145. On the Active Faults in the Kyoto-Osaka District.

By Akitune IMAMURA, M.I.A.

Seismological Institute, Tokyo Imperial University.

(Comm. Dec. 12, 1929.)

Regarding the course of the River Yodo, a prevalent view, formerly, was that it might be a seismogenic line, although it was later abandoned. According to Dr. T. Ogawa, Dr. S. Nakamura, etc., the active tectonic lines in this district, as in others, seem to be indicated by certain meridional lines such as the Yamazaki fault, the Higasiyama line and

Fig. 1.

the Daigo line. These tectonic lines may indeed be *geologically* active; I shall deal here with two that are active *at present*—the Yodo line and the Daigo line. Thanks to the splendid support by the Military Land Survey Department, precise levellings were repeatedly carried out along the routes, one linking Suita near Osaka with Ootu via Kyoto and the other linking Kyoto with Kameoka. The results of these surveys having been placed at my disposal through the courtesy of the staff of the said Department, it is now possible for me to briefly report on the results of my studies in connexion with the present problem.

Fig. 2 indicates the changes of land-level undergone by the first-named route, the broken and the full lines corresponding to the changes undergone during the 14 years interval from 1885 to 1899, and of the 31 years from 1897 to 1928, respectively. It will be noticed that the

Fig. 2.

change of land-level, especially by the tilting of a particular block, the Yodo-Daigo block, undergone during the first period is about two-third of that undergone during the latter period, which goes far to prove the accuracy of our estimates. The so-called Yodo-Daigo block is bounded in the west by a meridional line passing through the towns of Yodo and Oka, and in the east by the Daigo line. Its chronic tilting is so conspicuous that the tilted amount was as much as 8 sec. in the brief interval of 44 years; the most considerable ever observed in Japan. This tilting may be regarded as having occurred at a rate slightly accelerating towards the end of the whole period.

The chronic tilting thus revealed teaches some important lessons in the study of the seismicity of the district, both in the past and for the future. During the past 400 years, the locality concerned was visited twice by local destructive earthquakes, first on Sept. 5, 1596, and then on Aug. 19, 1830. Husimi received the brunt of the first shock and Kyoto, especially its N part and NW suburbs, that of the second shock. This would suggest that the shocks were associated with acute tiltings of the block in question, the active centres having migrated, as they have frequently done in other regions. As regards the question whether the chronic tilting now going on is a harbinger of a future earthquake or not, it would be one deserving earnest attention; meanwhile it is reserved for future study.