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Dr. Robert H. Bryan, Division of Licensing and Regulation, U. S. Atomic Energy Commission, Washington 25, D.C.

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Dear Dr. Bryan:

This is a kind of progress report. By the end of this week I expect to have all of the modified illustrations comp pleted; it is a tedious and time consuming job. I have looked further into the magnitude-intensity relationship and, in place of the simple relationship suggested by Gutenberg-Richter, have come up with a much more informative type of chart which will do as much as anything else to prove that the epicentral intensity in 1906 was MM-10 rather than anything less.

I have not had time to review the paperspassed out by Housner and Tocher at the Argonne Laboratory but hope to do so as soon as the illustrations are finished.

In connection with the discussion of resultant accelerations and velocities at the last meeting there are enclosed some results that I published in the 1940 Seismological Report of the Coast and Geodetic Survey on the El Centro andysis. This solution did not take into account the fact that there was some permanent displacement during the first few seconds of recording but I do not think this would make much difference in the over all picture. Perhaps this illustration should be included in my final report.

Sincerely yours,

Frank Neumann.

ACKNOWLEDGED

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U. S. COAST AND GEODETIC SURVEY

a "rotation period" described under the section on rotational characteristics.) This velocity added to the 24 cm, sec. for the superposed wave would account for the resultant velocity of 59 cm./sec.



The resultant displacement graph is shown in figure 22 for a period of 29 seconds and is timed in the same manner as the two preceding graphs. A somewhat more precise version of this graph for the first 12 seconds is shown in the original report. Figure 22 shows the

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UNITED STATES EARTHQUAKES, 1940

water of the major displacements rather than details needed to make

The maximum displacement is about 21 centimeters. The period is shown on the longitudinal component and may be taken as 8.2 words. The corresponding velocity would be about 42 cm./sec. which ties in well with the general range of velocities at the start of the resultant velocity curve. The corresponding acceleration would be about 80 cm./sec.² This is about one-fourth the amplitude of the superposed short-period accelerations, a ratio which is borne out by inspection of the acceleration curves.



FROUME 22.--- Resultant horizontal displacement, imporial Valley earthquake of May 18, 1940.

Vertical motion.--No attempt was made to combine the vertical motion with the borizontal to determine the nature of the vertical motion relative to the horizontal. An inspection of the acceleration record shows little tendency for the period to deviate widely from 0.10 second. In the early part of the record there are a number of turning points indicating periods as low as 0.03 second but they seem insignificant. The maximum vertical acceleration, 0.8 second after the start of the record is about 220 cm./sec.², and is associated with a period of 0.102 second. From the resultant horizontal acceleration graph it will be noted that this occurs while the horizontal accelera-

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