

18 March, 10:56:28\*. Intensity I to III. (cont.)  
Moorpark. Motion slow. Earth noises heard by few. Felt by several. Ground: Loose.  
Piru. Motion rapid, lasted 40 seconds. Earth noises from SE-NW heard. Felt by several; by observer (sitting). Hanging objects swung. Ground: Loose.

Reported not felt: Acton, Agoura, Altadena, Arlight, Beverly Hills, Buellton, Casmalia, Cuyama, Frazier Park, Gaviota, Glendale, Hawthorne, Hollywood, Huntington Beach, Inglewood, Lake Hughes, Lancaster, Lompoc, Los Alamos, Los Olivos, Malibu, Manhattan Beach, Maywood, Montebello, Newberry, Pasadena, San Nicolas Island, San Pedro, Santa Maria, Santa Monica, Santa Ynez, Simi, Surf, Taft, Torrance, Tujunga, Van Nuys, Venice, Westwood, Wheeler Ridge, and Wheeler Springs.

21 March, 00:34.  
San Diego. Motion rapid. Felt by observer in home.

21 March, 06:15.  
Oxnard (American Crystal Sugar Company). II. Motion rocking, abrupt onset. Felt by several. Ground: Sandy loam.

22 March, 08:38:01\*. Foreshock of the March 22nd series.  
Epicenter  $37^{\circ}41'$  north,  $122^{\circ}29'$  west, west of Colma, B. Daly City (75 Wellington Ave.). Slightly felt.  
San Bruno (990-3rd Ave.). Barely noticeable.  
San Francisco (1733 Geneva Ave.). IV. "Both accompanied by rather loud explosive noise. Alarmed me considerably. After the big shock, aftershocks continued very frequently. The stronger ones are almost always accompanied by sounds first. Very mild quivers and vibrations are still being constantly felt (3-24-57)."  
San Francisco (1870-9th Ave.). IV. Motion rapid, lasted 1 second. Felt by all in home. Direction E-W. Windows rattled slightly. "I was lying down on the floor watching T.V. It struck with a sharp jolting motion." Ground: Compact.  
San Francisco (2264-19th Ave.). III. Felt by one of three in home. Severe bump, then slight trembling. Nothing rattled.  
San Francisco (2542-45th Ave.). Definite shock felt.  
San Francisco (380 Chester Ave.). "Constant tremors from 08:38 on 22 March to 11:52 on 24 March. One small tremor on morning of 25 March. Every shock felt."  
San Francisco (250 San Benito Way). Definite shock.  
San Francisco (245 Leavenworth St.). III. Awakened observer on 6th floor.

22 March, 10:18. Not recorded on seismographs at Berkeley or San Francisco, B.  
San Bruno (909-3rd Ave.). IV. One sharp jolt, like heavy object striking house.

22 March, 10:48:23\*. Foreshock of the March 22nd series.  
Epicenter  $37^{\circ}40'$  north,  $122^{\circ}28'$  west, southwest of Colma, B.  
Berkeley (University of California). Felt on 5th floor,  
Daly City (75 Wellington Ave.). IV. Strongly felt. Noise  
sounded like something was wrong with furnace. Bumping,  
jolting motion.  
Hollister (7 miles south of). Felt by one or two persons.  
Kentfield. Felt.  
Oakland (Chabot Observatory). IV. Motion rapid. Frightened  
few. Windows, doors, and dishes rattled. Ground: Rocky;  
on hill.  
Oakland (1625 Clay St., PG&E). II. Slight shock. Motion slow,  
lasted 5 seconds.  
San Francisco (270 McAllister St., Astor Hotel). V. "Felt rapid  
vibration while in bed. Bed shook. Ceiling plaster  
cracked in room 408."  
San Francisco (425 Mason St., 4th floor). V. Motion rapid,  
chaotic. Small objects shifted. Ground: Compact sand  
and clay.  
San Francisco (Sansome and Pine Sts.). IV. Motion slow, lasted  
3-4 seconds. Direction N-S. Felt by many on second  
floor of strongly built masonry office building (sitting);  
by others outdoors (quiet); frightened few. Windows  
rattled. "This shock made me feel uneasy, as it did most  
others." Ground: Compact, level.  
San Francisco (465 California St.). IV. Lasted 2-3 seconds.  
Felt by many on 10th floor of reinforced-concrete office  
building (sitting). Ground: Level.  
San Francisco (95 Brookdale Ave., Sunnydale Housing Project).  
IV. Motion wrenching. Direction NE-SW. "Felt each after-  
shock. Same direction."  
San Francisco (2 Valdez Ave., south of Mt. Davidson and north of  
Ocean Ave., Westwood Park). IV. "Sounded like the world's  
biggest truck passed by, but the house creaked so much I  
realized it was an earthquake and not a truck."  
San Francisco (Federal Office Building, Rm. 557). IV. One sharp,  
vertical shock, followed by a horizontal roll. Motion  
rocking, N-S, abrupt onset. Felt by and alarmed many.  
Rattling of windows heard by many. Disturbed objects ob-  
served by many. Desks shook in N-S direction. Ground:  
Sandy.  
San Francisco (Old Mint Building, 5th & Mission Sts.). IV. Two  
definite jolts close together. Felt on ground floor, also  
on upper floors.  
San Francisco (65 Market St., Southern Pacific Building). IV.  
Sharp shock. Motion rapid, first vertical, then hori-  
zontal, lasted 4 seconds. Direction W-E. Felt by several  
(sitting) on 10th floor of reinforced-concrete and steel  
office building. Hanging objects swung W-E. Ground:  
Level; filled in; building on 125-foot piles.

22 March, 10:48:23\*. (cont.)

San Francisco (35th Ave. and Judah Sts.). IV. Very definitely felt.

San Francisco (2542-45th Ave.). IV. Very strongly felt. House shock.

San Francisco (1698 Grove St.). IV. Small shake at first, causing pans to rattle, then two strong sways.

San Francisco (1966-35th Ave.). IV. Definitely felt. Objects rattled.

San Francisco (1750-48th Ave.). Fairly strong.

San Francisco (Presidio). Felt.

San Francisco (1711 Judah at 22nd Ave.). "I felt the shock but heard no noises. Thought it was the Navy. My next door neighbor said she heard earth noises."

San Francisco (133 Beulah St., off Stanyan, near Kezar Stadium). Felt.

San Francisco (1733 Geneva Ave.). Felt.

Santa Cruz. Felt.

22 March, 11:44:21\*. Principal shock of the March 22nd series.

Epicenter  $37^{\circ}40'$  north,  $122^{\circ}29'$  west, east of Mussel Rock, B.

This was the strongest shock felt in the San Francisco area since 1906. Felt land area was approximately 12,000 square miles. (See map, page 195.) Magnitude 5.3. Maximum intensity VII. No lives were lost; about forty minor injuries reported. Damage of all types was estimated by engineers to be in the neighborhood of one million dollars. Principal building damage occurred to one- and two-story wood-frame houses in the Westlake Palisades tract west of Daly City along the ocean. Several dwellings in this tract sustained structural damage. The 1,600,000-gallon reinforced-concrete Westlake Palisades water reservoir (partly underground) had a 4-foot-long crack on one side extending upward from the ground. The largest of several landslides completely blocked State Highway No. 1 near Mussel Rock, and the shoulder of the highway pavement was extensively cracked. Building and dwelling damage in San Francisco was slight and consisted mainly of cracked plaster and broken windows. The road pavement (on unconsolidated soil and fill) along the southern edge of Lake Merced sloughed off into the lake, and both ends of a 200-foot-long pedestrian bridge collapsed. It was reported 2,395 emergency calls were received by plumbers, with 1,500 coming from the home areas south of Sloat Boulevard and north of the Colma cemeteries. There were 856 water heaters damaged, 125 of which required replacement; 62 toilets replaced; 175 wash basins damaged or fractured; 245 toilet tank covers broken; 173 boiler steam lines fractured or broken; 97 broken sewer lines; 422 fractured, broken or bent gas supply lines. At the Colma

22 March, 11:44:21\*. (cont.)

cemeteries some headstones fell and many were twisted. About forty-four brick chimneys at Daly City were pulled down by the fire department up to 26 March.

All strong-motion seismographs in San Francisco, San Jose, and Oakland were operated by this shock, also the instrument located on the Carquinez Bridge at Martinez.

One foreshock and six aftershocks of magnitude  $3\frac{1}{2}$  or higher were recorded on 22 and 23 March. Numerous smaller aftershocks were recorded.

22 March, 10:48:23*	Magnitude 3.8
13:07:47*	3.6
13:18:29*	3.8
15:14:35*	4.4
16:26:55*	4.0
23 March, 00:13:48*	4.2
04:54:33*	3.8

Intensity VII:

Colma (Holy Cross Cemetery). Motion rapid, violent. Direction E-W. Loud earth noises heard. Plaster, windows, and walls cracked in old stone building. "The movement of monuments in some sections of this cemetery reflect the possibility that there was more than one type of earth motion. Some monuments were turned as much as  $45^{\circ}$  on a vertical axis on their stone base but were not dislodged, while other monuments were moved on their base as much as 6 inches in a westerly direction. Other monuments were toppled from the base." Ground: Sandy loam, sloping.

Colma (Woodlawn Cemetery). Gable end of dormer fell. Tombstones shifted at few places; urn toppled.

Colma (Eternal Home Cemetery). Tombstone toppled.

Colma (Salem Memorial Park Cemetery). Brick chimney damaged.

Colma (7778 Mission St.). Motion rapid, lasted 8 seconds. Direction E-W. Loud earth noises heard. Small objects and furnishings shifted. Plaster cracked. Twisting and fall of monuments, vases, and statue. Retaining wall shifted 3 inches toward E. Ground: Compact, level.

Colma (Garden Village, 25 Village Lane). Motion rapid, lasted about 15 seconds. Direction N. Loud earth noises heard. Small and heavy objects shifted; heavy furniture moved 1-2 inches toward N. Dishes and furniture broke. Ground: Level.

Colma (Broadmoor Village, 956 Foothill Dr.). VI. Motion rapid, lasted 30-45 seconds. Direction S-N. Loud earth noises heard. Small objects and furnishings shifted. Dishes

22 March, 11:44:21\*. Intensity VII. (cont.)  
broke. Small amount of plaster cracking. Damage slight.  
Ground: Soil, compact, sloping.

Colma (536 B St., 3 miles east of Westlake area). VI. All in home very frightened and got under table for protection. Mirror and two pictures fell; canned goods fell in garage. Child awakened. Aftershocks felt for three days; none felt on 25th. Ground: Soil; formerly vegetable gardens.

Colma (Broadmoor Village, 835 Thornhill Dr.). VI. Motion rapid, lasted about 1 minute. Direction N-S. Loud earth noises heard. Small objects and furnishings shifted. Walls cracked. Damage slight. Ground: Clay, compact, sloping.

Colma (820-81st St.). VI. Motion rapid, increasing then decreasing, violent shaking. Direction NE-SW. Faint earth noises heard. Stove, tables, cabinets, etc., shifted. Dishes broke. Damage slight. Ground: Sloping, filled in.

Colma (464 C St.). VI. Motion rapid, lasted 28 seconds. Direction NE. Moderate earth noises heard. Small objects shifted. Dishes broke. Plaster cracked. Damage slight. Ground: Soil, compact.

Colma (Broadmoor Village, 731 Thornhill Dr.). VI. Motion slow, lasted 2-3 minutes. Small objects and furnishings shifted. Walls cracked. Damage slight. Ground: Soil, compact, sloping.

Colma (Broadmoor Village, 1072 Gilman Dr.). VI. Motion rapid, lasted about 30 seconds. Small and large objects shifted. Dishes broke. Damage slight. Ground: Soil, steep.

Colma (Broadmoor Village, 439-89th St.). V. Motion rapid. Loud earth noises heard. Small objects shifted. Dishes broke. Ground: Soil, compact, level.

Colma (Thornhill Dr.). V. Motion rapid, lasted about 10 seconds. "Was just parking the car. Car swayed E-W. Earth noises sounded like airplane overhead."

Colma (220 Castenada). V. Small objects and furnishings shifted.

