The data, although for one year only, indicate that on the average lodging may be of more importance than shattering when the harvest of oats is delayed after they are ripe.—T. R. STANTON, D. E. STEPHENS, and B. B. BAYLES, Bureau of Plant Industry, U. S. Department of Agriculture, Washington, D. C.

MAKING A CORRECT MECHANICAL ANALYSIS OF SOILS IN FIFTEEN MINUTES

In previous communications\(^1\) the use of the hydrometer method has been proposed as a rapid and simple method for the study of soils. A very comprehensive study has been made to ascertain if the method could be used for making a mechanical analysis of soils.

It has been discovered that if the soil particles are grouped into three main groups, such as sand, silt, and clay or colloids, that these three groups can be determined with remarkable accuracy by the hydrometer method in 15 minutes by making only two readings, one at the end of 1 minute and the other at the end of 15 minutes.

In making these studies about 30 different soils, whose complete mechanical analysis was known, were obtained from the United States Bureau of Soils. It was found that the percentage of material that settles out at the end of one minute in the regular hydrometer method is almost exactly the same as the percentage of all the combined sands obtained by the mechanical analysis method. If the percentage of material that settles out at the end of 15 minutes minus the sand which settles out at the end of 1 minute is considered to be silt, and if the material that still stays in suspension at the end of 15 minutes is considered to be clay or colloids, it was found that the mechanical analysis and hydrometer methods agreed quite closely in the soils whose silt content was composed mostly of the coarser size—in the neighborhood of 0.05—and disagreed rather widely in the soils whose silt content was composed of the finest size—in the neighborhood of 0.005.

This is as would be expected, because recent studies go to show that the finer silt has practically the same characteristics as the clay and should therefore be classed with the clay, while the coarser silt does not possess the same characteristics. The hydrometer method, therefore, includes in its clay or colloidal determination the finer

\(^1\)BOUVOUNOS, G. J. Directions for determining the colloidal material of soils by the hydrometer method. Science, 66:16-17. 1927.
