34. *On the Horizontal Shift of the Dislocations accompanying the Recent Destructive Earthquakes in the Kwantō District and in Tango Province.*

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It is well known that the Go-mura fault, the larger of the two dislocations accompanied by the recent Tango earthquake, actually shifted horizontally as much as 270 cm. The present writers have devised a method other than that of direct measurement for estimating the amount of shift by taking into consideration the relation which may exist between the distance of each geodetic station from the fault and the horizontal displacement caused at the corresponding station by the earthquake. For this purpose, they selected only such stations as were situated on, or near, the straight line drawn at right angles to the fault through the point of its maximum shift. (See Fig. 1.) In Table I and II, x indicates the distance of each station from the fault line, and y the displacement of same parallel to the fault. The displacements

Table I.

Station	Kinosaki	Nyou	Isosunayama	Simooka	Yosizawa	Itigao	Taikoyama	Oohara
x	—21.5 ^{km.}	—7.0	—4.7	—0.7	5.0	10.6	14.8	20.4
y	—21 ^{cm.}	—91	—65	—153	—	31	16	—13

Table II.

Station	Kinosaki	Nyou	Isosunayama	Simooka	Yosizawa	Itigao	Taikoyama	Oohara
x	—21.5 ^{km.}	—7.0	—4.7	—0.7	5.0	10.6	14.8	20.4
y	—10 ^{cm.}	—87	—48	—127	86	70	38	25

here tabulated were computed from the results of trigonometrical observations carried out before, and after, the earthquake, under the assumption that Tokonooyama and Karasugatake, the two southern-

Fig. 1.

most stations in the surveyed area, suffered no displacement. The values of y in Table I are deduced from the observations of 1884-1888 and June, 1927, while those in Table II are based on those made in 1884-1888 and Aug., 1927. Plotting them as in Fig. 2, the data in the second table are found to give more satisfactory results than those in the first table; this possibly suggests that the complete adjustment for balance after the earthquake required a few months time. The curve showing the relation between x and y has two branches; the intercept of the axis of y by these branches corresponds to the shift of the fault and is found to be in fair agreement with the result of actual measurements.

The same method has been applied to the case of the Kwanto earthquake of 1923. Here the great fault across the bottom of Sagami Bay from NW to SE

Fig. 2.

is concealed under water ; its existence was at first revealed as the result of elaborate surveys carried out by the Naval Hydrographers. According to Prof. N. Yamasaki, the situation of this fault is likely to be in the place as shown in Fig. 3, its active centre being located somewhere

Fig. 3.

near a point equidistant from Misaki, Mera and Oosima. Selecting the trigonometrical points situated on, or near, the straight line drawn at right angles to the fault through the active centre, the distance x from the fault to, and the horizontal displacement y parallel to the line of, each station work out as shown in Table III. The values of y in this

Table III.

Station	Banzirodake	Oosima	Sengeniyama	*Bôno-Ooyama	Hutagoyama	Ookawa	Nokogiriyama
x	-41.5 km.	-20.0	8.9	24.7	30.2	34.6	44.1
y	216 cm.	254	-221	-116	-267	34	-256

Table III. *Continued.*

Station	*Mineoka	Kanosan	Kuranami	*Nonoduka	Ootani	Rokudzô	Itinomiya
x	50.5 ^{km.}	56.1	69.1	71.1	71.1	87.1	95.7
y	-57 ^{cm.}	-139	-37	-70	-50	-7	-17

* Rather far from the axis of x .

table have been computed from the results of trigonometrical observations carried out, first in 1884-1899, and, later, in 1924-1925, the assumption being that the position of Teruisiyama, the northernmost station in the surveyed area, and the azimuth from it towards Tukubasan, the next station, underwent no changes during the two extreme periods. Plotting these data as before, and then drawing the curve which shows their mutual relationship (Fig. 4), the intercept of the axis of y by the

Fig. 4.

x Station rather far from the axis of x .

two branches of that curve comes out as 8 meters. This corresponds to the horizontal shift of the great fault which is believed to have occurred in Sagami Bay in 1923. It has been worked out under the assumption that the structural features of the land and of the sea-bottom do not differ in their physical characters. There is, however, reason to regard the

latter as being more plastic than the former, so that the actual yielding of the structure under the sea might have been somewhat greater than that calculated. At any rate, it may be said that the remarkable shift of 8 meters is not in the least an overestimate.

In conclusion we desire to express our sincere thanks to the staff of the Military Land Survey Department who have so kindly placed at our disposal the results of their elaborate work.