Daly City, Westlake, and Westlake Palisades areas. Press reported damage in these areas was estimated by the city manager as follows: Personal belongings, \$400,000; homes in Westlake Palisades, \$62,500; Westlake Shopping Center, \$69,000. Of the 4,000 homes in the Westlake and Westlake Palisades areas, 200 were damaged, 20 seriously. It was reported the average cost of repairs should not exceed \$200, with the exception of the homes sustaining structural damage in the Westlake Palisades tract. It was reported forty-four brick chimneys were pulled down in Daly City by the fire department and that many more were probably damaged. The Westlake Reservoir, 1,600,000-gallon, 175 feet long, 108 feet wide, 23 feet deep (half submerged in the ground) had a 4-foot-long crack, extending upward from the ground, in the side

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of the concrete tank. The tank was to be drained to determine the extent of subsurface cracking.

Daly City (190 Irvington St.). Motion rapid, lasted 5-6 seconds.

Loud earth noises heard. Small objects and furnishings shifted. Dishes, windows, and furniture broke. Walls cracked. Damage considerable to masonry. Ground: Soil, level.

Daly City (300 Templeton Ave.). Motion rapid, lasted about 1 minute. Direction E-W. Loud earth noises heard. Small objects and furnishings shifted. Dishes broke. Plaster and walls cracked. Damage considerable to brick and masonry in front and rear of house. "Felt like riding the waves." Ground: Sloping, filled in over rock.

Daly City (730 Templeton Ave.). Motion rapid, lasted about 10 seconds. Loud earth noises heard. Small objects and furnishings shifted. Dishes and furniture broke. Plaster, walls, and fireplace cracked. Damage considerable to brick, masonry, and concrete. Ground: Rocky, steep.

Daly City (325 Knowles Ave.). Motion rapid, lasted 35 seconds. Loud earth noises heard. Small objects and furnishings shifted. Dishes and windows broke. Plaster, windows, and walls cracked. Damage considerable to concrete. Ground: Compact, level.

Daly City (256 Citrus Ave.). Motion rapid, vertical, then E. Loud earth noises heard. Small objects and furnishings shifted. Plaster, walls, and ground cracked. Damage considerable to concrete. "For the past two years I have heard earth noises, and as time went on the acoustics in my house seemed to change. The floors used to give a little as we walked across them, making stoves, etc., rattle. Now the floors seem to be more solid and there's no more rattling, not even when cars go by. Before the big shock I felt very slight up-and-down motions like one would feel on a boat. Very loud noises heard during the big shock, and there have been several loud rumbles since. There still seems to be a throbbing sound almost constantly."

Daly City (147 Woodrow). Motion rapid, long duration (10 minutes). Direction E-W. Loud earth noises heard. Small objects and furnishings shifted. Dishes and furniture broke. Plaster, windows and walls cracked. Damage great to wood and concrete. Ground: Soil, compact, level.

Daly City (260 Winchester). Motion rapid, long duration (about 10 minutes). Direction N-S. Loud earth noises heard. Small objects and furnishings shifted. Dishes and furniture broke. Plaster and walls cracked. Damage considerable (about \$250). Ground: Soil, sloping.

Daly City (688 Florence St.). Motion rapid. Small objects and furnishings shifted. Dishes broke. Plaster and walls

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cracked. Damage considerable to masonry and concrete.  
Ground: Soil, sloping.

Daly City (6748 Mission St., at Westlake). Grocery store nearby  
had everything on floor. "Our basement prevented cracks--  
not so in neighborhood." Ground: Rocky, clay, sloping  
toward west.

Daly City (672 Hanover St.). Motion rapid, lasted 10 seconds.  
Direction SW. Loud earth noises heard. Small objects and  
furnishings shifted. Dishes, windows, and furniture broke.  
Plaster and walls cracked. Damage considerable. Ground:  
Soil.

Daly City, near (28 Cassandra Court). Motion rapid and violent,  
long duration. Direction NE and up and down. Loud earth  
noises heard. Small objects, lamps, and furnishings  
shifted. Dishes and wall pictures broke. Plaster, walls,  
and front stairs cracked. Ripped sink from kitchen wall  
(slight). Damage considerable. Ground: Soil, loose.

Daly City (56 Mirism St.). Motion rapid, lasted about 15 minutes,  
including smaller shocks before and after. Direction SW.  
Very loud earth noises heard. Small objects and furnish-  
ings shifted. Dishes and windows broke. Plaster, windows,  
and walls cracked. Chimney fell. Damage slight. Ground:  
Soil, compact.

Daly City (266 Westridge Ave., Westlake). Front of brick fireplace  
thrown out.

Daly City (272 Westridge Ave., Westlake). Evidence of compression  
noted on north side of Westridge Avenue; on south side,  
sidewalk and curb damage due to compression.

Daly City (277 Westridge Ave., Westlake). Observer fainted. Mo-  
tion rapid. Loud earth noises heard. Furnishings shifted.  
Plaster, walls, and chimneys cracked. Damage considerable  
to brick and masonry. Ground: Sloping, filled in.

Daly City (20 Crestview Ave., Westlake). Motion rapid, lasted  
30-40 seconds. Direction NE. Loud earth noises heard.  
Small objects and furnishings shifted. Dishes broke. Dam-  
age considerable. Ground: Rocky soil, level.

Daly City (90 Westlawn Ave., Westlake). Motion started slow, then  
increased. Direction E-W and vertical. Loud earth noises  
heard. Small objects and furnishings shifted. Dishes  
broke. Plaster, walls, and ground cracked. Damage con-  
siderable to masonry, brick, and concrete. Ground: Compact.

Daly City (1320 So. Mayfair, Westlake). Plaster and walls cracked.  
Concrete floor of garage had cracks 1 inch wide and 12-20  
feet long. Dishes broke. Damage slight. Ground: Soil,  
compact, sloping.

Daly City (Westmoor Ave. and Morningside Dr., Westliske). Motion  
rapid. Direction N. Loud earth noises heard. Plaster,  
windows, walls, chimneys, and ground cracked. Damage con-  
siderable. Ground: Soil, sloping.

22 March, 11:44:21\*. Intensity VII. (cont.)

Daly City (39 Park Manor Dr., Westlake). Motion rapid, rocking and rolling in all directions, lasted about 1 minute. Extremely loud earth noises heard. Appliances, stove, and furniture shifted. Threw many objects out of closets onto floor. Dishes and furniture broke. Plaster and ground cracked. Moved house about 1 inch east. Damage slight to considerable to concrete (not estimated yet). Ground: Almost level.

Daly City (south end of Westlake tract). Observer working (carpenter). Motion rapid, first jolt lasted about 30 seconds. Direction N-S. Loud earth noises heard. Plaster, windows, walls, chimneys, and ground cracked. Fireplace chimneys fell. Damage considerable to wood, brick, masonry, and concrete. Ground: Level, sloping, filled in.

Daly City (88 Garden Grove Dr.). Plaster, walls, and chimney cracked. Dishes broke. Damage considerable to concrete and stucco. Ground: Compact.

Daly City (113 Palisades Dr., Westlake Palisades). Probably the most severely damaged home. Ground movements are believed to have accentuated building damage.

Daly City (127 Palisades Dr., Westlake Palisades). Two-inch separation. Cracks also on other side of house.

Daly City (124 Morningside Dr., Westlake Palisades). Motion rapid at first then slow. Shock came from all directions. Loud earth noises heard. Small and large objects shifted. Dishes, windows, and furniture broke. Plaster, windows, walls, chimneys, and ground cracked. Twisting and fall of chimneys, columns, and monuments. Damage considerable to brick, masonry, and concretes. Ground: Steep.

Daly City (52 Crestview Ave., Westlake Palisades). Motion rapid, violent, side to side and up and down. Direction seemed to be E-W and up and down. Loud earth noises heard. Piano, refrigerator, T.V., radio, dishes (everything) shifted. Dishes broke. Plaster and ground cracked. Garage floor and exterior stucco walls cracked. "Most damage was done to the front of house, where garage and window openings prevent diagonal bracing. Direction of wall E-W (approx.). Stucco cracked at corners of all openings." Damage considerable to stucco. Ground: Clay, sand, and loam; east side level, west side mostly cut.

Daly City (51 Avalon Dr., Westlake Palisades). Motion rapid. Direction E. Very loud earth noises heard. Small objects and furnishings shifted. Plaster and walls cracked, and outside stairs split. Damage considerable. Ground: Sandy.

Daly City (93 Seacliff Ave., Westlake Palisades). Motion very rapid, lasted 3-4 minutes. Direction SW. Loud earth noises heard. Small objects and furnishings shifted. Dishes and furniture broke. Plaster, walls, chimneys, and ground cracked. Damage considerable to wood and concrete. Ground: Soil, level, steep.

22 March, 11:44:21\*. Intensity VII. (cont.)

Daly City (56 Morningside Dr., Westlake Palisades.). Motion rapid. Direction N-S. Loud earth noises heard. Small objects and furnishings shifted. Dishes broke. Plaster, walls, and ground cracked. Damage considerable. Ground: Soil, compact, sloping.

INTENSITY VI - Daly City

Daly City (Penny's Store, 70 Westlake Court). Brick veneer on first story cracked (poor anchorage to back wall). Leg on cooling tower broke.

Daly City (538 Crocker Ave.). Motion rapid. Loud earth noises heard. Felt by observer indoors. Small objects shifted. Dishes broke. Plaster on ceilings cracked. Fireplace pulled from wall at joint. Damage slight: Glassware, dishes, etc., \$50; ceiling repairs, \$100; fallen objects, \$50. Ground: Sandy soil, steep.

Daly City (6137 Mission St.). Motion rapid, lasted about 1½ minutes. Direction N-S. Loud earth noises heard. Felt by observer indoors. Furniture shifted. Plaster, windows, and walls cracked. Both front side corners of office building cracked. Damage slight: Plaster cracks necessitate painting entire office, \$300; repairs to outside cracks, \$100. Ground: Compact, sandy.

Daly City Schools:

Jefferson Elementary School District:

Colma (formerly Market St.). Marked twisting and splitting of 8 x 8 wood posts carrying roof beams in one wing (NE). Similar framing in other wings not affected. Further study advisable. Few light fixtures dislodged; minor stucco and plaster cracks.

Franklin. Slight cracking in slabs.

Garden Village. Six glass panes broken in E-W walls. Acoustic tile loosened. Small stucco cracks in usual places and two rather large cracks in a foundation wall which retains about an 8-foot depth of fill.

Jefferson. Slight cracking in slabs.

Thornton. Patches of plaster fell from wood lath. Stucco cracks enlarged.

Westlake. Five panes of glass broken in E-W wall of north wing. None broke in two other similar wings. Slight stucco cracking.

Woodrow Wilson. Few small stucco cracks in usual places.

Jefferson Union High School: Patches of plaster fell from wood lath; light fixtures thrown down; cracks opened in plaster walls; brick chimney cracked (removal recommended). Gym and Pool: Rod bracing in roof showed signs of marked movement. Some rods loosened and ridge strut out of line. Water storage tank saddle in boiler

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INTENSITY VI - Daly City

room broke. Roof tile appeared to have shifted.  
Cafeteria: Considerable movement between concrete frames and adjacent floor on west side. Base mold and tile damaged. Cement stucco broke off from edge of landing of concrete stairway. Few small cracks in interior plaster.

Westmoor. Bricks fell from work under construction.  
Daly City (161 Crestwood Dr.). Dishes broke. Plaster cracked slightly. Chimney and water heater twisted. Damage slight. Ground: Soil.

Daly City (432 Bellevue Ave.). Dishes broke. Plaster cracked. Damage slight to considerable. Ground: Sloping.

Daly City (365 Winchester St., County Line). Dishes broke. Damage slight. Ground: Compact sand, sloping.

Daly City (43 Royce Way). Dishes broke. Plaster cracked. Damage slight to concrete. Ground: Sloping.

Daly City (65 Theta Ave.). Dishes broke. Plaster cracked. Damage slight. Ground: Compact.

Daly City (137 Bismark St.). Dishes broke. Walls cracked. Damage slight. Ground: Loose, terraced.

Daly City (154 Wyandette). Dishes broke. Plaster and walls cracked. Damage slight. Ground: Soil, compact, level.

