

Some Precursors Of Bord Na Mona

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In 1740 William King wrote "We live in an island almost infamous of bogs, and yet, I do not remember, that anyone has attempted much concerning them; I believe it may be of use to consider their origin; their conveniencies and inconveniencies; and how they may be remedy'd or made useful." More than 100 years afterwards J. McCarty Meadows wrote "The fact that we are without coal upon a nationally useful scale and that in its place we have such vast supplies of peat in this country, should stimulate us to the conviction that, in the allotted order of things, the duty assigned to us is that of turning to account the supplies of native fuel so abundantly provided for our use. If coal is not won from its depths without outlays and labours, gigantic in proportion to other industries, can we expect to win our fuel from the moor and bog without giving to it some industrial efforts and attention?" Another century has passed and yet in 1954 there are still hundreds of thousands of acres of unutilised boglands in the country. Between, before and after King and Meadows many men characterised by abundance of public spirit contributed thought, effort and enthusiasm to the solving of the problem of Ireland's deserts. Their endeavours were dissipated in the unpropitious social, economic and political climate of their times. It is by way of homage to these men that this communication is offered to your Society from those who, living in more enlightened times, have the privilege of beginning the task of turning to profitable use some of the country's waste lands.

The early interest in the bogs is concerned with converting them into agricultural land rather than utilising them for fuel, for already they were a source of fuel for many of the inhabitants of the country.

The earliest printed book on the Irish bogs appears in 1652 when Gerard Boate dealt extensively with the reclamation problem. He wrote for the edification of the Cromwellian settlers and he goes so far as to blame the occurrence of bogs on the "retchlessness" of the Irish. ". . . it may easily be comprehended, that whoso could drain the water, and for the future prevent the gathering thereof, might reduce more of the bogs in Ireland to firm land, and preserve them in that condition. But this hath never been known to the Irish, or if it was, they never went about, but to the contrarie let daily more and more of their good land grow boggy through their carelessness, whereby also most of the bogs at first were caused." But Boate had a very sound approach to the practical steps to be taken to reclaim bogs and Gorham writing in 1953 comments on how strikingly are Boate's ideas of reclamation in agreement with the ideas current to-day. It is bitter to reflect that just about the time Boate was writing the Dutch had commenced the reclamation of their bogs and to-day

the rich and prosperous Netherlands provinces of Groigen and Drenthe are the results of a policy which they began in the middle of the 17th century. Prof. Hugh Ryan mentions that the Dutch in the reign of William III "offered upon condition of being governed by their own laws to form a colony in the Queen's County and to make meadows of the bog of Allen." But the information on which he makes this statement is rather tenuous and appears to be a statement made in conversation to John Watkinson by a Kilkenny peasant.

In 1720 Swift made the famous remark which has been so great an inspiration to workers in peat. "I heard the late Archbishop of Tuam mention a pleasant observation of somebody's 'That Ireland will never be happy till laws were made for burning everything that comes from England except their people and their coals.'"

Arthur Dobbs, a prominent member of the Dublin Society, secured the passage through the Irish Parliament of an Act in 1731 for the purpose of assisting the reclamation of waste land and the plantation of trees.

In 1757 an excellent anonymous pamphlet was published advocating the drainage of the bogs and giving extensive and competent technical advice on how that might be accomplished. It could not be said that there was any lack of technical knowledge even at that time.

Arthur Young, during his tour in 1776-79 dealt extensively with the problem of bogs and particularly with the great prospect he envisaged of growing grass on them; an important observation in view of the current efforts of Comhlucht Siuicre Eireann Teo. and Min Fheir Teo. in this field. And Watkinson in his survey of Ireland in 1776 expressed the opinion that the spinning of flax could not have been carried on without the cheap fuel which made it so easily possible to heat the rooms where the work was in progress.

In 1766 the Dublin Society was offering premiums to the renters of land who would reclaim bog.

But the first real attempt to deal with the great bogs occurred after the Union with the setting up of a Commission of Enquiry. It may be of interest to recall something of the background against which this Commission was established.

At that time the population was increasing rapidly. It had, according to K. H. Connell, been 4,753,000 in 1791 and by 1821 it had increased to 6,802,000.

At the beginning of this century there was grim poverty in the country. Those who were fortunate enough to hear the recent Thomas Davis lecture given by Thomas P. O'Neill on Radio Eireann will appreciate how grim. Rawson who carried out a social survey for the Dublin Society in 1807 describes the Co. Kildare workers, the ancestors, it must be supposed, of Bord na Mona's present employees. He says "An wholesome climate, and the strong nutritive quality of the blessed root, the potatoe, the almost constant food of the Irish peasant, induce both sexes early to become the heads of families. An unmarried man at twenty-five or a woman at twenty, is rarely to be met with. Pat tells his honest tale to Judy, as they return home from the dance; she is not obdurate. A situation is pitched upon for a cabin, which is speedily erected, with the assistance of the neighbours, who cheerfully contribute to the comforts of the new married

couple. A kitchen and bedroom bounds all their wishes ; a few ridges of potatoes secure a prospect of food. Pat goes to labour, whilst Judy cooks, and attends him with his frugal meal. Pat's next effort is to get a house and garden of one acre, from some opulent freeholder. A cow is advanced, he labours on for his employer with cheerfulness and content, and in a short time sees a growing family spring up." He goes on to say " Other labourers are not so fortunate ; they live mostly in towns and villages, and work by the day or week, for every chance employer, at the general rate of a British shilling per day, except in harvest when their wages rise to two shillings and eight pence halfpenny."

In a recently published article on international living standards Ireland occupies a position in the upper bracket of a table which sets out the relative wealth of the inhabitants of various countries. But there is to-day a district on the western seaboard where Rawson's description of the Kildare workers in 1807 could, with a little modification, be applied and where it is still not uncommon for a young couple to pitch on a situation for a cabin on a commonage which is speedily erected with the assistance of the neighbours " who cheerfully contribute to the comforts of the new married couple. A kitchen and bedroom bounds all their wishes ; a few ridges of potatoes secure a prospect of food." To-day State aid in various forms helps the situation of the young couple ; nevertheless nobody could justify the situation of the Kildare workers as it appeared in 1807 and it seems that there is just as little justification for tolerating a similar poverty in the western seaboard to-day. To remedy the situation it would appear to the writer that considerable sacrifices are called for by the community at large. It will be interesting to observe the effect of the introduction of the new turf fired Power Station into this district.

To make provision for this teeming and growing population the utilisation of the bogs seemed an obvious outlet. Many thoughtful people were concerned with the possibility of meeting the situation by bringing the bogs to profitable use and much was written on the subject at this time. Thomas Newenham, who had been a member of the Irish Parliament, published in 1809 a " View of the National, Political and Economic Circumstances of Ireland." He was deeply impressed by Young's observations on the potentialities of Irish bogs. Newenham points out the great natural advantages the bogs have by being mainly situated on the stratum of limestone and gravel. He comes to the conclusion that a skilful expenditure of " 9 millions of money on the best circumstanced parts of the unreclaimed land of Ireland would, beyond all doubt, add at least 3 million to its permanent rental and it would much more than compensate for the annual remittance to absentees." He goes on to say that such an expenditure moreover would enable Ireland to supply most amply the growing wants of England after satisfying those of her own rapidly increasing population. It may be mentioned here that the capital which will be required for Bord na Mona to develop and equip 100,000 acres of bog for the production of roughly 3½ million tons of sod and milled peat is estimated at £19 million ; at present prices the Board would have, when in full production, an annual income of approximately £5 million per annum.

