and between Man and Man.

It is next of melancholy consideration and fearful tendency to Posterity, that this Evil daily increases, and that the collective quantities of all the Bogs that have ever been reclaimed in the compass of any year, within this Kingdom, scarce amount to a Tenth of the Bogs that have grown and encroached on adjacent Grounds within the same term.

To make this evident, it is to be considered that there is a gradual ascent in every Bog, from the circumference, or utmost borders, to the centre thereof. This has frequently been demonstrated by the Spirit and Mercury Levels; and it is also further apparent from the natural Guts or Channels that tend, on every side, from the centre to the extremities, and evacuate the water that falls from the Elements; for, if this were not the case, every Bog would be a Lake.

Now, as every Bog rises from its verge to its centre, every Bog has also a perpetual Pressure or Gravitation from its Centre to its Confines; and this pressure or gravitation is yearly increased by the yearly accession of Matter that the Bog acquires.

In every exhalation of vapours from the Earth, it is not the aqueous element alone, that is actuated by the Heat and borne aloft by the Winds. An infinity of oily, nitrous, sulphurous, and even of terrene particles (so finely attenuated as to come within the powers of Exhalation) are contained within the minute watry bubbles or bladders that serve them as winged chariots wherein they mount and scale the upper Regions; where gathering, and conglobing, and shrinking from the Cold, they become too ponderous for the Atmosphere, and again descend in rain or dews, wherever they may happen to light.

Now, when such Rains or Dews happen to descend upon our Bogs, all the nitrous, sulphurous, oily, and earthy particles are either entangled and retained by the mossy and frizled Vegetation, or
sink

sink and subside within the body of that Water with which the Surface or upper Stratum of our Bogs is replenished. Infomuch that when the next Exhalation arrives, the heat of the Sun and the action of the Air have nothing offered to their Powers, save Water alone; while the Bog, like a Miser, is obstinately tenacious of all other Matters, and refuses to restore any part of those treasures which it derived from the drier and richer Grounds.

It is further evident to all observing Enquirers, that the continual accession of the said nutritive Matter, which is yearly received and retained by our Bogs, causes a yearly Growth or additional Stratum of the coarse, spirey, fungous, and mossy Vegetation which we find thereon; so that in cutting the surface or upper Sod, with a fine and keen instrument, you may in many places distinguish between the Strata of several successive years, so as to number them like the yearly growths in the horns of Kine.

Let us suppose then that the thin Stratum or Layer, which is produced by the said annual and successive vegetation, barely rises to the tenth division of an Inch in thickness; yet this, in a Succession of four thousand years from the Deluge, will amount to a Depth of thirty three feet and four inches. And this encreasing Depth, by its unremitting pressure and gravitation on all sides, hath already overspread all the low grounds that were adjacent, hath gained upon and buried large Forests within its womb, hath probably the ruins of many Towns at the bottom, and certainly contains the bones of every species of Animals, with the proofs of pristine Manufactures, and Articles
in

in use many centuries past, which have been frequently taken up from an amazing profundity.

I have hitherto only spoken of Bogs in the general, or rather of that particular species of Bog which hath so widely overwhelmed near a Fourth of the Land, to an extent, in some places, of above thirty miles in length and ten miles in breadth, and this species goes universally by the name of red Bog. But, there is another kind of Bog called black Bog, and this is readily reformatable, at small cost and trouble, into the most prolific of all sorts of Soil. It is comparatively dry and firm under foot, and produces a kind of herbage that is richer, and much sooner reducible to a state of Corruption than the tough and fibrous vegetation whereof red Bogs are compacted. This Species is incomparably shallower than our red Bogs, in the general from four to six or eight feet, and very rarely exceeds twelve feet in Depth. At the Bottom are frequently found rich Beds of various Marles; and it is of this kind of Bog that the Natives make their hand-turf, the substance thereof being too brittle for cohesion under the cast of a Slane.

