forest school has many advantages. By attending a few of the principal courses of lectures and all excursions, by reading and private instruction, according to a regular plan which the director of the institution will be glad to arrange, a more connected knowledge of the principal branches of forestry will be attained than can under ordinary circumstances be acquired by the residence at forest districts. The personal intercourse with the director and professors at the institution, and with some of the more advanced students, cannot fail to be instructive in many respects, and an advantage of some importance is the chance of meeting young forest officers from other countries—Russia, Sweden, Italy, Spain—who will often be found attending the institution for the same purpose. At the close of the summer-time, in August or September, most forest schools make an annual forest journey of two or three weeks' duration under the guidance of the Director. This affords an excellent opportunity for seeing a series of instructive forest districts under the most competent guidance, of taking part in important discussions on professional subjects, and of making the acquaintance of forest officers of all grades, in their divisions and forest districts. Such an opportunity should be utilized if possible. I feel assured that those who may follow my advice in this respect will not regret it, but will agree with me in valuing highly the advantage of having taken part in one of these forest journeys. In Captain Walker's report, the names of the principal German forest schools are mentioned, and it is needless for me to say anything more on the subject.

Experimental researches on the growth of forests.

Systematic experiments concerning the growth of forest vegetation and other matters connected with forestry have for some time past been instituted in Saxony, Prussia, and Bavaria, to a certain extent in connection with the public forest schools of those countries. Thus, at Tharand, the durability of spruce timber felled in each month of the year is now being tested, and at the same time the quantity of moisture, and the mechanical and physical qualities of timber felled in the different seasons, is being determined. Again, there is a physiological laboratory at Tharand, where plants of different kinds are grown in water under the influence of various soluble substances, and these experiments have already yielded important results. In several forest districts plots of young forest have been fenced in, and are subjected each to a different treatment. In Bavaria, extensive meteorological observations are being made, in order to determine the climatic requirements of the different forest trees, the influence of forests upon climate, upon the temperature and moisture of the soil, and upon the formation of springs. In the Spessart, systematic experiments have been commenced, in order to determine the effect of different systems of thinning, early and late, slight and strong, upon the annual production of wood on a given area; and besides these there are numerous other questions which it is contemplated to subject to a regular series of systematic experiments.

Classes of forest recommended for study.

Instead of recommending any particular forest districts, I will rather mention the principal classes of forest which should, as far as possible, be studied in detail. Of coppice woods, the oak coppice of western Germany, the Rhine, Moselle, and the Odenwald should be examined. Their management (generally on a rotation of 14 to 16 years) is simple, nevertheless much skill and thought have been brought to bear upon them. Of high timber forests I will first mention those of oak and beech mixed, which may be seen to perfection in the province of Hanover and in the Spessart Hills in Franconia; they are maintained by self-sown seedlings, with the aid, particularly as regards the oak, of sowing and planting. The various means by which the development of the oak is favoured at the expense of the beech, but at the same time with its aid, should be noticed. On the Spessart, special attention is invited to the difference between the central forest tracts, where the ground has always been under cover, and the outskirts, where the land has been so impoverished by pasture, the removal of dead leaves, and wasteful fellings, that it has become necessary to improve these tracts by extensive plantations of coniferous trees. The soil overlying the red sandstone of the Spessart is by no means rich in itself: it has, however, been improved by the accumulation of vegetable mould during ages of forest growth, and the results are these splendid pieces of sound oak timber, 60 feet long and more, with a diameter of 2 to 3 feet at the smaller end, which are produced in the Rotenbuch and other districts. The different requirements and mode of growth of the oak and beech will be found to be one of the most instructive features in this class of forests, and those cases where there are other trees besides, such as maple, lime, and ash (the vicinity of Göttingen and Lauterberg on the Harz), should be studied with special attention. The oak and the ash will be found to possess certain points in common with the teak tree. Pure oak forests (generally of *Quercus pedunculata*) will be found on deep alluvial soil along the Elbe and other rivers. The rapid growth of the oak on rich soil should be noticed, and the high prices realized by its timber,—not less and often more than the close-grained and slowly-grown timber of the Spessart.

Scotch fir forests.

In the plains of north-east Germany, Hanover, Brandenburg, Saxony, the extensive Scotch fir forests, which are mainly regenerated by sowing and planting, should be visited. Insects have been the great difficulty in many of these tracts, and in some cases an attempt has been made to revert to natural regeneration on that account. In the eastern provinces of Prussia, forest fires have also been most destructive. The Scotch fir forests of Franconia (*Steiger wald*, *Hauptsmoor*, near *Bamberg*) are principally maintained by self-sown seedlings. In these forests the successful employment of an underwood of beech to improve the growth of the Scotch fir should be noticed. In the forest tracts round Kloster Ebrach will be seen the results of this system in the shape of magnificent stems, with dark red heart-wood, which fetches a higher price than oak. A different sort of management may be studied in the sandy alluvial plains of Hesse-Darmstadt. The forest crop (Scotch fir, and sometimes oak) is made to alternate with cereal crops. This remarkable system should be studied in the grand ducal forest district of Viernheim, where it is in force on an area of 5,000 acres. The forest crop is cleared and rooted up, and the ground is then planted in lines with Scotch fir, on better soil mixed with oak (the Scotch firs acting as nurses to the oak), and potatoes are planted between the lines. The second year a crop of rye, and then two more crops of potatoes and rye are taken. In this manner the young plants are sheltered during the first four years of their existence, and the ground is kept clear of grass. Under the peculiar circumstances of the locality (deep but moist sand, much exposed to late frosts in spring), this system answers admirably: the growth of the trees is better than where no crops are taken off the ground (in the vicinity), and in addition there is a surplus from the agricultural part of the operations. Forest officers from Burma will be glad to see this system, which is analogous to what was introduced in 1864 in the teak plantations near Toungoo.