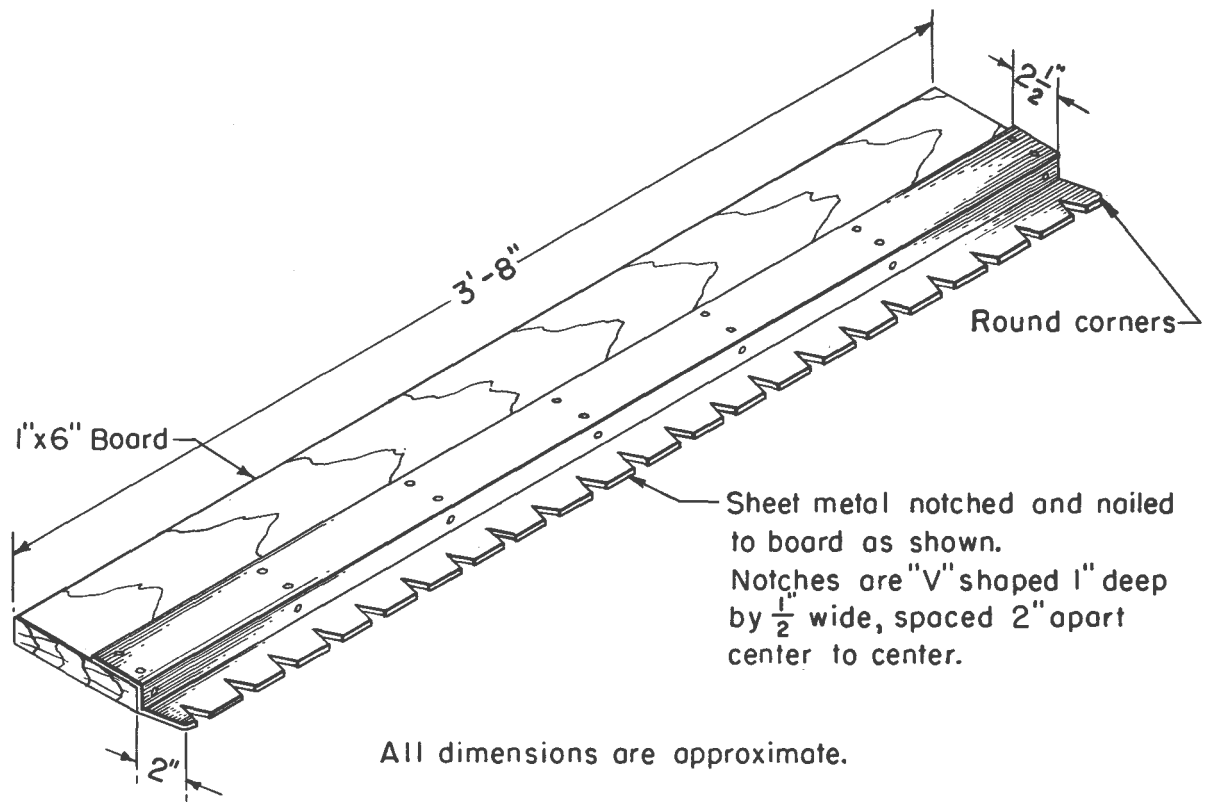


TRANSPLANTING AS DONE IN GERMANY

Roland Rotty, Assistant Director
Division of Cooperative Tree Planting, U. S. Forest Service
Washington 25, D. C.

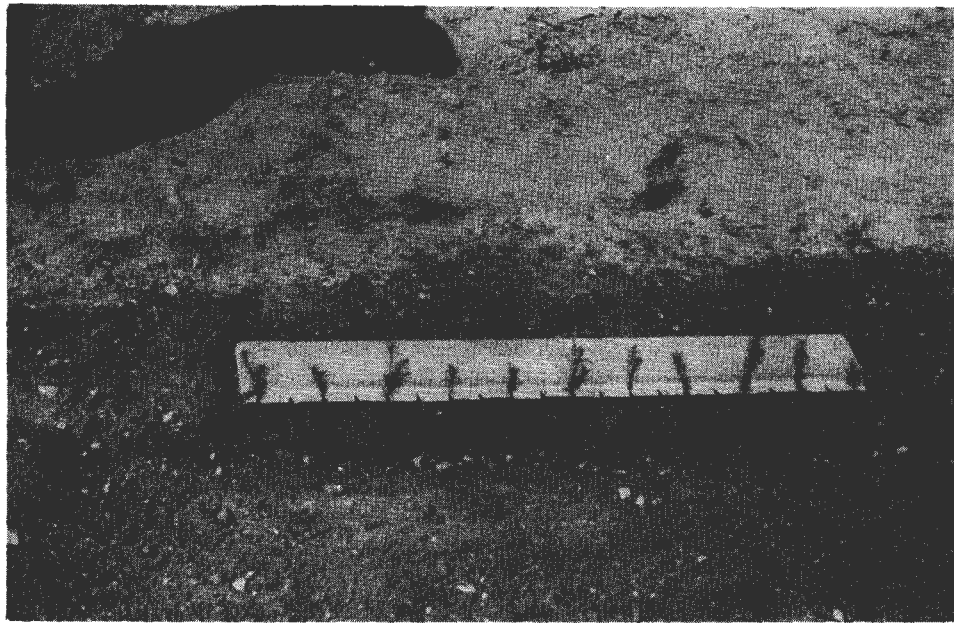
Hundreds of millions of seedlings are transplanted annually in Germany with less and simpler equipment than I have ever seen in any forest nursery in America. There are no transplanting machines of the Holland or any other type, nor anything so complicated as a Yale transplant board. All that the Germans use is a notched piece of sheet metal fastened over a 1-inch board of convenient length and width. But the speeds at which they plant trees are amazing.





The technique is simplicity itself—the board is merely laid with its metal flange projecting out over the already opened trench (which has one side perpendicular, or nearly so) and the seedlings are then threaded into the notches by the worker who placed the board. A second worker then fills the trench and while he is firming the soil the first worker lifts the board and carries it to the end of the line to place and fill it again. Each worker carries his own supply of seedlings wrapped in a wet rag or some other convenient carrier. Under this system the roots are exposed to the air for only the few seconds required for threading the board and filling the trench. The system works well for a large, well-organized crew or for a person working alone.

Inspection to insure against unsatisfactory root placement is easy when such an open trench is used, for if the trench is so shallow that roots must be doubled back upon themselves the fault is readily observable.



The nursery pictured is operated by a forest district (Bad Grund) in the State of Lower Saxony to produce about 100M 2-2 spruce transplants annually. No power machinery is available and opening the trenches by hand is the most practical way.

The forstmeister insists upon wide spacing (about 4 x 8 inches) and the highest possible standard of performance in order to grow trees of maximum quality. This wide spacing requires that the workers fill and move many more boards per thousand plants than is the case at commercial nurseries where trees are grown at closer spacing. As a result these workers, including the trench digger who was also the foreman, were averaging only 3,000 trees per 9-hour working day.



At the very large commercial nurseries the trenches are opened by power machinery, the trees are spaced much-more closely together, and work standards, while satisfactory, are somewhat lower than at the forest districts' little local nurseries. At a commercial nursery in Lower Saxony, the work is paid for at piece-work rates and the best workers are said to achieve speeds of 18,000 trees per 9-hour day. The average worker plants 14,000 per day. A worker who cannot sustain a 12,000 speed is discharged because one cannot earn a living wage planting at a lesser speed. At a commercial nursery I visited in Holstein, the same average speeds were achieved, a crew of 35 workers planting half a million trees in 9 hours.