

many, the adaptation of instruction to the circumstances and special needs of particular districts. It will probably be found necessary to form a special department for Irish industry, with a view to the development of the congested districts of the West and other poorer parts of the country; but for other purposes the powers of such central department should be restricted, as far as possible, to inspection and audit, and should not partake of an administrative character; the local direction of industrial instruction, where capital centres, as Dublin, Belfast, Cork, Derry, Waterford, Limerick, and Galway, exist, being left to such centres as the natural heads of their respective districts.\*

In conclusion I should state, that it does not appear to me to be advisable at present to put forward in detail any constructive scheme of technical education. The direction in which decentralisation is desirable has been indicated generally, but, until some agreement has been arrived at on the general question of centralisation or decentralisation, and the necessity for reorganisation of the South Kensington Department—a subject on which the public is as yet imperfectly informed—constructive details would only serve to divert discussion from the main issue of the question.†

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VI.—*Forestry in Ireland.* By W. F. Bailey, Barrister-at-Law,  
Legal Assistant Land Commissioner.

[Read Tuesday, 2nd July, 1889.]

I.—*The importance of the Forestry question in Ireland at the present time.*

IN view of the proposed extension of the Land Purchase Acts, the question of the protection and development of Forestry in Ireland is one of very great importance and interest to the entire community. The effect of transferring to the occupiers the ownership of their holdings has in this respect been up to the present overlooked. Those who have opportunities of travelling much through Ireland, must very quickly notice the result of such sales of farms as regards the plantations thereon. It is pitiable in many cases to see the occupier, as soon as he gets a conveyance executed to himself, proceed to cut down and sell any trees that may be on his holding. In some instances these trees were planted for ornament, in others to give shelter; but in most cases they have been placed on parts of the farm which otherwise would be waste and useless. Whatever was the purpose with which they were planted, the actual gain to

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\* A Technical School has been established in Dublin (1887), to which the Corporation contributes £500 a year, and a movement has recently been set on foot to found one in Limerick.

† As regards the mode in which state aid may be granted for technical instruction there is no difficulty in the way, as the government already recognises, in the grants to industrial schools as such, the principle of state contribution to schools for industry, unconditioned by any system of payments by results.

the occupier from clearing them away is in the majority of cases very small. Indeed, over and above the money obtained from the sale of the timber the benefit is nothing. The soil from which the plantation has been removed remains practically useless, while the shelter which it had afforded—in Ireland a very important consideration to the farmer—is gone.

I have noticed this denudation of timber on the Marquis of Bath's property in Monaghan, and on other estates in Ireland, which were lately sold to the tenants under Lord Ashbourne's Act. In view of the probable further extension of the Land Purchase Acts, it is worth consideration whether the legislature should not introduce provisions which would prevent purchasers from acting in a manner undoubtedly detrimental to the interests of the country at large. The attention devoted to the protection of woods and forests in almost all other civilised countries of the world, is in remarkable contrast to the apathy of the British legislature on the subject up to the present, while at the same time few countries are in this respect really more in need of the fostering care of the government.

Perhaps one cause why so much more attention has been paid to forestry in other European countries than in the British Isles, is that timber is of more importance to people on the continent for fuel purposes. In England the people can easily get abundant supplies of coal, and in Ireland of turf; consequently they do not need timber to the same extent. One thing, however, is certain as regards Ireland, which will tend to remove this difference in circumstances—namely, that the turbary supply of this country is rapidly diminishing, and that after a certain number of years the peasant will be driven to seek some other substitute for firing. The coal supply of the country is scanty and of inferior quality, while the cost after importing it from England would be a heavy tax on the resources of the Irish peasant. Most probably the time is not far distant when the people will be driven to planting trees for fuel purposes. But the growth of timber is not a matter of a day. It is slow, and requires system and care. From this point of view, if from no other, the cultivation of trees is of great importance to the future of the country.

