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Forestry in Northwestern Europe

Some Train-Window Observations

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ON their first trip to Europe most people attempt to cover too much territory in a short time. If one undertakes, as I did, to visit seven countries of northwestern Europe in six weeks, he must expect to be traveling on trains or buses and sleeping in hotels most of the time. This is true in spite of the comparatively short distances in Europe. When it is further considered that only five out of the forty-two days spent in Europe were rainless; that at least fifteen eight- or nine-hour days were spent in the art, antique, souvenir, and apparel shops; and that an equal amount of time was devoted to visiting friends and acquaintances and just plain sight-seeing, it will probably be appreciated that in my initial visit to Europe I had to be content to a considerable degree with studying the famous European forests from train-windows.

We foresters know from our training that we may obtain a general idea of forest conditions by making an extensive survey by automobile. Such a survey may also be made from a train-window, and this was the kind I attempted in England, Switzerland, Belgium, and France. But we foresters also know that an extensive survey which is supplemented by an adequate number of sample plots will yield accurate information. I did manage to stop for a few sample plots in Germany, Denmark, and Sweden; and, while the sample has not been tested statistically for adequacy, the following description based on it is given for what it may be worth.

I WAS quite surprised that my own preconceived notion about the appearance of the forests of Germany was very nearly correct. Our study of forestry, particularly of the silvi-

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cultural aspects, gives us a rather accurate picture of the German forests. Hence, when we see the real thing we are neither disappointed nor surprised. I expected to see extremely well-stocked, practically pure, even-aged stands of pine and spruce occurring in rectangular steps from one age class to another, and I saw many such stands. They are orderly and neat, like the German people themselves.

I received one severe shock, however, I had been told that the Scotch pine never exhibited the crooked form in Europe which is characteristic of the same species when planted in the United States. This belief proved to be unfounded many times. While most of the trees in a stand of European pine are tall and straight, those on the periphery of each age class group are almost invariably of poor form. The reason is, of course, that if this species is grown in dense stands it is straight; if grown in the open it is crooked. Since most of the Scotch pines seen in this country grow in the open, most of them have poor form.

NOT ALL of the German forests are made up of pure stands, however. Not only have such stands been found to be susceptible to insect attack, but successive production of a single species on the same site tends to lower the productive capacity of that site. The Prussian forester, therefore, points with pride to the new Dauerwald, which will not deteriorate the site; hence its name, "permanent or enduring forest." The Bavarian forester, however, claims that the Dauerwald is no new thing in Southern Germany. In support of this contention I was shown several fine stands of mixed pine, spruce, and beech. The beech is planted in openings, and each group is fenced during early life to prevent browsing by deer. Incidentally, it is interesting to note that in Germany even less has been done in wildlife management than in the United States. One would expect that in the management of the forests some provisions for food and habitat would have been accorded the game, since the chase actually furnished the original motive for forestry. Instead, the forest is merely protected from the deer and other big game.

The most impressive thing in Germany, to me, was the land use pattern of the country. There is much that we can learn from the Germans, as well as from the Danes, the Swedes, and the Swiss, in this respect. Nearly every farm in each of these countries has a well-managed woodlot, which
usually occupies the steep slopes. The gradual slopes are devoted to properly grazed pastures, and only the most level areas are in field crops. It is significant that in Germany the proportion of forest area to the total land area has varied but little over a period of more than thirty years. This is true in spite of the fact that during and after the World War the urge to clear the forests and produce much-needed agricultural crops must have been exceedingly great. Such a condition is good evidence of a stabilized land-use pattern which appears to be an established institution. It is also significant that soil erosion is practically unheard of on the German farms.

Norway Spruce, Managed on a 100-year Rotation in Germany.

IN DENMARK, also, farm forestry proved to be extremely interesting. Here I was forced to cast aside another old belief. Most of us have been taught that small areas of forest cannot be managed efficiently. Yet some of the best beech forests in the world are grown in small farm woodlots in Denmark. When we stop to consider the matter, we must realize that small farm forests can actually be managed more efficiently than large tracts whose owners are not able to give them first-hand attention. Farmers are able to accord their forests better protection, and they can exercise more care in selecting trees for cutting. Denmark furnishes outstanding evidence that farmers can be good foresters. Originally the
Danish farmers were educated in the application of good silvicu­
tural practices; now the use of these practices is purely second nature to them. The consequence is that several generations of Danish farmers have considered forestry as an integral part of agriculture.

One paragraph does not in the least do justice to forestry in Denmark, but unfortunately the sample taken in this interesting little country was too small to permit anything but a general description of farm forestry. In other words, the sample can not be considered as representative of the numerous activities of the Danes in forestry. From train-window observations, however, it is safe to say that many of the more detailed forestry measures which are described for Sweden are to be found also in Denmark.

SWEDEN was the country of surprises not only from the standpoint of forestry but also from the standpoint of almost any other field. Many American economists have marveld at the success of Sweden’s “middle way.” But I shall have to confine my remarks to the forestry developments; furthermore, they will be restricted to conditions in the southern tip of the Scandinavian peninsula (Göta­land) since this was the only portion intensively sampled, or even extensively examined from the very comfortable seats of the all-electric Svenska Statsbanor (Swedish state railways).

