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*Comment addressed to J.D. Byerlee*

It is fundamental to focus attention on the theorectical principles behind any experimentation. And in new applications of very great impact and interest to Society and embracing many contiguous professional areas it is very important to check on the theoretical bases furnished by such contiguous disciplines.

The author is basically experimenting on the acoustic emissions during development of shear strains, a phenomenon already well enough established and quite logical. It is also well enough established that on repetition of a given stress cycle (including shear stresses), or on longer-duration stressing in materials not significantly strain-softening, there tends to be an attemuation of strains during subsequent cycles or with time.

The principal question lies with respect to the implied correlations between field and laboratory observations, without the support of the apparently logical and, today undisputed, theoretical principles behind both phenomena.

The field phenomenon of triggering shear strains (and corresponding acoustic or seismic emissions) by injection of fluid into the earth is easily explained by the increase of pore pressures, and thus the decrease of normal effective stresses (cf. work by Nabor Carrillo in the nineteen forties): the shear failure condition is thus easily approached.

On the other hand, the key statement concerning the author's laboratory experimentation is that water was injected at one end of the sample. By so doing one establishes a flow net and the sample is fundamentally subjected to an intergranular force in the direction of flow (axial), corresponding to the head loss, all of which can be easily computed. Thus the injection of the fluid at the top of the sample principally increased the axial load and deviator stress. The laboratory experiment can cause shear failure under exactly the same theoretical background as pertains to the field case, but one must guard against the false impression that may be caused by the statement "...the laboratory experiment...is closely analogous to the large-scale field experiments...." One might profitably recall the epic work on pore pressures and uplift pressures in concrete dams (cf. discussions between Leliavsky and Terzaghi) in the nineteen thirties, as a sequel to Terzaghi's effective stress principle enunciated for soils and all porous bodies.