In 1807 "A Tour of Ireland" was published by "An Englishman" who was very conscious of the value of the bogs and advocated their development, but he was mainly concerned with the possibility of turning the city of Dublin over to the use of turf. It is rather unusual, at this time, to find writers concerning themselves with turf as a commercial fuel. The Englishman writes: "There are seldom fewer than between forty and fifty of those boats so laden in the harbour at James's street besides what lie at the other small harbours, of which there is one at almost every entrance into the city, at the south side of the river. Notwithstanding this great quantity of turf brought into the city amounting every year to many thousand tons, yet the value of English coals imported amount to far more annually. From the 5th January, 1808 to the 5th January, 1809, the quantity of coals imported was 237,349 tons, which sold per ton at from 27/- to 34/-; taking the average at 30/- the amount was £351,023. Now all this is every year totally lost to Ireland. What a great advantage would it be to the whole island, if the inhabitants of Dublin only, should come into the use of turf as their universal fuel. It might perhaps cost them more than English coal, but then all the money would circulate among themselves. Hereby likewise thousands of their countrymen would find employment, and the great bog of Allen every year be considerably lessened, and lower part of which, as the turf was cut away, would become good ground, without much further improvement. I should imagine, that if the city of Dublin used turf instead of coal universally, besides the annual saving of three hundred and fifty-one thousand pounds, at least one hundred acres of good ground would be obtained every year; a great matter to a country so amazingly populous, and where land is so hard to be obtained. Were the Irish but half so attentive to their own interest, as we are to ours, notwithstanding the many disadvantages, under which they labour, from paying heavy taxes to secure the properties of absentee landlords, who pay nothing, and many others too tedious to mention, the country, beautiful and well improved as it is, would soon become much more so, and shortly, perhaps equal, if not exceed her elder sister." The views of this Englishman have a contemporary ring. But there were many difficulties apart from the physical difficulties and Keynesian economics were not known or likely to have been appreciated in the almost religious atmosphere which at the time surrounded the doctrine of *laissez faire*.

Rawson comments on the difficulty militating against the reclamation of bogs which he observed in his survey of Co. Kildare; "Without some mode of compelling the landholder, who forms an obstruction to great and extensive drainage he never can be brought to contribute his assistance, or to suffer his draining neighbours to be relieved by any drain through his grounds." He instances the public spirit of a Christopher Borr who made three miles of drain near Edenderry but was obstructed in continuing the work by another gentleman, who refused his co-operation despite the fact that Borr offered to pay half the expense of continuing the drain to the Boyne thro' this neighbour's land. In the "Economic History of Ireland from the Union to the Famine" Dr. George O'Brien deals at length with the impossibility of the peasants accumulating capital sufficient to enable them to attempt reclamation because at that time they had no security of

tenure and they got no compensation for improving the land. On the other hand the landlords were absentees and took no interest in the land. Their estates were often entailed and as often encumbered and the land would not form a reasonable security for capital. Another aspect, he points out, which helped to increase the difficulties of reclamation was the tenacity of the tenants in resisting any encroachment on the rights of grazing and turbary ; an attitude not altogether unknown to-day. This aspect of the matter is stressed for the purpose of showing that without adequate powers of acquisition and of overriding, where necessary, obstructive private interests it would be just as impossible to-day as it was in the early 19th century to make any progress with the utilisation of the bogs, nor would there be any better chance of raising capital now than there was then if reliance had to be placed on private enterprise.

It was in this situation that the British Government took the first steps towards what might well have proved an economic revolution. Sir Arthur Wellesley was Chief Secretary of Ireland in 1807-8. He wrote a memorandum to the Home Secretary, Lord Liverpool, advocating the setting up of a commission to enquire into the utilisation of Irish Bogs. The memorandum is a holograph and is at present in the Record Tower in Dublin Castle. As it has not been published it may be of interest. It is attached hereto (Appendix I.). Wellesley seemed only interested in flax seed for at that time the linen industry was growing and spreading, particularly in the west. It was in the nature of what we now call a cottage industry and, as it offered prospects of very diffused employment, it is easy to perceive its importance in the mind of the Chief Secretary. With great promptitude the Bill, setting up the Commission, to enquire into the nature and extent of the several bogs in Ireland, was introduced on the 5th May, 1809 and the Act became effective on the 15th June, 1809. The Bill was introduced by Mr. J. Leslie Foster, who sat as a Tory for Dublin University and who was a very active member of the Dublin Society ; he afterwards became Vice President of the Society. Foster's speech introducing the Bill envisaged wider results from the Commission than the mere growing of flax seed and he thought that bogs could be made to grow more corn than had ever been imported into Britain in one year ; the terms of the Act itself indicated the high hopes that were entertained from the work of the Commission.

In these days of Statutory Bodies some features of the Act are of considerable interest. The Commissioners were to receive no remuneration and were required to take an oath to perform their duties as Commissioners faithfully ; they had power to authorise their employees compulsorily to enter and survey bog land. They were limited to the consideration of bogs of 500 acres or more but on request they could undertake to examine smaller bogs. The Commission was limited in duration to August 1st, 1811, a period of less than two years. Imagine less than two years to survey the bogs in Ireland ! In actual fact the Commission had to apply for an extension of the time and Parliament prolonged the life of the Commission on two occasions.

The promptitude with which action followed the Chief Secretary's memorandum has been commented upon. But that promptitude was greatly surpassed by the speed with which the Commission got to work and indeed there is throughout the entire work of the Commission

a noticeable sense of urgency and rapidity of decision. The regard for the public time and interest might well serve as a model for those who are to-day concerned with the public service. The Commissioners of whom there were five—C. Vallancey, J. Leslie Foster, Richard Griffith Snr., William Gore and Henry Hamilton—began operations on the 19th September, 1809 and by December they had appointed a Secretary and a Clerk to the Secretary. They had also appointed nine engineers and had prepared precise instructions for these engineers. They divided the country into four great areas. The West Central Division contained 60% of the bog area, the East Central Division 25%, the North Division 5% and the South Division 10% (Map Appendix 2). They further sub-divided these four areas into 25 districts and they set out the most detailed instructions to their engineers regarding the mode of survey to be followed. The Secretariat was astonishingly small and consisted merely of a secretary and an assisting clerk. Considering the amount of work these officials must have undertaken merely in receiving and collating the Reports their industry is astonishing and their remuneration was by no means extravagant—£200 per annum to the Secretary and 50 guineas to the Clerk. But the Commissioners were more generous with the remuneration of the engineers. The engineers received two guineas per day while on survey work and one guinea travelling expenses but they only got paid for the days they worked.

The Chairman of the Commission was the redoubtable General Vallancey, a remarkable engineer who became infatuated with Ireland and developed linguistic theories about the Irish language. He thought it was associated with the language of the Algonquins. He was a very old man at this time and did not live long. Another of the Commissioners was Mr. J. Leslie Foster, who had introduced the Bill into the House of Commons and subsequently became Chairman of the Commission on the retirement of General Vallancey. Mr. Richard Griffith Snr. also served on the Commission. His son, Richard, who was one of the engineers appointed by the Commission, subsequently became the famous Sir Richard Griffith, whose name is so closely identified with Valuation in Ireland.

The Report itself is a momentous document ; the passion for speed, which permeates all the work of the Commission, did not allow them to wait for all the final engineering reports before submitting their interim reports to the House of Commons. There are as a result three interim reports and a final report. As appendices to each of these reports are the unedited and unsummarised reports as they were received from the engineers by the Commission with the maps and general observations. These engineering reports are wonderful examples of thoroughness and speed of work particularly considering the circumstances of the time. The reports cover, in detail, 1,013,358 acres of bog and for these areas the lines of drainage are laid out, estimates for the cost of carrying out the work are set out, as are the costs of manuring the bogs and the possible return of the reclaimed land as well as particulars of river levels. They made observations and wrote essays on manuring, gravelling and suggested the use of ploughs and wooden railways. They examined the possibilities of making charcoal. They wrote long accounts of land already reclaimed in the districts which they visited.

