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BIGGEST EARTHQUAKE IN JAPAN

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The severe earthquake and subsequent tsunami hit the coastal of northern part of Japan shortly after noon on May 26, 1983. The magnitude of earthquake was 7.7 on the Richter scale. This earthquake is called "Japan Sea Chubu 1983 Earthquake" by the Meteorological Agency. So far it was one of the biggest earthquakes in Japan. The list of major earthquakes and tsunami are given in Table—1.

Table 1—Major Postwar Earthquakes and Tsunami

Date	Magnitude (Richter Scale)	Main Areas Damaged	No. of Dead and Missing Persons
December, 1946	8.1	Southern Kinki and Shinkoku Regions	1,464
June, 1948	7.2	Fukui	5,168
March, 1952	8.1	Southern Hokkaido and Northern Tohoku Regions	36
May, 1960 Tsunami caused by big earthquake in Chile		Sanriku Areas	139
June, 1964	7.5	Nigata	26
February, 1968	5.7	Miyazaki	3
May, 1968	7.9	Hokkaido and Tohoku	52
May, 1974	6.9	Izu Peninsula	30
January, 1978	7.0	Izu Peninsula	25
June, 1978	7.5	Miyagi	27

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The investigation team, composed of the writers, with the first name designed as the Team Leader, rushed to the distress spot immediately after the earthquake occurred. It is the nation's worst earthquake in 35 years in Akita.

The epicenter of earthquake was located about 40 kilometers below the sea of Japan and about 160 kilometers away from the coast of Akita in the Japan sea (Fig. 1). The intensity of present earthquake in different places of Japan are shown in Fig. 2 on the Japanese scale of 7. The shaded areas were hit by tsunami also hit the south Korean coasts almost 90 minutes after the earthquake.

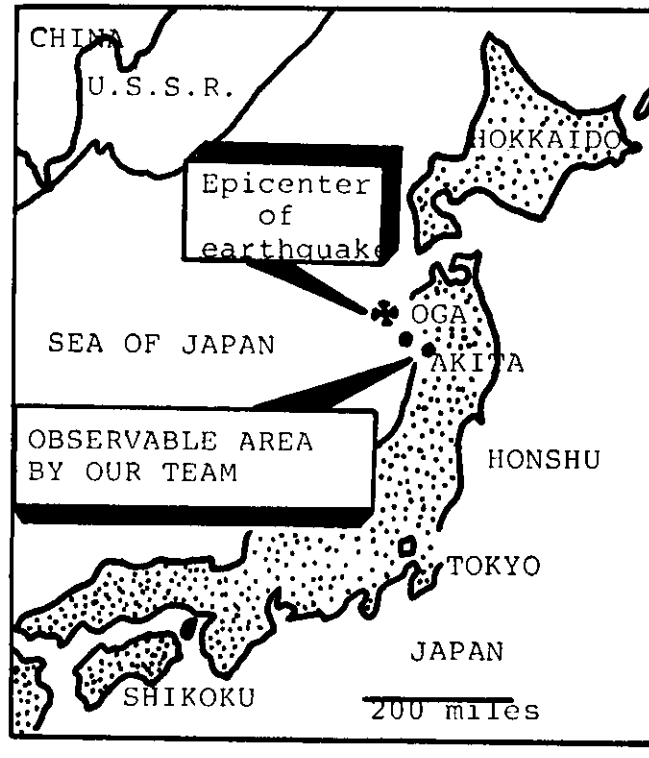


Fig. 1. Epicenter of Recent Earthquake in Japan.

The observation team of Tohoku University could not detect any sign as a harbinger of present major earthquake. The Geographical Survey Institute observed that the western parts of Oga peninsula tend to rise at a rate of 5 mm per year. But this is still uncertain to comment that this present earthquake is due to these upheavals. Even then, the ultramodern monitoring equipment did not record any warning signals prior to this earthquake. In 1978, the government particularly took the initiative to detect the large—scale earthquakes on the western part of Akita prefecture and the northwestern area of Yamagata prefecture, but no one could predict this earthquake.

