In other words, the stress and the strain states in the triaxial specimen are both non-uniform and unknown beyond the initial stages of the test, and therefore the stress–strain relationship measured is difficult to interpret and is not directly comparable to that obtained in the soil test box which maintains a uniform stress and uniform strain state throughout the test up to strains of a few per cent. When the strains in the soil in the box become larger, the adjacent membranes would protrude beyond the spacing frame so as to interfere with one another, and the sample would undergo uneven deformation. All the tests reported by Ko & Scott (1967a, 1967b, 1967c) developed maximum strains below the levels where interference of membranes began, and in none of these tests was a 'peak' behaviour observed in the stress–strain plot. Whether such a peak does occur when the soil is allowed to deform continuously without membrane interference in the box remains to be investigated and will receive attention from the Authors in their future work with the soil test box.

Although a great number of tests have been carried out on the conventional triaxial apparatus and reported in the literature, the Authors suggest that caution should be used in employing such test results as a standard of comparison for the stress–strain behaviour of soils as determined in other equipment. The Authors have also found it difficult to accept that some of the judgement and intuition developed by triaxial test experience might be misleading. It was one function of the investigation utilizing the test box and described by the above series of papers to explore the extent to which previous experience might be inadequate.

REFERENCES

Balla, A. (1960). Stress conditions in triaxial compression. *J. Soil Mech. Fdns Div. Am. Soc. civ. Engrs* **86**, SM6, 57–84.

Green, G. E. Correspondence on A new soil testing apparatus, by Ko, H. Y. & Scott, R. F. *Géotechnique* **17**, No. 3, 295.

Haythornthwaite, R. M. (1960). Mechanics of the triaxial test for soils. *J. Soil Mech. Fdns Div. Proc. Am. Soc. civ. Engrs* **86**, SM5, 35–62.

Ko, H. Y. & Scott, R. F. (1967a). A new soil testing apparatus. *Géotechnique* **17**, No. 1, 40–57.

Ko, H. Y. & Scott, R. F. (1967b). Deformation of sand in hydrostatic compression. *J. Soil Mech. Fdns Div. Proc. Am. Soc. civ. Engrs* **93**, SM3, 137–156.

Ko, H. Y. & Scott, R. F. (1967c). Deformation of sand in shear. *J. Soil Mech. Fdns Div. Proc. Am. Soc. civ. Engrs* **93**, SM5, 283–310.

Ko, H. Y. & Scott, R. F. (1968). Deformation of sand at failure. *J. Soil Mech. Fdns Div. Proc. Am. Soc. civ. Engrs*. To be published.

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STEREOGRAPHIC REPRESENTATION OF JOINT SURVEYS

(Price, D. G. & Knill, J. L., *Géotechnique* **17**, No. 4, 411–432)

While agreeing with the Authors that upper hemisphere projection is best suited to joint surveys, it would be of interest to know if the stereograms are based on a polar equal area stereographic net, since this net has the effect of grouping steeply dipping joints closer together, thereby artificially increasing the density of poles around the periphery of the stereogram.

It is considered that too small a contour interval often gives irregular contours which tend to mask the overall pattern of joint systems, whereas a larger contour interval of perhaps 2% might provide a clearer picture. Joint poles falling outside the 2% contour can be denoted by points and this enables any particularly dangerous joints to be recognized quickly. It appears that the stereogram contours in the Paper have been drawn using a circle of unit area to build up a pattern of densities on a grid system and the contours interpolated between grid points. More regular contours can usually be obtained by using the counting circle throughout. The entry points of contours into a stereogram should be diametrically opposite the exit points of the same contours on the other side of the stereogram. This can be achieved with a special counting device described by Phillips (1959).

These points may be regarded at first as rather academic but the joints which generally control slope stability fall towards the outside of the stereogram, consequently it is important to obtain as much accuracy and clarity in this region as possible.

REFERENCE

PHILLIPS, F. C. (1959). *The use of stereographic projection in structural geology*. Edward Arnold.

K. M. Pare,
Pre-Piling Surveys Ltd,
Peterborough,
8 January, 1968.

SOME RESULTS CONCERNING DISPLACEMENTS AND STRESSES IN A NON-HOMOGENEOUS ELASTIC HALF-SPACE

(GIBSON, R. E., *Géotechnique* **17**, No. 1, 58–67)

A number of correspondents have kindly drawn attention to errors in this Paper and have also requested further detailed information concerning the case when the load is uniformly applied at the ground surface over a circular area.

The errata are:

(*i*) A factor $(1+\xi z)$ is missing from the integrands both of equations (17) and (23).

(*ii*) In equation (41), and in the last equation on p. 66 which is derived from it, the kernel

$$K = \frac{2}{\pi}\frac{\sin(b\xi)\sin(x\xi)}{\xi}.$$

The kernel quoted in the text of the Paper remains correct for equations (39) and (40).

(*iii*) f should be replaced by $\bar{f}$ in equation (33).

(*iv*) Expression (29) should equal zero.

The passage from the plane strain solution, derived in detail in the Paper, to the axi-symmetrical case is not quite so straightforward as I suggested on p. 63 and again on p. 67. To avoid any possibility of misunderstanding I give below, in the notation of the Paper, for the axi-symmetrical case, expressions for the radial and vertical displacements u and w and those components of stress usually required:

$$u(r,z) = \frac{qb}{4m}\int_0^\infty \frac{J_1(r\xi)J_1(b\xi)}{\Lambda\xi\beta}e^{-\xi z}[\xi\beta F(\xi\beta)+1+\xi\beta F(\xi y)+2\xi\beta\log(\xi y)]d\xi$$