The Commissioners' covering reports are concerned with the comments on the engineers' surveys. In several places these reports concern themselves with refuting a suggestion that the drainage of the bogs would limit the fuel supply. They discuss the different kinds of rotation systems, the grass growing on bogs and also tree planting in the deep drained bogs.

In the 4th and final report they conclude that not only are the bog lands susceptible of improvement but promise "to afford a greater profit on the operation than perhaps any other application of agricultural skill and capital."

Taking the average of their engineers' opinions the Commission stated that according to that average the expenditure of £1-£20 per acre on reclamation would secure a permanent rental of from 10%-15% on outlay and they insisted that this was not a theoretical speculation but an estimate based on hundreds of acres of bogland actually improved and examined by the engineers. They point out that the real obstacles to progress here were not physical but legal and they discuss at length these legal difficulties and recommend how they should be removed.

The engineers were obviously not satisfied to leave the matter at that and they suggested that some practical action should be taken. One of them urged that a public experiment should be tried; that it might demonstrate to the nation the scheme of the improvement of the bogs of Ireland to be practical or hopeless and he expressed the opinion that a successful experiment on these lines would be the quickest and best way of attracting capital to this source of investment. Another of the engineers was, himself, agreeable to carry out the necessary drainage and road construction of any given piece of bogland of considerable extent and he estimated the cost at "1 guinea per acre which is little more than 7 years purchase of the rent it would then afford." An absent member of the Commission who remains nameless recommended the establishment of a Board with the necessary powers to make an experiment on a large scale on the reclamation of some bog near Dublin. The absent member wanted the Board to have the power to lend money to persons willing to improve the bogs. This idea was too much for the Commissioners. They regarded such a plan as specious and they thought that "the expense of the preliminary experiment, if conducted by such a Board might, we apprehend, afford an example highly discouraging, and no less fallacious, if considered as a measure of the necessary expense attendant on such a plan when superintended by the vigilance of private adventure." The idea of lending money for the purpose of reclamation appeared to be beset with so many difficulties that they were not prepared to agree to it. They therefore confined themselves to recommending the removal by the Legislature of the difficulties which they felt prevented the investment of private capital. The challenge of the bogs was refused and one of the greatest projects for reclaiming the bogland—a project which carried to its logical conclusion would have had immense advantages for the nation—foundered in the gloomy morass of *laissez faire*. No action whatever was taken on this great report.

Apart from the detailed survey of 1,013,358 acres, the Commission also calculated the number of acres of peat and mountain soil in the

districts of Wicklow, Erris, Connemara, Donegal, Tyrone, Fermanagh and Cavan. The figures are included in Appendix 2 of this paper.

This Appendix also sets out a list of the 25 Reports received by the Commissioners and the number of acres of bog surveyed by them in detail. In column 2 of this Appendix is shown the number of acres of bog acquired or in the process of being acquired by Bord na Mona to date and Column 3 shows the number of acres which superficially appear to merit further examination.

It will be noticed that there is a wide difference between the number of acres in the sums of columns 2 and 3 and the number of acres set down by the Commission. This is accounted for by the fact that the Commissioners included in their survey cutaway bog and callows. Again, since the date of the survey much bog has been used up as fuel. It was estimated by Kilroe in 1907 that as many as 800,000 acres had been cut away in the century following the Bog Commission Report. Again, in considering bog available for development, Bord na Mona must take into consideration the very liberal allotment of turbary made by the Land Commission to tenants. Nevertheless it will be seen that there is still a very large potential of bog untouched. Bord na Mona makes a continuous survey of these areas and this is now being intensified but until this survey has been completed it will not be possible to know exactly the extent of the usable bogs. It is to be pointed out that much of this bogland is patently unsuited to the present mechanical methods employed by the Board either for physical or economic reasons, but it must be assumed that there is a mechanical solution capable of being found and at present experiments are being undertaken which, it is hoped, will make many of the areas, at present excluded from the Board's programme, capable of profitable development. It will be evident that no matter to what extent Bord na Mona carries out its operations there will always be a great area of bogland still available for cultivation and afforestation. It would be quite impossible even to hazard a guess as to how much of this land is available and it is clearly a gap in the nation's knowledge which requires to be filled and can only be filled by a detailed survey. It would be useless to undertake such a detailed survey unless beforehand it was decided to take action to reclaim the available land; the fate of the Commission of 1809-14 is sufficient warning in that respect. The project which is being undertaken by Comhlucht Siuicre Eireann in reclaiming the bogland at Gowla in Galway and the creation of Min Fheir Teo. to grow grass on the bogland in Mayo are of very great importance in this context. It is to be pointed out that even if the bogland is cultivated it need not necessarily be disregarded in the fuel resources of the country. Up to the present Bord na Mona has not concerned itself with the ultimate use of the cutaway but it is an integral part of the Board's operations to leave the cutaway drained and fit for forestry or cultivation. It should be noted that when all the fuel is cut out the drained and cultivable cutaway will be available at no cost as the capital investment will have been amortized and the advances repaid to the Government. In one bog operated by the Board in Kerry this position has almost been reached and in three years hence a fully drained cutaway bog of 500 acres will be ready for forestry.

Appendix 4 of this paper shows a schematic map of the survey

by the Bog Commissioners of the eastern part of the Bog of Allen on which is superimposed the area of that bog at present being worked by Bord na Mona. It is these bogs which supply the Allenwood Power Station of the Electricity Supply Board and the Loilgheach Mor (Lullymore) Briquette Factory. The production of this group last season was 285,000 tons of sod peat and 90,000 tons of milled peat. The total area of this bog group as surveyed by the Commissioners was 36,432 acres; of this area Bord na Mona is at present producing sod and milled peat from 14,630 acres. It is clear from the map that much of the periphery of the main bog area cannot be operated by Bord na Mona; it is the property of the tenants of the Land Commission where they produce their domestic supplies of hand-won turf and much of it has been cut away in the past 150 years. The area north of Glaise Ban (Glashabaun) which was formerly worked for peat moss is now being considered for milled peat as an extension to Loilgheach Mor (Lullymore) Briquette Factory. The Clane Bog has been very much cut away since the date of the Report but it is hoped that it may be possible to utilize it by smaller machines or by a new semi-briquetting process on which the Board is experimenting. The area around the Figile River was the area on which the hand-won scheme of the Emergency days of 1940-47 was operated and is also much cut away. The Mouds Bogs are of very light quality but in the light of the experience gained in burning turf in the nearby Allenwood Power Station it is hoped to utilize these bogs for sod peat production.

The above observations may be taken as generally applicable to most of the other areas where the Board operates and accounts for the discrepancy between the findings of the 1814 Report and the position as it is to-day.

Mr. Richard Griffith, who made the report on this district, estimated that the cost of draining the 36,480 acres would be £70,014, i.e., roughly £2 per acre. The cost per acre to drain bog in Kildare is reckoned by Bord na Mona at £40 per acre for the deep drainage required for sod peat and for milled peat the cost of drainage is reckoned at £15 per acre. The drainage required for milled peat would approximate more closely to the drainage required for reclamation of land for forestry or agriculture.

From experience, Bord na Mona is of the opinion that Mr. Griffith did not allow for sufficient intensity of drainage in deep bogs but he was well aware of the necessity of proceeding slowly with the drainage and he suggested that the bog when drained should be left for two years before any cultivation was undertaken.