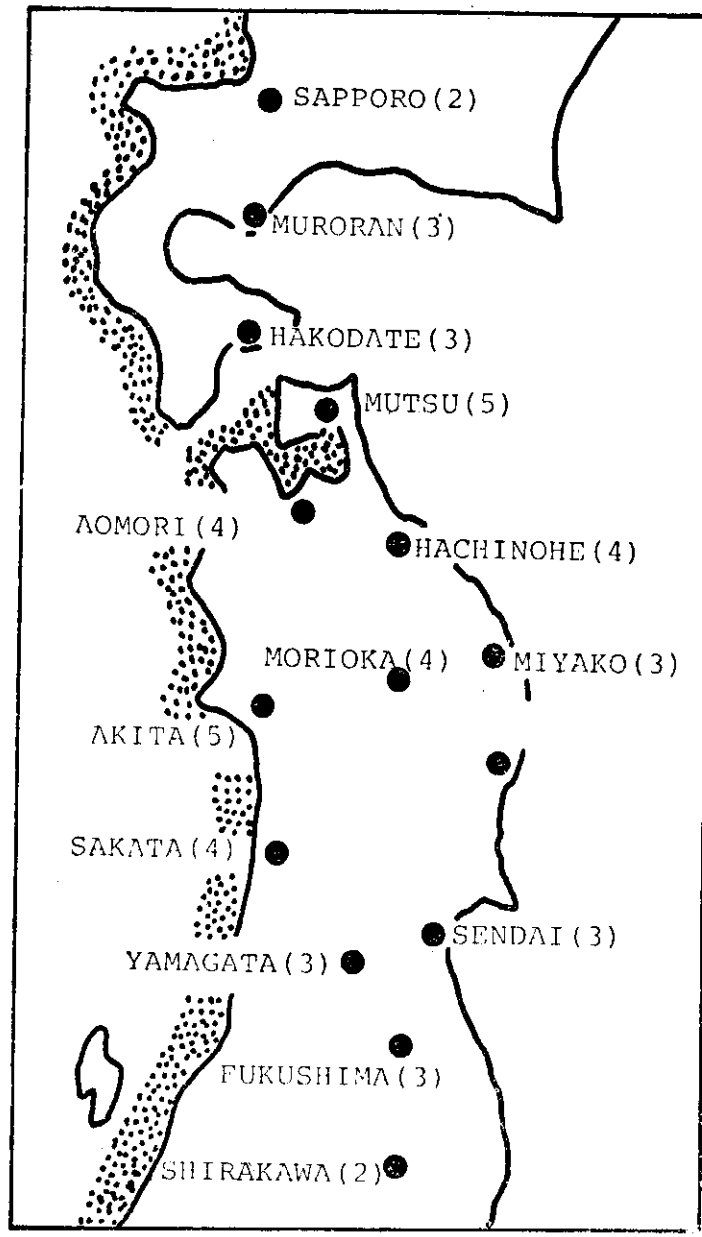


Fig. 2. The Intensity of Recent Earthquake in Japan.

The recent earthquake and tsunami spread over the eight prefectures of Japan. The residential buildings, numerous roads, highway and bridges of Akita have been shown cracks due to the earthquake as given in Figs. 3 to 14.

