

In the initial stages a good deal of Scots pine was planted on the upper slopes, but subsequently the use of this tree was abandoned, both on account of its unsuitability for the conditions and because of the damage done to it by black game. In general, the better soils have been planted with larch and Douglas fir, according to exposure, with a limited quantity of silver-fir and beech. The bulk of the ground, however, is only suited to spruce, and both the Sitka and the common spruces have been largely employed. The common spruce is, of course, very slow in establishing itself, and it is difficult to say at this stage how it will grow on the upper slopes. Much of the early planting was experimental in nature, particularly that relating to planting of peat on upturned turfs.

The first plantings were made in blocks of about 150 acres, which were treated as units for accounting purposes. The present system is to divide each block into compartments, bounded by natural topographical features or by permanent roads, and not exceeding about 30 acres in extent.

It is proposed in future to leave unplanted all ground of a doubtful nature, and for this purpose a detailed mapping of the soil is being carried on as opportunity permits. About 1,200 acres of plantable land have been mapped out on Barmaddy and Cruachan Farms in this way, and it is hoped that by the time planting of that has been completed sufficient data will be available to decide on the value of those large areas which in the state of existing knowledge are of doubtful nature.

Small Holdings.—The area of land on the estate which is adapted for the use of small holdings is strictly limited, but it is being scheduled for that purpose as planting proceeds. The policy which the Crown is following in this respect is to equip small holdings as they are wanted and as they can be placed to the advantage of the holder himself. The rapid multiplication of small holders is prevented, first, by the fact that considerable capital was sunk in bothy accommodation, in the first instance, in order to push on with planting operations; and, secondly, by the fact that there was very little ground in the immediate neighbourhood of planting operations.

The following buildings have been erected and were occupied at the end of 1912-13: Bothy at Cruachan; two cottages at Ford (occupied by nurseryman and handyman); cottage at Ford (converted into nursery bothy); cottage at Kilmaha (occupied by trapper).

Expenditure.—The chief items of expenditure directly applicable to afforestation operations to 31st March, 1914, are as follows: New works—Purchase of seeds and plants, £1,434; preparation of ground and planting, £1,814; fencing, £919; drainage, £435; erection and improvement of houses and buildings, £3,078. General maintenance—Killing vermin, £186; repairs to houses and buildings, £265; machinery and implements, £280; bothy caretaker and upkeep, £613; preparation of produce for sale, £182.

Labour afforded by Afforestation Operations.—The question of the amount of labour absorbed by afforestation operations on an estate of this kind is of particular interest at the present time. It is estimated that in 1908, when the property was used almost solely for grazing and game, a total of 6,800 days' male labour was expended on it. For 1912-13 the total is estimated at 11,000 days, representing an increase of 62 per cent. The latter is exclusive of time spent on the construction of new buildings. It may be assumed that the amount of employment will increase slowly until the time for thinning the young plantations arrives, when a considerable increase should take place.

Itinerary.

The party left the steamer at New York pier, and passed on the left hand a mixed conifer wood (larch, silver and Douglas fir, Scots pine, &c.) about thirty-five years old. Traces of the storm of 1911 were observed, as well as the excellent growth of silver-fir, which is a feature of considerable sylvicultural interest. Silver-firs have been measured on the estate with a height of 75 ft. at thirty-five years' growth. Proceeding along the road or track, the ground which is to be planted in 1914-15 was passed through. After leaving the iron and wood structure, erected for accommodation of workmen, the ground to be planted in 1915-16 was traversed, and an example of the best quality of planting-land seen. Just before the men's bothy is reached, and for some distance after it has been passed, a good general view of the higher land to the right of the road was obtained.

At the bothy a coloured plan showing the plantable land on Barmaddy and Cruachan was examined. After a walk of about two miles from the pier the oldest part of the new plantation area is reached (planted 1909-10). On leaving the road groups of Douglas and larch lay on the left; passing on, larch were seen on both sides, and also a group of Douglas and Sitka spruce extending right across the path; proceeding, a small group of silver-fir, with Sitka spruce and common spruce, in damp places were noticed. A few minutes were spent in examining groups of Douglas fir, Sitka spruce, larch, silver-fir, and Scots pine growing in the hollow on the roadside.

On passing over the ridge a group of silver-fir was seen doing very well on the steep face, and shortly afterwards plants a year younger were reached; below the path a group of very healthy spruce were seen adjoining an old ash wood, and right and left of the path a group of Douglas fir. Walking along the bottom of the steep bank the workmen's cottages were passed, and also some promising larch.

On reaching the top, after a stiff climb, a very poor quality of land for afforestation is encountered. Spruce only has been planted, and is thriving indifferently or badly. On reaching an area (about 12 acres) planted on upturned turfs, two sections of about 1 rood each are marked off: in each there are 600 plants—450 common spruce and 150 Sitka spruce. The whole was planted in the spring of 1912, the common spruce being three-year selected seedlings, and the Sitka two-year one-year transplants, small size. A little soil was left in each hole when planting, but nothing has been done since planting. In plot No. 1, 125 of the 450 spruce are absolutely dead