The next important proposal to develop the bogs came in 1821 from a Committee set up by the Royal Dublin Society. The Committee which took evidence from gentlemen "who have themselves reclaimed bogs at a considerable extent and have given most serious consideration to the subject," report that though some difference of opinion appears to exist as to the best mode of draining the bogs of Ireland, "There exists perfect unanimity as to the important facts, that every description of bog is capable of being reclaimed and converted into profitable land; which would adequately, nay liberally, remunerate the outlay of the capital necessary to accomplish that object; and that the bog thus brought into a state of profit

may be preserved in that state by ordinary attention and expense without the danger of its reverting to its original unproductive condition" and they expressed the "hope that the attention of the Legislature and the British people will be speedily directed to a country the great natural fertility and resources of which, though so generally admitted, have been so long neglected." But this report too ended in nothing. On the general attitude of the Government of the time Professor O'Brien concludes "that the measures taken by the Government to deal with the pressing causes of Irish distress were half-hearted and quite inadequate. Neither was there any legislation passed to correct the abuses of distribution that characterised the existing land system nor was any serious attempt made to increase the area of land under cultivation. Thus the Government failed to pursue the alternative means of providing for the population of the country from its resources—namely the increase of the latter . . ." The Famine and emigration solved the problem of the increasing population for the Government.

From this onwards the emphasis on the utilization of bogs gradually shifted from reclamation to production of fuel and Sir Robert Kane thought that the bogs might become "under the influence of an enlightened energy, sources of industry eminently productive." He strongly advocated the use of turf or turf charcoal for the smelting of iron. He took an active part in the establishment and working of a turf distillation factory at Kilberry Bog near Athy in 1849. The effort was not successful. Part of the building of this factory is still in existence and is incorporated in the buildings of the Bord na Mona Peat Moss Works at Athy to-day.

A further effort to win peat commercially by a pressing process at the same bog at Kilberry was tried in 1855 but it too failed. At Derrylea near Portarlinton in 1866 a factory was established for the making of pressed turf but this undertaking was also unsuccessful. This effort is of particular interest because it was based on the same principle as is milled peat. Derrylea is a continuation of Clonsast Bog, which supplies the Portarlinton Power Station, but on account of the existence of so much bog timber it is, at present, the site of a very large scale hydro peat experiment by Bord na Mona. In 1863 a factory for the manufacture of sieve turf was working near the town of Sligo.

In 1872 a considerable impetus was given to the interest in peat fuel by a crisis which arose in imported fuel due to a series of successful strikes amongst English miners which had the effect of increasing the price of coal in Dublin by nearly 100%. A campaign was led by the *Irish Farmers' Gazette*, and its proprietor, Alderman Purdon, to utilize the bogs and a very remarkable letter, written by J. McCarty Meadows, drew attention, for the first time in Ireland, to the principles of maceration. "Peat has been for several years not an inconsiderable contributor to the patent office; but, unfortunately for peat, the patent office had not, in return, done much for it; and we have at last to find that the true development of its improved manufacture, as a useful economic industry, has been found to exist in the adoption of the simplest possible principles. These principles consist in the maceration or tearing asunder of the raw peat as raised from the bog, and in the drying of this peat pulp, after being cut into suitable pieces,

without the aid of any mechanical pressure whatever. The result gives a fuel which is well termed, dense peat, and it fulfils all the conditions that can be reasonably looked for in an improved peat fuel." This was really the first significant advance in study of peat fuel development in Ireland and the first attempt to get away from patented artificial drying processes which bedevilled so much of the earlier efforts. Arising from the discussions in the columns of the *Farmers' Gazette*, Alderman Purdon organised a Commission, of which Mr. J. McCarty Meadows was a member, to examine the question.

The expenses of the Commission were borne by Alderman Purdon. The Commission visited the Netherlands, France, England and many districts in Germany. They gave an extremely thorough account of their visit; what they saw, the quality of turf and the methods employed and the labours of the Commission became the property of the Irish public "to whom is respectfully presented the following report of the present position and results of the best modern systems in peat, derived from the closest personal tests and examinations." The report was presented at a public meeting of the citizens held in the Commercial Buildings, Dublin, in January, 1873. There was a long and extremely interesting discussion at the meeting which was attended by many of the leading citizens including the Lord Mayor and presided over by a Mr. Pim, M.P. The meeting lasted three hours and a verbatim account is given in a report of the Commission. It is curious that no reference to this Commission appears in the literature of turf and the writer is indebted to Mr. J. Meadows, son of Mr. J. McCarty Meadows, for making available to him the Commissioners' report and the file of the *Farmers' Gazette*, in the columns of which the whole question of Irish peat is very thoroughly examined.

Mr. J. McCarty Meadows himself produced a booklet on peat and he was extremely sceptical of all existing methods of winning turf mechanically; he believed that at first reliance should be placed on existing hand-won methods and he expressed the general belief that the future of commercial turf lay in maceration when a suitable process would be achieved. Nothing, unfortunately, came out of the high-minded efforts of Mr. Meadows and Alderman Purdon. But interest continued in peat and a very valuable contribution was made in the form of a paper published in 1899 on the Irish Peat Question by T. Johnson, D.Sc., Professor of Botany and Keeper of the Botanical Collections, Science and Art Museum. Here he summarised much of the existing knowledge on Irish peat and the methods and techniques which should be employed in the cultivation of the bogs and the winning of peat.

In 1905 unsuccessful attempts were made to produce brown wrapping paper economically from peat at Celbridge and in the same year a company was formed to operate in a bog at Kilberry near Athy with the Earl of Mayo as Chairman. It had the very large capital of £130,000. The process was known as the Bessey Process and the basis was electro-osmosis, but it too failed.

About 1904 the first attempt at producing macerated turf was made when Mr. Anthony Mackey introduced a semi-automatic machine to work on a bog at Castleconnell, Co. Limerick. At this time too a scheme was started by the Department of Agriculture using semi-automatic machines at Inny Junction, Co. Westmeath, and in Co.

Cavan, but the advisers of the Department discovered legal difficulties and the efforts were abandoned. Mr. Hamilton Robb used hand-won turf very extensively in producer gas plants to provide motive power for his Linen Factory at Portadown. Mr. Hamilton Robb continued to run his factory on turf right up to 1920. He was a real pioneer and gave valuable assistance to both the British and Dail Commissions in 1917 and 1920.

In two communications to the Royal Dublin Society in 1907 and 1908, Professor H. Ryan reviewed the whole peat position. It is a masterly review and ranges from an examination of the origin of peat through the history of previous efforts made to win peat in Ireland to an examination of the various methods hitherto employed in Ireland and on the Continent and concludes with a systematic bibliography of peat. Reading Professor Ryan's paper, anyone who is associated with peat realises at once that here was a remarkable man and it was his good fortune to be subsequently associated with two outstanding men in the history of peat development in Ireland—Sir John Purser Griffith and Professor Pierce Purcell. For in 1917 the British Government set up a Committee under the Department of Scientific and Industrial Research with Sir John Purser Griffith as Chairman, Professor Pierce Purcell as Secretary, of which Professor H. Ryan was a member. The Committee was "to enquire into and consider the experience already gained in Ireland in respect of the winning, preparation, and use of peat for fuel, and for other purposes, and to suggest what means shall be taken to ascertain the conditions under which, in the most favourably situated localities, it can be profitably won, prepared, and used, having regard to the economic conditions of Ireland; and to report to the Fuel Research Board." The report is remarkable for its thoroughness and, in the light of subsequent events, for the sagacity of its recommendations. The Committee recommended the purchase of a bog capable of producing 100,000 tons of air dried peat per annum and advocated the installation of the different types of electrically-driven peat-winning machines and the various mechanical devices at that time available for transport and for the collecting of peat. They also advocated the erection of an electric power station using the peat in gas producers and of a chemical industry, to be associated with the power station. They also recommended the erection of villages for workers in the vicinity of the bogs. They envisaged the utilization, for agricultural purposes, of portions of the bogs not immediately required for fuel winning and the cultivation of the cutaway.

