

# Note on the Transit Velocity of the Formosa Earthquakes of April 14, 1906.

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1. The time of occurrence of the severe Formosa earthquake in the morning of April 14, 1906,\* has been exactly observed by the present writer with a chronometer watch, at Taichu whose epicentral distance is about  $90^{km}$ . The earthquake was also satisfactorily registered by the Omori Horizontal Pendulums at Tokyo, whose epicentral distance is  $1710^{km}$  or  $15.^\circ 4$ . The times† of occurrence at these two places were as follows :—

{ Tokyo ... ..	...8 <sup>h</sup> 56 <sup>m</sup> 46 <sup>s</sup> A.M.
{ Taichu... ..	...8 52 22 ,,
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Difference ... ..	4 <sup>m</sup> 24 <sup>s</sup>

As the difference of the epicentral distances of the two places is  $1620^{km}$ , we obtain a mean transit velocity of  $6.15^{km}$  per sec.

2. The above earthquake was preceded by another shock of nearly an equal extension, whose time of occurrence observed at the Meteorological Observatory of Taichu was, with proper time corrections, 4<sup>h</sup> 18<sup>m</sup> 20<sup>s</sup> A.M. The time of the same earthquake registered by the seismographs at Tokyo was 4<sup>h</sup> 22<sup>m</sup> 20<sup>s</sup> A.M.‡ From these observations we obtain :—

{ Time difference between Tokyo and Taichu=	4 <sup>m</sup> 0 <sup>s</sup> .
{ Mean velocity                   ,,                   ,,                   ,,                   ,,	=6.75 <sup>km</sup> per sec.

\* See page 66.

‡ These times are given in that of longitude  $135^\circ$  E.

3. Supposing the value of the transit velocity given in § 1 to be twice as accurate as that given in § 2, and taking the mean, we obtain :—

$$\text{velocity} = 6.35^{hm} \text{ per sec.}$$

This value which relates to the distance difference between the epicentral arcual length of  $0.^{\circ}8$  and  $15.^{\circ}4$ , although it is the result of calculation by the *difference method*, is really that calculated by the *direct method*, as one of the places taken for comparison, namely, Taichu, was quite near the earthquake origin.

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