

SYMPOSIUM ON ATTERBERG LIMITS

INTRODUCTION

BY GEORGE F. SOWERS¹

The Atterberg limits are perhaps the oldest and most widely accepted of all the engineering tests of cohesive soils. Unfortunately the apparatus and methods employed by various organizations throughout the United States and in other countries differ. For example, a survey² conducted by Section B, Atterberg Limits, of Subcommittee R-3 of ASTM Committee D-18 on Soils for Engineering Purposes, in 1956 showed that 20 per cent of the U. S. laboratories use a liquid limit grooving tool that is considerably different from that specified by the ASTM.³ Over half of the laboratories use a "one point" streamlined procedure for running the liquid limit test rather than the more lengthy procedure spelled out by ASTM. The laboratories that resort to these deviations include

some of the largest, and most are directed by members of ASTM Committee D-18. While most soil engineers suspect that these changes in procedure and apparatus lead to differences in results, there are few quantitative data available that show the magnitude of the differences.⁴

Some of the apparatus and procedures specified by ASTM are not entirely satisfactory because of excessive dependence on operator skill; the nonsuitability for certain types of slightly cohesive soils, and on the amount of time required to obtain satisfactory results.

It is the purpose of this symposium to present data on the effects of different test procedures on the results, to compare the results obtained by various short-cut procedures, and to examine alternate test methods which do not have the limitations of the present ASTM procedures. This symposium will be a guide to the appropriate sub-committees in revising and strengthening the ASTM standards.

¹ Symposium Chairman; Professor of Civil Engineering, Georgia Institute of Technology, Atlanta, Ga.; Consulting Engineer, Law Engineering Testing Co., Atlanta, Ga.

² The results of this survey are given in the Appendix to this symposium, p. 226.

³ Tentative Method of Test for Liquid Limit of Soils (D 423 - 54 T), 1958 Book of ASTM Standards, Part 4, p. 1132.

⁴ A. Casagrande, "Notes on the Design of Liquid Limit Device," *Geotechnique*, Vol. 8, No. 2, p. 85, June, 1958.