The fate of the Committee's recommendations seems to be an interesting example of the native hue of resolution being sicklied o'er by the pale cast of thought. The prospect of the State financing a power station seemed to horrify the Fuel Research Board and the Committee was called to London. There they were persuaded to modify, fundamentally, their recommendations relating to a power station. Instead of providing for the use of 100,000 tons of turf the station was not to exceed 500 kw., that is to say 1/50th (one fiftieth) the size of Portarlinton Station, which was designed to use 120,000 tons per annum. The electricity from the small unit was to be used merely to operate the plant on the bog.

They were even more unfortunate in the reception of their

recommendations with regard to the setting up of workers' houses and the cultivation of the cutaway. The agricultural side of their scheme was to be under the control and management of the Department of Agriculture. When the proposal was submitted to the Department of Agriculture, that Department completely misinterpreted the recommendation of the Committee as a proposal to set up an agricultural colony and on that misinterpretation decided that the proposal would not help the labour problem of peat winning. Anyway they thought the cost of the proposal was underestimated and they proceeded to point out that the Committee's estimate of the cost of bog was far too low. The Committee estimated £2 per acre as the purchase price of raw bog but the Department of Agriculture was of the opinion that it could not be bought for less than £10 per acre. In fact Bord na Mona bought the bog in question for 11/- per acre 16 years afterwards although the value of money had considerably fallen in the meantime. At the same time the Department of Agriculture denied knowledge of the existence of a 10,000 acre stretch of bog in the Bog of Allen. A simple enquiry from the local R.I.C. in Kildare would have adequately informed them on the matter but the enquiry was not made. Because of this report of the Department of Agriculture, the work of Sir John Purser Griffith, Hugh Ryan, Pierce Purcell and their two colleagues Sidney Young and George Fletcher, was wrecked.

Temperate comment on this deplorable report is difficult but it seems to point the moral, when considered in the light of the fate of the earlier efforts to develop boglands, that with an alien Government there would be no hope of profitable exploitation of Ireland's very limited natural resources.

The net result of the Committee's work, as far as the Government was concerned, was to authorise Professor Purcell and the late Mr. Duffy to carry out experiments into the properties of machine formed-peat which might have a bearing on its economic winning and utilization and it was agreed to appoint Professor Purcell, Peat Investigation Officer to the Fuel Research Department and to allow him to go to Canada to study the Peat Question. Professor Purcell's superb lecture on "The Peat Resources of Ireland" was printed by that Department and was communicated to the Royal Dublin Society in March, 1918. This lecture gives a comprehensive account of the whole problem and is worthy to rank with Hugh Ryan's earlier communication to the Royal Dublin Society.

In 1920 a Commission, to enquire into the resources and industries of Ireland, was set up by Dail Eireann and Professor H. Ryan was appointed Chairman of the Committee dealing with the peat resources. The Committee produced a very detailed report much on the lines of the Purser Griffith report but their recommendations went further than the recommendations of the earlier Committee. The experienced hand of Hugh Ryan is clearly to be seen especially in the withering criticism of the Department of Agriculture's comments on the Griffith Committee Report. The Report of the Dail Eireann Commission advocated turbo alternators rather than gas producers for electricity production on a large scale. They also advocated experiments in the use of pulverised fuel for rotary kilns and locomotives and they put considerable emphasis on the desirability of producing nitrogenous fertilizers and explosives.

In 1922 Professor Hugh Ryan published his translation from the German—Hausding's "Handbook on the Winning and Utilization of Fuel." This is a complete compendium of turf knowledge as it existed in Germany in 1918; it contains a record of every patent taken out on turf in Germany. This is an indispensable part of the equipment of every turf organisation and particularly of those engaged in experimentation and research and it has saved Bord na Mona very considerable sums of money by preventing incursions into the already traversed jungle paths of turf exploration. Incidentally it is commonly said by turf people in Germany that Hausding himself never saw a bog. He was employed in the German Patent Office.

But Sir John Purser Griffith had himself gone into the turf business and after experimenting with some semi-automatic machines at a bog which he acquired at Turraun, Co. Offaly, he purchased in 1924 fully automatic machines, built a power house using turf and produced machine turf of first class quality which secured a considerable market even at that time. His idea was to extend the power house to supply electricity to the neighbouring towns of Tullamore, Athlone and Birr. He believed in his own slogan "Burn the bog where it is born." When the Turf Development Board was formed in 1935 Sir John Purser Griffith generously handed the entire plant and stock over to it at a nominal sum. His experience at Turraun in the drainage of bog and the operating of machines is the basis on which the Turf Development Board (subsequently given statutory authority as Bord na Mona) worked and to-day in fundamentals the experience and theories of Sir John Purser Griffith hold good. Many mechanical improvements have been made but basically there has been no change in the principles employed in so far as machine sod peat is concerned. In the story of Irish peat, Sir John Purser Griffith will always be a name of great renown.

The next important attack on the bogs was made in 1933 at Lullymore on the Bog of Allen when Professor Pierce Purcell introduced the principle of milling peat as we know it now, for the purpose of briquetting. A Company known as the Peat Fuel Company Ltd. was formed with what appeared to be ample capital. But, in fact, the capital proved to be inadequate and this inadequacy caused the Company to fail and the Government requested Bord na Mona to take over the bog and plant. The experience gained by the Peat Fuel Company gave Bord na Mona an advantageous start in their efforts to mill and briquette peat and, so successful has their experiment been in the milling of peat, that the whole future programme of peat for power stations will be based on this process. Thousands of acres of bog in Offaly, Mayo and Westmeath are now being developed on this system and by 1961 the Board plans to produce 2½ millions tons of milled peat per annum. The first of these enterprises, the one at Boora near Tullamore, will begin production this year, and will be producing in 1960 nearly one million tons of milled peat. When this is achieved and when subsequently the Bog of Allen becomes, as some would hope, the Forest of Allen, and when the wastelands of the West become forests or fertile prairies—and this is not idle wish thinking—it will be right to acknowledge the Nation's debt to the Fosters, Meadows, Hugh Ryans, Purser Griffiths and Purcells.

In the opinion of the writer there appear to be two streams of

historical consciousness in modern Ireland—one derived from Tone and the other from O'Connell. But there also emerges a type of mind belonging to men who were very often neither in one nor the other of those traditions and who were nevertheless deeply solicitous for the economic and social well being of the Nation. In the story of the boglands from the beginning of the 19th century they are especially prominent. They deserve to be remembered by this generation for as Burke remarked those who will not look backward to their ancestors will not look forward to posterity.

APPENDIX 1.

Carton. 539/290/6/93.

No Date.

MEMORANDUM AS TO DRAINING BOGS.

Letters of Sir Arthur Wellesley, 1807-1809.

