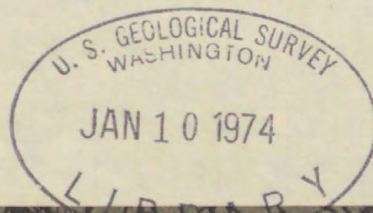
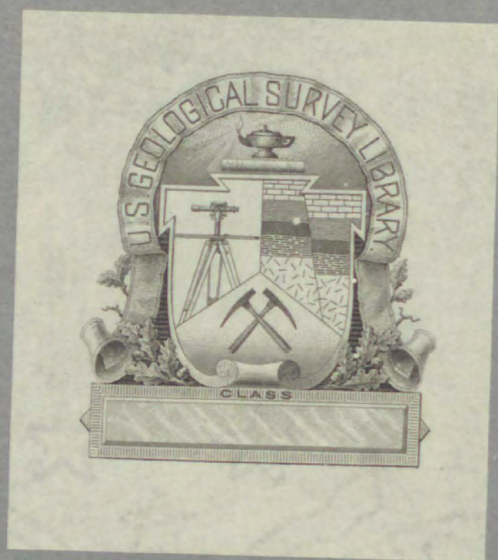


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PRELIMINARY REPORT

DANVILLE, CALIFORNIA, EARTHQUAKES OF MAY-JUNE 1970

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by

W.H.K Lee, J.C. Roller, K.L. Meagher, and L.C. Pakiser
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1. Preliminary report, Danville, California, earthquake of May-June 1970, by W. H. K. Lee, J. C. Roller, K. L. Meagher, and L. C. Pakiser. 2 p., 1 table, 3 figs (total, 6 p.). 504 Custom House, San Francisco, Calif. 94111; 7638 Federal Bldg., Los Angeles, Calif. 90012. [Material from which copy can be made at private expense is available in both the San Francisco and Los Angeles offices.]
2. Geology of the north end of the Ruby Range, southwestern Montana, by Russell G. Tysdal. 187 p., 6 pl. (1=scale 1:24,000), 26 figs., 1 table. Montana Bureau of Mines and Geology, Montana College of Mineral Science and Technology, Butte, Mont. 59701.
3. Preliminary geologic map of the Rand quadrangle, North and Middle Parks, Jackson and Grand Counties, Colorado, by Douglas M. Kinney. 1 map (2 sheets), scale 1:48,000. 1012 Federal Bldg., Denver, Colo. 80202; 8102 Federal Office Bldg., Salt Lake City, Utah 84111; Colorado Geological Survey, 254 Columbine Bldg., 1845 Sherman St., Denver, Colo. 80203. [Material from which copy can be made at private expense is available at 1012 Federal Bldg., Denver, Colo. 80202.]
4. Preliminary geologic map of the Hyannis Peak quadrangle, North and Middle Parks, Jackson and Grand Counties, Colorado, by Douglas M. Kinney. 1 map (2 sheets), scale 1:48,000. 1012 Federal Bldg., Denver, Colo. 80202; 8102 Federal Office Bldg., Salt Lake City, Utah 84111; Colorado Geological Survey, 254 Columbine Bldg., 1845 Sherman St., Denver, Colo. 80203. [Material from which copy can be made at private expense is available at 1012 Federal Bldg., Denver, Colo. 80202.]
5. Geologic map of the southwestern Santa Cruz Mountains between Ano Nuevo Point and Davenport, California, by Joseph C. Clark. Map, explanation (1 sheet), scale 1:24,000. 504 Custom House, San Francisco, Calif. 94111; 7638 Federal Bldg., Los Angeles, Calif. 90012. [Material from which copy can be made at private expense is available in both the San Francisco and Los Angeles offices.]
6. Silica sand deposits in the Monrovia area, Liberia, by Sam Rosenblum and S. P. Srivastava. 12 p., 3 figs., 3 tables.

