On a Method of Suppressing Air Tremors Occurring in Milne H. P. Seismograms.

By

A. Imamura, Sc. D.,

Extraordinary Member of the Imperial Earthquake Investigation Committee.

The principal disturbing cause in Milne H. P. Seismograms is probably the appearance of the so-called *air tremors*, especially in cold weather during night and early morning, which obscure the earthquake motion occurring at these times. This disturbance is known as an effect of convection current of the air within the instrument case, which cools in its upper part in consequence of quick radiation, while the air near the record-receiver and forming the middle layer in the case becomes comparatively warm under the influence of the lighted lamp.

Our instrument room is bounded with a metallic covering within a small building ($1.5 \times 1.8 \times 2.0$ m.) with wooden walls and a metallic roof.* This construction was evidently favorable for the occurrence of the disturbance in question, for the air tremors which occurred very much during the colder months could not be completely suppressed even under the contrivance due to Mr. Moos.† After carrying on the observation in this way for several winters, I have arrived finally at a means which seems to be fairly satisfactory.

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* See the *Publications of the Imp. Earthq. Inv. Comm.*, No. 16, p. 1.

† See Prof. Milne: Fourth Report of the British Association Seismological Committee.

Figs. 1–2 show the front and lateral views of the new arrangement. The shaded part is the brick pier upon which the instrument case represented with dotted lines is mounted. Over this inner case, another wooden covering shown in the figures with full lines was newly added. The new case is divided into two

Fig. 1.

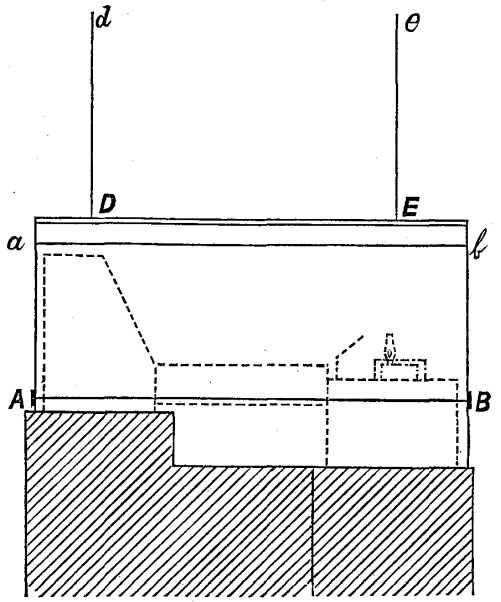
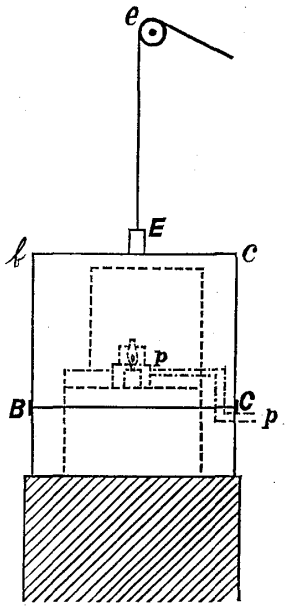


Fig. 2.



parts; the upper one, which fits closely to the lower along the lines AB and BC, can be lifted up by means of two suspenders Dd and Ee. The lamp is also covered with a small metallic case from which a chimney projects out. A fresh supply of air is to be drawn through the pipe pp from outside, while the colder air within the outer covering can escape from the lower side of the latter. Further, the covering is provided at the front side with a door and a window as the gates for the record-receiver and the lamp respectively.

The object of the present arrangement is to warm the upper layer of air within the two coverings and consequently to prevent the raising of convection current within the inner covering. Since

the instrument was covered with the outer case at the beginning of the last month it has not almost been affected by the air tremors, notwithstanding the season was hitherto an unfavorable one. During this experiment the free vibration period of the boom was kept at 15 sec., but perhaps it can advantageously be increased to 20 sec. or more without being much affected by any residual air tremors.

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