To Earl of Liverpool.
(Lord Lieutenant)

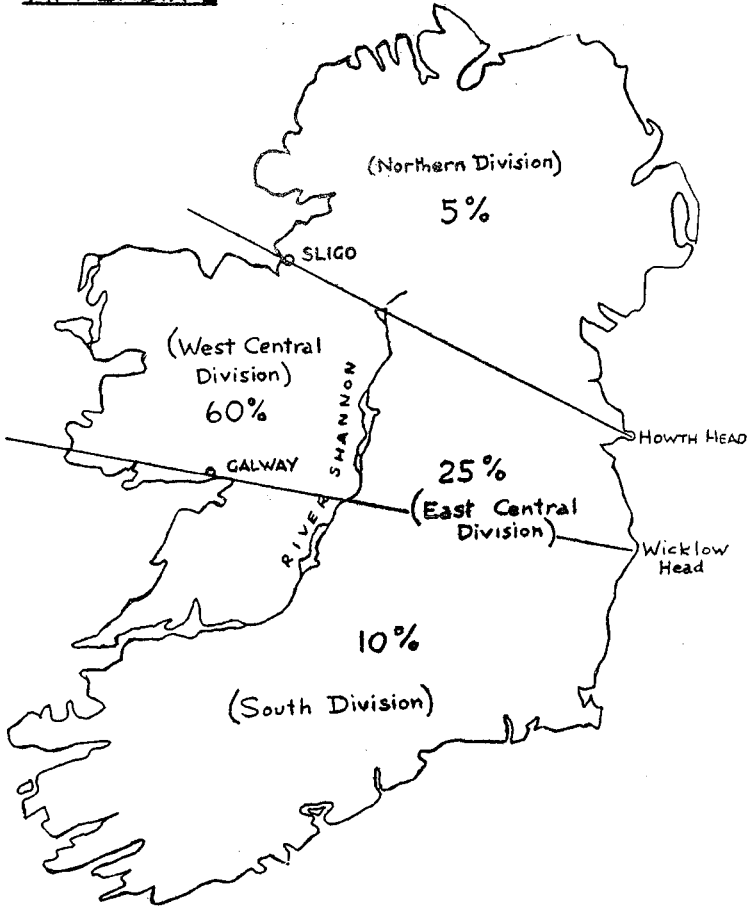
MY LORD,

Having adverted to the probable want of flax seed in Ireland in the current year and to the causes which have produced that want and conceiving that it is most desirable that the staple manufacture upon which the happiness and comfort of a large proportion of the inhabitants of the lands of this country should be placed as far as possible beyond the risk of political events I have considered of the mode of producing in Ireland of all future times a sufficient supply of flax seed.

I understand that the bogs in Ireland are all capable of being drained and that the land, when drained, would answer better than any other for its successful cultivation. These bogs are in general the property of the individuals possessing the land which bound them; and it is probable that if it was ascertained whether they could be drained and at what expense, those individuals and others on their account would not be unwilling to lay out their capital in speculations which there is reason to believe would not be unprofitable, and of which the expense could be ascertained. If the practicability of effecting this object and its expense could be ascertained, the Parliament could be enabled to judge of the propriety of obtaining assistance towards its completion.

I would therefore propose to refer for the consideration of the King's Ministers the propriety of establishing a Parliamentary Commission for the purpose of ascertaining the practicability of draining the bogs and morasses in Ireland of the same description with the Commission established in the year X (*See the Act of Parliament upon this subject*) for the purpose of making roads, etc., through the highlands of Scotland. That these Commissioners, however, should only have the power of employing engineers to survey the different bogs and ascertain their extent, the practicability of draining them and the expense of that operation; and as nearly as may be practicable the right of property on each.

APPENDIX 2



APPENDIX 3.

1814 SURVEY	BORD NA MONA, 1954.		
	Col. 1	Col. 2	Col. 3
Districts	Area	Area Acquired or being Acquired	Total Area for further Investigation
1. The Eastern Extremity of the Bog of Allen in Co. Kildare, reported on by Mr. Richard Griffith, Jun.	36,430	14,630	6,850
2. The District of the River Barrow, in Co. Kildare reported on by Mr. Richard Griffith, Jun.	41,075	12,778	9,410
3. The District of the River Boyne in Meath and Westmeath reported on by Mr. Jones	42,370	8,356	5,460
4. The District of the River Brusna in Co. Offaly reported on by Mr. Longfield	44,594	12,214	9,902
5. The District of the River Shannon in Co. Westmeath, Co. Longford and Co. Offaly, reported on by Mr. Townsend	34,500	6,711	6,940
6. The District of the River Inny and Loughree, in Longford and Westmeath reported on by Mr. Edgeworth ...	34,569	3,564	12,970
7. The District of Lough Gara in Roscommon, Sligo and Mayo, reported on by Mr. Longfield	83,689	—	9,415
8. The District lying between Roscrea and Killenaul, situated in the counties of Tipperary, Kilkenny and Leix, reported on by Mr. Aher	36,025	3,705	11,562
9. The District lying to the west of Maryborough in Co. Leix, reported on by Mr. Aher	14,754	—	5,720
10. The District forming the western extremity of Co. Clare reported on by Mr. Cockburne	22,340	—	3,040
11. A small District on the banks of the Barrow, in Kildare and Offaly reported on by Mr. Brassington ...	7,459	1,639	520
12. The District of Lough Corrib, in Galway and Mayo reported on by Mr. Jones	83,724	921	16,745
13. A District in Co. Mayo reported on by Mr. Bald	40,035	—	5,860
14. A District in Co. Mayo reported on by Mr. Bald	37,916	—	4,850

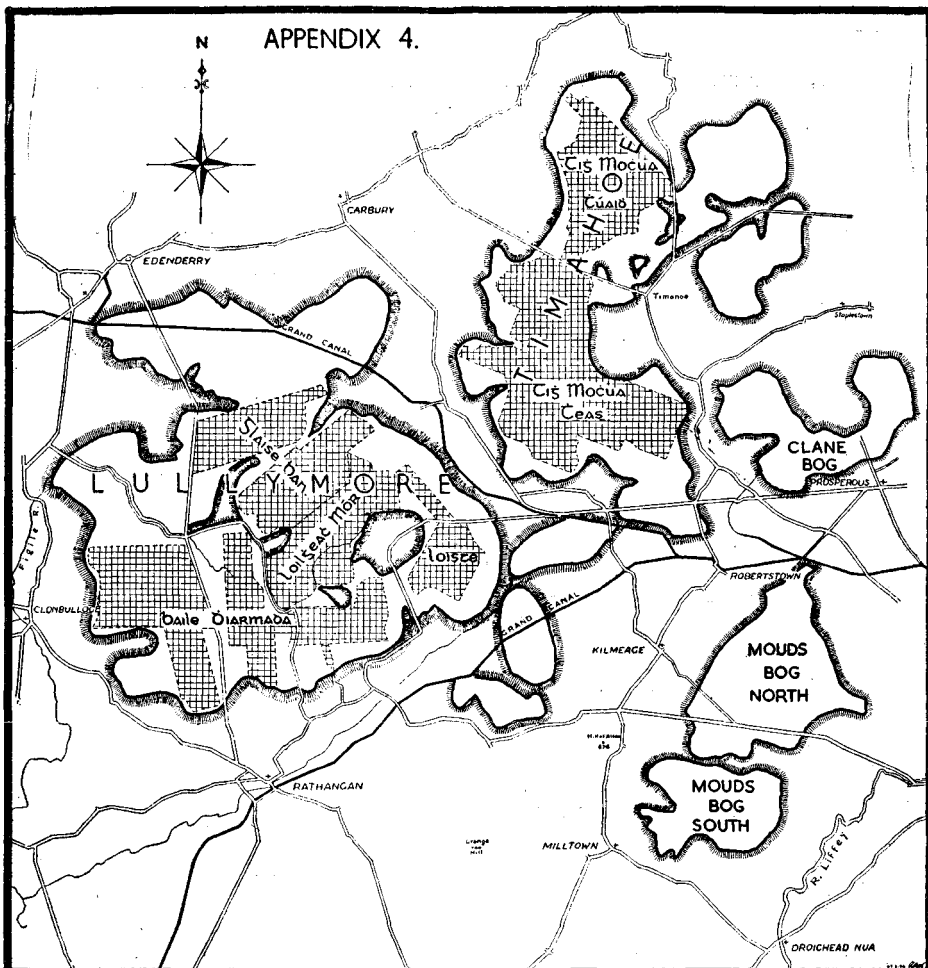
APPENDIX 3. (contd.)

