

THE IMPORTANCE OF FORESTRY IN NATIONAL PLANNING *

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I feel honoured, indeed, by the invitation which has brought me before this distinguished assembly. I come before you as a representative of a very important industry—namely that of Forestry. Forestry, in spite of much talk about it, seems to remain something of a mystery. This is very largely due to excessive emphasis being placed upon its romantic side. All industries have their romantic aspects, but forestry apparently more than most. It is my intention to-day to stress the more prosaic aspect of forestry—the economic or utilitarian aspect—firstly, because I feel that it is the aspect of forestry which ought to be stressed, and secondly, because I feel that that is the aspect which will appeal most to the members of the Rotary Club.

From the purely utilitarian point of view, what is a Forest and what is Forestry? From this point of view I would define a forest as a factory for the production of certain commodities essential for the well-being of man and for his existence at the general level of subsistence to which he has now attained. The plant of this factory consists of the land plus the trees growing thereon; the raw materials for the factory are certain elementary substances—very largely secured in gaseous form from the air, but partly also in liquid form and to a still less extent in the form of solutions of mineral elements from the soil; and the power or energy upon which the plant runs is the light of the sun. When one realises the immense variety of complicated chemical compounds which the forest produces, and the vast number of commercially useful substances which it provides, one begins to appreciate the extremely high efficiency of the forest as a factory.

Forestry is the business of managing this factory to the best advantage for the production of the greatest quantity of the most valuable or useful materials, while at the same time maintaining the equipment—that is, land plus trees—at the very highest rate of productivity of which it is capable.

At this point it might be well to interject that forestry differs in one very important respect from all other industries, without exception, including the most closely related industries of horticulture and agriculture, in that, in order to maintain the equipment at its highest productivity, it is necessary to keep in being a large mass of wood capital in the form of material, that is, timber, which does not differ in any way from the goods which the factory is producing. This wood capital, which may really be regarded as the factory proper and whose maintenance is essential for the very existence of the forest, constitutes a constant object of temptation to the commercial world. It is so easy to over-cut this wood capital and, in fact, to convert it all to the immediate use of the community on extremely plausible prettexts, but without the slightest consideration for the serious destruction of productive potential which that involves. It would be well if all timber merchants were to bear that in mind. Wholesale clear-cutting of any forest and especially of one at its highest rate of production, is, in the long run, just as harmful as the dropping of a block-buster on a motor-car factory or any other factory. It is worse, indeed, in one important respect, because a new motor-car factory could probably be rebuilt and be bigger and better in a few months, whereas to rebuild a forest takes anything from 50 to 100 years, and it is not likely to be so good as the last one.

The cardinal object of forestry is to provide for what is known as the "sustained yield" which is to say, to see that the amount of goods turned out of the factory in a given period of time does not exceed the productive capacity of the factory during the same period.

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In other words, the wood capital must not be reduced in any one year by a value greater than that by which it increases during that year.

Let us now consider what the goods are which the forest as a factory turns out. It would be inadvisable to burden your minds with too many figures and statistics, especially as they are not always very reliable in respect of forestry matters. It has, however, recently been calculated that for normal life each human being requires no fewer than 400 mature trees of average size. We are obviously not all able to grow and maintain a forest area large enough to provide these 400 trees, no matter how willing we may be to do so. We have, therefore, to rely on the forestry industry to do this for us, whether it is done here in this country or somewhere else on the earth's surface.

By far the most important produce of the forest is, of course, timber, which even in its natural state is exceedingly variable in respect of quality and characteristics, not only because of the great number of different tree species in the world, but also because of the differences within each species, due to varying growth conditions, age, etc. These variations make timber in its natural state suitable for a very wide range of commercial purposes.

Broadly speaking, as a result of recent progress in chemistry, there are now—if we except the charcoal industry—three main forms in which timber as a raw material for other industries reaches these industries. In the first place, it is employed in a form which has not been subject to conversion by chemical processes, that is, in its natural condition, which has made it useful from time immemorial for constructional work of all kinds, from ship-building and house-building to the building of match boxes. The timber when in this form is converted mechanically by being cut up into pieces of the required size and shape, either for immediate use, or the pieces are joined together again to form structures of all kinds—and I would include plywood and laminated beams, etc., in this category—in which, however, the natural internal structure of the timber itself remains unaltered. A modest few of the uses to which timber in this form is put are building construction of all kinds (some 75 millions of the inhabitants of the U.S.A. still live in wooden houses), ship and boat building (an ocean liner consumes over 40,000 cubic feet of wood in its construction), furniture making, with or without veneers, vehicle building, railway sleepers and waggon and carriage-making, telegraph and transmission poles, agricultural machine making, packing cases and wooden container making, mining timber of all kinds, fencing, firewood, musical instruments, sports goods, boot soles, peasticks, clothes pegs, pencils and toothpicks.