I presume that the radical reason of the difference between these two kinds of Bogs was, that the black Bog originally rose on the more luxuriant Soil, and thence acquired an herbage which, through its greater rankness, became, from year to year, the more speedily reducible to a state of earthiness and density. It is observable, however, that all black Bogs, in proportion to their Depth and Extent, approach nearer and nearer to the Species of the Red. And to me it is indisputable that, in a process of some Centuries, all our black
Bogs,

Bogs, if not taken in season, will become as sterile, drenched, and untractable as our red Bogs are at present.

I am not indeed so happy as to have any black Bog within my Concerns; and I conclude, from repeated experience, that all the parcels of Bog that have hitherto been reclaimed within this Kingdom, and for which your Society has granted several lucrative as well as honorary Rewards, have been of the black Species; forasmuch as I never knew or heard of a single Acre of red Bog thoroughly reclaimed, by draining, tearing up, burning, and gravelling, &c, the methods usually practised with so much success in the reduction of black Bog, where the parts, being unconnected, suffer the water to pass, and, by being already in a state of corruption, are the better prepared for a state of Vegetation. But these sort of Bogs are neither frequent nor of considerable extent, they may amount, as I suppose, to about a thousandth part of the Bogs of *Ireland*.

I come now to consider the causes of the many disappointments and losses which I formerly underwent, in my several attempts and experiments for the reclaiming of red Bog.

I first began by cutting wide and deep Drains, on a Concern which I held some miles distant from the Farm where I now reside. I confidently expected that the water of the Bog would ooze through the sides and issue from the bottom of the drains I had made, especially where I dug so deep as to reach the Channel. But, after a year elapsed, I found, to my great surprise, that no water had passed through the sides or from the bottom, and that

that the Bog remained as wet and spewy as ever, even within a few feet of the verge of the Drains.

As I did not yet comprehend the reason of my defeat on that occasion, I trusted to succeed better by changing my measures. Accordingly, I cut a number of small parallel and transverse Drains, of about 3 feet wide by 2 in depth, and these superficial Drains hath such an effect that, toward the close of Summer, the Spaces that lay within them grew firm enough for Cattle to tread upon; but, in the ensuing winter, they became and continued nearly as much drenched as before.

I was not yet totally discouraged thereby. On the return of the dry Season I made a variety of experiments. I tore up part of my Bog with the Plough. Part I covered with clay and gravel. Part I covered with Slutch. And part I stript entirely of the upper Stratum, and, cutting it into small Sods, I had them set on end, in footings, with the purpose of burning them into Ashes; but, though they stood drying during the whole summer, they were of so spongy a nature, and so retentive of the moisture that was lodged within, that I was obliged to make use of turf in reducing them to ashes, which, however, they yielded in so very small a quantity, as scarce served for a thin sprinkling over the Soil from whence they were taken. On the part of which I had covered with Slutch there soon appeared many shoots of a rich and vigorous herbage; and even through the clay and gravel the grass began to peep, though of a starved and spirey species. But the repeated drenchings of the two subsequent winters reduced the Whole of my Operations almost to their pristine State.

In the year 1766, on removing to the Concern where I now live, a Patch of red and spongy Bog, of the content of about two Acres, and from 8 to 18 feet in depth, rose like an Island within a large Curragh or Quagmire. And, as it was situated in full view of my house, it appeared such an offence that I determined to reclaim it, be the cost what it would. I accordingly cut Drains across and around it, so as to make a ready conveyance of all water from the surface; and I repeatedly laid upon it such a variety and succession of rich Manures as hath, at length, improved it into excellent Meadow, and it now bears a coat of such verdurous and luxuriant grass as is not to be equalled within several miles. But, I do not set this method forth as a Precedent to others; since a new Soil, so superinduced, may at any time make a Garden even of Rock.

