WAR IMPRESSIONS OF SOME WOODS IN SOUTHERN ENGLAND.

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"The high part to the South-west consists of a vast hill of chalk rising three hundred feet above the village; and is divided into a sheep down, the high wood, and a long hanging wood called the Hanger. The covert of this eminence is altogether beech, the most lovely of all forest trees . . . ."

*Gilbert White, 1788.*

In spite of the widespread destruction of the old woods of the picturesque English countryside, to produce the timber which is more urgently needed and more difficult to get now than at any other time in English history, it is still possible to look at these fast disappearing woods through ecological eyes; to reconstruct their past history, to visualize them as they must have been before the inroads of man, and to picture the trend of their development under the present forest policy of England. The woods of two Southern counties where a New Zealand Forestry Company of the 2nd N.Z.E.F. have been set to work, make a particularly interesting study in that they represent some of the last semi-natural phases of the original forest vegetation. Should the war continue for a few more years most of them will probably disappear and be replaced, to a large extent, by species exotic to the district.

One detachment of the Company is working mainly in beech (*Fagus sylvatica*) on the chalk hills where the woods are known traditionally as "hangers." Another detachment is operating in woods of chestnut (*Castanea sativa*), oak (*Quercus petraea*) and ash (*Fraxinus excelsior*), mixed or pure, on valley and river gravel soils at the foot of the chalk downs. These woods display the various phases—interfered with to a great extent by man—in the development towards a pure beech association, which association once covered the greater part of the extensive chalk belt in the south of England. In both counties beech hangers are a very typical feature of the countryside, and represent the last remains of this association. They consist of almost pure beech woods remaining on steep-sided valleys, where a shallow residual soil (*rendizna*) overlies chalk. These hangers have survived because the country has been somewhat steep to convert to agricultural purposes; and the tree species have not undergone any great changes because these residual woods have been preserved from original forest, generally as game preserves.

The largest hanger at present being worked is about 36 acres in extent and is of almost pure beech. The trees are moderately well grown, but do not quite reach the proportions of trees growing on the deeper soils of more gentle country. The trees, averaging about
110 ft. in height, form a closed canopy. The largest trees have a d.b.h. of about 30 ins., but the average is 18 ins. to 24 ins. The approximate age is 150 years, and they are just about at the right age of maturity for saw timber. Boles are clean and fairly straight with merchantable boles in some cases up to 70 ft.—logs are sawn down to 6 ins. to 8 ins. diameter. Crowns are well developed and large where there is enough space. Amongst these slender, more or less even aged trees, are occasional older "wolf" trees, with low branching, excessively spreading crowns. These evidently belong to the previous generation and have been the parent seed trees of the present wood. There are occasional ash, belonging to the same storey as the beech. They are generally more slender, frequently hollow boled, and are a natural component of the beech association, but belong to a state in succession prior to pure beech. Shade cast by the closed canopy of the beech is so dense that under-storeys are very poorly developed. Scattered yew (Taxus baccata), holly (Ilex aquifolium) and occasional shrubs such as privet (Ligustrum vulgare), elder (Sambucus nigra), spindle tree (Euonymus europaeus) and the creeper ivy (Hedera helix) are present. Ground floor vegetation is sparse, partly because of the lack of light and partly because of the lack of moisture. In this locality beech appears to be a surface rooter and thoroughly exploits, with masses of roots, the shallow soil. What ground flora there is is highly specialised, and consists mainly of dog’s mercury (Mercurialis perennis) which vegetates before the beech leaves appear in spring. Other species present include ivy, violets, and wild strawberry.

At present there is a marked absence of beech regeneration. It possibly cannot survive until the canopy becomes more open. With the condition of sufficient light fulfilled, the survival of beech regeneration depends upon the abundance of seed produced in seed years. Upon this matter Tansley (The British Islands and their Vegetation) writes:—"When the formation of a gap coincides with a full-mast year regeneration takes place much more readily and certainly, because the gaps will be much more fully seeded and because there will not be time for a serious competitor, such as Rubus, to fill the gap with luxuriant growth before the beech seedlings can establish themselves . . . . ."

This brief description of a beech hanger represents a climatic climax for vegetation on the shallow chalk soils of the south of England. The developmental phases are chalk-land grass—a fescue grassland with a highly specialised herb flora—hawthorn scrub, ash-beech, and finally beech. In this locality also is a fine example of the hawthorn stage, with dominant hawthorn accompanied by privet, sloe-blackthorn (Prunus spinosa), spindle tree and other less constant shrubs, with beech seedlings entering the association.

At the foot of the beech hanger described above was a small belt of spruce (Picea excelsa) of approximately the same age as the main
OAK STANDARDS OVER CHESTNUT Coppice.

War Impressions of Some Woods of Southern England
body of beech, and of much the same size and height. Nearly all these trees had a certain amount of heart-rot at the base. This is evidently a common thing in spruce in this part of the country, as here it is South of its optimum habitat.

At the top of the hanger where the country becomes more or less flat and the soil much deeper, the wood abruptly changes to a hazel coppice with oak standards. Beech is still climax on this deeper plateau soil derived from chalk and the hazel, with oak, represents a phase in the series, permanently arrested by forest management.

Another wood which is being exploited consists of climax beech on the plateau soils. The soil was a brown earth 18 ins. to 24 ins. deep, with a slight tendency to podsolization and produced beech at its best. Trees were straight and clean-boled reaching 140 ft., with an average d.b.h. of 2 ft. to 3 ft. Ground vegetation consisted of bramble—the most typical small plant of this association—scilla (Scilla nonscripta), and dog's mercury. Selected trees from this wood were felled for conversion into rifle butts, the bottom log only being used for this purpose.

Other woods for exploitation in this district consist mainly of larch. One wood has been planted on a hanger site with a more gentle slope than usual, and has done very well. These larch plantations are the forerunners of more extensive plantations of larch and Scots pine with which private owners and the Forestry Commission are gradually replacing cut-out beech woods.

Some of these exploited woods which have been acquired by the British Forestry Commission consist of oak, chestnut and ash, with or without coppice of hazel, chestnut or ash. There was also one area of several acres of Douglas fir. All these woods are on flat to gently sloping ground of valley and river gravel soils along the southern foothills of the chalk downs. They have undergone much better forest management than the beech hangers referred to, though they still embody large amounts of coppice; a form of wood that has long since been uneconomic to work even in England, where utilization is very complete.

The oak, chestnut and ash woods have at one time or another been coppice with oak standards. There are still some blocks of oak standards with chestnut or hazel coppice. The practice is to fell all the coppice before felling the standards. Some blocks consist of oak and chestnut trees, where the chestnut trees have grown from strong coppice shoots. These trees are approximately 60 years old and show good growth, being 15 ins. to 24 ins. d.b.h. The oak trees are over twice that age and not much larger.