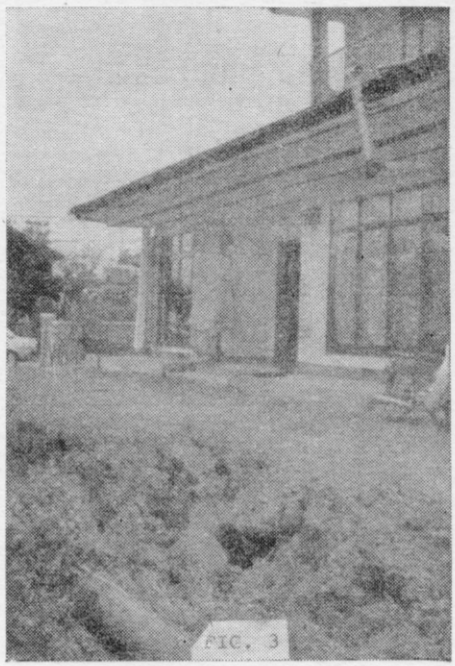


FIG. 3

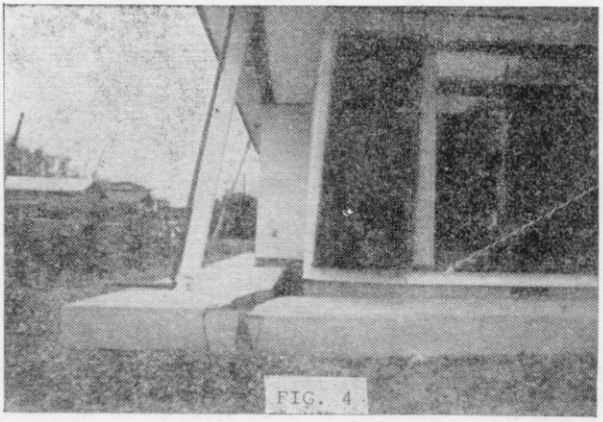


FIG. 4

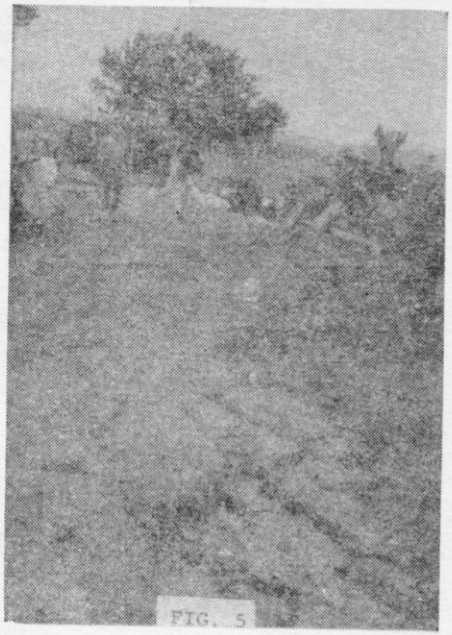
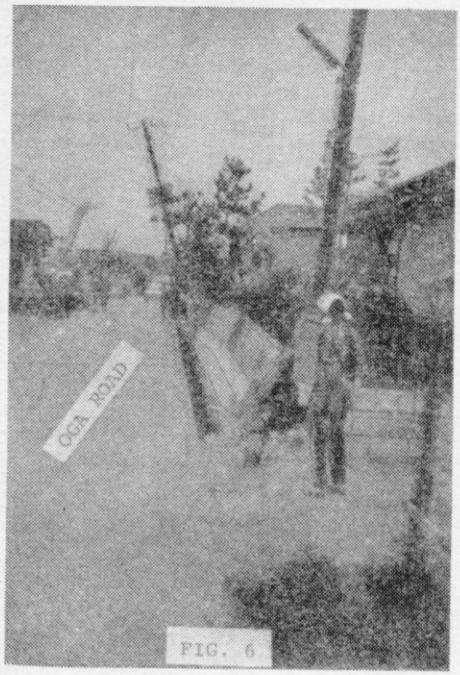


FIG. 5



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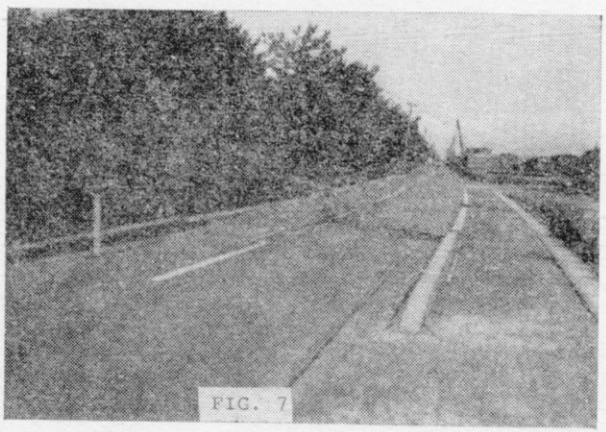