## II.—*Comparison of the proportion of the area of Ireland under timber with that of other European countries.*

An examination of the physical and climatic characteristics of Ireland will point out the great advantages which the country would derive from the existence of woods, forests, and plantations. From the standpoint of the farmer, the presence of trees to protect his cattle from the winds and rain which prevail for considerable portions of the year, adds greatly to the value of his holding. Most authorities who have considered the subject have come to the conclusion, that the planting of much of the waste lands in the country would have a very beneficial effect on the drainage, rainfall, and climate generally of Ireland.

Notwithstanding the manifest advantages of trees to an island

situated as is Ireland, it is remarkable that it has a far smaller proportion of its soil under timber than any other country in Europe.

The soil of Ireland in the year 1881 was classified as follows:—

Cultivated (under crops and grass),	15,270,799	acres.
Uncultivated, ...	4,729,251	„
Woods and plantations, ...	328,703	„

Total area, . . . 20,328,753 statute acres.

From this we see that only 1.6 per cent of the total area of the country was under woods and forests, while over 23 per cent., or nearly one quarter of the country, is uncultivated. This latter description of land comprises bog and marsh, barren mountain, and otherwise waste lands, much of which however would be well suited for the cultivation of timber.

The proportion of land devoted to woods and plantations in Ireland, namely, 1.6 per cent., is much less than in any other part of the United Kingdom. In England upwards of 4.6 per cent. of the area is under woods and forests; in Scotland, 4.2 per cent.; and in Wales, 3.4 per cent. The area of the entire United Kingdom is 77,799,793 statute acres, of which 2,787,848 acres, or about 3.6 per cent., is under woods and forests. These figures show us how far behind the rest of the kingdom Ireland is, in the cultivation of timber.

The smallness of the proportion of the soil of Ireland under timber will stand out in still clearer relief, when we become acquainted with the fact that, with the exception of Denmark, the British Isles have less area under trees than any other country in Europe. This proportion in other European countries is as follows:—

Russia, ..	40 per cent.	France, ..	17 per cent.
Sweden, ..	34 „	Greece, ..	14 „
Norway, ..	29½ „	Spain, ..	7 „
Germany, ..	26 „	Belgium and Holland, 7 „	„
Turkey, ..	22 „	Portugal, ..	5 „
Switzerland, ..	18 „	Denmark, ..	3½ „

The area of all the European states taken together under woods and forests, is 29½ per cent. of the total area.\* These figures show us that Ireland is behind every other country in Europe in the extent of its area devoted to woods and forests, and that to a very remarkable degree.

The extent of land under woods in Ireland fell off very much in the ten years between 1841 and 1851. In the former year the acreage under timber was 374,482 acres, which ten years later had fallen to 304,906 acres. Since 1851, the area devoted to trees has slowly increased; but we are still forty or fifty thousand acres behind what we had under timber in 1841.†

\* See Essay on "Forestry in France," by Major F. Bailey, in the *Transactions of the Scottish Arboricultural Society*, vol. xi.

† See paper by Dr. Grimshaw, Registrar-General, on *Statistics of Waste Lands in Ireland*, read before the Statistical and Social Inquiry Society of Ireland, on 29th April, 1884.

Should the tendency noted at the commencement of this paper, on the part of purchasers of farms under the Land Purchase Acts, be given free rein, it is to be feared that the upward movement will relapse into a continued decrease in the area under plantations, a result which undoubtedly would be disastrous in its results, and which can only be restrained by special enactments on the part of the legislature.

### III.—*The Forestry Regulations of European States.*

Far too little attention has been paid in this country to the laws and regulations of the various European states for the protection and encouragement of forestry. Much information which would be of very great value to the inquirer who would seek to develop the cultivation of timber in Ireland, is to be obtained from the experience of other countries. A little over two years ago the Department of State, Washington, with that energy and enterprise which distinguishes the government of the United States, issued instructions to the consular offices of the republic, to inquire into, and report on the subject of forest culture and forest preservation in the district in which they were stationed. This was to be done with a view to framing forestry legislation for the home country, where the subject was considered of great and increasing importance. The reports sent in in response to these instructions contain very valuable information with respect to almost every European country, and throw much light on the methods therein adopted to protect and encourage the cultivation of timber.