PRELIMINARY REPORT
DANVILLE, CALIFORNIA, EARTHQUAKES OF MAY-JUNE 1970

by

W.H.K. Lee, J.C. Roller, K.L. Meagher, and L.C. Pakiser

National Center for Earthquake Research
U.S. Geological Survey, Menlo Park, California 94025

A series of felt earthquakes occurred near Danville, California, in May-June, 1970. This report summarizes briefly the preliminary results obtained by the U.S. Geological Survey's National Center for Earthquake Research in recording the earthquakes for the period May 16 to June 15, 1970.

Although the San Francisco Bay region is seismically-active, the Danville earthquakes were rather unusual; they occurred in sudden bursts. The earthquake epicentral region is about 2 miles long by 1 mile wide near Sycamore Valley, about 3 miles southeast of Danville. The earthquakes did not occur along the Calaveras fault, which is 2 miles to the west. Instead they seemed to occur along the northwest extension of the Pleasanton fault and to have right-lateral motion.

Table 1 lists 18 Danville earthquakes with magnitudes greater than 3 for the period May 16 to June 15, 1970. The two largest earthquakes occurred at 8:30 p.m. on June 11, and at 9:03 a.m. on June 12.

Figure 1 is an index map showing the epicentral region of the Danville earthquakes and the locations of seismograph stations used for determining the earthquake foci. In addition to the fixed telemetry stations, seven temporary stations were installed from May 29 to June 9, and again from June 13 to present. For the past month several thousand earthquakes near Danville were recorded. About 300 were large enough

for foci determinations. We have so far studied about 100 earthquakes in some detail.

Figure 2 shows the number of earthquakes per day (magnitude greater than 0) for the period May 16 to June 15, 1970 (based on Greenwich Mean Time). A sudden burst of activity occurred during May 26-29, and again during June 12-13.

Figure 3 shows the epicentral region of the Danville earthquakes with magnitudes 2 and greater. Error in epicenter determinations is less than 1/2 mile, and focal depths of these earthquakes range from 1 to 4 miles.

The vast amount of data recorded for these earthquakes requires a considerable amount of data processing and study. We plan to prepare a more detailed technical report on these earthquakes in the next few months.

We thank Dr. Don Tocher of ESSA's Earthquake Mechanism Laboratory, San Francisco, for making readings from his Mt. Diablo station available to us. Dr. Earl Brabb of the U.S. Geological Survey provided the geologic background. Messrs. John Coakley and Edward Criley installed and operated the temporary seismograph stations.

NOTE (Added on July 13, 1970)

Since June 15, the earthquake activity in the Danville area has decreased to a few tremors per day. We are still maintaining our temporary seismograph stations until three permanent ones become operating. Although the exact cause of the Danville earthquakes is as yet uncertain, they are undoubtedly related to the movement along the San Andreas fault system. Strains are being built up by this movement (a few inches per year) and are often released as earthquakes.

Table 1

LIST OF DANVILLE, CALIFORNIA, EARTHQUAKES WITH MAGNITUDES GREATER
 THAN 3
 (MAY 16 TO JUNE 15, 1970)

DATE	LOCAL TIME (hour:minute:second)	MAGNITUDE
May 26	3:10:23 p.m.	3
	3:10:34 p.m.	3 1/2
	4:33:40 p.m.	3 1/2
May 28	7:53:08 p.m.	3 1/2
	7:55:49 p.m.	3 1/2
	8:13:15 p.m.	3 1/2
June 11	4:32:56 p.m.	3 1/2
	4:39:49 p.m.	3
	4:48:35 p.m.	3
	5:39:24 p.m.	3 1/2
	8:30:04 p.m.	4
	8:57:49 p.m.	3
	11:34:01 p.m.	3 1/2
June 12	9:03:32 a.m.	4
	9:10:51 a.m.	3 1/2
	3:54:39 p.m.	3
June 14	2:11:09 a.m.	3
	2:18:10 a.m.	3