FIG. 7

FIG. 8

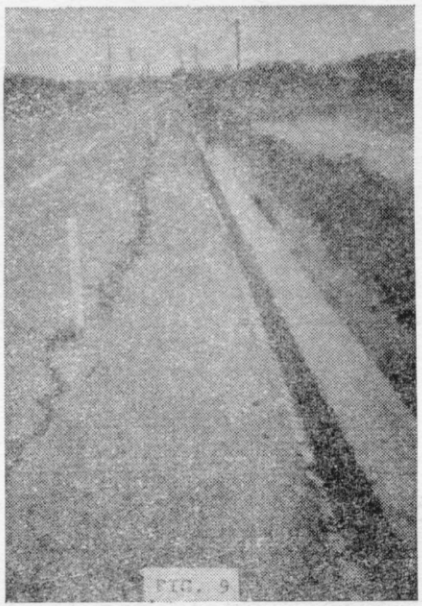

FIG. 9

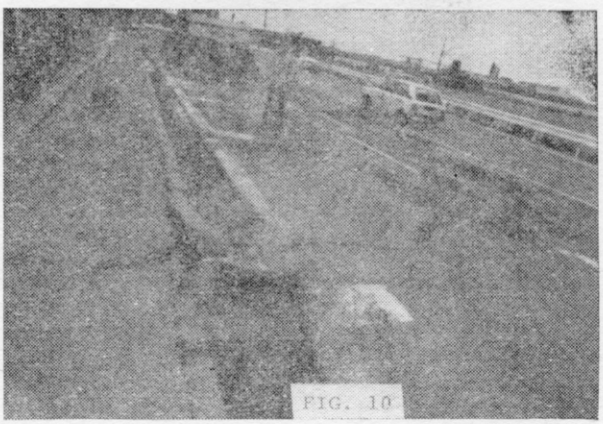

FIG. 10

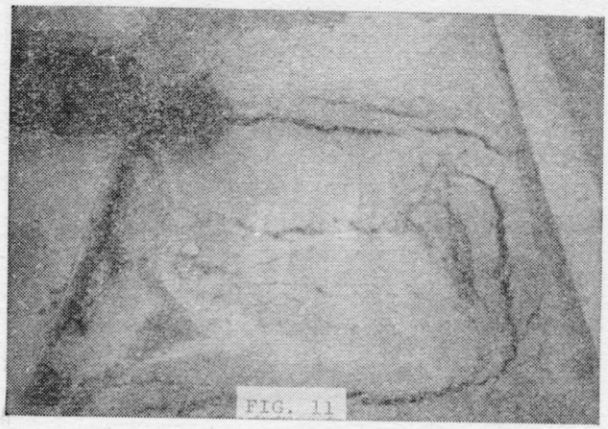

FIG. 11

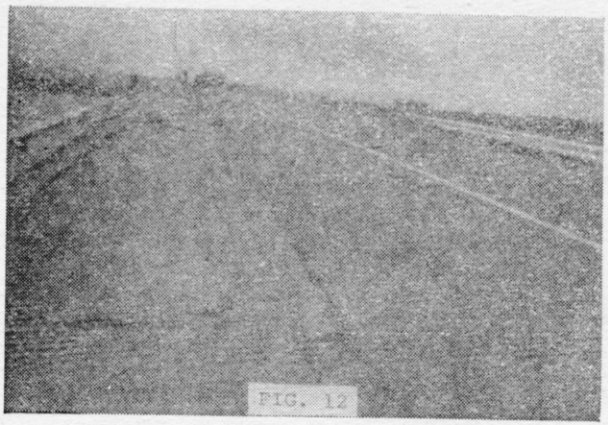

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FIG. 14

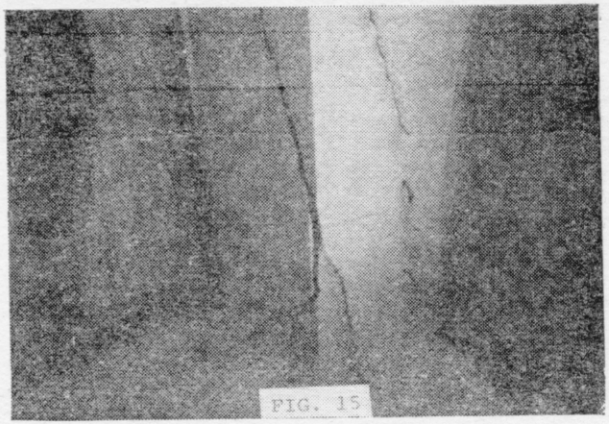

FIG. 15

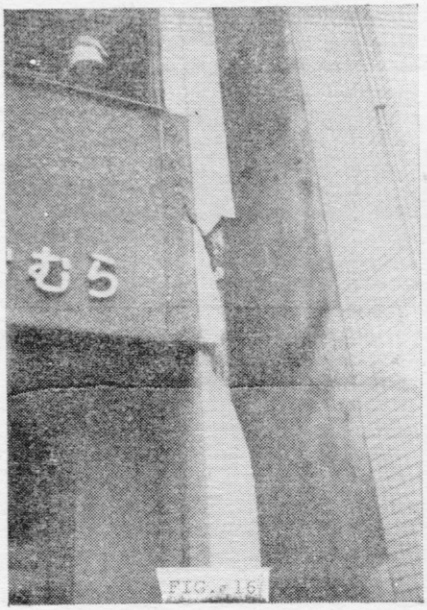

FIG. 16

The columns of the building have been damaged (See Figs. 15 to 20). Liquefactions have also been observed in some places of Akita and the pattern of