Daly City (27 Woodrow St.). Dishes broke. Plaster and walls cracked. Damage slight. Ground: Soil.

Daly City (72 Wilson St.). Dishes broke. Plaster cracked. Damage slight.

Daly City (227 Winchester St.). Dishes and furniture broke. Plaster and walls cracked. Damage slight (\$20). Ground: Soil, level.

Daly City (3242 San Jose Ave.). Dishes broke. Plaster and walls cracked. Fireplace pulled away from wall. Few exterior hairline cracks. Bed, dressers, stove, and refrigerator shifted. Damage slight. Ground: Level, compact.

Daly City (268 Evergreen Ave.). Moved wood stove 3 inches. Dishes broke. Windows cracked. Damage slight. Ground: Soil, loose, level.

Daly City (91 San Joaquin). Dishes broke. Plaster cracked. Everything shifted. Slight stucco cracks. Damage slight. Ground: Soil, slightly sloping.

Daly City (742 Templeton Ave.). Stove and refrigerator shifted about 2 inches. Dishes broke. Plaster and walls cracked. Ceiling and stucco cracked. Plaster fell. Damage slight. Ground: Rocky soil, compact, steep (hillside of San Bruno Mountains).

Daly City (231 Acton St.). Knickknacks broke. Plaster cracked. Damage slight. Ground: Compact, sloping.

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INTENSITY VI - Daly City

Daly City (6275 Mission St.). Dishes broke. Plaster and walls cracked. Heavy twisting and wrenching. Damage slight. Ground: Soil.

Daly City (old Daly City business district). Dishes broke. Interior concrete walls and plaster cracked. Ground: Soil, compact.

Daly City (884 Templeton Ave.). Dishes broke. Plaster, walls, and chimneys cracked. Damage slight. Ground: Soil, sand, sloping.

Daly City (145 School St.). Dishes broke. Heavier furniture shifted a little. Many exterior plaster cracks on apartment building. Damage slight (\$20).

Daly City (61 Fairway Dr.). Dishes broke. Plaster and walls cracked. Damage slight to concrete and stucco. Ground: Filled in.

Daly City (606 San Diego Ave.). Dishes, windows, and furniture broke. Plaster cracked. Damage slight. Ground: Soil.

Daly City (56 Market St. W). Dishes broke. Plaster and walls cracked. Damage slight to concrete. Ground: Compact, level.

Daly City (488 Willits St., near Highway 101). Stove moved 2 inches. Vases broke. Plaster cracked; small exterior stucco cracks. Damage slight to concrete. Ground: Sandy, sloping.

Daly City (748 Beechwood Dr.). Water heater pulled away from pipes. No cracks; no breakage. Damage slight.

Daly City (1209 Mayfair, Westlake). Few dishes broke. Wallboard cracked slightly. Damage slight. Ground: Compact soil, sloping; cut, not fill.

Daly City (234 No. Mayfair, Westlake). Dishes and windows broke. Plaster, windows, and walls cracked. Damage slight to brick, masonry, and concrete. Ground: Soil, level.

Daly City (34 Cliffside Dr., Westlake). Dishes broke. Slight crack in one bedroom. Damage slight. Ground: Loose, level.

Daly City (23 Westmont Dr., Westlake). Dishes broke. Plaster, walls, and ground cracked. Damage slight. Ground: Soil, sloping.

Daly City (54 Wilshire Ave., Westlake). Dishes broke. Plaster and exterior wall cracked. Damage slight. Ground: Soil, level.

Daly City (71 Baldwin Ave., Westlake). Dishes broke. Plaster and walls cracked. Pipes twisted. Damage slight. Ground: Filled in.

Daly City (36 Oakmont Dr., Westlake). Dishes broke. Stove moved. Damage slight to concrete. Ground: Compact, sloping.

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INTENSITY VI - Daly City

Daly City (791 So. Mayfair, Westlake). Dishes broke. Walls cracked. Damage slight. Ground: Soil, compact, sloping.

Daly City (115 Fairway Dr., Westlake). Dishes broke. Plaster and walls cracked. Damage slight. Ground: Sloping.

Daly City (691 So. Mayfair, Westlake). Dishes and one window broke. Plaster cracked. Damage slight. Ground: Compact, sloping; house faces Lake Merced.

Daly City (67 Lake Vista, Westlake). Dishes broke. Plaster and walls cracked. Damage little more than slight. Ground: Soil, filled in.

Daly City (91 Garden Grove, Westlake). Plaster and walls cracked. Damage slight. Ground: Soil, compact, level.

Daly City (657 Stonyford Dr.). Cracks around fireplace. Water heater pipes broke. Damage slight. Ground: Soil, clay, sloping.

Daly City (50 Lakewood Dr.). Dishes broke. Damage slight. Ground: Soil, slightly sloping, filled in.

Daly City (111 So. Mayfair). Not much breakage. Stove, table, and refrigerator moved. Pictures askew but glass not broken.

Daly City (181 Park Plaza Dr.). Dishes broke. Moved range 4 inches from wall. Damage slight.

Daly City (382 Skyline Dr., Westlake Palisades). Dishes broke. Plaster and ground cracked. Damage considerable. Ground: Sandy, sloping.

Daly City (15 Seacliff Ave., Westlake Palisades). Dishes broke. Three cracks in sheetrock walls. Damage slight. Ground: Rocky soil, steep.

INTENSITY V - Daly City

Daly City (160 Northgate). Damage slight. (No details.) Ground: Soil, sloping.

Daly City (47 Fairview Ave.). No damage. Ground: Sloping, compact.

Daly City (Television Peak, KRON). "No damage as far as I know on Mt. San Bruno."

Daly City (231 Station Ave.). Dishes broke. Damage slight. Ground: Soil, level.

Daly City (57 Muirwood Dr.). No damage. "Most aftershocks felt like a big truck hitting west end of house and sounded like a loud blast. Motion E-W." Ground: Rocky, steep.

Daly City (803 Ellis Dr.). Dishes broke. Ground: Soil, slight north slope.

Daly City (83 Fairlawn Ave., Westlake). Dishes broke. Damage slight. Ground: Soil, compact, sloping.

22 March, 11:44:21\*. Intensity VII. (cont.)

INTENSITY V - Daly City

Daly City (340 Heathcliff, Westview; 3 miles south of Westlake on Skyline Blvd.). Damage slight. (No details.)

Daly City (69 Cliffside Dr., Westlake). Dishes and bric-a-brac broke. Damage slight. Ground: Soil, compact.

Daly City (55 Lake Forest Dr., Westlake). Paint cracked slightly. Damage slight. Ground: Soil.

Daly City (1076 Wildwood Ave., Westlake). Dishes broke. Damage slight. Ground: Compact, sloping.

Daly City (Olympic Section, 147 Glenwood Ave.). Dishes broke. Damage very slight. Ground: Sandy soil, loose.

Daly City (60 Lynwood Dr., Westlake). Dishes broke. Damage slight. Ground: Level, sandy, filled in.

Daly City (56 Oakmont Dr., Westlake). One small dish and a few fruit jars broke. Window broke (previously cracked). Damage slight. Ground: Soil, level.

Daly City (115 Crestwood Dr., Westlake). Coffee warmer broke. Ground: Sloping.

Daly City (625 Larchmont Dr., near Westlake). Dishes and one bottle broke. Ground: Soil, level.

Daly City (689 Templeton Ave.). Nothing shifted or fell. No damage.

Mussel Rock, near (on State Highway No. 1). Landslide (loosely consolidated sandstone and sand) completely blocked the road at Thornton Bluffs, and highway was extensively cracked along shoulder. Two automobiles were partially buried by the slide. This was reported to be the worst of ten slides between Edgemar and Westlake. Estimated cost of removing dirt and repairing road, \$100,000.

San Bruno. Press reported gas main serving Rollingwood tract broke. Juke box toppled at the Rollingwood Kindergarten. Huge plate glass window completely shattered and furniture overturned at the San Bruno Maple Shop (intersection of El Camino Real and San Mateo Ave.). Several store windows broke. Tile shaken loose at Womacks Department Store on San Mateo Avenue. Tons of canned goods fell at Junipero Serra and Sneath Lane.

San Bruno (San Francisco International Airport). Underground pipe leaks and breaks in at least six locations. Damage to concrete walls and roof bracing system of one hangar. Airport located on former mud flats.

San Bruno (San Francisco International Airport). VI. Motion rapid, violent. Direction E-W. Small objects shifted. Plaster cracked. Damage slight to considerable. Ground: Filled in.

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San Bruno (San Francisco International Airport). VI. Motion rapid, lasted 15 seconds. Direction N-S. Loud earth noises heard. Small objects and furnishings shifted. Plaster cracked. Damage slight to masonry. Ground: Filled in.

San Bruno (2160 Fleetwood Dr.). Small objects and furnishings shifted. Dishes broke. Plaster, walls, and ground cracked. Chimney twisted and fell. House twisted and moved about 1/2 inch on foundation. Stucco off house at corner. Damage considerable to brick and masonry. Ground: Claylike soil, steep, filled in.

San Bruno (2660 Rollingwood Dr.). "All furniture moved; pictures, etc., down. Minor dish breakage. No actual damage to house. As to yard, upper backyard leading from telephone pole was all split open. Sidewalks all cracked and fence twisted. Back corner of yard is fill; behind us on slope (terraced with railroad ties) there was no damage. Backyard itself is not supposed to be on fill. Across the street (2651 Rollingwood) chimney broke and most all dishes, etc., broke. Other homes around us had hardly anything broken. Damage considerable to concrete in backyard."

San Bruno (2611 Rollingwood Dr.). Motion both rapid and slow. Direction E-W and up and down. Moderate earth noises heard. Small objects and furnishings shifted. Dishes broke. Exterior plaster and cement walks cracked. Tore hot water heater loose. Damage slight. Ground: Compact, sloping, filled in.

San Bruno (2485 Rollingwood Dr.). Motion rapid, lasted 1 minute or more. Direction W-E. Loud earth noises heard. Small objects and furnishings shifted. Dishes and glass broke. Ground cracked. Damage slight. Ground: Soil, compact, steep.

San Bruno (2031 Willow Way, Rollingwood). Motion rapid, lasted 20-30 seconds. Moderate (audible indoors above general household noises) earth noises heard. Small objects and furnishings shifted slightly. Exterior stucco and concrete walks cracked. Damage slight. Ground: Soil, filled in; steep slopes behind and across street.

San Bruno (2761 Plymouth Way). Motion rapid. Moderate earth noises heard. Small objects, furnishings, and water heater shifted. Plaster, chimneys, and ground cracked. Damage considerable to brick and masonry. Ground: Soil, gradual slope.

San Bruno (317 Acacia Ave.). Motion rapid. Direction N. Furnishings shifted. Dishes broke. Plaster, windows, and wall cracked. Chimney fell. Damage considerable. Ground: Soil, compact, level.

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INTENSITY VI - San Bruno

San Bruno Schools:

San Bruno Park School District:

BelleAir. Plaster and stucco cracked at usual places, particularly noticeable around doors. Wood trim moved considerably. Acoustical tile loosened.

Edgemont. Plaster cracks. Eight small panes of plate glass cracked.

El Crystal. Slight plaster and stucco cracks.

Elm. Patches of plaster fell from wood lath.

Northbræe. Slight cracks in plaster and stucco.

Parkside. Marked damage to plaster walls, particularly proscenium, in M.P. room. Considerable plaster dust down from ceilings. Considerable movement of precast concrete units indicated. Further study advisable.

San Bruno. Motion rapid. Loud earth noises heard by many. Felt by and frightened all in community. Windows, doors, and dishes rattled. Trees, bushes shaken slightly. Small objects and furnishings shifted; vases, etc., small objects, and furniture overturned. Ground: Soil.

San Bruno (2520 Heather Lane, Rollingwood). Motion rapid, lasted 1 minute. Direction ENE and up and down. Loud cracking earth noises heard. Small objects and furnishings shifted. Dishes broke. Plaster, walls, and stucco cracked. Damage slight to concrete and stucco. Ground: Soil, compact; on rolling hills.

San Bruno (near Southern Pacific Railway Station). Motion rapid, lasted 15-20 seconds. Furnishings shifted; cabinets rocked. Dishes broke; two water pipes broke. Plaster cracked. Damage slight. Ground: Soil, loose, level.

