expansion of shale is mainly through the opening of joints and fissures during excavation and before installation of the lining. -Authors

944134 **Procedure for predicting settlements of thawing bases for engineering calculations**
V. D. Kazarnovskii & E. S. Pshenichnikova, *Soil Mechanics & Foundation Engineering*, 30(4), 1994, pp 145-148; translated from: *Osnovaniya, Fundamenty i Mekhanika Gruntov*, 30(4), 1993, pp 5-7.

It was shown that in order to compute the settlement of thawing cohesive soil under a load in time it is necessary to experimentally determine the consolidation coefficient. A procedure is suggested for determining this coefficient, as well as use of the classical solution of a differential equation for seepage consolidation to describe the settlement of soil, thawing of which can occur according to any law. -Journal summary

Dynamic properties

944135 ***Soil dynamics and geotechnical earthquake engineering. Proceedings of a seminar, Lisboa, July 1992***
ed P. Seco e Pinto, (A. A. Balkema), ISBN (hardback) 90 5410 310 8, price £50.00 (Dfl 135.00), 1993, 501 pp.

This volume contains 10 papers (abstracted separately) covering topics including laboratory tests on the dynamic properties of soils and gravels, evaluation of liquefaction potential, dynamic analysis of embankment dams, soil/structure interactions, seismic design and monitoring of geotechnical structures and the damage distribution in the 1992 Erzincan earthquake. The book is intended as a contribution to the International Decade for Natural Disaster Reduction. -G.E.Hodgson

944136 **Dynamic properties of soils and gravels from laboratory tests**
K. Ishihara, in: *Soil dynamics and geotechnical earthquake engineering. Proc. seminar, Lisboa, 1992*, ed P. Seco e Pinto, (Balkema), 1993, pp 1-17.

Dynamic analyses to evaluate the response of soil deposits and earth structures to seismic load applications have been finding increased application in geotechnical engineering. Various idealized models and analytical techniques are used to represent a soil deposit and to evaluate its response. Whatever procedure is used, it is necessary to determine the appropriate stress-strain and energy absorbing properties of the material in the deposit. Many attempts have been made to evaluate the dynamic properties of soil materials in the laboratory and in the field. In this paper, information of the dynamic properties of materials recently reported in Japan is briefly reviewed with emphasis on the shear modulus and damping values obtained for coarse-grained materials. -from Author

944137 **Evaluation of liquefaction potential**
W. D. L. Finn, in: *Soil dynamics and geotechnical earthquake engineering. Proc. seminar, Lisboa, 1992*, ed P. Seco e Pinto, (Balkema), 1993, pp 127-157.

One of the more significant factors leading to ground failure during earthquakes is the liquefaction of loose to medium-dense sands below the water table. The mechanics of liquefaction are now well understood and the potential for occurrence can be estimated with a reasonable degree of confidence. The magnitude of potential deformations at a liquefied site with contractive behaviour depends on the extent to which the driving shear stresses exceed the residual strength. The residual strength therefore is a key parameter controlling the extent and cost of remedial measures to limit deformations to tolerable levels. In this paper, procedures are presented for determining the potential for triggering liquefaction and for estimating residual strength. -from Author

944138 **Dynamic elastic tests for rock engineering**
A. F. Siggins, in: *Comprehensive rock engineering. Vol. 3*, ed J.A. Hudson, (Pergamon), 1993, pp 601-618.

This chapter is concerned with the practicalities of the dynamic testing of rock specimens prepared from core samples. Both pulse velocity and reasonance methods are included, together with a discussion of the influence of specimen geometry on the test results. In addition, a technique for the measurement of specific attenuation, Q, or internal friction, is mentioned. This parameter is a measure of the departure of the rock material from pure elastic behavior, and is known to be sensitive to the degree of microcracking in the sample. -from Author

944139 **Seismic investigation for rock engineering**
P. W. McDowell, in: *Comprehensive rock engineering. Vol. 3*, ed J.A. Hudson, (Pergamon), 1993, pp 619-634.

This chapter first summarises the basic principles of seismic surveying. Evaluation of rock fracture state by analysis of seismic wave propagation is detailed with other factors affecting wave velocity, such as water content and in situ stress. The assessment of elastic moduli is discussed before a case study is presented to highlight the principles discussed. -R.Gower

944140 **Dynamic indications of rock mass failure**
T. Vladut, in: *Comprehensive rock engineering. Vol. 4*, ed J.A. Hudson, (Pergamon), 1993, pp 695-714.

This chapter presents some of the microseismic contributions in relation to ground control for engineering practice both on rock and in rock (surface and underground). Engineering practice requires the evaluation of the pattern of failure development which, when intensive, may affect the purpose of the project. Estimation of hazardous releases of energy confronts a number of unknowns in which neither the state of stress nor the properties of rock materials are fully known. The monitoring of rock masses is an observational method in which the dynamic elements cannot be disassociated from the traditional rock engineering assessment. -from Author

944141 **Cumulative deformation of soft clay under cyclic loading**
Yan Shuwang, Yan Chi & Zhang Jianguo, *China Ocean Engineering*, 7(3), 1993, pp 341-348.

Reconstituted specimens are prepared by means of vacuum preloading. Both static and cyclic triaxial tests are carried out, with the specimens consolidated under different principal stress ratios. A finite element method is put forward for calculating the cumulative deformation of soft clay under cyclic loading. -Authors

944142 **Liquefaction potential of reinforced sand**
N. R. Krishnaswamy & N. T. Isaac, *Geotextiles & Geomembranes*, 13(1), 1994, pp 23-41.

A simple stress-controlled cyclic triaxial testing system developed for liquefaction testing is described. Using this system, a series of cyclic undrained triaxial tests were performed on sands with different densities and with different types of reinforcements to investigate the effect of reinforcement in enhancing resistance to liquefaction. It was found that the inclusion of reinforcement significantly increased liquefaction resistance. The reinforcement effect was more pronounced at lower relative densities and with reinforcements having higher stiffness and interface friction. Coir, a natural fibre, was found to be a good substitute for geosynthetics. -from Authors

944143 **Effect of dynamic loading on compressional behaviour of spunbonded nonwoven fabrics**
V. K. Kothari & A. Das, *Geotextiles & Geomembranes*, 13(1), 1994, pp 55-64.

The compressional behaviour of these types of fabrics changes with the dynamic loading cycles. The change in compressional behaviour with dynamic loading has been studied using laboratory equipment. After the application of a known dynamic load with a particular frequency for different durations, the needle punched spunbonded nonwoven fabrics show a very prominent change in their compressional behaviour, while the changes in the compressional behaviour in the case of the thermally bonded spunbonded nonwoven fabrics is relatively small. -from Authors