### IV.—*Causes and Results of the Destruction of Forests.*

The causes of the destruction of forests, says Consul-General Juszen, writing of the Austrian empire, have been the same in the Old World as in the New. The greed of men, the desire of speedy gain, without reference to consequences, the want of judgment and knowledge as to cause and effect in the courses of nature and its developments, have razed and shorn the forests along the spurs of the Alps and the shores of the Mediterranean, with the merciless energy which has been displayed in this direction along the shores of American rivers and on the slopes of American mountains.

“The result,” he continues, “in a climatic direction, has, as a matter of course, been highly disastrous. The same region, which had been famous for its mild and temperate climate, has become changeable and unreliable, the mountain creeks have become dry, and the whole face of the country has been changed from a rich, fruitful, and salubrious climate, to an arid, sterile plain, interspersed with stony and parched hill-sides, populated by meagre sheep and goats, and their equally meagre owners.”

Consul-General Raine writing from Germany, says that many great countries which flourished in former times have, by the devastation or extermination of their forests, fallen into pauperism and cultural decrepitude. In consequence of the extirpation of forests on the Baltic coasts in the seventeenth and eighteenth centuries, the

sea coasts are unprotected, and villages where the farming population once lived in prosperity have fallen into ruins. In the central and eastern provinces of Germany, where the soil is level and light, swamps have appeared where previously forests covered the land, or absorbed the stagnating moisture. In northern Hanover, tracts of land formerly covered with woods, are now waste, offering nothing but a poor food to sheep, while the progressive formation of stones obstructs all endeavours to prepare arable land, or to reforest. In the western provinces, mountainous in their character, the removal of trees has destroyed the fertility of the high lands. Forests break no longer the violence of the storms, and the high moors develop, since their denudation, vapours and fogs which extensively destroy vegetation. Observations made in the forest schools of Germany tend to prove that woods moderate the extremes of temperature, and that such extremes of heat and cold do not occur in well wooded districts, as are to be observed in regions devoid of forests.\*

The causes and results of the destruction of forests in France have special significance for us in Ireland, connected intimately as that destruction has been with the creation of a peasant proprietary, such as is now taking place in Ireland.

“One effect of the French Revolution,” says Consul Mason of Marseilles, in his report, “was to divide the land throughout a large part of France among a greatly increased number of small peasant proprietors. They were poor, and compelled by circumstances to utilize every resource. If the few acres of a peasant were covered with forest, he cut the trees away, for the double reason that the timber was valuable and he needed the land for pasture. It was only after the trees were gone that he learned that the destruction of the forest entailed the ruin of the pasture that grew beneath its protecting boughs. The consequences have been disastrous throughout nearly the whole mountain region of south-eastern France. Hundred of thousands of acres of upland have become arid and barren wastes of plutonic earth, seamed by rugged chasms and gullies, which in the rainy season pour down torrents of mud and stones upon the fertile lands below, and fill the streams with sudden floods that devastate the valleys from mountain to sea.”

#### V.—*How re-forestation is effected and encouraged in the various European States.*

All the principal countries in Europe have special government departments devoted to the care of the woods and forests, and, as a rule, have also schools of forestry for the education and training of the officials entrusted with the work. These forestry departments not alone protect the existing trees but also give aid and encouragement to private owners who may wish to re-timber their lands.

In *France*, the government supplies tree-plants and seeds to land-owners, at only the cost of packing and transportation, and gives encouragement by the advice and suggestions of forestry officers. There are two special government schools of forestry in the country, one at Nancy (superior), and one at Barres (primary and secondary), each with carefully defined courses of study. Strict rules are enforced

\* Report of Consul Bischoff (Thuringia).

for the protection of state forests, while even private owners are not allowed to cut down and clear their woods without giving notice to the Forest Department, which can prohibit the clearance if the maintenance of the woods is desirable on public grounds. The central government has also the right to force the communal governments to drain their swamps and wastes, with a view to rendering them suitable either for cultivation or for the growth of trees, and when this is done advances of state funds may be made under special conditions to the local authorities.\*

In *Germany* one-third of the forests belong to the crown, one-sixth to local communities, and the remaining one-half to private owners. The administration of state forests is entrusted to the Minister of Agriculture, Domains (Public Estates), and Forests, under whom is a carefully organised department with local branches. There are, as in France, special academies for the instruction of persons who desire to enter this branch of the public service.