Southern Sweden reminded me of the most beautiful sections of our northern Lake states. The topography is flat to rolling, and the landscape is dotted with numerous rather small farms. Even in the best agricultural sections, however, a goodly portion of the land is devoted to the growing of forests; indeed, forestry is the dominant industry on a large part of Sweden’s area. The timber and pulpwood industries are of major importance, and since 1905 forestry has been supplying raw materials for these enterprises on a permanent basis.

The Swedish Forest Conservation Law, passed in 1903, is largely responsible for the permanency of Swedish forestry. This regulatory law is perhaps the wisest and most successful of its kind in the world. It contains no stipulations of diameter or age limit for cutting, but merely states that forest land must be kept in a “productive” condition. The decision as to what is meant by a productive condition is left to conservation boards on which the state and local governments and the private owners are represented. Public opinion in support of
this law has been obtained by judicious enforcement, with the result that at present there are relatively few violations.

The forests of southern Sweden consist principally of comparatively young stands of Scotch pine and Norway spruce, occasionally occurring in pure stands, but more often in mixture. Oftentimes there is an admixture of hardwoods, principally birch. When I say that the stands are young, I do not mean that they are not merchantable. On the contrary, many of them are now being cut; and all age classes are represented, from young seedlings to 100 year old sawtimber, with occasional stands up to 200 years of age.

A group of Pine and Spruce Seed Trees in a cutover area in Southern Sweden. Note the growth on the Natural Spruce Reproduction.

In some respects Swedish forestry is similar to the German variety, but in other ways it is very different. It is what we in America would call intensive, yet it is not so intensive as German forestry. Simple rather than complex silvicultural systems are employed in Sweden. In fact, practically the same systems are used in Sweden as have been attempted in

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the United States. The prevalent method is the leaving of seed trees, either singly or in groups. Where these methods are unsuccessful they are supplanted by artificial means of regeneration.

![Artificial Seeding](image)

*Artificial Seeding after only partially successful Natural Methods in a cutover area in Southern Sweden.*

**SWEDISH** foresters do not become discouraged when their natural systems of regeneration are unsuccessful. If reproduction is not established in a reasonable time, or if a good stand is not obtained, artificial methods are used to fill in the blanks. The result is illustrated in the photograph of the cutover area with the scattered seedlings. The seed trees, whose boles are seen in the background, had only partially regenerated the area. Most of the seedlings in the foreground were artificially established.

The Swedish system of artificial reforestation was a revelation. I did not see many of such operations, but if my small sample is any criterion the use of nursery-grown stock is rare. Direct seeding, we should perhaps call it spot seeding, is the established method. These seed spots are irregularly spaced and do not occur in rows in any direction. The aim of the Swedish forester is to cause the new stand to appear as natural as possible. He is not disappointed, therefore, if he does not
get a high percent of survival; such a condition merely gives him an opportunity to seed-in the fail places later, a procedure which will result in an even more natural-appearing stand. The seeding of mixtures is common, and this gives the operation another touch of nature. The contrast is striking between such a plantation and those generally found in Germany and in the United States. The meticulous regularity of the young American and German plantation probably appeals more to the aesthetic in us than does the young Swedish stand pictured here. But the Swedes are anticipating a mature stand like the one in the first picture, and it must be admitted that their taste and foresight should be admired.

THE improvement of growing conditions in the extensive swamp forest areas by drainage is another significant contribution of the Swedish foresters. They have demonstrated the utility and practicability of a network of closely-spaced, shallow drainage ditches for the purpose of accelerating increment. In the illustration the forester is Herr Karl Malmberg, an uncle of mine by marriage, to whom I am greatly indebted.
for the information gained from several trips with him through the forests of Smäland.

In Sweden the important steps in forestry were taken at a much later date than in many other countries, but perhaps no other nation has made such rapid strides during the past quarter century. During that time it has built up its forest resources from the point where shortages had begun to be felt to their present efficient and wise management on a permanent basis. This is not only true with the commercial timber resources but also with the other resources dependent upon the forest. Wildlife, even big game, abounds in practically all regions of Sweden. The Swedes have also capitalized on their many beautiful timber-bordered lakes in a recreational way. They have used forests efficiently in their land use program, and long ago recognized their value for soil and water conservation. Indeed, multiple-use management of forests is nowhere better exemplified than in this country where the forests serve all public and private purposes.

It is not intended that the foregoing notes should adequately describe forestry conditions in northwestern Europe. They merely represent an extensive survey such as may be obtained from train-window observations and a few brief stop-overs. It is hoped, however, that they may stimulate a desire to study forestry more intensively in some of these countries. A mutual interchange of ideas between nations can do much to advance sound and practicable forestry measures throughout the world.

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Herr Karl Malmberg, Swedish Forester, beside a drainage ditch in a former Swamp Forest Area in Southern Sweden.

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