

# THE FOREST\*

By FORESTMEISTER K. SCHERER

LADIES and gentlemen, what is the forest? An assembly of trees? Not quite, because a plantation of fruit trees cannot be regarded as forest. The forest is more than a collection of trees; it is a natural form of life, a union of plants and animals comprising long-living trees and short-living plants and animals. Warmth, humidity and light produce, by changing of the constitution of the soil, the elements for the growing of the forest and these factors cannot be altered much by man with all his technical knowledge. High in the air the forest sends its branches, its leaves and blossoms, deep in the soil its roots. Storey over storey the forest builds itself above the surface of the ground. Below this surface is the habitat of fungi; on the surface is lying quietly the carpet of the mosses, interwoven with grasses and ferns, flowers and herbs; above these the bushes and over these again the trees, the crowns of which form a roof. In this way the whole space, from the finest root to the topmost branch of the crown, is filled with life of different kinds and all these plants and animals belong to the forest as a part of its unity. Each part has a certain significance in the frame of the whole. All that air and light, soil and humidity can give, is caught and transformed. All herbs and flowers which die year by year, all waste materials from the trees in the form of leaves and needles, all fruit and dead wood are the raw material whose transformation is carried out by fungi and protozoa. All assimilation of food is nothing other than the transforming of different kinds of matter into new elements.

In this way one helps the other—from life comes death and from death comes life. Out of the unity of the smallest plants and animals in the soil comes the mighty family of tree giants. Great and small lose their significance. Each part is needed; one cannot live without the other. Individuals may perish but the unit remains eternally young and eternally in permanent renewal. Birth and death no longer appear as enemies, one fighting the other, but as necessary complements to one another. In this way the ever enduring forest is founded on birth and death.

And now to the natural construction of the forest. As I said before, soil, light, moisture and warmth are necessary for the growth of the forest, although there are many different influences varying the single factors.

For different parts of the country one finds different climatological conditions and when one combines those with the different soils it can be understood that everywhere the primeval forest and the forest of the present day look different because different trees make different demands on soil and climate and they grow differently, depending on the degree of suitability of these factors. For instance,

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the Scots pine likes dry warmth, the Norway spruce likes to drink a little more and the fir that one finds in the Black Forest in Germany is really a heavy drinker because the optimum rainfall for this species is 1,000 mm. (40 ins.).

The European larch, which comes from the Alps and foothills of those mountains, likes a short sudden Spring. The beech is at its best on limestone soils.

Now for some details of the history of German forests. Long before man settled in my country our wood trees of the present day colonized it following on the last Ice Age after a much earlier tropical forest covered the country in the carboniferous period. In this manner the vegetation came at first as it can still be seen in the high mountains, such as the lichens and mosses, later little bushes, then the light seeded species such as willow, aspen and birch, and much later came the heavy-seeded species such as beech and oak, the seeds of which were transported by water or birds.

One must not imagine those primeval forests as being the same as the forests of to-day, not even as the layman used to imagine the tropical jungle. Rather should one think of a lightly-stocked wood carrying several age classes comprising single trees and groups of trees, and interspersed by patches of bracken, grasses and other herbaceous vegetation. One can tell to-day exactly the species that constituted those early forests because the plots preserved the pollen of the various species in the intervening period. The pollen of each species is different and is easily recognizable under the microscope. Different types of forest developed according to the climate and soil. These, however, disappeared as a result of cultivation and the artificial introduction of other species, mainly conifers from foreign countries. But here and there the remnants of those primeval forests are still recognizable.

With the advent of man in our country nothing changed in the first thousands of years. Our ancestors merely moved through the country as hunters and fishers. The country was so thinly populated that there were no remarkable influences on the forest. Later, when the population became more dense, they converted the most fertile forest soils of the valleys into agricultural fields, an event that was repeated in 1800 in U.S.A. The result is that in Germany to-day only the areas unsuitable for agriculture are covered with forest. It is interesting that up to 1400 A.D. there were not any woods in private hands, the forest belonged to the people, the grazing of the forest for cows and pigs seemed more important than the timber and especially the landlords were more interested in the hunting than in the timber products. In 1500 that changed and, naturally, at first, in the most thickly populated parts of the country. At that time regulations concerning the forests were made. In some parts forest companies were formed and the landlords took as much as they could get, mainly for the purpose of hunting. At about 1650 all

boundaries of properties were fixed. At that time there was anxiety concerning the supplies of timber for fuel and constructional purposes and a regular forest service was formed. From that time onwards the face of the natural forest was changed by the hand of man.