After such a variety of repeated disappointments, I grew studiously inquisitive into the cause thereof. Some of my People had left two Bog-holes, from whence they had lately taken their turf; and they left a Partition of about four inches in thickness between them. The winter rains soon after filled them both to the brim, and I particularly remarked that the surface of the One lay about ten inches lower than the surface of the Other. This I first ascribed to the constant flowing in of the water upon the higher Hole that was next the Bog, without allowing it leisure to philtrate through the said slender division and empty itself into the lower One. But, during the succeeding Summer I was particularly attentive, and I found, at the end of the Season, that the
water

water of the higher hole had nearly preserved its respective elevation, and had in no measure imparted itself to the lower One, though divided from it by so very thin a Partition.

It was now apparent to me that the Substance, whereof a red Bog is constituted, is of all earth (unmanufactured) the most continent of any fluid that shall happen to fill it. I reflected that a mossy turf, of but a few pounds in weight, though exposed to the Wind and Sun through the process of a burning Summer, will still withhold a considerable portion of internal moisture, while the oily Particles with which it is impregnated (and which make it so inflammable when once dried) wait like so many Centinels at the several outlets whereby the water should issue, and forbid it to pass.

Hence it became evident that to drain a red Bog, further than superficially, was utterly impracticable. Again it was evident that for a considerable depth, the textured matter thereof was too much dilated to yield a supply of nourishment to any species of vegetables, save such starved rubbish as naturally grows therefrom. And lastly I had found, by woful experience, that the fall and long residence of the winter Rains had destroyed the virtue of the Manures I had put thereon, by chilling and preventing that fermentation which accompanies and is necessary to every rich and useful Growth.

Thus far, like a Shipwreck'd Mariner, or some seduced Damsel, my Miscarriages may serve as a useful Lesson to others; to point out the Rock upon

upon which I split, or shew the error of those paths in which I went astray, and so to save them from lapsing into the like Calamity.

Vexed to be thus defeated in all my schemes and expedients, I finally reflected that, if I had the power of reversing my Bogs, or of turning the bottom upward, I should then have the richest land of any man in the Kingdom; forasmuch as the lower you sink toward the bottom of red Bog, the nearer the tough fibres, whereof it is compacted, approach to a state of Seperability or Corruption, and Corruption is the most prolific Mother of a luxuriant Vegetation.

I considered that, as Bog consists of the finest, the most nutritive and volatile parts of the Earth, exhaled and derived from all other Lands, could it be reduced to a tendency toward its original state, it must of necessity exceed all other Lands in fertility.

For this purpose I conceived a project of executing, in a measure, the very thing I had wished, that is to say of placing the bottom of my Bog on the top. I cut two parallel trenches of about 6 feet wide, leaving a space of two perches or 42 feet between them. I then took the upper mossy sods which I had stripped from the trenches and, with them, filled and levelled the several vacuities which the water had formerly occupied. Then, cutting deeper, and deeper, I raised the middle of the space between the trenches with the stuff that came next to hand; till arriving at a substance that was mellow and rank, I covered the Whole therewith; and now, the declension is such, that no water can rest thereon, so as to prevent fermentati-

on, or starve the roots of any Vegetable. This I did in the last Season, and the stuff which I threw up is already so well reduced and meliorated by the Elements, that, with the small addition of some apt Manures, it is prepared for a rich production of any Grain, Turnips, Rape, or other kind of Vegetation, to which, in the ensuing Spring, I may be pleased to apply it.

Thus, I found that the investigation of a disease is necessarily preparative to all attempts at a Cure; and that a thorough discovery of the nature of the distemper, will best instruct us how to counteract the Evil, and may not only open a way for the restoration of health, but may tend, in skilful hands, to advance the Patient to a state of better Sanity than ever.