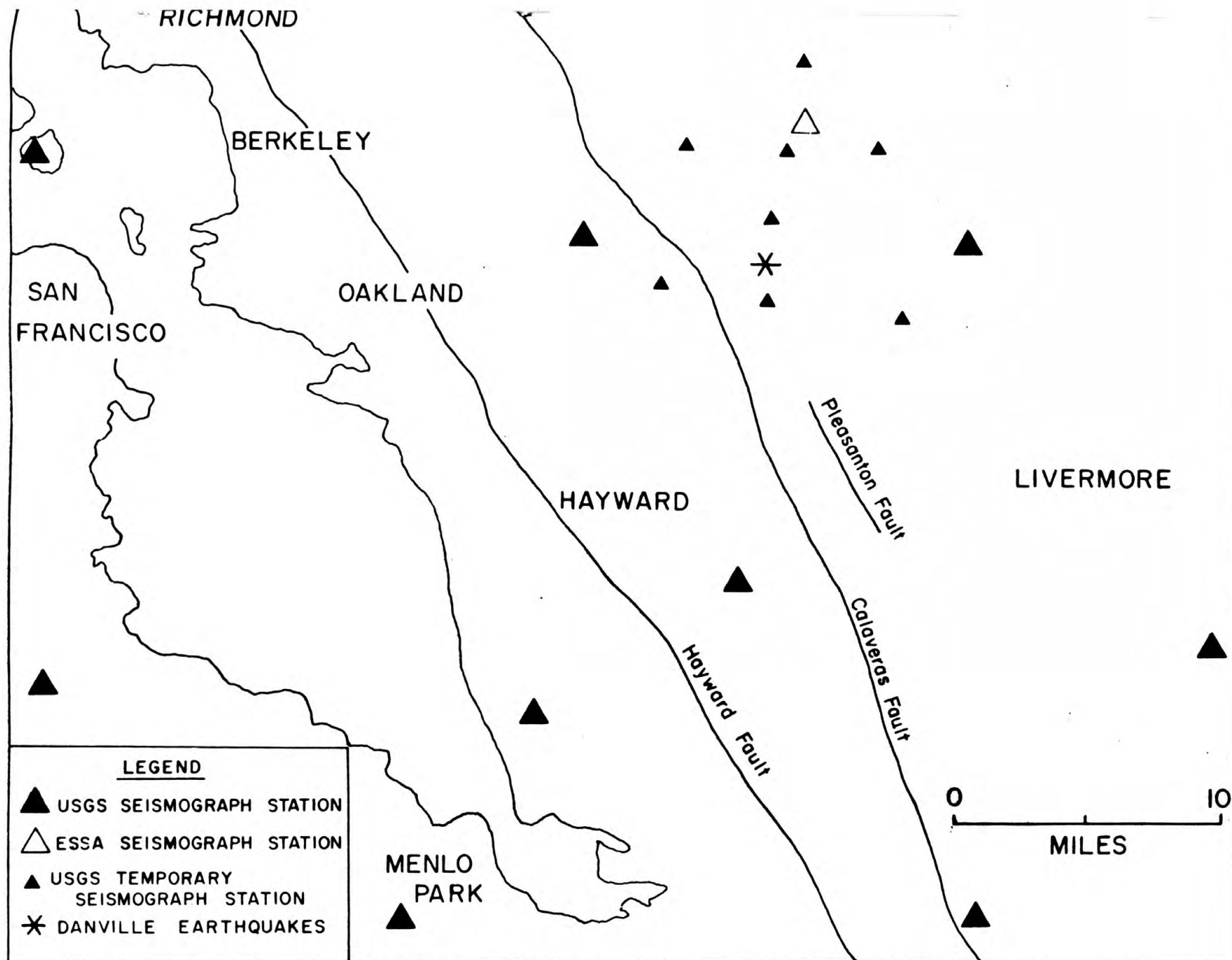


Fig. 1. -- Locations of seismograph stations and Danville, California, earthquakes of May-June 1970.

