

# INTRODUCTION.

---

## HISTORY OF THE CATALOGUES.

In order to determine the number of shocks which are felt per year in Japan, and to obtain some general idea as to their distribution, in 1880, with the assistance of Mr. Toshiwo Nakano, the present writer communicated with residents in all the principal towns of the Empire, asking them to furnish information about the seismic activity, both past and present, of the districts in which they resided. An examination of the replies which were received led to the conclusion that on the average there were 3 or 4 shocks per day, or for Japan alone there were as many shocks per year as Prof. Heim had calculated for the whole globe. (Trans. Seis. Society, Vol. IV., page 30.) In the following year in order to determine the extent of country which was shaken by a given shock, bundles of post cards were sent to very many towns and villages within a range of about 100 miles of Tokyo, with a request that every week one of these cards should be returned with a statement of the earthquakes which had been felt. The result of

these communications showed that nearly all the shakings which disturbed Tokyo came from the east and north and seldom passed beyond the mountain ranges to the west and south. These facts having been established, the barricade of post-cards was extended northwards until it reached Sapporo, which is about 450 miles north from Tokyo. With this system between October, 1881, and October, 1883, 387 earthquakes were recorded, for each of which a map was drawn showing the area which had been shaken and the approximate centrum from which each disturbance had originated. To render the observations more complete, one or two watches were given to telegraph operators, a few of the more enthusiastic observers provided themselves with good time-keepers, and seismographs were sent to the following stations :—

	Geo. Miles.	From Tokio.
Nagasaki .....	550	W.S.W.
Kobe .....	240	W. by S.
Yokokama .....	15	S.W. by S.
Chiba .....	17	E. by S.
Kisaradzu .....	15	S.E. by S.
Kamaishi .....	120	N.N.E.
Hakodate .....	375	N. by E.
Sapporo .....	450	N. by E.

From these observations it was definitely shown that the greater number of earthquakes had their origin along the seaboard or beneath the ocean, that the volcanic and mountainous regions of Japan are singularly free from shakings, and that the country might be divided into seismic regions (Trans. Seis. Soc. Vol. VII. Part II.). The establishment of these and other important results in 1884, led the Imperial Meteorological Department, then under the direction of Mr. Arai Iku-

nosuke, to undertake the continuation and extension of investigations, the labour and expense attending which were altogether too great to be borne by an individual. On the retirement of Mr. Arai, the work was continued by Mr. K. Kobayashi, the present Director of the Bureau, and it is to his kindness that I am indebted for access to the vast amount of material that has been accumulated. The observing stations from which this material is being derived, and which for the last two years has been pouring in at a rate too fast for analysis, are as follows :—

Gunyakusho (district offices).....	804
As several of the smaller of these are controlled by their larger neighbours, post cards and letters are only forwarded from 527 <i>guns</i> .	
Kencho (Offices at the capitals of Provinces)...	43
Fu (large cities) Tokyo, Kyoto, and Osaka.....	3
Light-houses.....	63
Light-ships .....	3
Meteorological Observatories .....	52
(Of these 39 have instruments)	
Total number of reporting stations ...	968

The information derived from these stations, which are distributed over the Empire, or an area of 140,000 square miles, is from time to time supplemented by records obtained from stations under the control of the Imperial University and those of private observers.

When an earthquake is felt, according to the area over which it has extended the number of post-cards, letters, and diagrams which may be received at the central station vary between 3 or 4 and several hundreds. From the catalogue it will be seen that between 1885 and 1892 more than 8,331 shocks have been

recorded and for each of these a separate map has been drawn. To draw these maps, which has been entirely the work of the Meteorological Department, it is possible that 80,000 to 100,000 documents were examined. For reducing this bulky mass of matter into the comparatively small and accessible form in which it is now presented, my thanks are due to Mr. M. Suzuki, a former assistant of the Meteorological Bureau, who has worked with me, pointing out doubtful information, translating papers, calculating areas, determining centres, filling in maps, and in carrying out other tedious operations for the last twelve months.

The chief reason for terminating the catalogues at the end of 1892 is because the material subsequent to that date has not yet been reduced to the map form, and to examine all the documents necessary to accomplish this would have occupied at least another year; also it may be added that what has been done is in all probability sufficient to determine whether work of this description is likely to lead to results of sufficient importance to guarantee its continuance.