

BOOK REVIEW

Á. KÉZDI: *Stabilized Earth Roads*
(Akadémiai Kiadó, Budapest, 1967. 355 pp. 319 figs.)

The Department of Geotechnique of the Budapest Technical University and its predecessor are known to always have been pioneering in the theoretical and practical development and in engineering applications of Soil Mechanics in this country: this work can be stated to be of international niveau and to raise world-wide interest. This really valuable tradition and practice obtained recently a continuation in merit by the book of the Head of this Department, Prof. Dr. Á. Kézdi on *Stabilized Earth Roads*. After *Soil Mechanics I—II*, published in German and in Hungarian, and *Erddrucktheorien*, published in German, by the same author of a great creativity and international renown, this book, issued by the Publishing House of the Hungarian Academy of Sciences, is of an importance much beyond its modest, concise title. Namely, soil stabilization has got an extreme importance in the construction of pavements for heavy traffic roads, motorways as well, and in the recent decade it has obtained a wide, so to say industrial application in the Hungarian road construction, leading to significant technical, scientific and economical results. Nevertheless, while in the pavements of heavy traffic roads the stabilized soil strata act simply as lower base courses or bedding courses for load distribution, another wide field of soil stabilization uses is that for individual pavements, advantageous for low-traffic, unexpensive earth roads of agricultural importance. Hungary suffers from much deficiency in this field, needs are tremendous, and but a fraction of the realistic demands is satisfied. Construction of agricultural earth roads would save the national economy from grievous losses. Obviously, it is just therefore that the author entitled his book by and centred on the stabilization of earth roads.

This book is throughout featured by a deep-going discussion at a scientific niveau, a successful amalgamation of theoretical and experimental knowledge. Though the design and construction practice of soil stabilization is treated in up-to-date, practical specifications and useful works available both in this country and abroad, this book is especially valuable by presenting theoretical fundamentals of known or less known methods and of their development possibilities, scientific backgrounds, the reasons of the matters. In addition to indispensable and fundamental soil mechanical aspects, it has been concerned with hardly known and less developed chemical, physical and geological aspects comprehensively and at a high niveau, by a complex scientific viewing, unknown both in this country and abroad, and therefore pioneering in the special literature. In stressing scientific, theoretical features of this book, however, one must not lose of mind that Professor Kézdi has been investigating into soil stabilization since nearly two decades at his department, of much practical use for the extension of soil stabilization in this country.

The book itself, of nine chapters, is clearly arranged. After an introductory part, the first chapter is treating the problem of utmost importance. "Physical and Chemical Features of Soil Stabilization". Here, as a novel, quite modern approach, several meaningful triangular diagrams are representing soil compositions by phases, and what is more, the interactions between soil components. A special consideration is given to the nature and effect of clay minerals. The next five chapters are devoted to different soil stabilization systems (mechanical stabilization, cement, lime, bitumen and chemicals). In each case, soil compaction causes and effect of various factors on the stabilization are being effectively analyzed from physical and chemical aspects. Among them, the chapter on stabilization by cement seems to be the most matured and the most interesting, a method likely to be most promising for practical uses, just as is the bitumen method.

The last chapter gives overall principles of earth road design, specifies essential dimensions and gives an analysis of Hungarian climatic influences. Some possibilities for earth road pavements are presented. Author suggests, and gives practical illustrations of the use of the "proportional Coulomb line" method, starting first from the Boussinesq homogeneous half-space concept, and then from the two-layer system. In addition, a design principle based on the admissible deflection is presented.

The final chapter describes the construction of earth roads, with much stress, however, on fundamental soil physics as related to construction processes.

The style of the book is agreeably concise, the mode of treatment clear and substantial. As a special feature of value, the rich illustration material has to be mentioned. The presentation is as neat and pleasant as customary for works edited and printed by the named Publishers and the Academy Press. In conclusion: by this book Hungarian civil engineers have an outstanding, expressly scientific book at their disposal, of an importance much beyond the particular field of stabilized earth roads; it will be of a great use for both geotechnicians and road designers and constructors.

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