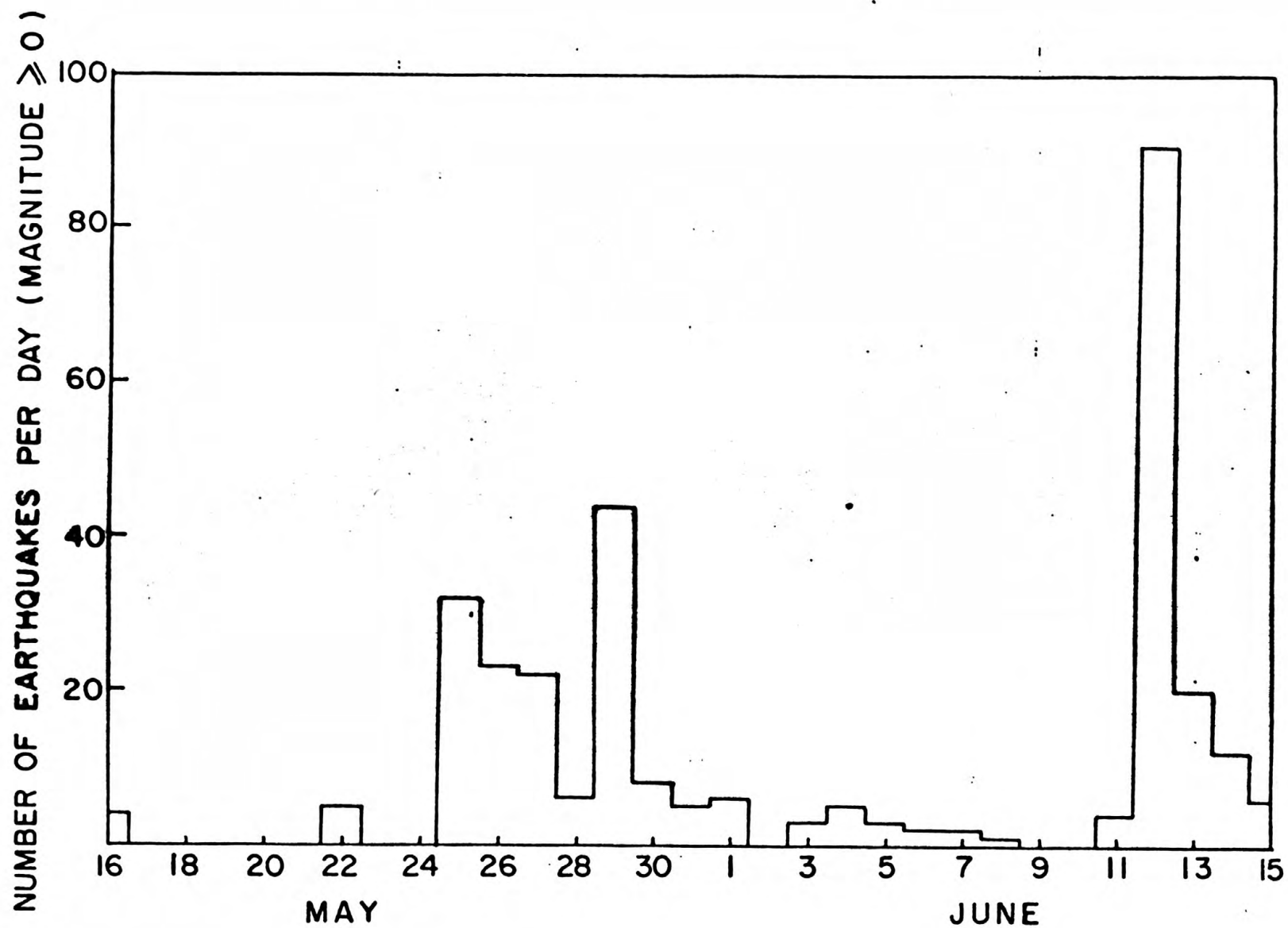


Fig 2. -- Frequency of Danville, California, earthquakes of May-June 1970.