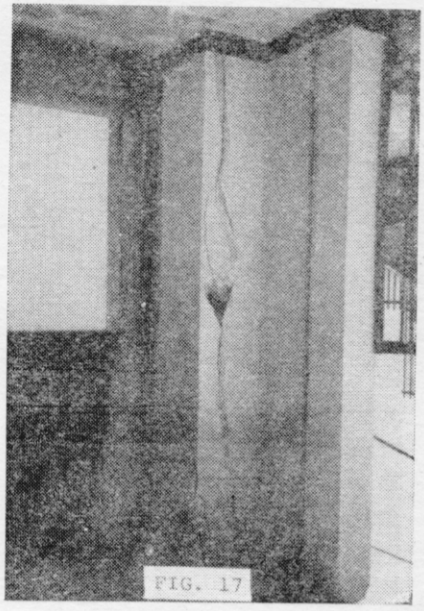

FIG. 17

FIG. 18

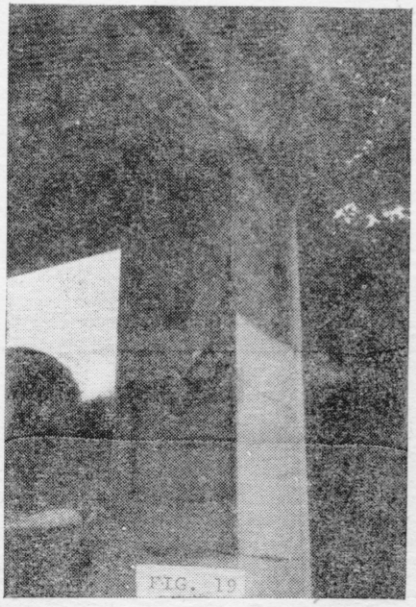

FIG. 19

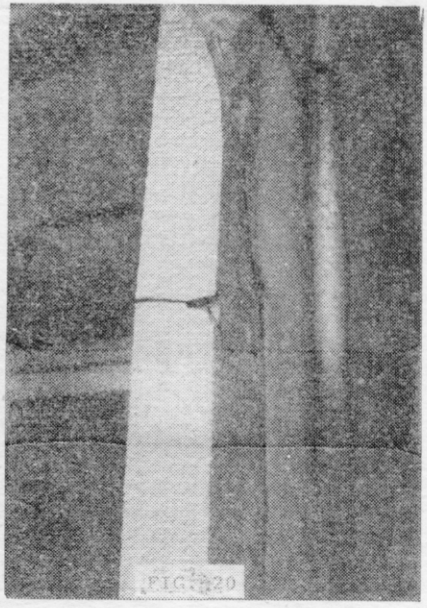

FIG. 20

liquefactions are shown in Figs. 21 to 25. The railing of the road has been shifted due to earthquake (See Figs. 26 and 27). The pipe line, the sea port and the crane have also been damaged as shown in Figs. 28 to 31 due to recent severe earthquake in Japan.

