

and without which it would not be possible to frame and enforce the conditions of sale as they are ; also to section 8, on forest rights, under the operation of which the rights of wood and pasture, which formerly burdened the public forests, and greatly interfered with their economical management, are gradually being extinguished, being compensated by the grant of land or by money payments. Indian foresters will do well to make themselves familiar with the provisions of this section, and with their practical application. Punishments of offences against the forest laws have, I understand, become comparatively rare in most parts of the country since the system of extra-judicial settlement of penalties and damages between forest officers and offenders has become generally authorized. These "*transactions avant jugement*" are now resorted to whenever possible, in order to prevent the case going into court. The offender is generally found ready to pay the amount fixed by the forest officer, under the rules and regulations laid down for his guidance, in order to avoid appearance in court and the risk of heavier punishment. On the other hand, the forest officer's time is saved ; and what is worth more than all the rest, no ill-feeling is roused by dealing with forest offences in this quiet business-like way. A better understanding is maintained between the population in the vicinity of the forests and the forest officers, while at the same time the prevention of offences is said to be as efficient as if every case were brought into court. The rules under which such "transactions" are authorized were issued in December, 1859, and their working will be found instructive and suggestive in many respects.

Work of a district forest officer in France.

Indian forest officers will be glad to make themselves acquainted with the exact nature of the regular work performed by district forest officers in France. A small handbook by Puton, one of the professors at Nancy, "*Service administratif des Chefs de Cantonnement*," Nancy, 1870, will be found useful in this respect. Everything is arranged in a methodical and systematic manner, down to the form of the note books (*calepins*) used in the operations of marking trees to be felled or reserved in a cutting, and revising the cuttings after the purchaser has completed his work.

The French Society of Foresters ("*Société Forestière de France*") is an excellent private institution, representing the special interests of forest property, and encouraging the progress of silviculture in all its branches. Among its members will be found some of the largest forest proprietors, as well as some of the leading public forest officers. The meetings of this society are held at Paris from January to April. Foresters from abroad are admitted as visitors if introduced by members.

As regards the time of the year most suitable for studying forestry in France, I would suggest to commence early in spring, and to devote March to July to a number of forest districts in the manner indicated in the *Règlement*. The latter part of summer and autumn would then remain for the study of those special matters which have been mentioned in the present remarks. A residence at Nancy (but not during vacation time) should, under all circumstances, be included in the programme.

Studies in Germany.

Those who desire to go through a course of professional studies in Germany, should bear in mind that the administration of the public forests is different in the different States which compose the German Empire. Each country and province has its peculiarities, its strong and its weak points. A comparative study of forest legislation and forest management in the different German States would be highly instructive and suggestive for Indian forest officers ; but this is a task which would demand perfect familiarity with the language and with the profession of forestry, and I would not recommend Indian foresters to undertake it. Here, as in France, it will be preferable to confine ourselves to the study in detail of a few forest districts, or rather portions of districts. The best guide in every instance will be found to be the working plan (*Wirtschaftsplan*). With its aid, and the assistance of the district forest officer, it will not be found a difficult task to acquire a good knowledge of the present state of the forest, of its history, and of the projects and intentions regarding its future. A tracing of the working map (*Bestandskarte, Wirtschaftskarte*) should be made, and with this and the needful extracts of the working plan in hand, one compartment after the other of the district should be visited and examined. In the first instance, I would advise to seek those compartments which contain forest of mature age growing under different circumstances of soil, elevation, and exposure, and to endeavour to form an idea of the number of stems per acre, their aggregate sectional area, the height of the forest, and the quantity of timber standing on an acre (or hectare). The mode of ascertaining the quantity of standing timber on a given area (*Massenaufnahmen*), and its annual increase, should be learnt and practised, as well as the methods for determining the normal annual yield of the forest. The next step would be to examine compartments of mature forest, where felling operations are to be commenced or are in course of progress. In these all that relates to the working of the timber and the regeneration of the forest, whether by self-sown seedlings or by planting, should be studied. Lastly, a series of compartments should be examined, representing the different ages of the forest growing under different conditions, from the young thicket to the nearly mature forest, and here special attention should be paid to the periodical thinnings. Should the district be composed of several working circles or classes of forest (*Betriebsklasse, Betriebscomplex, Wirtschaftseinheit*), then it will be necessary to go through each class in the same manner. The entire administration and management of the district should be studied—area, annual yield in material and money, the mode in which the operations of the year are regulated, the description of boundary marks, forest rights, roads and other means for the transport of timber, subordinate establishments, forest offences and mode of dealing with them, damage by storms, fire, or insects, sources of labour, prices of timber and other forest produce.

Importance of visiting one of the forest schools.

The thorough study of one forest district is, in my opinion, the first and indispensable step : this task cannot satisfactorily be accomplished under two months, and if possible a longer time should be devoted to it. A better foundation still would be laid if a similar course could be gone through successively in two or three forest districts presenting different features of soil, vegetation, and management. After completing this course, which stands in the place of a practical apprenticeship, the choice lies, in my opinion, between two plans—to visit a number of forest districts in other parts of Germany, or first to spend a term at one of the principal public forest schools, and then to travel, in order to see a great variety of forest management. The latter course would require nine to ten months altogether, whereas the former could be accomplished in three to four months. The residence during a term at a