San Bruno (1092 Jenevein Ave.). Motion rapid. Loud earth noises heard. Small objects and furnishings shifted; lamps overturned. Dishes broke. Furniture shifted. Plaster on walls and ceiling cracked. Damage slight. Ground: Soil, compact, level.

San Bruno (2420 Trenton Dr.). Motion rapid, seemed from all directions and up and down. Loud earth noises heard. Small objects and furnishings shifted. Dishes broke. Walls and ground cracked. Damage slight. Ground: Soil, compact, level and steep (Crestmoor Park No. 1).

San Bruno (1841 Donner Ave.). Motion rapid, lasted 25-30 seconds. Direction SW-NE. Loud earth noises heard. Small objects and furnishings shifted 2-3 inches. Dishes broke. Ground: Soil, sloping.

San Bruno (37 Lexington Ave.). Motion rapid, lasted 30 seconds. Direction NW. Moderate earth noises heard. Furnishings shifted. Large mirror broke. Walls cracked. Damage slight. Ground: Soil, compact, level.

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INTENSITY VI - San Bruno

San Bruno (140 Palm Court). Motion rapid, seemed from all directions. Loud earth noises heard. Small objects and furnishings shifted. Dishes broke. Plaster, walls, and ground cracked. Damage slight. Ground: Rocky, level.

San Bruno (2221 Valleywood Dr.). Motion rapid, lasted 20-30 seconds. Direction N. Loud earth noises heard. Small objects and furnishings shifted. Plaster cracked. Damage slight.

San Bruno (1723 Hickory Ave., Mills Park). Motion rapid, lasted long enough for observer to go upstairs and downstairs. Loud earth noises heard. Small objects and furnishings shifted. Dishes, lamps, and water heater broke. Ground: Clay, sloping.

San Bruno (420 Hawthorne Ave.). Motion slow, lasted 30 seconds. Faint earth noises heard. Small objects and furnishings shifted. Bookcase fell and broke pottery and bicycle. Ground: Sloping, filled in.

San Bruno (2391 Valleywood Dr., Rollingwood). Motion rapid, lasted 20-30 seconds. Direction E-W. Earth noises masked by noise of falling objects. Small objects and furnishings shifted. Dishes and lamps broke. Plaster cracked. Water in sink (half full) splashed out considerably (E-W). Damage very slight. Ground: Soil, compact, sloping.

San Bruno (504 Sylvan). Motion rapid, lasted at least 30 seconds. Direction NE. Moderate earth noises heard. Small objects and furnishings shifted. Dishes broke. Bookcase overturned. Damage slight. Ground: Soil, compact, level.

San Bruno (San Bruno Drive at Angus). Motion shuddering, jarring, and up and down. Direction W-E. Moderate rumbling earth noises heard. Small objects and furnishings shifted. Few dishes and windows broke. Plaster cracked. Damage slight. Ground: Sandy soil, level. "Was in automobile on San Mateo Avenue (main street of San Bruno). Felt as a jarring motion from W-E and up and down, then slight rocking, lasting few seconds. Buildings appeared to be bouncing. Sounds ridiculous but that's the way they looked to us."

San Bruno (Crestmoor Park No. 2). Motion rapid, lasted 6-10 seconds. Direction NE. Loud earth noises heard. Small objects and furnishings shifted. Dishes broke. Plaster cracked. Damage slight. Ground: Sloping.

San Bruno (451 Chestnut Ave.). Motion rapid, lasted about 3 minutes. Direction N. Loud earth noises heard. Furnishings shifted. Dishes broke. Plaster cracked. Damage slight (about \$100). Ground: Compact, sloping.

San Bruno (711-7th Ave.). Motion slow, then rapid, lasted 30-60 seconds. Direction SE-NW. Loud earth noises heard. Small

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objects shifted. Dishes broke. Ground: Soil, compact, level.

San Bruno (583 Easton Ave.). Motion rapid, lasted about 25 seconds. Direction N. Loud earth noises heard. Small objects shifted. Dishes broke. Damage about \$100. Ground: Soil.

San Bruno (500 Beech Ave.). Motion rapid, lasted 3-4 seconds. Direction E-W. Loud earth noises heard. Small objects and furnishings shifted. Dishes and one lamp broke. Ground: Soil, compact, sloping.

San Bruno (723 Acacia Ave.). Jolt from W-E, lasted about 5 seconds. Moderate earth noises heard. Small objects shifted. Small plaster cracks. Damage slight. "Different motion than the shock of 1906. Would have caused much damage had it lasted longer." Ground: Compact, clay, sloping.

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San Bruno (515 Hazel). Dishes broke. Soil, compact, level.

San Bruno (1781 Jenevein Ave.). Dishes broke. Soil, compact, sloping.

San Bruno (703 Magnolia Ave.). Few small objects shifted; one trophy broke. Ground: Compact, level; concrete slab house.

San Bruno (909-3rd Ave.). Dishes broke. Ground: Level; 1 foot topsoil fill.

San Bruno (160 De Soto Way). Small objects shifted.

San Bruno (2233 Rollingwood Dr.). Small objects shifted.

San Bruno (560 Cedar Ave.). Dishes broke. Ground: Soil, level.

San Bruno (743 Pepper Dr.). Small objects shifted. Ground: Clay, sandy.

San Bruno (1052 Montgomery Ave.). Small objects shifted. Ground: Soil, compact, level.

San Francisco (Lake Merced and Harding Municipal Park area, southwest section of San Francisco). Highway skirting the south edge of Lake Merced cracked and sloughed off into the lake. Harding Park access road damaged. Both ends of a 200-foot-long pedestrian bridge collapsed. Sewer and gas lines to the Harding Park Golf Course broke.

INTENSITY VI - San Francisco

San Francisco. Press reported buildings in San Francisco were severely shaken, but no serious damage occurred. The State Building at Folk and McAllister Streets had numerous plaster cracks, also the California Building at 515 Van Ness Avenue,

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INTENSITY VI - San Francisco

where a light fixture fell on the third floor. Plaster fell from walls and ceilings in the Hall of Justice. Walls cracked and a skylight broke at the City Hall. The Presidio branch library at Sacramento near Baker was closed due to damage. The McCreery branch (built about 1903) on 16th near Market was condemned. The brick building was declared structurally unsafe. Repairs to the Presidio branch included chimney top, hanging light fixture supports, and plaster cracks. Several other branch libraries suffered damage, including the Ocean View branch at 111 Broad Street which was closed for five days. Steel book racks in the Main Library at the Civic Center moved during the shock, spewing books on the floor, but no damage was done to the building. No serious damage was reported in any of the city's hospitals. At the Mary's Help Hospital, 145 Guerrero Street, plaster was cracked and loosened on the upper floors. Loose masonry or falling mortar on upper floors caused the police to rope off areas at Post Street and Grant Avenue, at 140 Sansome Street, and at 625 Polk Street. The Seventh Day Adventist Church at 2897 California Street reported two long cracks in the steeple. Chimney fell at 3977 Clay Street and one was badly damaged at 420 Frederick Street. At Stonestown many windows were broken in one of the large apartment buildings. From the top floor of one of the 13-story Parkmerced Towers apartment building, a resident reported the building "rocked and rolled, knocked all the lamps down, and cracked all the plastering. The house looks like a wreck." It was reported the top floor of St. Anne's School, 1330-14th Ave., was badly damaged. Glass was broken in more than 400 city-owned street lights, mostly along Great Highway, Sunset Boulevard, Sloat Boulevard, and Junipero Serra Boulevard. The Pacific Gas and Electric Company had similar damage in the Richmond district. The PG&E's biggest chore was reconnecting gas water heaters. Most plumbing damage occurred west of Twin Peaks, generally in the area along Nineteenth Avenue, on Sloat Boulevard, east on Ocean Avenue to San Jose Avenue, and south on San Jose Avenue to Daly City. Grocery and liquor stores in San Francisco had fairly heavy damage from bottled goods breakage. The Safeway stores at Alemany and San Jose Avenues, and on West Portal Avenue, were a shambles. Plate glass windows buckled at the Alemany Store. Store front windows were shattered along Balboa Street from 35th to 40th Avenues in the Richmond district, and on Irving Street between 20th and 23rd Avenues in the Sunset district. All front windows of the Littleman supermarket, 1630 Ocean Avenue, were broken out. It was

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reported light poles "waved like reeds in the breeze" at the Civic Center. Bells rang at St. Patrick's Church, Mission near Third Streets. A painter working on the south tower of the Golden Gate Bridge said the tower shook "like a tree in a gale." The deck of the bridge galloped up and down and the suspenders (cables) slipped back and forth. He ran to get off the bridge. At least 20 windows broke at the Administration Building and Toll Plaza. Bay Bridge authorities reported no structural damage and traffic moved smoothly. "But it was a real hard shake," said one employee. The Sheraton-Palace Hotel had a broken plate glass window and broken crockery. The telephone company reported no serious damage to its system, although many telephones were out. Repairing damage to the pipe organ located in the Civic Auditorium (Civic Center) was estimated to cost \$300. Air pipes broke and a portion of the organ called the harp unit fell askew when the 7,320 pipes were shaken. Scores of motorists on Bayshore Highway stopped immediately after the shock, thinking they had a flat tire. One motorist said, "We felt a shuddering sidewise motion."

**San Francisco Schools.** The following reports on San Francisco schools were taken from reports received from the State Department of Public Works, Division of Architecture. "None of the damage found was of such a nature that would endanger life and all the schools inspected were back in session. With the exception of two schools, Presidio Jr. High and Sheridan, where the chimneys suffered some damage, and the San Francisco City College, where some ceramic facing tiles fell off, all the damage observed consisted of cracked plaster on furred walls and fallen portions of plastered ceilings, particularly in buildings having wood lath. It can be generally stated that schools built prior to the Field Act suffered greater damage than those built after 1933. Most of the modern schools went through the earthquake practically unscathed. The following schools were selected for inspection after discussions with city officials brought out the fact that most of the damage was reported from schools falling in a line roughly paralleling the San Andreas Fault."

Presidio Jr. High, at 29th Ave. and Clement St. Three-story reinforced-concrete and steel-frame structure. A r.c. chimney rises about 35 feet above roof. Ornamentations atop this chimney became loose and fell off. One piece, weighing about 350 lbs., fell into the paved court and another fell through the skylights on the top floor which,

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being of r.c. flat slab construction, suffered no damage. The chimney proper, probably r.c., does not show any sign of damage. An old vertical crack through the concrete wall showed at the junction of two wings of the building. Horizontal and 45° shear cracks appeared in the plaster of the stairwell.

George Washington, at 31st Ave., between Geary and Balboa. Three-story r.c. structure, built in 1936. The school has large window openings. Music room and auditorium added in 1952. No damage. Hardly any plaster cracks.

Abraham Lincoln, at 22nd Ave., between Quintara and Santiago. A substantial r.c. building, first built in 1940 with addition in 1952. The only noticeable damage was some slight cracks in the stairwells at floor levels.

City College, at Phelan Ave., and Ocean Ave. The Science building, built in 1940, has ceramic tile facing. This veneer, near the NE corner of the building, broke loose and fell off over an area of 4' x 8' (approx.). Some fractured tiles numbering three or four and a few other tiles bulged out. No other damage was reported.

Farragut School, between Capitol and Faxon Ave. This school is a stuccoed-wood-frame building, built in 1911, with r.c. walls up to the elevated first floor level. Extensive plaster cracks, particularly in the stairwells at the junction of the plastered stud wall and concrete. On the exterior the corners of what appeared to be a bond beam at the top of the elevated first floor showed spalling.

Sheridan School, at Capitol and Farallones St. Three-story stuccoed-wood-frame building, built in 1909, with r.c. walls up to the elevated first floor level. This building is practically identical with the Farragut School. Extensive plaster damage was noted, particularly in the stair walls, running horizontally. A 14-foot-high brick chimney tied together with angle irons fell off in sections. One bracing strut in the attic space broke, probably as a result of the impact suffered when the chimney hit the roof. Plaster ceiling was also damaged. It was also noticed that an empty water tank in the attic broke loose from its pipe connections.