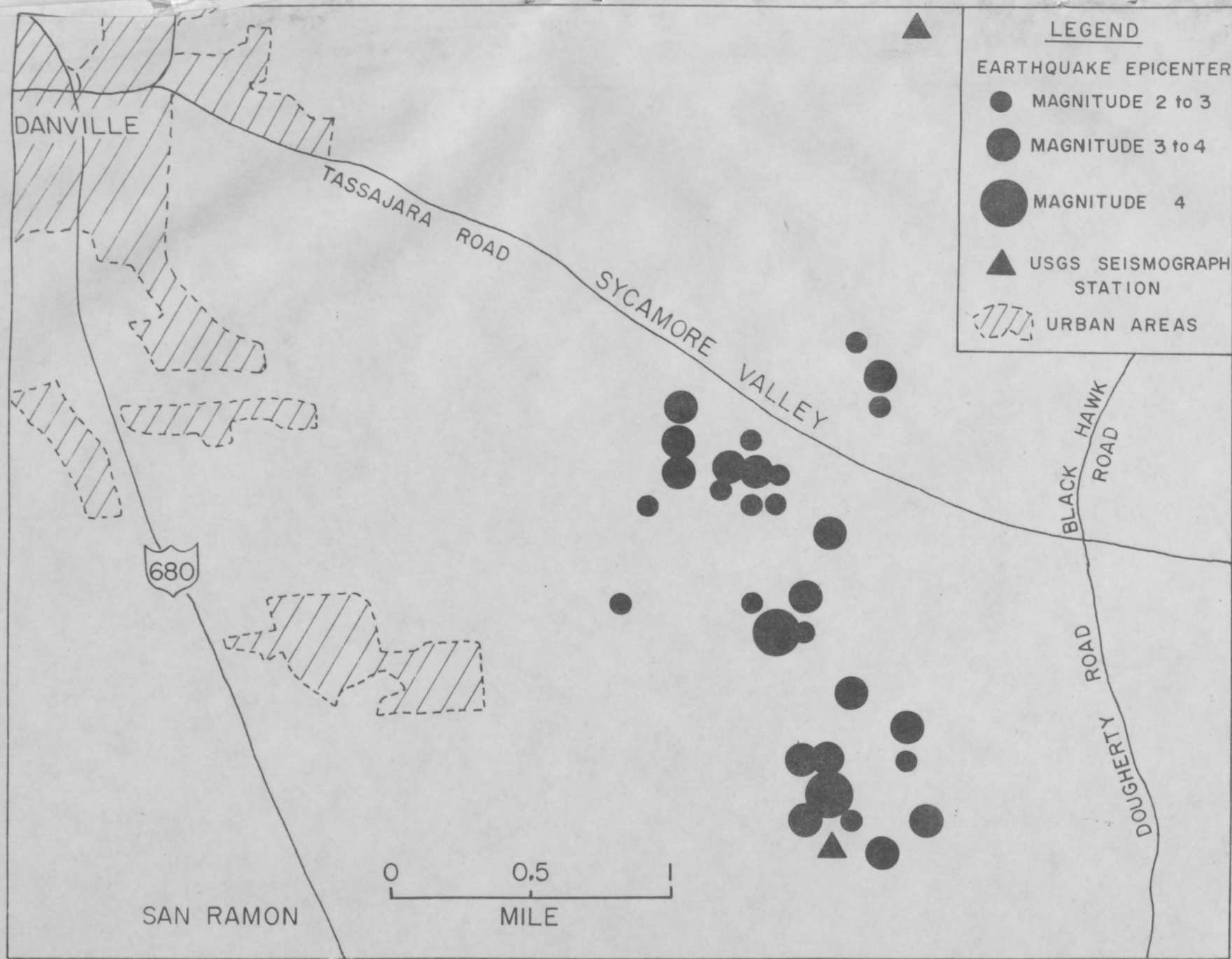


Fig. 3. -- Locations of Danville, California, Earthquakes of May-June 1970.

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