

## Introduction

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In 1964, the scope of ASTM Committee D-18 was broadened to include the testing of rocks as well as soils, and its name was changed officially to Committee on Soils and Rocks for Engineering Purposes. Subcommittee 12 on Rock Mechanics was established at the same time. This symposium represents the first effort of this subcommittee to present a formal session to: (1) assess the state of the art of rock-mechanics testing, in the field as well as in the laboratory, and application of such testing to engineering design problems and (2) evaluate the need for standard methods and the factors that must be considered in developing the standards. Because the primary function of ASTM subcommittees is to develop standard test methods, the symposium was designed to provide the nucleus around which Subcommittee 12 could build its activities in test standardization. At the present time there are few or no rock testing standards, so the field is fertile for development.

If proper consideration is to be given to the most economical design and the safe performance of a construction project, adequate information on the properties of the subsurface rocks must be available. Correct evaluation of rock properties frequently requires laboratory and *in situ* tests, supplemented with a high degree of experience and judgment. We have long recognized the need for the "judgment factor in soils testing;" the "judgment factor in rock testing" may be even more critical. It is hoped that this symposium will lead not only to development of standards but to the philosophical framework within which those standards can operate with confidence.

The scope of Subcommittee 12 is stated as follows: "It shall be the responsibility of Subcommittee 12 to develop or to stimulate development in other subcommittees of acceptable nomenclature, definitions, and tests for rocks; for their sampling, identification and classification, and for the measurement of static and dynamic stress deformation properties and residual stresses under various environmental conditions of leaching

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and weathering.” Much work is in progress in this subcommittee—for example, standard test methods have been drafted for shear strength and compressive strength of rock materials; a standard engineering classification of rocks has been distributed to the membership for trial use and verification; and research is being stimulated on rock reinforcement, *in situ* stress measurements, and *in situ* tests for deformation modulus and shearing resistance. Some of these activities are indicated in the papers presented in this symposium. Additional papers on new developments will be presented at the ASTM Annual Meeting, June, 1966, Atlantic City, N. J.

This symposium was the work of many. Acknowledgment is made to the authors and to those who contributed to the discussions—their names appear in the body of this volume. Our appreciation also is expressed to the other members of the Symposium Papers Committee, N. E. Grosvenor and J. J. Reed. The authors hope that this symposium volume not only will prove useful to rock mechanics engineers and scientists but also will stimulate further research and development of testing techniques and applications of those techniques in the field of rock mechanics.