

intended to add to the permanent establishment at the headquarters.

The tract is an old pine forest logged and burned over forty to sixty years ago. It is now grown up with exceptionally good second growth of white, red and jack pines, which reach a maximum size of around eight inches. Some areas of spruce and balsam and of mature hardwoods also occur. Conditions are fairly typical of cut-over pine lands. The pine is old enough to produce seed and young enough to show increased growth if thinned, and offers opportunity for studying a wide range of problems. Some work has already been done on timber limits in other localities when it was desired to carry on studies in mature timber and on recently logged-off areas. It is expected that the greater part of the detailed studies can be carried on at the Experiment Station.

Preparing Volume Tables.

One study to which a great deal of time has been devoted is that of the fundamental laws of the construction of volume tables. Up to the present time, thousands of trees have been measured and hundreds of tables constructed to show the volumes of trees of different diameters and heights. Practically no new principles have been developed for the construction of these tables. Methods such as the use of frustum volume tables and the construction of taper tables lighten the mechanical labor or increase the accuracy of the final figures to some extent, but do not offer any solution to the fundamental difficulty in connection with volume tables. This difficulty arises from the fact that no two volume tables for the same species agree. There has been no way of expressing the difference, and no way of determining what volume table is suitable for a new area, nor over how large an area, a volume table can be used.

The Tor Jonson form quotient, an invention of Swedish foresters, offers a very promising way of approaching this problem. The form quotient is the percentage relation between the diameter at breast height and the diameter half way to the top. As this quotient is expressed in per cent. it is independent of diameter and height, and an average form quotient can be determined for a whole stand.

It will now be seen that this offers a very direct method of expressing the differences found to exist in

volume tables for the same kind of trees on different areas. All that is necessary is to determine the average form quotients of the trees used in constructing the tables. To determine whether any table is applicable to a new area, the average form quotient of the trees in the new area can be found. As the form quotients are expressed in per cent, trees of all sizes can be averaged together and it is necessary to measure only a relatively small number of trees.

There are other ways of determining average form quotients which may prove satisfactory for use where felled trees are not available for measurement. The height of the center of wind pressure in the crown is supposed to bear a definite relationship to the form of the tree. This is being investigated carefully, as is also the relationship of the stand as expressed in basal area.

(To be concluded in an early issue)

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