A NOTE ON THE EARTHQUAKE OBSERVATIONS

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The importance of earthquake observations has been discussed, and a questionaire has been prepared with a view to rendering the reported observations more objective.

In the absence of an adequate net work of seismological observatories it is hardly necessary to emphasize the importance of earthquake observations, as obviously these alone can provide the data necessary for earthquake studies. We broadly know the seismic belts of the world, and also the particular regions where earthquakes have occurred most frequently in the past and where they are most likely to occur again. We also understand something about the various geological and geophysical activities connected with their origin. In order to determine more precisely as to where they are most likely to originate, as well as the conditions which may minimise the damage caused by them, earthquake observations are of immense importance. In the seismic regions of this country, we have only a few seismological observatories and as the cost involved in building, equipping and maintaining them is enormous, one cannot hope that their number will increase in the near future. Moreover, the instruments normally installed in these observatories give hardly any ready data to earthquake engineers regarding the displacement, acceleration and strain of the ground in the wake of an earthquake. Also the instrumental records do not directly yield any information of public interest. The benefits of instrumental records are thus slow in materialising. Whereas, at times, quicker and more practical information may be obtained from the earthquake observatations. It can therefore be stated that the importance of the earthquake observations does not diminish even when the instrumental records are adequately available.

An earthquake may occur anywhere and at any time and one cannot expect an observer to be ready at the spot for making observations. This difficulty can be overcome by employing a fairly large number of observers or, even better, by getting the information through those who have observed the earthquake. The short duration of the earthquake vibrations imposes some limitations on the observations made, but if one starts looking into the effects of earthquakes on people, objects and structures built by man, as well as on

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animals and plants, he may be able to get a good deal of useful information, even though much still remains to be observed. The greatest handicap in earthquake observation arises from the fact that we are not able to see with an open mind what is happening but try to see some thing which we expect to occur, based on some preconceived notions imparted to us in childhood by dear old grandmother. An attempt on the part of an observer to forget all earlier impressions about the earthquakes and then observe what has actually happened will make the observations more useful and reliable. With this in view the following questionaire has been prepared and would, it is hoped, prove very useful to the engineering studies in connection with earthquake effects.

EARTHQUKE QUESTIONNAIRE.

1. General.

(i)	Location of the observer	:
(ii)	Nature of the ground	: Alluvial / Sandy / Rocky / Swampy / Loose / Compact
(iii)	Type and condition of the construction in the area of observation.	: Masonry / Timber / Reinforced-concrete /Steel. Single/Double storied. Poor/Satisfactory/Good condition.
(iv)	Density of inhabitation	: Thick/Normal (as in that region)/thin.

2. Earthquake Effect on People.

(i)	Date and time of feeling the earthquake	:
(ii)	Estimate of duration of shock (s) their number, interval between successive shocks	:
(iii)	Sound heard	: No/Booming/Roaring
(iv)	Nature of vibration	: Slow-rolling/Sudden/Rapid and continuous/ Violent/Destructive.
(v)	Direction of approach of wave (s)	: Observed/Not observed, Direction.....
(vi)	People felt earthquake	: At rest/In car/Unable to walk/Stand.
	People frightened	: None/Few/Many/All.
	People died	: None/Few/Many.

3. Earthquake Effects on Objects and Structures Built by Man.

(i)	Hanging objects like, pictures doors	: Did/Didnot swing. In.....direction.

(ii) Wall clocks : Stopped/Not stopped/Not available for observation.

(iii) Rattling of windows, doors and dishes : Observed/Not observed.

(iv) Loose objects like furniture : Not shifted/Shifted/Overturned. In....direction

(v) Crack (s) in Plaster/Wall (s) : Observed/Not observed in wall (s) facing..... direction.

(vi) Fall/Swing of building(s)/Post(s)/ Chimney(s)/Tower(s) : Observed/Not observed. In.....direction.

(vii) Rail Road / Road / Telegraph line out of line : Yes/No. Give direction of bend.....

(viii) Damage to bridge/Culverter/Underground pipe(s)/Cable(s) : Observed / Not observed / No such objects Present.

4. Earthquake Effects on Animals and Plants.

(i) Animals disturbed : Yes/No/Not observed.

(ii) Animals died : None/Few/Many.

(iii) Trees broken/up rooted : Observed/Not observed. Size.....Height of break.....Direction of fall.....

5. Earthquake Effects on Topography etc.

(i) Settling of Loose earth land slide/ Fracture : Observed/Not observed

(ii) Depression(s) Uplift(s)/Pond(s) / Crack(s) along crests of waves in ground formed : Yes/No.

(iii) Change in well/Ground/River/Pond water level : Observed/Observation not possible/Not observed.

(iv) Change in ground level : Obeserved/Not observed.

6. Remarks.

7. Observer.

Name, address and Signature of observer with the date of entries.

(Note: Directions should be approximated as N, NE, E, SE, S. SW, W and NW).

The above questionnaire is not intended to give an exhaustive list of what could be observed, but only to render the reports, as far as possible, free from personal error and prejudice. It is hoped that it will greatly enhance the value of the data provided by a volunteer who wishes to participate in the great venture of understanding the nature and consequences of earthquakes.