7th International Conference on Soil Mechanics and Foundation Engineering.
Mexico, 1969. V. 3, p.244 e 258, Main Session 2.

373

General Reporter V. F. B. de MELLO

I call upon our Chairman Prof. Tsytovich to present us his discussion using the same prerogative of limiting himself to 5 minutes.

General Reporter V. F. B. de MELLO (Brazil)

In the few minutes allowed for the parting remarks it will not be possible to insert any more than a very sincere vote of thanks for the many interesting contributions, and a very brief mention of some items that have brought forth the requested note of debate.

I should first take liberty to single out Dr. Rosenblueth's presentation as constituting a very important beacon for the development of the field along the lines proposed by my report. It was my task to look at the past and present: I chose to emphasize that the analysis should be statistical, the progress in the field being associated with a raising of the lower confidence level. Dr. Rosenblueth points to the future, asserting that the right approach to the design decisions should thereupon rely more and more on analysis based on decisions theory.

Regarding the problem of rough and smooth contact faces, brought out by Dr. Milovic, the interest in establishing the upper and lower bounds to the solutions is being frequently tendered mathematically: to my knowledge, however, very little experimental data exist to date to aid the design decision as to the behaviour to be associated with a given interface.

Moretto discusses the interference of a partial drainage under a footing, on the applicable strength parameters and bearing capacity equilibrium. Consolidation (drainage and/or absorption) will take place not merely under the "pressure bulb" postulated, but wherever the change of stresses has created excess pore pressure, and the dissipation of a localized pore pressure affects the surrounding soil elements (as would happen to the zones marked as undrained in Moretto's Fig. 3). It is my opinion that the complexities and uncertainties surrounding such situations will always fall back, at some point, into what was stated to be (P.52 of the State of the Art Report) a "basic premise of engineering practice, whereby, in the face of any problem, ever inescapably fraught with unknowns and uncertainties, the solution must be formulated for that set of working hypotheses which would ensure the necessary conservatism. "

Schmertmann brings out the importance of the E/c ratio in clays, in interpreting the Ncp values of static penetrometers. We have tended to consider that E/c varies very little because of a tendency for both values to vary together. The discussion constitutes an interesting example of improved confidence levels of correlations. Moreover, I take the liberty to emphasize the point, brought out by the discussion, that often the bane of field investigations has been the attempt to solve a single equation for two or more simultaneous unknowns. The conjugate use of the static penetrometer and the pressuremeter, as mentioned by Wambeke, constitutes a suggestion along the same line.

Kerisel's discussion on the influence of dimensions on the undrained Nc value in homogeneous clays really throws me into some confusion. Surely the dimension of the footing must be taken into account in using penetrometer results. But it has been my impression that this fact results from the excessive deformations (proportional to B) required to develop the failure, so that settlement criteria take over in establishing allowable pressures. Although experimental evidence of load tests on large diameters rarely goes to deformations of about 0.1 B as seems required, it as been assumed that at such a deformation the failure condition would reproduce approximately the Nc value, independently of diameter. Unless I have interpreted the discussion incorrectly, it seems that the clue given by Kerisel's Nc values of 2.5 and 1 is that he is referring either to what I would call Nc values, or to allowable pressure Nc values. It appears important to clarify this point.

As can be seen from the several contributions to this Session, we shall always have a lot of work ahead of us in complementing or revising present knowledge.