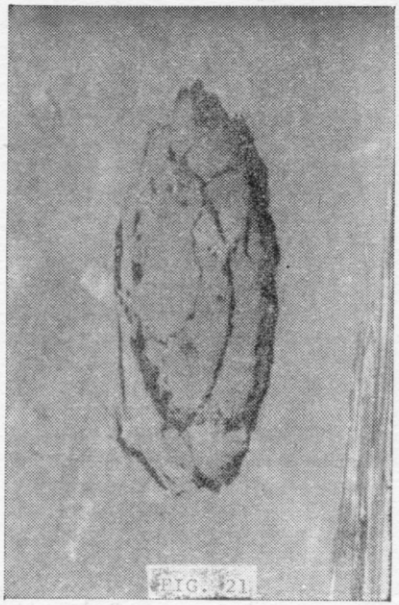

FIG. 21

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FIG. 23

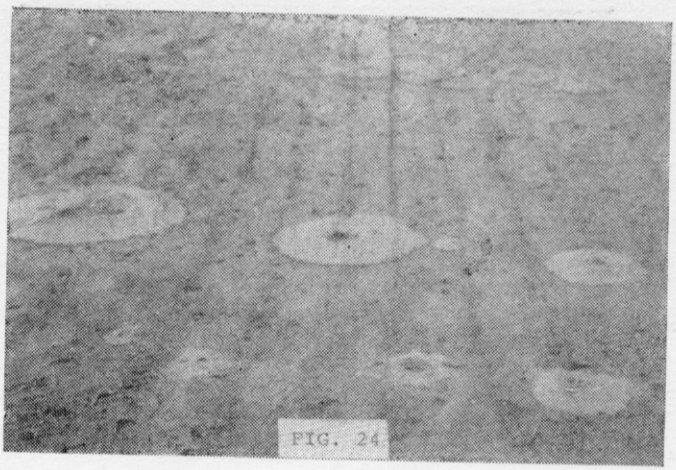

FIG. 24

FIG. 25

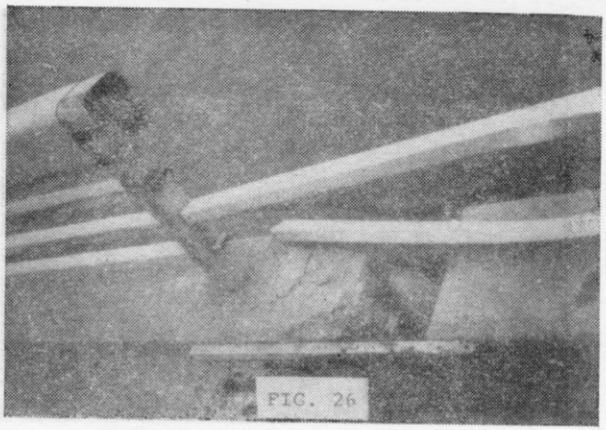

FIG. 26

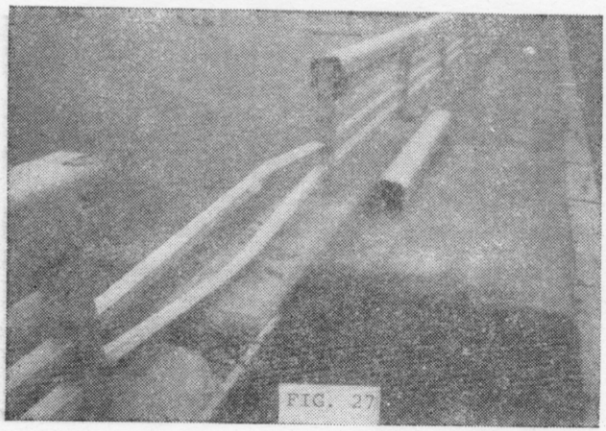

FIG. 27

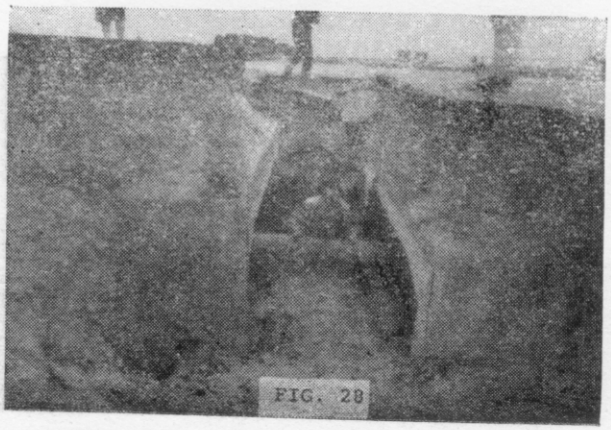

FIG. 28

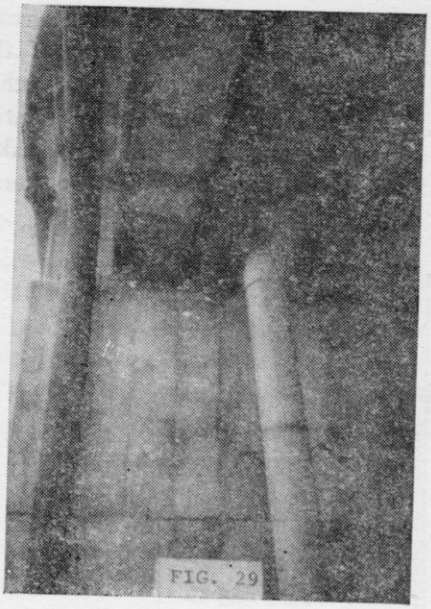