Artificial seeding and planting was carried out, new species were introduced, especially conifers of higher commercial value. Large areas of broad-leaved forest were converted into coniferous forest by the planting of these species. These conifers comprised Scots pine, Norway spruce, European larch and Silver fir. Since 1850 one can speak of a regulated forestry service in all parts of Germany; that means

- (1) That the forest was broken up into compartments of approximately forty-five to seventy acres for management and administrative purposes.
- (2) Roads for extraction purposes were planned and constructed.
- (3) An assessment of the volume of the standing timber was made at regular intervals of twenty years.
- (4) Assessment of the annual increase and, depending on this, the fixing of the quantities to be cut annually.
- (5) Systematic afforestation of all understocked areas.
- (6) Regular thinning of young and middle-aged crops.

The modern forest that one sees is not the product of nature unaided but is the result of the application by man of up-to-date forestry knowledge, the object of which is to extract the greatest amount of wealth from the soil and to ensure a sustained yield of timber, which latter means that the quantity of timber felled each year is not greater than the annual growth of timber in the area treated. Foresters do not think in terms of one or two years as farmers do, but rather in terms of periods of sixty to 120 years, which is the average length of a rotation. For this reason the forester never cuts the trees which he plants.

The changes which are brought about in the natural forest by man have their attendant dangers, especially if, in the German climate, the artificial forest is composed of pure stands of a single coniferous species. The dangers are soil degradation and the vulnerability of such pure crops to attacks by insects and disease. So by the work of man in the formation of new forests the products from the forest soil can be considerably stepped up but the danger that the equilibrium of the powers of nature are upset is very great. The forest is not a timber factory, nor a field of stems, but a living organism reacting very unfavourably to wrong treatment. Often in the modern forest the natural order is disturbed, falsified, interrupted and a human order is introduced so one must watch steadily lest damage should result.

If there is an attack by beetles or caterpillars in the forest sometimes, nowadays, control measures consist of the use of dangerous poisons which kill the offending insects but those poisons kill at the same time, millions of useful insects and again disturb the balance of nature. Therefore, in spite of the advertising by the chemical industries, the use of these poisons in the forest is only resorted to if the existence of the forest is greatly endangered.

West Germany has fifty-eight million acres of agricultural and forest area. Of this area 28 % is forest. The greatest concentration is in the province of Hessen, which has 38 % of the total area of German forests. 30 % is State owned, 30 % is corporation forest and 40 % is in the hands of private individuals. The forest provides for the national economy each year 800 million cubic feet of timber. This quantity comprises 60 % construction timber, 20 % mine props and pulpwood, and 20 % fuel.

During the exploitation fellings of 1947 the quantity cut was double the increase in new growth which meant the destruction of part of the producing wood capital. But we can be proud that all areas devastated between 1936 and 1948 have now been replanted and all areas are again in full production.

The timber which is cut annually is valued at £100 million but this is not the only significance of the forest. In addition the game is worth several millions and for the hunting rights hundreds of thousands of pounds go into the coffers of the communities. Berries and fungi are produced in the forest as well as resin. The benefits from the forest which cannot be expressed in terms of money are the amelioration of the climate by the prevention of extremes. It acts as a wind break, it purifies the air which is charged with carbon-dioxide from the industrial areas, it holds the water like a sponge in times of high rainfall and gives back this water through the wells and transpiration through its leaves in dry weather.

For example, Italy had a moderate climate as long as the Appenines were covered with forests, but when they were cut the climate deteriorated to the extremes. Forests prevent soil erosion on steep slopes; therefore whole areas are declared as banned forests especially in the Alps.

In our forests about 200,000 woodcutters are employed. Forestry work, especially woodcutting, is, next to coal mining, the most exacting occupation with regard to calorie consumption. Most of the cutting is done by the piece-work system and by this method the average earnings per man-hour is between two-and-a-half and three shillings.

Ladies and gentlemen, that is our German Forest; tree, bush, moss, lichen, worm, bird and stag, light and shadow, sun and rain, movement and quietness. Although master and friend of all, sometimes man is its enemy. In the interplay of the different inherent

factors and abilities the forest lives and renews itself, unity in multitudes. As soon as any single part gets the upper hand the total life is disturbed and the further existence endangered. It is a quality of nature that anything that suits it breathes beauty, anything that is contrary will be destroyed by it. The work of man must foster the interior growth of the forest. On the difference of the single members of the forest and their harmonious living depends the health of the whole. Equality does not conduce to life, rather does it lead to stagnation and death. That applies not only to trees but to people as well.