I admit that the above method of reclaiming Bog, however effectual, is somewhat expensive, and cost me at the rate of near ten Pounds the Acre; but, in the issue it will comparatively be found exceeding cheap; forasmuch as it saves the far greater cost and toil of reducing the upper Strata into ashes, or of covering the Whole with a new additional soil derived from distant Grounds; to say nothing of the charge of *draining*, which must be common to all cases where Bog is to be reclaimed. I conceive however that this Matter might be executed at smaller cost, and with better expedition than I have yet put in practice. For this purpose I would advise future Adventurers in this way to enlarge the middle Space, between the trenches, from two to three, four, five, or even six Perches in breadth, especially where the Bog is of such a profundity as to require deep digging before the dense or fructive matter may be attained. In such
 case

case it will be expedient to make use of turf-barrows for conveying the stuff from either side to the Center; and the bordering trenches also must be proportionably widened to admit of being sunk to the requisite depth.

I aver that I can get three guineas per Acre for some Acres of red Bog, that I have barely reclaimed into Meadow, the least estimable Produce to which it can be applied. Supposing then that the cost of Reclaiming should have amounted to twenty one guineas the Acre, this however will be no more than a seven years Purchase. But, should the method above proposed reduce the charge to ten guineas and a half per Acre, as I am confident it will, this will not amount at furthest to a four years purchase.

It is further to be observed that, by this method of reclaiming Bog, the substance so cast upward and exposed on the surface will, yearly and daily improve and refine through that Attrition and mellowness which it will acquire from the Elements, so that, with some addition of other Manures, it may shortly be made as capable as any Garden whatever of all Vegetables suited to the use of Man or Beast. The more that Bog is exercised by the Plow, Harrow, Spade, Rake, or other Utensil, the richer it becomes and the more fruitful it is made; so that an Acre thereof, when sowed or set with Cabbage, Carrots, Parsnips, Hemp, Rape, &c, &c, may yield a yearly encrease of the value of ten or fifteen Pounds, according to the degree with which it has been cultivated.

To prove the foregoing Allegations, particularly with respect to the nature of our Bogs, the manner

ner of their Growth, and the Substance whereof they consist; let any Person enclose a portion of his level Grounds, so as it may be saturated with a moderate degree of moisture from the Elements, without being parched and dried up by the Sun and Wind on the one hand, or wholly flooded and drowned by the Rains on the other. Let it neither be pastured nor cultivated but solely left to its natural Occupation of Bog-making; and, in a very few years, he will find himself in possession of a young and thriving Bog of his own begetting; from whence his Progeny, in the second or third descent, may have as good turf as any the Kingdom affords. But, I would recommend the practice of this Scheme to the Royal Society in *England* (where Firing in most places is so scarce and costly) rather than to your Lordships and Honours, who have Bogs in sufficient plenty and something to spare.

In fine, our Bogs must either have been produced in the way I have set forth, or God must, in their favour, have daily repeated a Creation of new Matter; a Supposition as profane as it is needless and absurd. *Nec Deus interfit, &c.*—Let not God, says *Horace* be introduced as an Agent, save where the Occasion is worthy an act of Omnipotence.

I am not insensible that all Projects, with their Projectors, are held in a kind of contempt, and are become a subject of ridicule even to the Vulgar. And yet, without such Projectors, the World must have remained to this very day in a state of Ignorance, Inaction, and Inutility. Many indeed have raised Fortunes, by proceeding in the track and example of those who had been ruined by expending their Time and Substance in the Precedent; but the

the Public have been benefitted by the issue ; and it is the province of the Patrons of Mankind to countenance Schemists, and to render their sufferings as light as possible by rewarding every instance of their Success.

I have lastly to observe that your SOCIETY, by the reclaiming of Bog, will derive to yourselves incomparably higher Merits than by the reformation or cultivation of any other Grounds. Our Bogs are worse than useless, they are actually the greatest Nuisance that the kingdom contains. All other Matters of utility proposed by your Patriotism are barely matters of additional advantage to the Public, an encrease of some previous Benefit ; but the Reclaiming of our Bogs will be a new Subject of Thanks to You ; a matter of total triumph unknown to our Forefathers ; a kind of Creation ; a fresh accession of Lands to *Ireland*, of benefit to Mankind, of future Sustenance and Riches to succeeding Generations, and of Acknowledgment to your SOCIETY, by the latest Posterity.

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