

SEISMICITY AND EARTHQUAKE GROUND MOTION

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S U M M A R Y

The papers that have been presented on various aspects of the subject of Seismicity and Earthquake Ground Motion have given rise to much valuable discussion. Although some papers have appeared to engender more comment than others, the discussion has been relevant to the theme as a whole, and all authors have contributed to the body of information upon which the discussion has been based.

It has become abundantly clear that the central problem of estimating, for engineering purposes, the nature of future ground shaking due to earthquake, is a problem still fraught with difficulty and uncertainty. The three main reasons for this have been clarified by the conference papers and discussions.

First, one can only make more or less tentative statements about where and when severe earthquakes will occur in the future. Much thought is being given to the proper assessment of past seismicity, however, and with the accelerated accumulation of earthquake data that is now in progress the practical value of this work may be expected to increase rapidly. Theoretical approaches to the same question, while well worth undertaking, are to some extent hampered by inadequacies in present knowledge about the mechanism of the earthquake source.

Secondly, the very substantial quantity of data already available concerning large earthquakes of the past is nearly all in a form not directly applicable for engineering purposes. Views differ widely on the best means of translating intensity and magnitude into engineering terms, but progress is undoubtedly being made, and it seems likely that the attempts that are being made to use this wealth of data more effectively will meet with early success.

Thirdly, the amassing of recorded data in the form of ground motion parameters that are directly relevant to building design has scarcely begun. It is pleasing to note that a great increase is now taking place in the numbers of accelerographs in operation. There remains the difficulty, however, that the type of instrument that would yield the most useful information may be too expensive to produce in the very large numbers that are desirable. Some degree of diversity in instrumentation is of course advantageous because of the complexity of strong ground motion and the variety of parameters that might prove relevant to engineering requirements. It seems that this diversity in instrument design will be achieved.

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The conference papers and discussion have succeeded admirably in indicating the present state of knowledge in the subject of seismicity and ground motion, in enunciating the salient problems that require urgent attention, and in outlining the latest methods and techniques by which these problems may be attacked. The conference has thus served a most valuable purpose. It is the Reporter's view that the work that has been reported at, and added to, by this conference will help to stimulate advances at an unprecedented rate in the next few years, in all three aspects of the subject under consideration. Thus one may look forward to the presentation of important new results at the Fourth World Conference in 1969.