

The *état* or yield of timber from the revier for the decennial period from 1865 to 1875 has been fixed at 380,000 cubic feet, or an average of 65 cubic feet per acre annually. It is divided for purposes of sale into classes known as *Holländer-Holz*, *Bau-Holz*, *Säge-Holz*, and *Gemein-Holz*. The *Holländer-Holz* consists of the fine stems of from 60 to 85 feet in length, and 12 inches on the square, whilst the *Gemein-Holz* includes that under 18 feet in length, and 9 or 10 inches in diameter. The average prices vary from 8d. to 6d. per cubic foot, having fallen considerably of late, owing to the occurrence of severe storms, which have blown down and thrown on the market large quantities of timber from these forests and others in the neighbourhood.

The right of pasture in the forests is, as a rule, leased out by the executive forest officer.

Forest roads.

The system of roads in the Rippoldsau forests appeared to me to approach very nearly to perfection, and the Forstverwalter is justly proud of what he has effected in this respect. I was fortunate enough not only to see those already in use, but several in course of construction. They may be divided into two classes, the first comprising roads 12 feet wide, and the second paths 6 to 8 feet wide. The former cost on an average 9 guldens per rood of 10 feet, say 5s. per running yard, and the latter about 2 guldens per rood, say 1s. 1½d. per running yard; and it must be remembered that both are carefully laid out, and most substantially constructed with solid masonry, embankments, and culverts, wooden bridges, &c. There were 11,601 roods of such roads in the revier up to 1865, and 13,488 have to be constructed during the present period, *i.e.*, prior to 1875, making a total length of nearly five miles. Many of the paths are now being transformed into roads of 12 feet in breadth. It must be borne in mind that the Government high road (one of the finest I have ever seen) may be said to intersect the forest, otherwise a much greater length of purely forest roads would be necessary.

Timber slips.

In addition to the roads are the "*Riesen*," or slips, down which the timber is shot. The manner in which this is effected requires almost to be seen to be understood, and unfortunately slipping was not going on when I was there. The method was, however, repeatedly explained to me, and I think I could apply it, though I fear it would only be practicable with pine trees stripped of their bark, or perhaps with the Australian *Eucalypti*. The paths down which the timber is slipped are about 6 feet wide, running along the sides of the hills, and not necessarily very steep. Small pieces of wood or rollers are generally placed along them crosswise at intervals of about 2 feet. When timber is to be slipped, smooth pieces, stripped of their bark, are laid along on either side, so as to form a trough or slide, down which the other stems are then shot. It is astonishing what curves they will thus get round, and the facility and the rapidity with which the work can be effected may be imagined from the fact that 300 stems can, with ease, be slipped in one working day. Where the curve is too sharp for the tree to get round, a right or acute angle is preferred, and the stem which has been shot down the first portion, say with the narrow part first, is, without much trouble, by the aid of a wonderful and simple instrument, called a "*krempe*," sent on its way inverted, *i.e.*, with its broad end or base in front. When the stems which form the trough get dry they are oiled, and sometimes bark is strewn on the "road" to make it more slippery. In winter the snow is taken advantage of, and then only sides or walls to the trough are required to prevent the stem shooting off the road. There is, of course, a great deal of knack in the construction of the *riesen* and management of the slipping, and a Black Forest woodman appears to be able to put his logs where he likes. In one instance, which I saw, they were made to shoot over a road (the King's or Grand Duke's highway), a temporary bridge being formed, under which carts and foot travellers could pass, and jump a river or stream some 20 feet wide, down which they were afterwards floated in rafts 2,000 feet long!

Use of the *krempe*.

The *krempe*, alluded to above, is an instrument with a heavy iron head, something between an adze and a pick, and a longish curved wooden handle, which in the hands of a skilful woodman is most useful in moving stems which it would be difficult otherwise to get hold of, far less to turn over or move as required. The curved handle gives great leverage, and the Black Forester is very expert in using the instrument, which is rarely out of his hands in the woods or on a raft, the sharp end being driven into the log by a smart blow in order to lay hold of and move it from one place to another, or the broad thick end used as a hammer if required. I saw stems moved out of a clearing on to the road with comparative ease by half a dozen men provided only with *krempe*s and a strong rope, for which we should have required elephants in Madras. The clearing was on the side of a steep rocky hill, and the trees, of an average length of 50 feet, were lying "higgledy-piggledy," with a young crop of from 8 to 15 years old coming up all round them, so that it seemed all but impossible to remove them at all without sawing them into pieces, and still more so without greatly damaging the young growth. As I have said, however, it was effected without any great damage or trouble.

Use of the sleigh for removing firewood billets.

There is also an excellent description of sleigh in use for bringing firewood billets down the steep hills. These are very simple of construction, and made up by the woodmen themselves, and it is marvellous to see mere boys walking up the steepest hills with the sleigh on their backs, and returning, dragging, or rather guiding it after them with a load which no six men could carry; in fact, which could not be brought down the steep inclines in any other way. The sleigh is "dragged" as required by means of chains and bundles of firewood tied behind, in order to prevent its going too fast, and running away with its load and the man or boy who is guiding it in front.

Economical working of the forests.

It is by these and similar means that the Forstverwalter is enabled to fell, slip, and float his trees to *depôt* at a cost of 4 kreuzers—say 1½d. per cubic foot all round—and thus by selling at 6d. to 8d. per cubic foot realize a handsome profit, after paying all charges for supervision, planting, sowing, &c., &c.; and it is here, I think, that so much remains to be done by us in India, where the rates we now pay for felling and removing our timber, even in the rough and wasteful manner in which it is now done, are very high. Improvement in our means of communication, and introduction of and teaching the natives how to use better appliances for felling, and getting the logs out of the forests, and working them up when we have got them out, appear of paramount importance in our forest management.

Floating.

The cost of 4 kreuzers per cubic foot is divided into—felling, 1 kreuzer; slipping, 1½; and floating, 1½ kreuzers. It is impossible to convey by words an idea of how the latter is carried on. It must be seen to be understood and believed, and I am not sanguine of its ever being introduced into