1814 SURVEY		BORD NA MONA, 1954.		
Districts		Col. 1	Col. 2	Col. 3
		Area	Area Acquired or being Acquired	Total Area for further Investi-gation
15.	A District in Co. Mayo reported on by Mr. Bald	84,011	—	7,210
16.	A great District surrounding Lough Neagh, and extending to the mouth of the River Bann, situated in Counties Antrim, Down, Armagh, Tyrone and Derry reported on by Mr. Townsend	64,855	—	—
17.	The District of Iveragh, in Co. Kerry reported on by Mr. Nimmo	43,567	—	7,010
18.	The District of the River Kenmare, in Co. Kerry reported on by Mr. Nimmo	14,605	—	300
19.	The District of the Rivers Laune and Lower Maine, in Co. Kerry reported on by Mr. Nimmo	17,990	—	1,620
20.	The District of the Upper Maine in Co. Kerry, reported on by Mr. Nimmo	8,566	—	320
21.	The District of Slieve Laughar in Cork and Kerry, reported on by Mr. Nimmo	32,902	535	2,250
22.	The District of the River Cashen, in North Kerry, reported on by Mr. Nimmo	31,514	—	8,530
23.	A District in Longford, Leitrim and Roscommon, reported on by Mr. Mr. Edgeworth	26,630	1,665	9,470
24.	The Southern Extremity of the River Suck, in Galway and Roscommon, reported on by Mr. Richard Griffith	76,848	6,500	28,532
25.	The Northern Extremity of the River Suck in Galway and Roscommon, reported on by Mr. Richard Griffith	52,390	—	11,306
		1,013,358	73,218	185,792
Other Areas examined :—				
	Bogs in Co. Sligo	18,790	—	3,470
	Erris Tyrawley	170,090	28,405	30,130
	Connemara Area	192,000 ¹	—	11,060
	Co. Wicklow	97,000	—	—
	Co. Cavan	17,600	—	—
Total Area of Red Bog		1,508,838	101,623	230,452
Unproductive Mountain Bog—Estimated in 1814		1,375,000		
Bogs not covered by 1814 Survey			1,794 ²	58,120
		3,883,838	103,417	288,572

NOTE: ¹ By an error this area was given in the original report as Irish acres; the figure has been corrected here to English acres.



² These Bogs are at Carrigcannon; Lyrecrumpane, Co. Kerry and Glenties, Co. Donegal.

APPENDIX 4.



Map showing Comparison between Area of District No. 1 Eastern Division of the 1810 Survey of the Bogs of Ireland & the Areas within this Division being Utilised by Bord na Móna 1954.

REFERENCE

36.432 ACRES SURVEYED 1810
 SHOWN THUS 
 14.630 ACRES UTILISED BY
 BORD NA MÓNÁ.
 SHOWN THUS 

SCALE—ONE INCH TO ONE MILE.

APPENDIX 5.

Papers and Publications Consulted.

1. "Ireland's Natural History," by Gerard Boate. 1652.
2. "A Proposal for the Universal Use of Irish Manufacture in the Cloaths and Furniture of Houses, etc. Utterly rejecting and renouncing everything wearable that comes from England," by Jonathan Swift. 1720.
3. George II. Chapter 9, 1731. *Irish Statutes*, pp. 512-14.
4. "A Supplement to the Modern History being a Natural History of Ireland," by Thomas Molyneux and Others. Paper "On the Bogs and Loughs of Ireland," by W. King, 1740.
5. "A Letter to the Publick Concerning Bogs." 1757. In Royal Dublin Society's Miscellaneous Irish Pamphlets.
6. *Arthur Young's Tour in Ireland, 1776-1779*. Vol. II, page 103.
7. Commons Papers, Index 1801-1823.
8. "A Statistical Survey of the Co. Kildare with observations on the means of Improvement drawn up for the Consideration and by the Direction of the Dublin Society," by Thomas James Rawson, a Member, 1807.
9. "A View of the National, Political and Economic Circumstances of Ireland," by T. Newenham. 1809.
10. Report of the Commissioners Appointed to Enquire into the Nature and Extent of the Several Bogs in Ireland and the Practicability of Draining and Cultivating them. 1809-1814.
11. Official Papers Carton 539/290/6/93. Public Record Office, 1809.
12. "Tour of Ireland in 1813 and 1814," by "An Englishman."
13. "Report of the Committee appointed by the Royal Dublin Society to Inquire and Report upon the Expense of Draining and the Practicability of Permanently Reclaiming the Bogs and Wastelands of Ireland." 1821.
14. *Dictionary of National Biography*.
15. "The Industrial Resources of Ireland," by Robert Kane, M.D., 1845.
16. *The Farmers' Gazette*, 10th August, 1872.
17. "Report of Commission of Investigation of Improved Peat Fuel Manufacture." Printed at the *Farmers' Gazette* Office, 23 Bachelors Walk, 1873.
18. "A Review of the Peat Question," by J. McCarty Meadows. 1873.
19. "A Description of the Soil Geology of Ireland based on Geological Survey Maps and Records with Notes on Climate," by J. R. Kilroe. 1907.
20. "The Economic Proceedings of the Royal Dublin Society," Reports upon the Irish Peat Industry, Parts 1 and 2, by H. Ryan, M.A., D.Sc. Part 1—1907, Part 2—1908.
21. "A History of the Royal Dublin Society," by Henry F. Berry. 1915.
22. "The Peat Resources of Ireland." A Lecture given before the Royal Dublin Society by Prof. Pierce F. Purcell, A.M.Inst.C.E. 1919.
23. "Economic History of Ireland from the Union to the Famine," by George O'Brien. 1921.
24. Department of Scientific and Industrial Research: Fuel Research Board—The Winning, Preparation and Use of Peat in Ireland—Reports and Other Documents. 1921.
25. Commission of Inquiry into the Resources and Industries of Ireland—Report on Peat—1921.
26. "The Population of Ireland," by K. H. Connell.
27. "Some Early Ideas Concerning the Nature, Origin and Development of Peat Lands," by Eville Gorham. Reprinted from the *Journal of Geology*, Vol. 41. 1953.
28. "Many A Mud-Walled Cabin," by T. P. O'Neill: Thomas Davis Lecture, Radio Eireann. 1954.
29. "The Poverty of Nations," by Colin Clark: Article in *Encounter*, March, 1954.

DISCUSSION.

Dr. Geary: Some months ago Mr. Andrews said he had misgivings as to whether so historical a paper would be suitable for the Society. I took it upon myself strongly to urge him to go ahead and I make bold to say that I consider myself vindicated by the quality and

content of the paper which we have just heard. My only misgivings concern the judgment of the President in according me so exalted a place in his list of speakers for I knew little or nothing about turf development (until I read Mr. Andrew's paper) except its statistics. I have, however, the advantage over Mr. Andrews's Herr Hausding who, we were informed, knew all about turf but who never saw a bog. I have recently visited the turf workings of Bórd na Móna including in the itinerary the Allenwood turf-fired station of the E.S.B. under no less a cicerone than Mr. Andrews himself. It was an enthralling and heartening experience.