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Longfellow School, at Lowell St., near Mission. Built about 1907. First story r.c.; second story wood-frame. This school is just about to be replaced by a new building. The stairwell shows extensive horizontal cracks. There were also sizeable vertical cracks in the plastered stud wall partitions and ceilings.

West Portal School, Taraval St., Claremont Blvd., and Lenox Way (west portal of the streetcar tunnel). Two-story-type 1/b structure, built in 1927 and rehabilitated in 1932. Reinforced-concrete building. Numerous cracks in the corridor walls in horizontal and vertical directions. Most of the cracks, however, must have been in existence for some time and should be attributed to the result of continuous earth movement rather than to the effect of the recent earthquakes. There is a large old crack through the terraced yard and through the r.c. retaining walls. This crack roughly follows the center line of the streetcar tunnel which lies underneath. A few classroom doors are out of alignment and bind.

Lowell High, at Masonic and Hayes. Three-story-type III, r.c. and brick veneer building, built in 1912, rehabilitated in 1935. The corridors have been strengthened by struts. There are numerous cracks in the plaster along and around these struts. Horizontal cracks in the stairwell at floor levels. Plaster fell in sizeable chunks off the classroom ceilings in library, chemistry laboratory, and auditorium. These floors are very springy, and the plaster is on wood lath (with the exception of the rehabilitation work which was done with exp. metal lath). One vertical crack was observed through the center of the brick veneered pilaster on the west side of the Hayes Street facade.

James Lick Jr. High, at Noe and 25th Sts. Built in 1933. This three-story building suffered hardly any damage. Very few plaster cracks.

Other schools not inspected but reported on by school principals:

Alamo, 23rd Ave., between Clement and California. Plaster cracks (brick and terra cotta has been removed).

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Alvarado, 22nd and Douglass Sts. Plaster cracks.

Andrew Jackson, Grove, near Clayton Sts. Cracks in marble facing at entrance.

Bayview, Bayview, between Pomona and Flora. Plaster cracks.

Benjamin Franklin, Scott, between O'Farrell and Geary Sts. Some plaster fell.

Brete Harte, Gilman and Griffith. Plaster cracked.

Bryant, Bryant, between 22nd and 23rd Sts. Few plaster cracks.

Burnett Annex, Newcomb and Lane. Few cracks in plaster ceiling.

Cleveland, Persia Ave., between Athens and Moscow Sts. Cracked plaster.

Columbus, 12th Ave., between Kirkham and Lawton Sts. Cracked plaster.

Commodore Sloat, Darien Way and Junipero Blvd. Plaster cracks in walls and ceilings.

Commodore Stockton, Washington, near Powell Sts. Few plaster cracks.

Daniel Webster, Missouri and 19th Sts. Plaster cracks.

Dudley Stone, Masonic Ave. and Haight St. Few plaster cracks.

Edison, 22nd St. and Chattanooga. Few plaster cracks.

E. R. Taylor, Burrows and Somerset Sts. Few plaster cracks.

El Dorado, Delta and Wilde Ave. Few plaster cracks.

Emerson, California, between Scott and Divisadero Sts. One-half inch movement between wall and ceiling (?).

Everett Jr. High, 16th and Church Sts. Some cracks behind Auditorium (probably old).

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Excelsior, London St. and Excelsior Ave. Few cracks in plaster.

Francisco Jr. High, Powell, between Chestnut and Francisco Sts. Few cracks in plaster.

Frank McCoppin, 7th Ave., between Balboa and Cabrillo Sts. Few cracks in plaster.

George Peabody, 7th Ave. and Clement Sts. Plaster cracks.

Glen Park, Brompton Ave. and Bosworth St. Few plaster cracks.

Golden Gate, Golden Gate Ave., near Pierce St. Few plaster cracks.

Grant, Pacific, near Baker St. Few plaster cracks.

Grattan, Shrader and Grattan Sts. Broken glass and plaster cracks.

Hancock, Filbert St. and Taylor St. Few plaster cracks.

Horace Mann Jr. High, Valencia and 23rd Sts. Few plaster cracks.

Hawthorne, Shotwell, near 22nd St. Few plaster cracks.

Hearst, 3045 Santiago St. Few plaster cracks.

Hillcrest, Silver Ave. and Cambridge St. Incinerator cracked; walls moved (?); cracks in basement.

James Denman Jr. High, Oneida Ave., near Delano. Some plaster fell.

Jeane Parker, Broadway, near Powell St. Plaster cracks.

Jefferson, 19th Ave., near Irving St. Plaster cracks.

John O'Connell, 21st St. and Treat. Broken windows.

John Swett, Golden Gate Ave., near Gough St. Bricks in front of building cracked.

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Junipero Serra, Highland Ave. and Holly Park Circle.  
Plaster cracks.

Lafayette, Anza, near 36th Ave. Plaster cracks.

Laguna Honda, 7th Ave., near Irving St. Few plaster cracks.

Lawton, 31st Ave., near Lawton St. Few plaster cracks.

Le Conte, Army and Harrison Sts. Few plaster cracks.

Louise Lombard, Hayes and Pierce Sts. Few plaster cracks.

Madison, Clay, near Cherry St. Few cracks in walls.

Mark Twain, 41st Ave. and Ortega St. Few plaster cracks.

Marshall, Capp and 15th Sts. Few plaster cracks.

McKinley, 14th and Castro Sts. Few plaster cracks.

Miraloma, Omar and Cresta View. Few plaster cracks.

Mission High, 18th St. and Dolores. Cracks in plaster wall.

Monroe, Excelsior Ave. and Lisbon St. Few plaster cracks.

Noriega, Noriega St. and 44th Ave. Lighting fixture fell.

Ortega, 400 Sargent St. Few plaster cracks.

Portola Jr. High, Girard, near Bacon St. Plaster cracks in old building.

Raphael Weill, Buchanan and O'Farrell Sts. Few plaster cracks.

Redding, Pine and Larkin Sts. Few plaster cracks.

Roosevelt Jr. High, Arguello Blvd., near Geary St. Few cracks in walls and plaster (old?).

San Miguel, San Jose Ave., near Seneca St. Few plaster cracks.

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Sarah B. Cooper, Lombard and Jones St. Cracks in stairwell.

Sherman, Union, near Gough St. Few plaster cracks.

Spring Valley, Jackson, near Hyde St. Cast stone fell from cornice. Plaster cracks.

Sunnyside, Foerster, near Hearst Ave. Few plaster cracks.

Sutro, Funston Ave., near California St. Few plaster cracks.

Twin Peaks, Corbett Ave. and Dixie St. Acoustical tile fell.

Visitacion Valley, Visitacion Ave. and Schwerin St. Few plaster cracks.

Washington Irving, Broadway, near Sansome St. Minor damage to wood.

Winfield Scott, Divisadero, near Beach St. Some roof tiles loosened.

San Francisco State College, 1600 Holloway Ave. No building sustained structural damage. Damage consisted mainly of plaster and window cracking. Approximately 70-80 windows in exterior sash required replacement. Continuous ground crack around the perimeter of one building. The crack was about 1/8 inch wide and about 6 feet away from the face of the building. Estimated cost of repairs to all buildings, \$26,530, with \$17,400 of the total cost required for the Library Building.

San Francisco (California Academy of Sciences, Golden Gate Park). Motion rapid, lasted 1-1½ minutes. Direction NE and E-W. Felt by and frightened all. Loud earth noises heard. Shop machines rattled. Hanging objects swung. Books and electrical parts fell. Damage slight.

San Francisco (California Academy of Sciences, Golden Gate Park). Plaster damage in Dioramas in west wing (North American Wing). Plaster cracked at juncture of Diorama walls to roof beam. There was some debris on the skylights of the Dioramas which was thought to be paint flakes and plaster shaken loose by the shock. There was a very small crack, 3 inches long, in the bottom of the plate glass of the

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second Diorama from the entry in the main lobby. There was a small spalled spot on the tail of the plaster model of the thresher shark in the display room at the northeast corner of the building. There is a statue outside the building near the northeast corner with a roof supported by four columns. One column cap was badly cracked and several columns were cracked."

**San Francisco (Federal Office Building, Civic Center).** Motion rocking, rolling, generally N-S. Felt by all. Creaking of building and rattling of loose objects heard by almost everyone. Disturbed objects observed by almost everyone. Visible swaying of buildings and trees. Some plaster cracks in south walls of building. One waste water main broke. Pictures swayed; file cabinets opened to 1 foot; mercury shaken out of cistern of recording barometer; instrument console shook, mechanically providing .01 inch precipitation. General alarm; few panic stricken. Ground: Sandy.

**San Francisco (State Building, McAllister St., between Polk and Larkin Sts.).** "First floor - East wall of hallway cracked at juncture of western two-story addition to the six-story central wing of original building. There were four vertical cracks in this wall with some cracks having plaster spalling from them. The west wall of the eastern two-story addition to six-story central wing of the original building was cracked. The cracks occurred where partitions abut this wall. Main stairs - east and west - Partition wall cracked at the landing between the third and fourth floors. The partition runs east-west. Horizontal cracks occurred about 6 inches above the landing. There were separation cracks between the plaster ceiling on the underside of the stairs and the metal stair stringers. These cracks were most noticeable between the third and fourth floors but occurred to some degree between the second and fifth floors."

**San Francisco (Southern Pacific Building, 65 Market St., 10-story building, on 125-foot piling).** Considerable plaster cracking and numerous windows cracked and broken throughout the building. Hollow tile walls throughout the ground floor offices cracked, some to the extent that surface plaster was removed. Some stall doors jammed in Women's Room on 6th floor.

**San Francisco (Southern Pacific Building).** Motion rapid, lasted 1 minute. Direction vertical, then E-W. Felt by and frightened many. Windows and doors rattled; walls creaked.

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Hanging objects swung. Electric clock stopped. Plaster and windows cracked. Damage slight. Ground: Filled in. San Francisco (Southern Pacific Building). Very strong. Direction seemed vertical, with W-E sway. Lasted about 2-3 minutes. Excited everyone. Building moved on piling very noticeably. Lights swung wildly. Drawers in desks and cabinets slid open.

San Francisco (Ferry Building). Motion rapid, lasted about 10 seconds. Felt by all and frightened many on third floor (active; standing). Windows and doors rattled; building creaked. Ferry building clock stopped. Small objects and furnishings shifted. Plaster cracked. Few dishes broke. Damage slight. Ground: 120 feet bay mud.

San Francisco (Ferry Building). Motion rapid, lasted about 8 seconds. Direction N. Felt by all in building. Windows and doors rattled severely; building creaked severely. Hanging objects swung N. Small objects overturned. Plaster cracked. Damage slight to plaster. Ground: Pier over fill.

San Francisco (Berry St., between 3rd and 4th Sts.). Motion rapid, lasted 20 seconds. Direction E-W. Felt by and frightened all. "Just stopped my car, which rocked with a rolling motion. Freight cars on spur tracks moved. No visible damage at this site."

San Francisco (675 Post St.). Large plate glass window broke. San Francisco (651 Brannan St.). Plate glass windows broke.

San Francisco (Merchandise Mart, 1355 Market St.). Considerable minor pounding damage on every floor where original building joins annex.

San Francisco (St. Francis Hospital, Hyde and Bush Sts.). Plaster cracked considerably. Small objects shifted. Ground: Soil, level.

San Francisco (Mills Tower, Bush St., 6th floor). Motion slow, rolling, N-S, lasted 30 seconds. Loud noise like heavy thunder heard at beginning of shock. Felt by all in office building; frightened all in community. Windows, doors, and partitions rattled. Hanging objects swung N. Small objects shifted. Plaster, walls, and ceiling cracked; plaster fell. Damage slight to plaster. "Two girls hysterical; several persons nauseated." Ground: Compact, level.

San Francisco (Sansome and Pine Sts.). Motion slow, N-S, lasted 30 seconds. Felt by all in office building; outdoors by others (active); frightened all in community. Windows and doors rattled. Hanging objects swung. Small objects shifted. Some persons became nauseated. Ground: Compact, level.

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**San Francisco** (Merchants Exchange Building, 465 California St.). Motion rapid, lasted 15 seconds. Felt by and frightened all. Windows and doors rattled; walls creaked. Plaster cracked. Damage slight. Ground: Rocky, filled in.

