

SUMMARY REPORT - SESSION V

BY K. V. STEINBRUGGE ( \* )

Regarding the first paper by Dr. Ambraseys, the discussion on faults and surface faulting is of value from a city or town planning point of view. We have a serious problem in this regard. The information gained from surface manifestations of faulting is always quite valuable. It is important that this type of work be continued and be made generally available. For example, the great Mongolian earthquake of a few years ago has detailed data which is available only in the Russian language.

The interpretation of intensity values from vibration damage is not always simple. Serious exception could be taken with Dr. Ambraseys's statements regarding the accurate calculation of focal depths from isoseismal lines. It would be interesting to see well documented instances of this relationship.

The Iran earthquake discussed by Dr. Kobayashi found the usual damage and life loss with traditional Iranian construction. When there is repeatedly large life loss to types of construction that do not change, we are in a sense putting a monetary value to life. Sufficient information is now on hand to design earthquake resistive structures. Not to do so due to economic factors is, in a sense, equating life to money, and finding life to be the cheaper of the two.

The Iranians are to be commended for making available copies of their earthquake reports to the delegates at this conference.

The comment by Mr. Lensen on how to make the civil authorities, property owners, and the structural engineers aware of cumulative earthquake damage to existing buildings is a very serious one; the solution is obviously tied to politics and economics. Again, what is life worth? How many buildings can we tear down each time new knowledge is gained? This is an ever changing problem, and each year our standards must be higher.

Mr. Binder spoke about the gap between theory and practice. There are many evidences of this in the Alaskan earthquake which will be discussed tomorrow.

The definition of the term "good construction" is subjective in most cases. The definition will vary even within one country. We find that there are differences between northern California and southern California on the interpretation of an earthquake code that was jointly written. The damaged buildings in Alaska, if they met the SEAOC code, were not built according to the interpretation that was intended by at least some of the men who wrote the SEAOC code.

Cavallo of Italy also pointed out problems discussed by others - the problem of cumulative damage, poor earthquake repairs, non-functional

changes made to a building and thereby destroying whatever remaining resistance it might have had; the influence of soils; collapsed masonry which was not reinforced; and cohesionless mortar. Indeed, in Kern County, California, this mortar was called "buttermilk mortar", or mortar that held the brick apart.

Fournier D'Albe discussed the increasing UNESCO activities. It is very important that if missions are to be sent to damage areas that the resulting reports be published. If these reports are not published, then what is the function of the mission? Certainly its scientific value will be lost if the knowledge does not become public. This leads to Mr. Faulkner's comments regarding translation of earthquake reports. These reports are expensive to translate, of course, but this should be done.

The slides of bridge damage shown by Dr. Koderer are significant. Dr. Koderer's views on limited displacements of structural components need more attention by the average designer.

One lesson from the Libyan earthquake is that even in a country old enough to have a historical record beginning with Greek colonization is that the seismicity even there is still not well known. In other words, even long historical records still require judgement.

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