

Developments in Geotechnical Engineering 25

SOIL PHYSICS

Selected Topics

by

ÁRPÁD KÉZDI

Member of the Hungarian Academy of Sciences
Professor at the Technical University of Budapest,
Hungary



ELSEVIER SCIENTIFIC PUBLISHING COMPANY

Amsterdam - Oxford - New York - 1979



Contents

1. Introduction	11
2. Grains and grain assemblies	26
2.1 Distribution of coarse grains according to their volume	26
2.2 Distribution of pore sizes in fine-grained materials	31
2.3 Grain size distribution and compactibility	34
2.4 Properties of granular mixtures	44
2.5 Compactibility of transition soils	51
3. Problems of strength	62
3.1 Strength of sand	62
3.2 Strength of transition soils	74
3.3 Tensile strength of cohesive soils	81
3.4 Brittle failure of soils	87
3.5 Shear strength of cohesive soils	91
4. Cases of phase movement	96
4.1 Introduction	96
4.2 Phase movements in sand	105
4.2.1. Water movement in saturated sand	105
4.2.2. Hydraulic failure	111
4.2.3. Suffusion and erosion	119
4.2.4. Phase movement in three-phase media	138
4.3 Phase movement in cohesive soils	150
5. References	155
6. Author and subject index	159