**San Francisco** (465 California St.). Motion rapid, lasted about 35 seconds. Felt by all in reinforced-concrete building; frightened few. Prolonged rattling of windows and doors; prolonged creaking of building. Plaster cracked. Ground: Rocky.

**San Francisco** (465 California St.). Commercial Club. Direction NE. Felt by and frightened all. Windows rattled. Small objects shifted. Ground: Level.

**San Francisco** (465 California St., 10th floor). V. Direction E-W. Felt by all on 10th floor; by others outdoors (active); frightened many in community. Building rattled. Ground: Level, filled in.

**San Francisco** (Post Street at Grant Avenue). Some debris from ledges, etc. Windows shook violently.

**San Francisco** (Franklin Hospital, 14th and Noe Sts.). Motion sharp, lasted about 30 seconds. Earth noises heard by many. Felt by and frightened all. Windows, doors, and dishes rattled; building creaked. Small objects and furnishings shifted. Plaster cracked and fell. Damage slight.

**San Francisco** (Stonestown, Emporium). Settlement of sidewalk. Plaster cracked.

**San Francisco** (Stonestown, 360 Buckingham Way). Dishes and windows broke. Plaster cracked. Refrigerator and range twisted. Damage considerable to china, glassware, mirrors, etc. Ground: Sloping.

**San Francisco** (Stonestown, 255 Buckingham Way, 9th floor). Dishes, windows, and furniture broke. Plaster cracked. Damage considerable to lamps, pictures, dishes, glass, and furniture. Ground: Level, filled in.

**San Francisco** (Stonestown Market). Dishes and windows broke. Plaster, windows, and walls cracked. Deep crack in entire ceiling. Damage considerable to concrete. Ground: Sandy soil, level.

**San Francisco** (Stonestown, 85 Buckingham Way). Small objects shifted. Dresser mirror broke. Plaster cracked. Damage slight. Ground: Filled in.

**San Francisco** (Stonestown, Prudential Life). Safe and other large objects shifted. Plaster cracked. Damage slight to plaster. Ground: Soil, compact, level.

**San Francisco** (Parkmerced, 100 Font Blvd., Apt. 11-L). Dressers shifted. Dishes broke. Walls cracked. Ground: Filled in, sloping.

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INTENSITY VI - San Francisco

San Francisco (Parkmerced, 22 Fuente Ave.). Furnishings shifted. Dishes broke. Plaster and walls cracked. Damage slight to concrete. Ground: Sandy, level and sloping; filled in.

San Francisco (Parkmerced Towers, 9th floor). Furnishings shifted. Plaster cracked. Damage slight. Ground: Soil, compact, sloping.

San Francisco (Parkmerced Tower Apartments, 405 Serrano Dr.). Glassware, pictures, etc., shifted. Dishes broke. Plaster cracked. Damage slight. Ground: Probably soil, level.

San Francisco (Parkmerced, 131 Bucareli Dr.). Small objects shifted. Plaster cracked. Damage slight. Ground: Soil, compact, level.

San Francisco (Parkmerced, 3rd floor). Small objects and furnishings shifted. Plaster and walls cracked. Damage slight.

San Francisco (Parkmerced, 120 Serrano Dr.). Small objects shifted. Plaster cracked. Damage very slight. Ground: Compact, level.

San Francisco (634-45th Ave.). Motion rapid. Motion N-S and up and down. Felt by and awakened observer on first floor of weakly built wooden house. Windows, doors, and dishes rattled; house creaked. Hanging objects swung. Small objects shifted; vases overturned; knickknacks fell. Dishes and one vase broke. Damage slight. Dog terrified. Ground: Sandy, steep.

San Francisco (87 Niagara Ave.). Two-story wooden back stairs collapsed.

San Francisco (345 Randolph St.). Large amount of canned goods fell in store.

San Francisco (1386-31st Ave.). Motion rapid. Felt by and frightened all. Windows, doors, and dishes rattled; house creaked. Small objects and furnishings shifted; vases and small objects overturned; knickknacks, books, and pictures fell. Ground: Compact.

San Francisco (1910 Baker St.). Motion rapid, lasted about 30 seconds. Moderate earth noises heard. Small objects shifted. One dish broke. Small amount of plaster cracked. Ground: Sandy.

San Francisco (1177 Valencia St.). Motion rapid, lasted 30 seconds. Loud earth noises heard at beginning of shock. Felt by and frightened all in home. Windows and doors rattled. Hanging objects swung. Small objects overturned. Plaster and walls cracked. Pictures fell. Damage slight. "Motion was like a spinning top, twisting and jarring, then aftershocks."

San Francisco (NE corner of Broadway and Octavia). Motion rapid, lasted 1 minute. Felt by and frightened all in home. Windows,

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doors, and dishes rattled; frame creaked. Doors swung. Small objects shifted and overturned. Pictures fell. Cracked plaster, and panel off of baseboards, which were distorted. Ground: Soil, sloping.

San Francisco (179-15th Ave.). "Front terrazzo stairs separated from stucco buttresses on side. Iron drainpipe on side of house bent and knocked loose from house." Ground: Soil, level.

San Francisco (678-11th Ave.). Windows, doors, and dishes rattled. Hanging objects swung E-W. Pendulum clock facing N stopped. Trees, bushes shaken strongly. Small objects and furnishings shifted; vases, etc., small objects overturned. Plaster cracked and fell. "Found minor damage at home. Floor lamps knocked over; cracks in plaster; small knickknacks broken; clock moved on mantel."

San Francisco (3233 Jackson St.). Motion rapid. Felt by all in home. Moderate earth noises heard. Windows rattled; walls creaked. Plaster cracked (most cracks old and widened a little). House (part rock and adobe) very well built. Ground: Rocky, soil.

San Francisco (470-19th Ave.). Motion slow after first jerk, lasted 15-20 seconds. Felt by all; frightened all in home. "House creaked so loudly could not have heard earth noises." Windows, doors, and dishes rattled. Hanging objects swung E-W. Small objects shifted; vases and small objects overturned; knickknacks and books fell from inside walls. Dishes broke. Damage slight.

San Francisco (265 Santa Clara). Motion slow, lasted 5 seconds. Direction S-N. Loud earth noises from S-N heard by many. Felt by many; frightened many in home. Windows, doors, and dishes rattled; house creaked. Hanging objects swung S-N. Trees, bushes shaken moderately. Small objects and furnishings shifted; small objects overturned. Plaster cracked. Knickknacks, books, pictures, and plaster fell. Slight amount of dish and window breakage. Damage slight. "Following shocks seemed to be jolts with no compass directions." Ground: Compact, sloping.

San Francisco (1870-9th Ave.). "Arrived home to find ornaments such as vases and knickknacks thrown across the room in a NE direction. Contents of bathroom cabinet fell out and door closed. Phonograph moved 8 inches from wall. Stairwell seemed to have sunk 1/4 inch. Second step down from front door chipped and cement at side of joint broken loose. Some loose plaster bits on stairs and in hall. Damage slight. Building wood-frame; two stories above garage."

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INTENSITY VI - San Francisco

San Francisco (2534-45th Ave.). Motion rapid, lasted 30 seconds. Loud earth noises heard by many 3 seconds before shock. Felt by and frightened all in home. Windows, doors, and dishes rattled; house creaked. Hanging objects swung. Furnishings shifted; vases and small objects overturned. Plaster and walls cracked. Knickknacks, books, pictures, and plaster fell. Dishes broke. Damage slight. Ground: Loose, sandy.

San Francisco (2218-31st Ave.). Motion jolting, then moderate shaking, lasted 1-2 minutes. Loud earth noises heard. Small objects fell from shelves. Bookcases and T.V. moved. Spring in 400-day clock broke; vases, bottle, and electric light on front porch broke. Ground: Sandy, sloping.

San Francisco (143 Brunswick St., Crocker-Amazon District). Motion rapid, eased off, then strong shaking. Moderate earth noises heard. Small objects shifted. Dishes broke. Plaster cracked. Damage considerable. Ground: Compact, sloping.

San Francisco (1911 Hayes St.). Motion rapid, lasted 2 minutes. Direction W. Moderate earth noises from W heard by many. Felt by all; frightened few. Windows rattled; walls creaked. Hanging objects swung W. Small objects and furnishings shifted. Plaster, windows, walls cracked. Knickknacks, books, and plaster fell. Windows broke. Damage considerable. Ground: Rocky, compact, level.

San Francisco (1856-24th Ave.). Motion slow, lasted few seconds. Direction S-N. Loud earth noises from S-N heard by many. Felt by observer (active) on first floor of strongly built brick building (store); frightened many. Windows rattled. Pendulum clock stopped. All grocery merchandise fell off shelves. Store closed for five hours. Damage about \$1,500. Ground: Soil, level.

San Francisco (2858A-25th St.). Vases overturned; knickknacks fell. Plaster and walls cracked. Damage slight.

San Francisco (Sunset District). Observer living at 1310-29th Ave. "By comparison the homes on the west side of 29th Avenue all had cracked walls, fallen plaster, broken bric-a-brac, and opening of cabinet doors. Also, the stores on Irving Street, south side between 20th and 23rd Avenues, had broken windows, while those on the north escaped damage, although some have equally large windows."

San Francisco (252-3rd Ave.). Small objects and furnishings shifted; dishes broke. Damage considerable to concrete. Ground: Filled in.

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INTENSITY VI - San Francisco

San Francisco (40 De Soto St.). Plaster, walls, chimneys cracked. Fireplace shifted 1/3 inch and facing loosened. Damage about \$200 to brick, masonry, and plaster. Ground: Soil, compact, sloping.

San Francisco (2557 Alemany Blvd.). Grand piano shifted. Stair railings broke. Plaster, windows, walls, and chimneys cracked. Garage doors jammed. Damage considerable. Ground: Soil, compact, level.

San Francisco (1367 Cayuga, near Geneva Ave.). Plaster, walls, and fireplace cracked. Damage considerable. Ground: Filled in.

San Francisco (1259 Cayuga Ave.). "Water draining from cracks in street." Few dishes and figurines broke. Damage slight. Ground: Soil and clay, compact, fairly level.

San Francisco (103 Crescent Ave.). Walls and stucco cracked considerably. "I was working on a building under construction at the 200 block on Pine Street when the strongest shock occurred. It was a rolling N-S motion, lasting about 30 seconds. Whipping motion of flagpoles on the taller buildings nearer Market Street was the most notable effects in that area." Ground: Level, filled in.

San Francisco (2419 Vallejo St.). Windows broke. Plaster and chimneys cracked; chimney fell.

San Francisco (1515 Sloat Blvd., Lakeshore Plaza). Windows broke; plaster cracked. Damage considerable. Ground: Loose, level.

San Francisco (2247-34th Ave., Parkside District). Brick bulwark cracked; slight plaster cracks. Damage slight. Ground: Loose, level.

San Francisco (11 Imperial Ave., Upper Marina). Plaster and walls cracked. Damage considerable. Ground: Rocky.

San Francisco (66 Santa Ana Ave., St. Francis Woods). Objects shifted, particularly heavy, loose objects. Stone fireplace cracked. Dishes broke. Damage considerable.

San Francisco (255 Rolph St.). Dishes broke. Plaster and walls cracked. Damage considerable to concrete. Ground: Soil, level.

San Francisco (3292-18th St.). Plaster, windows, and walls cracked. Damage considerable. Ground: Filled in.

San Francisco (426 Castenada Ave.). Dishes broke. Plaster, walls, and ground cracked. Damage considerable. Ground: Rocky, loose, steep.

San Francisco (1282-43rd Ave.). Dishes and windows broke. Plaster and walls cracked. Damage considerable. Ground: Soil.

San Francisco (61 Tinian Rd.). Incinerators cracked. Ground: Rocky soil, sloping.

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INTENSITY VI - San Francisco

San Francisco (440 Ellington Ave.). Dishes and glassware broke. Plaster and walls cracked in every room of house. Damage considerable.

San Francisco (151 Head St.). Dishes broke. Plaster and walls cracked. Damage considerable to brick, masonry, and concrete. Ground: Soil, loose, sloping.

San Francisco (107 Eugenia St.). Dishes broke. Foundation had 3/8 inch crack; tongue and groove at intersection of floor in bathroom separated; pulled stair tread away from back of steps; moved fence. Damage slight to considerable. Ground: Rocky.