FIG. 29

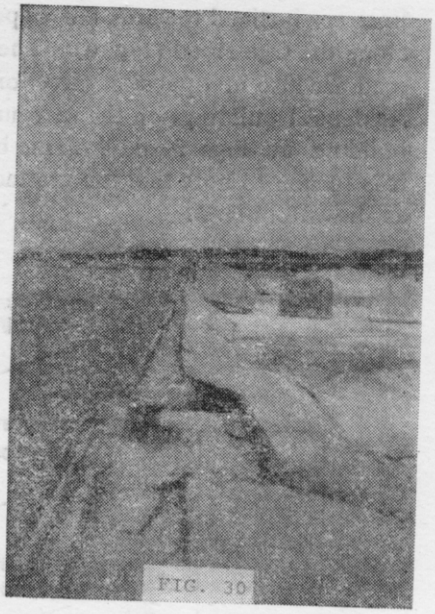

FIG. 30

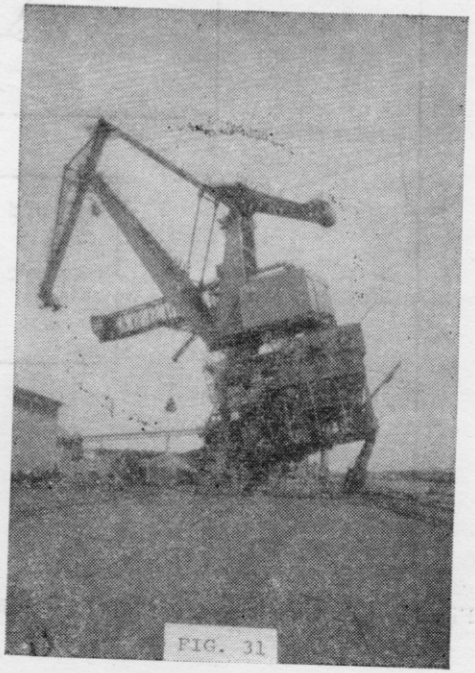

FIG. 31

From the Fig. 32, it is interesting to note that the pole of power supply lines are inclined towards the opposite direction as shown by small arrows along the Oga Road (Fig. 6). The inclination of the concrete fencing of the road are also in opposite direction