Under an Act of 1876, German communities are, under certain conditions, obliged to grow wood on such of their uncultivated lands as are not suitable for permanent agriculture or industrial purposes. The state, however, assists poorer communities by the contribution of funds towards the planting of such lands.†

In the *Austrian Empire* a similar system is adopted for the encouragement of forestry as has been described as existing in France and Germany. The cultivation and preservation of woods, and the administration of the forest laws, are entrusted to the Minister of Agriculture, under whom are various officers and inspectors. The Austrian forest inspector controls and commands private owners as to the manner and order in which they should cut their timber, as to the necessity of replanting, the preventing of waste, etc. In fact, the proprietor cannot exercise a single act of ownership except under the control and with the approval of the forest inspector. Forest schools have also been established, and the local communities are compelled to plant districts which would otherwise lie waste.‡

*Switzerland* has also a Federal Forest Department, and in each canton there is a Chief Forester under whom the entire administration is placed. Private interests are regulated to the extent of requiring a new planting wherever there is a clearing made. This, however, need not necessarily cover the same area as that on which the trees have been cut down. It is the duty of the Forest Department to give advice to owners of plantations, and point out the necessity of renewal, replanting, and maintenance of trees in the various districts. From time immemorial, almost all the mountain cantons possessed forest laws, but by a law of 1876 the Federal Government assumed control, and undertook the supervision of forests, and the forestry question is now regarded as a matter of paramount national importance.§

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\* Report of Consul Mason of Marseilles.

† Report of Consul-General Raime (Berlin).

‡ Report of Consul-General Jussen (Vienna).

§ Report of Consul-General Winchester (Berne).

In *Italy* the general supervision of forests belongs to a special bureau in the Ministry of Agriculture, Industry, and Commerce. The immediate supervision of forests belongs to the provincial Forest Committees, which consist of the prefect of the province, the forest inspector, an engineer nominated by the Minister of Agriculture, and three members nominated by the provincial council. There is a government forest school at Vallambrosa, in Tuscany—a place celebrated by Milton in the *Paradise Lost* for the number of its leaves. The provincial forest committees adopt regulations for the preservation of forests, and decide upon requests for the reduction of wooded areas into cultivated lands.

The forest laws of Italy contain various carefully framed regulations for the encouragement of planting, and the protection of the woods and trees on the lands within forest bounds.\*

#### VI.—*How Forestry should be protected and encouraged in Ireland.*

The first step which should be taken for the protection of timber in Ireland, is to provide against the wholesale destruction of such plantations as we have, a destruction with which we are threatened by the extension of the Land Purchase Acts. Provisions should be introduced into future acts prohibiting the cutting of trees without the permission of the Land Commission, or whatever government department may be entrusted with the duty of supervision. But more than this is required. Special legislation should be devised for the encouragement of planting, especially in those large and numerous districts of the country which now lie waste and useless. In the promised measures for the reform of the local government of the country, care should be taken to give power to the new local bodies to undertake the planting of waste lands, and for acquiring such lands as may be considered suitable and desirable for the cultivation of timber. Supervision over all lands so planted should be given to whatever central body is entrusted with the care of public works and government loans, and that body should also be given authority to suggest and compel the planting of trees, where such work would be for the benefit of the community at large.

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#### VII.—*Proceedings of the Statistical and Social Inquiry Society of Ireland.*

FORTY-SECOND SESSION.—FIRST MEETING.

[Tuesday, 27th November, 1888.]

The Society met at the Leinster Lecture Hall, 35 Molesworth-street, The President in the chair.

The President (Dr. Grimshaw) delivered his Inaugural Address, entitled "A Statistical Survey of Ireland from 1840 to 1888."

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\* Report of Consul-General Alden (Rome).