San Francisco (Safeway Store, 4800 block on Mission St.). Dishes and windows broke. Plaster and windows cracked. Damage considerable. Ground: Level.

San Francisco (1251-18th Ave.). Dishes broke. Plaster and walls cracked. Damage considerable.

San Francisco (2135-15th Ave.). Hot water heater, refrigerator, etc., shifted. Dishes and bric-a-brac broke. Plaster cracked; crack through basement floor and foundation. Water pipe leading into house broke. Damage considerable to concrete. "Several shocks felt." Ground: Sloping, steep; on hill.

San Francisco (United Air Lines Building). Plaster cracked. Damage considerable to interior. Ground: Level, filled in.

San Francisco (12 Mateo St.). Dishes broke. Ceiling and walls of entire house cracked. Damage considerable. Ground: Soil, compact, steep.

San Francisco (2527-23rd Ave.). Windows broke. Plaster and walls cracked. Damage considerable (about \$175). Ground: Soil, compact.

San Francisco (385 Valdez Ave.). Dishes broke which were in a NE-SW line. Plaster and walls cracked. Damage considerable. Ground: Sloping.

San Francisco (Broad and Plymouth Sts.). Windows broke. Damage considerable. Ground: Level.

San Francisco (2355-37th Ave.). Dishes and bric-a-brac broke. Plaster and walls cracked. Damage considerable to concrete terrazzo steps. Ground: Sand dunes; level.

San Francisco (112 San Pablo Ave., St. Francis Woods). Furniture moved. Dishes broke. Many wall and ceiling cracks. Damage considerable. Ground: Soil, sloping.

San Francisco (2643-38th Ave.). Dishes broke. Plaster and walls cracked. Damage considerable. Ground: Level.

San Francisco (95 Erookdale Ave., Sunnydale Housing Unit). "Could see whole structure in a cross-wise wrench and hear cracking sound of concrete giving way. So obvious was unsafeness

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INTENSITY VI - San Francisco

of concrete that I took child outdoors to clearing, away from any poles, lines, or buildings. Every door, window sill and jamb cracked. Concrete walls cracked. Have felt each aftershock, same line of direction to this room, where I sit and sew a good deal of the time." Damage considerable to concrete. Ground: Rocky, sloping; shelf cut in hill of rock; cement floor on rock bed.

San Francisco (243 Broad St.). Dishes and windows broke. Plaster, windows, and walls cracked. Damage considerable. Ground: Sandy soil, level.

San Francisco (255 Ellington Ave.). Refrigerator moved 6 inches; stove moved 2 inches. Dishes broke. Plaster and walls cracked. Water pipe broke. Damage considerable. Ground: Soil, level.

San Francisco (516 Ellington Ave.). Dishes broke. Plaster and stucco cracked. Damage great to wood, brick, masonry, and concrete. Ground: Soil, level.

San Francisco (358 Randolph St.). Dishes, windows, and furniture broke. Plaster, windows, and walls cracked. Damage considerable to brick, masonry, and concrete. Ground: Sloping, compact.

San Francisco (739 Victoria St.). Plaster cracked in almost every room. Two chimney bricks fell. Damage considerable in living room: great number of cracks in plaster. Ground: Compact, sandy, level.

San Francisco (1489-18th Ave.). Plaster cracked in basement room from ceiling to floor, also smaller cracks in rooms on first floor. Damage slight.

San Francisco (792 Head St.). Plaster and walls cracked. Chimney fell. Damage considerable to wood and concrete. Ground: Loose, sloping.

San Francisco (435 Clipper St.). Plaster, walls, foundation, and ground cracked. Damage considerable to concrete. Ground: Soil, sloping.

San Francisco (61 Westwood Dr.). Dishes broke. Plaster cracked. Twisting and fall of chimney. Damage considerable to brick, masonry, and concrete (repairs about \$1,700).

San Francisco (210 San Benito Way). Refrigerator shifted. Dishes broke. Plaster and chimney cracked; chimney fell. Damage slight to brick, masonry, and concrete. Ground: Soil.

San Francisco (181 De Soto St.). Dishes broke. Plaster, walls, and chimney cracked. Damage considerable. Ground: Soil, level.

San Francisco (446 Brunswick St.). Dishes broke. Damage considerable to concrete. Ground: Level.

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INTENSITY VI - San Francisco

**San Francisco** (811 Head St., Ingleside Terrace). Dishes broke. Plaster cracked. Chimney twisted. Damage considerable. Ground: Level.

**San Francisco** (380 Chester St.). "The earthquake was very intense, gathering great force with a giant jack hammer effect and with a slithering motion like a car with locked brakes going into a side slide. No warning rumble; rumble heard when shock reached peak shake. Lamps, knickknacks, china, and groceries all spewed out. My heavy oak china cabinet and massive table moved 2-3 inches away from original position; kitchen stove moved 2 inches; furnace in basement moved 2 inches off base and water heater tilted off base. Living room outer wall buckled. Plasterboard cracked throughout house, also outside plaster. Basement floor cracks look like a spider web. Electric wires outside snapped in two. Everything in our home was in a shambles. Constant tremors from 8:38 A.M. on Friday to 12:05 Sunday night, with one small tremor Monday morning. We are located at Junipero and Alemany Blvds." Ground: Soil, compact, slightly sloping.

**San Francisco** (corner 6th Ave. and Balboa Sts.). Dishes, windows, and furniture broke. Plaster and walls cracked. Damage considerable. Ground: Compact, level.

**San Francisco** (10 Homewood Court). Stove and refrigerator shifted. Dishes broke. Plaster cracked all over house outside; chimney cracked. Damage slight to considerable in bathroom between tile. Plaster cracks not wide. Ground: Sloping; filled in one year ago.

**San Francisco** (2039-41st Ave.). Refrigerator and water heater shifted. Dishes broke. Plaster cracked. Damage considerable to plaster. Ground: Sand dunes.

**San Francisco** (2434-26th Ave.). Dishes broke. Plaster torn off wall (about 130 square feet). Ground: Sandy, sloping.

**San Francisco** (675 Head St.). Dishes and bottled goods broke. Plaster, walk, retaining wall, and terrazzo steps cracked. Cracks and breakage in stucco front and basement floor. Damage considerable. Ground: Sandy soil, steep.

**San Francisco** (2 Genesee St.). Dishes and windows broke. Plaster, windows, walls, and chimneys cracked. Damage considerable. Ground: Compact, level.

**San Francisco** (1609-26th Ave.). Broke dishes, windows, and furniture. Interior and exterior plaster and walls cracked. Damage considerable to wood, brick, masonry, and concrete. Ground: Soil, level.

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INTENSITY VI - San Francisco

San Francisco (1071 Munich St.). Furnishings shifted 4 inches. Plaster and walls cracked. Sprung overhead garage doors. Damage considerable to concrete. Ground: Soil, sloping.

San Francisco (704 Junipero Serra Blvd., Lakeside). Furnishings shifted. Dishes and windows broke. Plaster cracked. Damage considerable. Ground: Soil, level and sloping.

San Francisco (178 De Soto St.). Dishes broke. Plaster, walls, and steps cracked. Damage considerable (about \$200). Ground: Compact, level.

San Francisco (2125 Lincoln Way). Furnishings shifted. Dishes broke. Plaster and windows cracked. Damage considerable. Ground: Compact, level.

San Francisco (46th Ave. and Noriega St.). Furnishings shifted. Windows broke. Plaster cracked. Damage considerable. Ground: Loose, level.

San Francisco (224 Miramar Ave.). Furnishings and stove shifted. Dishes and furniture broke. Plaster, walls, chimney, and fireplace cracked. Damage considerable to terra cotta stairs. "Always hear noise before shakes." Ground: Soil, compact, level.

San Francisco (250 San Benito Way). Refrigerator and stove shifted. Dishes broke. Plaster and chimney cracked. Plaster cracked both inside and outside of windows. Some cement stucco cracked. Front and back stairs dropped about 1/8 to 1/16 inch. Damage considerable. Ground: Sandy, sloping.

San Francisco (104 Eagle St.). Furnishings shifted. Outside sidings pulled apart. One water pipe twisted and leaked; heat vent pipe cracked. Damage to wood and concrete. Ground: Soil, loose, sloping and steep.

San Francisco (226 Caselli Ave.). Furnishings shifted. Dishes broke. Plaster, walls, and ground cracked. Damage considerable to concrete. Ground: Filled in.

San Francisco (2611 San Jose Ave.). "The Safeway store is the one from my house going in the direction of Daly City, past the part where railroad crosses street. My 3-year-old daughter and I were at the store when shock occurred. There was a smell of gas. My children said there was the same smell at St. Michael's School. As soon as one smelt the gas it really began to shake. The ground seemed to rise up and down and the most awful roar - something so different from all other sounds - came with this movement. Store seemed to rock and roll several times, then shake very hard. Glass, food, etc., flew. People ran; some panicky. Others, like myself, didn't know if it was an explosion or shock until we went outside. As I ran home I saw other damage. In our apartment one room had no damage, while four others either

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INTENSITY VI - San Francisco

had large cracks over walls or complete breaks and fallen plaster. Pictures, etc., flew and bathroom was a mess, everything broke. As soon as we went inside the house we felt more movement of the house and ground in the backyard and heard noises and rumbles. This kept on all the rest of the day and night. All we did was come in and run out."

San Francisco (315-4th Ave.). Furnishings shifted. Dishes broke. Plaster cracked in kitchen. Damage considerable. All closed doors opened. Ground: Soil, compact, level.

San Francisco (2392-28th Ave.). Second floor. Figurines broke. Lamp fell from nightstand. Clothing thrown from closet and shelves. Trim on dressing table broke off and found in middle of floor (nails still in it). Canned goods in storage closet thrown out and dented. Cupboard doors opened, causing glass stelware to fall and break. Kitchen service table pushed to center of room. Stove knob fell off and was found in corner of room. About an 8-inch wall crack over window. Ground: Soil, level.

San Francisco (686-40th Ave.). Furniture moved from walls. Many objects thrown to floor. Juices spilled in refrigerator. "I ran out the back way and heard my neighbor two doors away screaming. When I ran out to backyard, I found the earth was moving away from me, like an escalator. It moved so rapidly it made me dizzy and sick. The building kept on creaking for sometime afterwards, as if settling. I believe the tile in the bathroom had settled about 1/32 inch." Ground: Compact, level, sloping.

San Francisco (332 Clement St.). Store. "Packing stripped loose from plumbing pipes in rear of building. Water ran out in buckets full and went all through the floor and ceiling of room below. Plaster on ceilings and walls loosened by shock and soaked with water."

San Francisco (352 Arlita Ave.). Ceiling cracked in two places. Gas line broke in two places. Ground: Solid rock; slight hill.

San Francisco (1001 Portola Dr.). "It was the most terrifying experience of my life. House shook. Cupboards, oven, and refrigerator doors flew open. Knickknacks and pictures fell, some broke. I ran to rear of house. Patio shook; flower pot broke." Ground: Soil, sloping.

San Francisco (55 Noe St.). "The noise of great hammer blows was terrific. Everything rattled and swayed. My unbelieving eyes saw my grand piano dancing a jig - seemed to rise up off the floor. All of the shocks were felt here, including a continued slight trembling on Saturday in p.m. No rolling motion. Mid-morning shock on 22nd sounded as if a big truck had crashed into house." Ground: Soil, compact, level.

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INTENSITY VI - San Francisco

**San Francisco** (380 San Leandro Way). Dishes broke. Plaster cracked and a small amount fell in each room. Vase and mirror fell and broke. Ground: Soil, level.

**San Francisco** (975 Holloway Ave.). Heavy refrigerator shifted 2½ inches. Dishes broke. Plaster in nearly all rooms cracked just under ceiling around entire room. Pictures askew. Articles on W-E shelves fell. Ground: Probably soil over rock; bottom of hill.

**San Francisco** (737 Anderson St.). Furnishings shifted. Ground: and cement foundation holding fence cracked. Books and radio fell. Damage slight. Ground: Rocky soil, compact, sloping.

**San Francisco** (2419-38th Ave.). Heavy furnishings shifted. House cracked where joined on south side. Damage slight. Ground: Sandy, level.