The overtones and implications of the paper go far beyond its subject matter, interesting and important as this is. The last paragraph sounds the keynote of the whole paper. The history of a thing is part of the living thing. This is obvious from the technological point of view but it is also true in the sense that the lives, the personalities and the approach to work of our precursors are an inspiration to present-day workers. Census workers have felt this kind of inspiration: I well recall the interest, almost the excitement, with which I first read the Reports of the Census Commissioners of 1841 and 1871, in particular. It is obvious that the lecturer also has felt the full force of this inspiration. He is generous in his acknowledgment of his predecessors. It is fascinating to observe how the distant past telescopes into the present (shown especially in the diagram in Appendix 4) in the story of turf development. The story is well on the way to a happy ending and there is promise of even greater things to come. Until the advent of Bórd na Móna, the story of brilliant inception and preparatory work ending in administrative frustration and lack of capital was the usual tale of well-meant effort in 19th century Ireland.

The time schedule of the 1809-11 Turf Commission can only make some present-day Commissioners hang their heads in shame. The Turf Commission experience was paralleled by others at the beginning of the 19th century, for instance, the building of the Cork Street Fever Hospital and House of Recovery and the Griffith Valuation, both characterized by thoroughness and speed. Believe it or not, the date of the fly leaf of the great 1841 Census was 1843, a time schedule which we have not been able to beat in recent years despite use of statistical machinery, though we completed the Census of 1951 within the scheduled period of two years. The publication of the results has not, however, yet been completed. Our predecessors seemed to approach every job with a kind of dedicated frenzy. These days we do not know how such miracles were performed. Perhaps we do not work hard enough. Institutionalism, with diminution of force of personal control, specialisation tending to lessen individual knowledge of, and interest in, the job as a whole, may also damp down enthusiasm. I wish we could find some way of releasing the energy of individuals in Ireland, to create an environment in which it would have fullest scope. I suspect that as a race we are highly individualistic. We have perhaps too developed a sense of the difficulty of doing things: we know too much. I like to imagine that T. A. Larcom, who started the Irish Ordnance Survey in his thirties, when he was asked if he would undertake the Census of 1841 asked "What is a Census?" and did not stay for an answer.

One is also struck by the universality of interests of those eminent men of old. Larcom was an antiquarian, a historian, a Census taker, an administrator in complete charge of Famine Relief as well as an Ordnance Surveyor. Wilde was internationally renowned as a nose, eye and throat surgeon; he was also an antiquarian, an etymologist of the Irish language and the creator of vital statistics in Ireland. The people Mr. Andrews mentions—Young, Dobbs, Newenham—were interested in every aspect of Irish life. Dobbs and Newenham in particular were responsible for many 18th and early 19th century estimates of population.

The present-day Irish nation is almost completely unaware of the debt it owes to these eminent men of old, except in religion, politics and literature. It would be revealing to ask 100 university graduates to name three people eminent in Ireland in the 19th century other than in religion, politics or literature. It is high time that this situation should be rectified. A movement should be started to erect memorials in Dublin and other Irish towns to our distinguished men of old. What a Valhalla we could make of St. Stephen's Green and other Dublin squares! Our Valhalla should consist of those who have been inspired to do great work for Ireland, irrespective of their place of birth or origin.

Incidentally, the Society should be grateful to Mr. Andrews for having given us the correct version of Swift's famous remark in which it now appears that we were enjoined to refrain from using not only their coal, but English people themselves, as fuel.

The activities of Bórd na Móna, actual and potential, are of paramount importance for the nation in providing an alternative to coal as a domestic fuel, as a source of power in collaboration with the E.S.B. and less directly, but perhaps of even greater importance, in increasing the area of agricultural land and of afforestation so that some time in the future, in Mr. Andrews's vivid phrase, the Bog of Allen will become the Forest of Allen, thus reverting to its state in distant ages past. It is perhaps worth pointing out that since before the war the price of imported coal has multiplied by more than four while the price of our exports has multiplied by nearly three and a half. This means that in units of our exports we have to pay nearly one-fifth more for coal than before the war. With coal so expensive it is satisfactory to note that our imports of that commodity have fallen by one-third, and every effort should be made to effect further economies. The Dieselisation of C.I.E. will reduce coal imports by a further 200,000 tons. It is interesting to note that the price of fuel oil has multiplied by less than three since prewar so that, in terms of our exports, it has cheapened. Partly as a result, no doubt, the quantity of fuel oil imported in 1953 was $7\frac{1}{2}$ times the import in 1938.

It is a curious fact that Mr. Andrews's is the first paper dealing entirely with turf development in the Society's long history, though it is significant that we have recently had two other papers in which turf loomed large, namely Mr. R. F. Browne's and Mr. Donal Flood's, so that the Society has become turf-conscious in a big way.

To give my observations some appearance of relevance, I will conclude by referring to a few specific points in the papers:—

- (i) The lecturer states that the poverty in the western seaboard today is similar to that of 1807. I cannot accept this statement. The standard of living in rural Ireland generally is more than three times as high as it was in the 1840s, and it is very likely that the western seaboard shared in the general advance.
- (ii) The lecturer was a little impatient about the turbary rights of farmers. It is well to remember that in 1953 turf drawn from the bogs by farmers has been estimated at 3,100,000 tons as compared with some 700,000 tons produced by Bórd na Móna. It is noted that by 1961 Bórd na Móna plans to produce $2\frac{1}{2}$ million tons of milled peat per annum. I would ask the lecturer to state what the *total* production of turf will then be.
- (iii) The Central Statistics Office, like Bórd na Móna, has experienced considerable difficulties in the ascertainment of the total area of bog for agricultural statistics purposes. The present figure has been stated to be about 500,000 statute acres but it is a figure in which we have not had sufficient confidence to publish.

I have pleasure in proposing that the best thanks of the Society be accorded to Mr. Andrews for his excellent paper.

Mr. R. F. Browne said: This is an informative paper throughout which can be seen the patriotism, enthusiasm and energy of the writer. He wants so strongly a practical application. The objective is always the utilisation of native resources.

The paper summarises in a compact way the history of thoughts and ideas in regard to turf development, and, for this reason, is a valuable record.

The practical development which is controlled by the writer of the paper is a large and efficient organisation, showing in a very definite way how turf can be won economically.

The use of turf, or peat, for the generation of electricity is not new now. Stations have been erected at Portarlinton and Allenwood which have been very successful, and have not encountered any particular difficulties. The future will rely on peat in milled form, which has the advantage of involving a much smaller drainage of the bogs, and can be utilised with a moisture content as high as 55%.

Professor Hackett, supporting the vote of thanks to Mr. Andrews for his paper, congratulated him on the skill with which he had made his account of the precursors of Bórd na Móna into an attractive, human, and historical document. Mr. Andrews has commended the rapidity of the execution of the survey of Irish bogs under the Commission published in 1809-14. One may surmise that the moving spirit behind the work was Richard Griffith, Jun. It could only have been the energy and enthusiasm of a great organiser that could have triumphed over the obstacles presented by the lack of a complete survey of the country, the difficulties of communications and the scarcity of technical skill. Valuable material has been brought forward in the reporting of the work of Mr. J. Meadows in pushing forward the project of winning turf by maceration. Professor Johnson, living in retirement in Terenure, will hear with pleasure the notice taken of his survey on Irish peat published in 1899. With the setting up

of the Committee in 1917 to deal with Irish peat under the Department of Scientific and Industrial Research there should be associated the name of Professor John A. McClelland, the Irish representative on the Advisory Council of the Department. The recognition by Mr. Andrews of a group of men outside the political sphere deeply solicitous for the economic and social well-being of the nation is a notable conclusion to an outstanding paper.