18. *Relation between Seismic Intensity and Epicentral Distance.* (1)

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We have a number of destructive earthquakes in recent years, and have made investigations by means of post-card method in every time. Here we will state a little about the relation between seismic intensity and epicentral distance.

Seismic intensity scale that we adopted is fairly like Mercalli-Sieberg scale, which Prof. Kawasumi made. We sent post cards and had primary schools in every village, town and city fill blanks and return them. Thus we determined the intensity of every locality, and then calculated the mean intensity of every epicentral distances. The results are shown in figures 1~8. Straight line in the figure was determined by least square, assuming an experimental formula.

$$I' = a + b\Delta \quad \cdots\cdots \text{ (unit of } \Delta, \text{ 100 km)} \quad \cdots\cdots\cdots \text{ (1)}$$

If we exclude a part where Δ is small, it will not be inappropriate to assume this formula.

In Tab. I, name, origin time, epicentre, a, b, and M′ of every earthquake are shown. M′ is defined as the value of I′ in (1) at Δ=100km and implies the magnitude of earthquake. Data of Mino-Owari earthquake are those gathered by Milne.

Table I.

Fig.	Name	Origin Time	Epicentre		a	b	M'
8	Mino-Owari	1891· X ·21	136.6°E,	35.5°N	8.4	— .94	7.5
2	Tottori	1943· IX ·10	134.2	35.5	6.3	— .94	5.4
5	Noziriko	1943· X ·13	138.2	36.8	3.5	— .95	2.4
1	Tô-nankai	1944·XII· 7	136.2	33.7	8.3	—1.04	7.2
6	Mikawa	1945· I ·13	137.0	34.7	5.7	— .76	4.9
3	Hatinohe-Oki	1945· II ·10	142.1	40.9	6.6	— .75	5.8
4	Nankai	1936·XII·21	135.6	33.0	8.0	— .71	7.3
7	Hukui	1948· VI ·28	136.3	36.2	7.5	—1.40	6.2

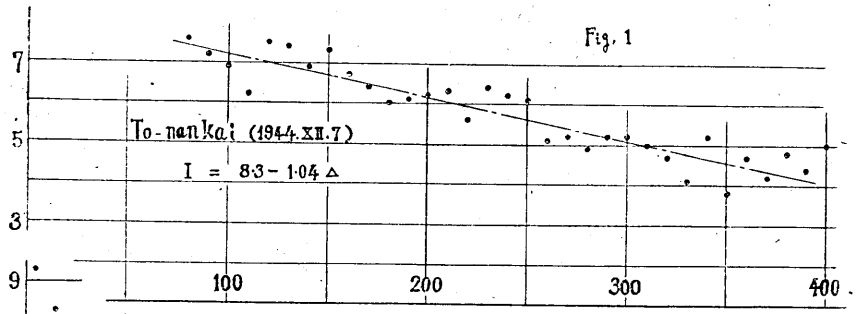


Fig. 1
To-nankai (1944.XII.7)
I = 8·3 - 1·04 Δ
7
5
3
100
200
300
400

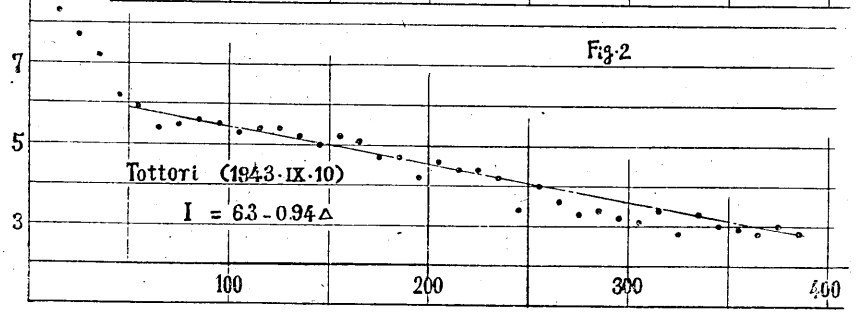
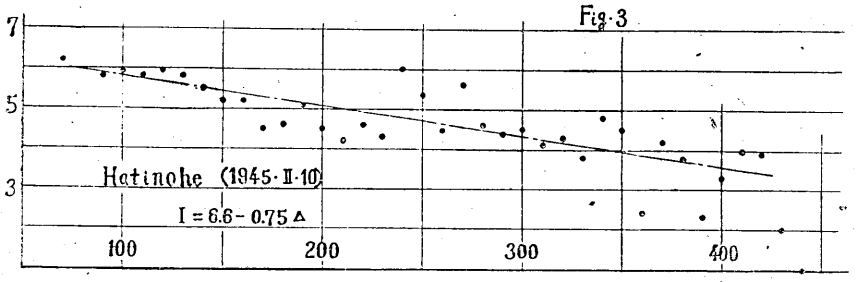


