The writer is still of the opinion, however, that the results of the experiment are sufficiently significant to stimulate further inquiry along this line.—L. H. Smith, Charge of Publications, Soil Survey, Illinois Agricultural Experiment Station, Urbana, Ill.

THE RAPID DETERMINATION OF SOIL MOISTURE BY ALCOHOL

In the February, 1927, issue of this Journal there appeared a brief note by the writer proposing the use of alcohol as the basis for a very rapid means of determining the moisture content of soils and possibly of some other materials. Since the publication of this paper, a large number of letters have been received asking for more detailed information as to the technic, kind of hydrometer used, etc. In view of this large number of inquiries, it has seemed advisable to publish, in advance of the main report, tentative directions for executing a moisture determination, and other essential information concerning the method.

The alcohol method, as far as it has been investigated, seems suitable for the determination of the moisture content of soils very rapidly and quite accurately. The rapidity depends somewhat upon the type of soil, which affects the rate of filtering, the time, however, varies from about three to fifteen minutes. In comparison with the oven method, the results of the alcohol method run a little lower, but not much more than about 1% in the clay soils and much less in the light soils. It seems that the alcohol takes out all the water that exists in the soil in a physical form. Probably the only kind of water that it does not take out is the so-called "chemically bound" water. According to the results obtained, the magnitude of this form of water is probably not very high. If it is, then it would seem that the alcohol probably extracts some of it, probably the more loosely bound.

For the employment of the alcohol method, as has been worked out thus far, the following apparatus is necessary: (1) Alcohol hydrometers made especially for this work. The hydrometers come in a pair. One has a range of from 90 to 100% alcohol and the other from 80 to 90%. They have a very small volume. They are sold by Eimer and Amend and cost about $2.00 each. It is advisable to specify hydrometers made according to the writer's specifications when ordering. (2) An ordinary 25 cc graduated cylinder having an inner diameter of 2 cm. This cylinder is used to hold the liquid while measuring its specific gravity. (3) An ordinary 100 cc graduated cylinder. (4) A 100 cc funnel. (5) A small beaker filled with sand. The sand is used to support the 25 cc cylinder so that it will be