The second form in which timber as a raw material reaches other industries is after it has been put through a mechanical or chemical process which breaks it up and separates its structure out into the small fibres which compose it. It is then available in the form of wood-pulp for rebuilding and moulding into such important materials as paper of all kinds, cardboards, and, when mixed with other materials and subjected to compression, wall-boards of various kinds, an improved type of plywood, and a wide range of so-called plastic substances, from which many small fittings are made, the number of which constantly grows.

The third, and what will probably eventually prove to be the most important form of all is that in which the timber as a raw material will reach other industries and enter new markets in the nature of various materials derived by the conversion of the wood substance through chemical action. That is to say, the wood is used as a chemical raw material and this use is based on the possibility of further converting the cellulose of the fibres and other components of the wood into certain synthetic compounds. Some of these are already important commercial commodities, for example, rayon or acetate silk, cell-wool for use as a textile, photographic films, cellophane, artificial sausage skins, glycerine, artificial camphor, wood alcohol, acetone, turpentine, etc., while prospects have opened for the manufacture from timber as a raw material of artificial glass, rubber, soap, sugar, molasses, yeast and animal fodder. No wonder that wood has recently been declared to be the scarcest raw material—and the universal raw material.

One feature of first-class importance concerning the third form of usage just described is that it can be applied to the sawdust and small waste material which in the first or original form of timber usage has been estimated to amount on the average to fifty per cent of the whole tree. For the second and third forms of usage the technical qualities of timber for which it is so highly prized when used mechanically are of very little importance, as the timber is either ground or converted into small particles and the qualities of toughness, strength, elasticity, straight and even grain, durability, etc., cease to be of major importance. An inferior quality of timber can thus be utilised. This is of some considerable importance in this country, where the production of softwood timber in quantity is much easier than producing it in quality.

I have dealt at some length with the variety of purposes for which timber as a raw material is suited, mainly with the object of showing how the number of its uses has steadily increased and is steadily increasing. One sometimes hears it suggested that there will be less demand for timber in the future, as it must be replaced to a great extent by other substances, such as steel and cement. Experience has shown, however, in the past, that in spite of the substitution of steel and cement in constructional work, both in house and ship building, the all-over demand for timber in these same industries has increased. A vast amount of timber of new kinds and forms has come into use for interior decoration, etc., in these industries. In the period preceding the emergency the consumption of all forms of timber and timber products, especially of paper goods, throughout the world was rapidly increasing. Between 1911 and 1929, that is in 18 years, the demand for artificial silk in the U.S.A. increased by 60 times. In the same country the demand for newsprint has increased by 2,000 times in the past 125 years. In the U.S.S.R. the plywood industry has increased by six times since 1913, and the Soviet mining industry has increased by 5 times in the same period.

In the period following the emergency it is as certain as anything can be that the demands for timber and forest products will continue to expand, first of all, on account of the vast amount of constructional timber needed to make good the damage to buildings and dwellings in Europe and elsewhere; secondly, to make up for the building which has had to be postponed everywhere owing to war, and thirdly, because it is to be expected that certain hitherto little developed countries, the Soviet Union, for instance, will show the same tempo of industrial development as has been displayed by the United States in the past century, and this must inevitably result in the making of vast demands upon the forests.

Hence, it is abundantly clear that there will be considerable competition after the emergency for the supplies of available timber. Countries with an excess of timber or which could increase their exports over their pre-war figures are very few indeed. Countries like Great Britain, Germany, Italy, Holland, Spain, and even the United States are already great importers. Countries like Sweden and Finland have now reached the limit of the cut possible under sustained yield. Probably Canada and the Soviet Union are the only two countries capable of increasing their softwood timber cut and exports over prewar figures. Incidentally, the position of the U.S.S.R. in this respect should be particularly strong as within the Union stands one quarter of the total forest area of the world, two-thirds of it consisting of softwoods, and the Russians appear to be fully determined not to follow the bad example of America in allowing the wholesale destruction of the natural forests. The U.S.S.R. has included forestry in its national planning as one of the most important industries, and the planning appears to be on the soundest of forestry lines. In one forest zone alone the Soviet Union has planted in 12 years a total of 2,625,000 acres, or over 200,000 acres a year. In 1938 the massive total of 573,700 acres was planted—in one year alone. During the forty years of its existence the U.S.A. Federal Forestry Administration has planted very much less.