Fig.2
Tottori (1943·IX·10)
I = 6.3 - 0.94 Δ
7
5
3
100
200
300
400


Fig·3
Hatinohe (1945·II·10)
I = 6.6 - 0.75 Δ
7
5
3
100
200
300
400

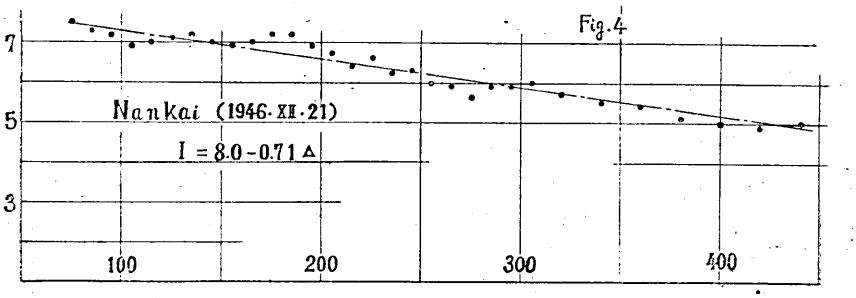


Fig.4
Nankai (1946·XII·21)
I = 8.0 - 0.71 Δ
7
5
3
100
200
300
400

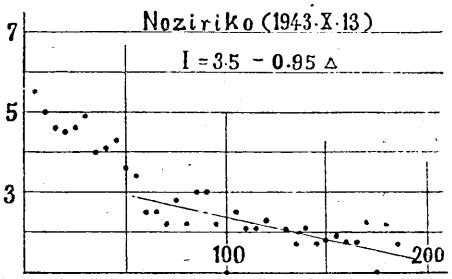


Fig. 5

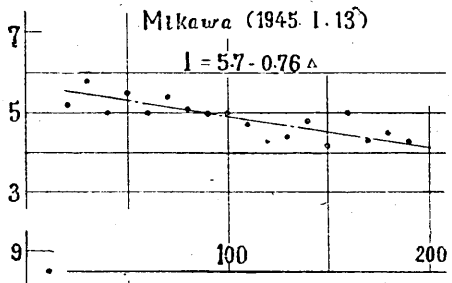


Fig. 6

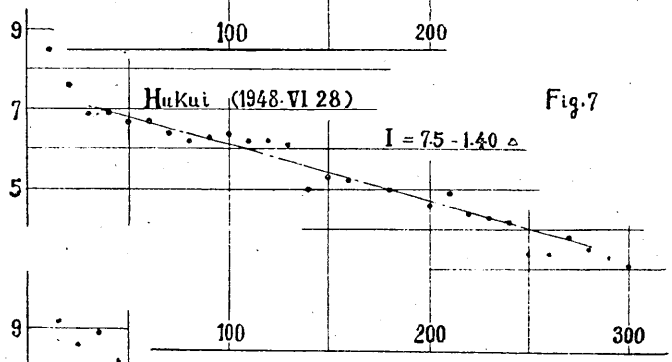


Fig. 7

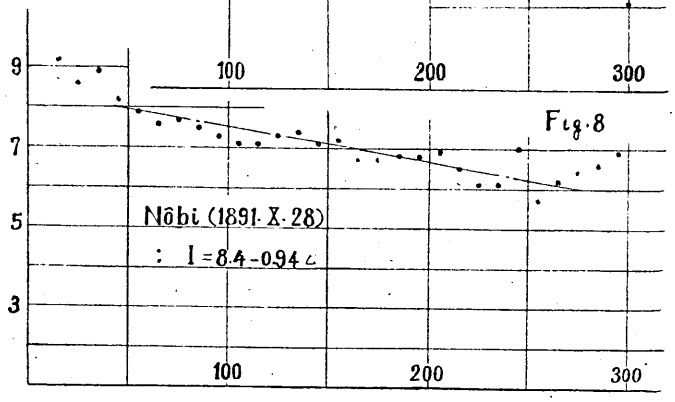


Fig. 8