as shown by large arrows. No other residential buildings on the surrounding areas damaged but the residential building of Figs. 3 and 4 (Same building) was damaged due to earthquake. It is further to note that the ground surfaces show the shear crack patterns as shown in Fig. 5.

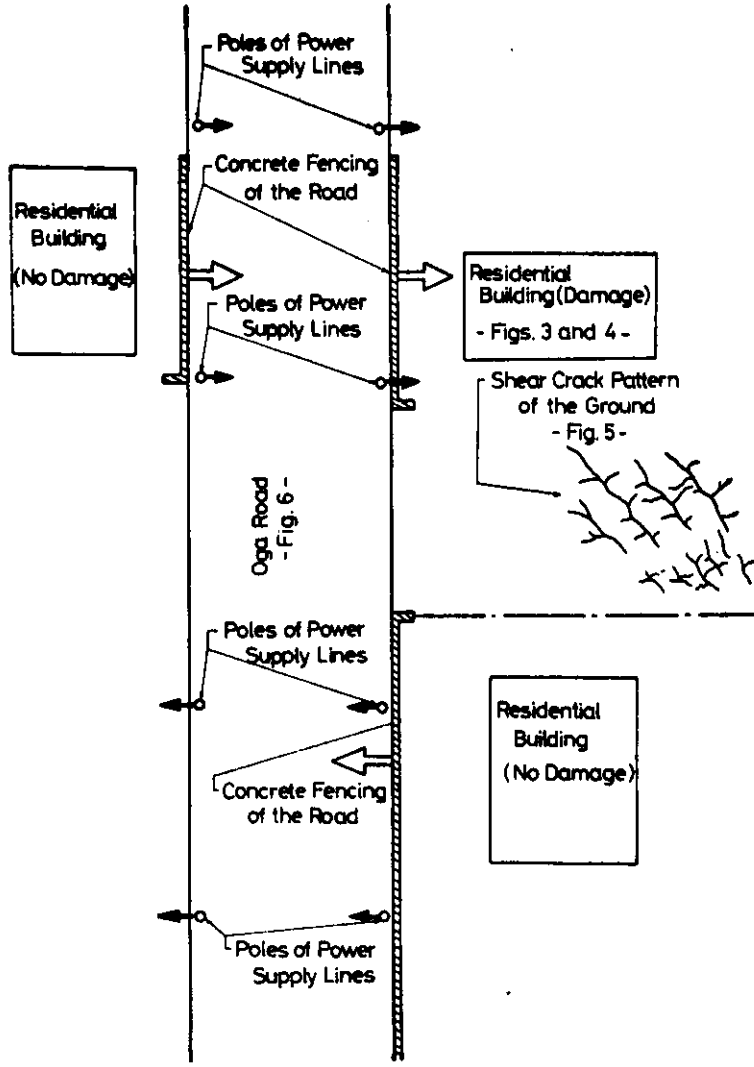

Fig. 32. Schematic Diagram of Road and Buildings.