From what I have said I feel certain that everyone here would subscribe to the view that in the national planning of any country, and of this country in particular, it is important that every effort should be made to build up the industry of forestry to the fullest extent possible, because it is clear that even if the timber famine, which has so often

been predicted for more than a century at least, is not realised—and I am not predicting it now—the heavy, world-wide demand for forest produce must greatly enhance the value of the forest and from a national point of view alter the former relationship between forestry and the other land-using industries to the advantage of forestry. This must make it desirable to grow as much as possible of the home requirements of timber and forest produce internally. Forestry must, therefore, have an important place in national planning, as one of the important users of the national resources for the production of essential raw materials.

I believe there is widespread and general agreement with that point of view, to judge from the disappointment which is often expressed at what is considered to be the failure of governments to deal with the problem. It is one thing, however, to have an idea, but it is another to put it into effect. This is especially true in a country with such an old established civilization as Ireland, when the idea is one which is concerned with the use of the land. The fact has to be faced that all the land in this country is in the ownership or occupancy of some individual or corporate body, who must be presumed to be utilizing it for some purpose. The fact has also to be faced that the land is divided up, probably to a degree unparalleled elsewhere, into innumerable small farms and holdings. When these sub-divisions were made unfortunately forestry was of little consequence and secured no consideration. Consequently the land area better suited for forestry than for farming, and which, in a new country, like Australia, could have been definitely set aside for forestry purposes, was nearly all divided up, largely for attachment to farms or, what is worse, converted into commonages, upon which a number of farmers obtained grazing or other rights. That is a situation which makes the development of large-scale afforestation—and afforestation is merely the process of building forest factories—extremely difficult.

Consequently, the best has to be made of the position by scaling down the size of the forests and by establishing them widely over the country in the hope that the normal processes of land acquisition of small areas which can be attached to existing forests will ultimately result in the conversion to forestry use of all land suited for forestry and less valuable economically for agriculture.

The only other possible course, and it is sometimes suggested, is to apply compulsion, which means in effect taking land from the present owners or depriving the owners of grazing and other rights of these rights in order to make land available for forestry. These people have not only to be adequately compensated, but in many cases have to be given an alternative means of living. The seizure of the grazing land and commonages attached to holdings will usually leave the remaining arable areas uneconomic and will certainly cause distress. Then again, the payment of excessive compensation when acquiring land for forestry purposes might easily upset all the land values in the country.

It seems essential, therefore, in any national forestry plan to avoid any drastic dislocation of the existing rural economy and land values and to continue trying to acquire quietly and as expeditiously as possible all areas of waste land definitely capable of growing trees, but which other land users are prepared to part with at a reasonable price.

It is unfortunate in some ways that forestry is not adapted for private enterprise, at least where the process of afforestation or building up the forest has first to be undertaken. There is little enthusiasm on the part of private enterprise to promote forestry for the simple reason that there is no return on invested capital for a long period of years. Nevertheless, private enterprise is still capable of helping by planting quite small areas of waste land on farms and estates, not better suited for farming purposes. In the aggregate these could amount to a considerable area and the existence of woods has other important advantages besides that of producing commercial commodities. Their aesthetic value for example, especially in a flat country, is very important.

Leaving statistics for private forests out of account, as they are not very reliable, the land area so far acquired by the State for forestry

purposes in this country amounts to over 156,000 acres, of which 112,000 acres are now covered with satisfactory woods and plantations. The number of forests is 118, averaging about 1,500 acres each. Some of the purchased woods are between 50 and 100 years old, and the oldest State plantations will soon be 40. The time is relatively not far ahead when the State Forest Service will be faced with another very difficult problem, and that is the large-scale marketing of the produce. This will not be easy until the annual production becomes considerable. It will be impossible to dispose of all the material produced in local rural markets. It would, therefore, be invaluable if manufacturers and business men in the larger cities were to be mindful in the future of the help which the existing woodlands have provided during the present emergency—and could provide in future emergencies—and were to make a point of encouraging the use in every way possible, however small, of home-grown forest produce.

From a forestry point of view it is unfortunate that over one-third of the population of the country lives in 10 seaport towns, to which the transport of such a bulky commodity as timber by sea is relatively easier than its delivery overland. This means that these urban populations are not so fully aware of the possibility of obtaining some, at least of their requirements—of timber, for example—from the interior of the country, as they might be. Their interest in forestry is usually more academic than practical. I hope my address to you will have done something to encourage you to believe that forestry is of very considerable importance in the planning of the national economy, not only to the rural population, but also to the urban communities, and that it will be much more so in future.