**San Francisco** (2469-18th Ave.). Two chests shifted. Dishes broke: few fell from open bookcase. One 12-inch plaster crack. Damage very slight to concrete steps.

**San Francisco** (430 Edinburgh St.). Small objects and furnishings shifted. Plaster, walls, and chimney cracked. Damage moderate.

**San Francisco** (238 Victoria). Furnishings shifted. Dishes broke. Plaster and walls cracked. Damage slight to wood. Ground: Sloping.

**San Francisco** (Moraga near 22nd Ave., Sunset District). Small objects and furnishings shifted considerably. Dishes broke. Plaster and walls cracked. Damage considerable to china; some damage to concrete. Ground: Sandy, sloping.

**San Francisco** (2055-12th Ave.). Plaster cracked; cement foundation cracked. Damage slight. Ground: Soil, level.

**San Francisco** (2029 Vicente St., near 30th Ave.). Small objects and furnishings shifted. Few exterior cracks in stucco and patio doors. One 10-inch figurine broke; bottles fell from medicine cabinet and broke. "Canvas walls and ceilings prevented damage." Ground: Soil, slightly sloping.

**San Francisco** (523-44th Ave.). Few dishes broke. Plaster cracked slightly. Slight damage to base of firewall. Ground: Compact, sloping.

**San Francisco** (100 Moncada Way). Furnishings shifted. Plaster, walls, and chimneys cracked. Damage slight. Ground: Rocky.

**San Francisco** (46 Vernon St., Merced Heights District). Furnishings shifted. Dishes broke. Stucco cracked around steps outside. Damage slight. Ground: Soil, compact, gently sloping.

**San Francisco** (2535-37th Ave.). Stove, refrigerator, water heater shifted. Exterior stucco cracked. Damage slight to concrete. Ground: Sandy, level.

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INTENSITY VI - San Francisco

San Francisco (14th and Market Sts., Modern Appliance Co.). All refrigerators rocked strongly and danced. T.V. sets on turntable went round and round.

San Francisco (168-19th Ave.). Pictures fell from walls. Slight damage to concrete steps. Ground: Loose, level.

San Francisco (78 Jules Ave.). Furnishings shifted. Dishes broke. Plaster and walls cracked. Damage slight to concrete. Ground: Rocky, compact, sloping and steep.

San Francisco (322-28th Ave.). Furnishings shifted. Dishes and windows broke. Plaster cracked. Damage slight to concrete. Ground: Soil, level.

San Francisco (Quarters 10-B, Presidio). One antique urn broke. "There was some damage to a neighbor's house across the street and a chimney on one of the old brick barracks lost some bricks; some dishes broke at Letterman Hospital." Ground: Soil, sloping.

San Francisco (947 Bush St.). Window broke. Walls cracked. Ground: Soil, level.

San Francisco (2000-45th Ave.). General disorder in house. Beds moved 3 inches from wall. Drawers opened. Plaster cracked at juncture of ceiling and wall. Damage slight to concrete steps at wall joints. Ground: Sandy, level.

San Francisco (2966-26th Ave.). Everything in house shifted. Dishes broke. Plaster cracked; cement in basement cracked. Damage slight. Ground: Soil, level.

San Francisco (2122-47th Ave.). Small objects and furnishings shifted. Dishes broke. Plaster cracked; driveway cracked. Damage slight.

San Francisco (801 Taraval St.). Furnishings shifted. Plaster, windows, and walls cracked. Damage slight to concrete. Ground: Sandy, sloping.

San Francisco (222 Juanita Way). Furnishings shifted. Plaster cracked. Damage slight to concrete. Ground: Rocky, steep.

San Francisco (23<sup>4</sup>3-17th Ave.). Small objects shifted. Plaster cracked; foundation and steps cracked. Damage slight to concrete. Ground: Sandy, loose, sloping. Later shocks felt; E-W direction.

San Francisco (2207 Cabrillo St.). Furnishings shifted. Plaster, walls, and chimneys cracked. Damage slight to brick and masonry. Ground: Level.

San Francisco (184 Forest Side Ave., West Portal District). Small objects and furnishings shifted at least 3 inches. Plaster and walls cracked. Damage slight to concrete. Ground: Filled in, sloping.

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INTENSITY VI - San Francisco

San Francisco (183 Trumbull St., near Mission and Alemany). Small objects shifted. Plaster cracked. Damage slight to concrete. Ground: Filled in, sloping.

San Francisco (837-36th Ave.). Small objects and furnishings shifted. Contents of cupboards thrown to floor. Desk moved 5 inches from wall. Chimney lining broke. Ground: Sandy, level and slightly sloping.

San Francisco (254 Hearst Ave., Excelsior District). Small objects shifted. Dishes broke. Plaster cracked. Damage slight to concrete: enlarged old cracks in basement floor. Ground: Sloping.

San Francisco (1723 Eucalyptus Dr.). Many ceramics, etc., fell from shelves and broke. Plaster cracked. Several seams between baseboard and floor opened. Damage slight. Ground: Level, compact, soil.

San Francisco (19 Navajo Ave.). Small objects and furnishings shifted. Dishes broke. Plaster and walls cracked. Damage about \$100. Ground: Level, compact, soil.

San Francisco (2530-45th Ave.). Small objects shifted. Sheet rock cracked. Damage slight. Ground: Sandy, level.

San Francisco (29 Calgary St.). Electric range shifted. Dishes broke. Ground: Soil, level, filled in.

San Francisco (So. Sea View Terrace). Small objects shifted. Dishes broke. Plaster cracked. Damage slight to concrete. Ground: Level.

San Francisco (276 Granada Ave.). Small objects and furnishings shifted. Dishes broke. Plaster cracked in five rooms. Ground: Soil, compact, sloping.

San Francisco (615 El Camino Del Mar, Sea Cliff). Furnishings shifted. Plaster and walls cracked. Damage slight. Ground: Soil.

San Francisco (144-A Diamond St.). Small objects shifted. Plaster, walls, and chimneys cracked; chimney fell. Damage slight. Ground: Soil.

San Francisco (130 Fell St.). Small objects shifted. Plaster and walls cracked. Damage slight to brick and masonry. Ground: Soil, compact, level.

San Francisco (15th and Harrison Sts.). Small objects and furnishings shifted. Plaster and walls cracked. Damage slight to concrete. Ground: Level, filled in.

San Francisco ("0 Crestlake Dr.). Small objects and furnishings shifted. Dishes and figurines broke. Plaster, walls, and brick fireplace cracked. Damage slight. "The force of the shock hurled an iron flower pot holder from the balcony outside the living room window down to the lawn, almost reaching the sidewalk." Ground: Level.

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INTENSITY VI - San Francisco

San Francisco (Letterman Hospital, Presidio). Walls cracked.

San Francisco (1727-38th Ave.). Small objects and furnishings shifted. Dishes broke. Plaster, walls, and one window cracked. Damage slight. Ground: Loose, sloping.

San Francisco (2055-41st Ave.). Small objects and furnishings shifted. Dishes broke. Plaster cracked; small crack in foundation. Damage considerable to dishes. Ground: Sloping.

San Francisco (6000 Fulton St.). Small objects shifted. Plaster and walls cracked. Damage slight. Ground: Soil, level.

San Francisco (88 Huron Ave.). Small objects and furnishings shifted. Dishes broke. Plaster and walls cracked. Damage slight to concrete. Ground: Compact, level.

San Francisco (220 Corona St., Ingleside Terrace). Small objects and furnishings shifted. Dishes, windows, and furniture broke. Plaster and windows cracked. Damage moderate. Ground: Sandy loam, slightly sloping.

San Francisco (1024 Judah St.). Small objects and furnishings shifted. Dishes broke. Plaster and walls cracked. Damage slight. "The breaking of glass and dishes could have made earth noises seem loud." Ground: Soil.

San Francisco (930 Persia Ave.). Small objects and furnishings shifted. Dishes broke. Plaster, walls, and cement in basement cracked. Damage slight to concrete. Ground: Rocky, sloping.

San Francisco (552 Los Palmos Dr.). Small objects and furnishings shifted. Dishes and windows broke. Plaster cracked. Damage moderate. Ground: Soil, compact, level.

San Francisco (281 Hazelwood Ave.). Small objects shifted. Dishes and windows broke. Plaster and walls cracked. Damage slight. Ground: Compact, sloping.

San Francisco (44 Madrone Ave.). Small objects and furnishings shifted. Dishes and windows broke. Plaster and walls cracked. Damage slight. Ground: Loose, sloping.

San Francisco (138 Miramar Ave.). Small objects and furnishings shifted. Dishes broke. Plaster and walls cracked. Damage slight. Ground: Soil, loose, sloping.

San Francisco (1530-23rd Ave.). Small objects and furnishings shifted. Dishes broke. Plaster, walls, and chimneys cracked. Damage slight. Ground: Sandy, compact, level.

San Francisco (255 Munich St.). Small objects and furnishings shifted. Plaster, walls, and chimneys cracked. Damage slight. Ground: Rocky, sloping, filled in.

San Francisco (201 Morningside Dr., Lakeshore District). Small objects and furnishings shifted. Plaster and walls cracked. Damage slight. Ground: Sandy, level.

22 March, 11:44:21\*. Intensity VII. (cont.)

INTENSITY VI - San Francisco

San Francisco (174 Caselli Ave.). Small objects shifted. Dishes broke. Plaster and walls cracked. Damage slight. Ground: Soil, compact, sloping.

San Francisco (1782-8th Ave.). Small objects and furnishings shifted. Dishes broke. Plaster and walls cracked. Damage slight. Ground: Soil, loose, compact.

San Francisco (607-23rd Ave.). Small objects and furnishings shifted; dishes fell. Plaster and walls cracked; stucco and stairs cracked. Damage slight. Ground: Level, slightly sloping in back of house.

San Francisco (225 Broad St.). Small objects and furnishings shifted. Dishes and furniture broke. Plaster and walls cracked; ground cracked. Ground: Rocky, level.

San Francisco (262-29th Ave.). Furnishings shifted. Plaster and walls cracked. Damage slight.

San Francisco (436 Staples St.). Plaster cracked slightly. Damage slight to concrete bannister. Ground: Soil, compact, level.

San Francisco (3427 Ortega St.). Fireplace cracked. Slight cracks in concrete. Ground: Sandy, level.

San Francisco (2471-43rd Ave.). Small objects and furnishings shifted. Plaster and walls cracked. Damage slight. Ground: Sandy, level.

San Francisco (279-32nd Ave.). Small objects and furnishings shifted. Dishes, windows, and furniture broke. Plaster cracked. Damage considerable. Ground: Compact.

San Francisco (333 Pioche St.). Small objects shifted; moved refrigerator. Snapped off tile toothbrush holder in bathroom and emptied contents of medicine chest. Plaster, walls, and ceiling cracked; concrete steps and bulkhead in yard cracked. Damage slight. Ground: Rocky, sloping.

San Francisco (1130 Larkin St.). Small objects and furnishings shifted. Plaster and walls cracked. Damage slight.

San Francisco (1458-31st Ave.). Small objects and furnishings shifted. Dishes broke; two windows broke. Plaster and walls cracked. Ground: Sandy, loose, level.

San Francisco (212 Douglass St.). Pipe broke.

San Francisco (444 Larkin St.). Plaster cracked. Damage slight to concrete.

San Francisco (512 Frederick St.). Small objects and furnishings shifted; canned goods, dishes, pictures fell to floor. Plaster and outside facings on front of building cracked. Damage slight to concrete; stucco finish cracked. "Water from the tank on the wall above the toilet (4th floor) spilled over from the west end each time there was a shock stronger than usual." Ground: Rocky soil, level. Building built in 1908.

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INTENSITY VI - San Francisco

San Francisco (Front end Jackson St.). Small objects shifted. Plaster cracked. Damage slight to brick and masonry, hollow tile (3rd floor). Ground: Level, filled in.

San Francisco (2737-35th Ave.). Drawers opened. Books fell to floor. Dishes broke. Plaster, walls, and stucco cracked. Damage slight to sheet rock, stucco, dishes, and objects. Ground: Sandy, level.

San Francisco (464-43rd Ave.). Small objects shifted. Dishes and windows broke. Plaster and walls cracked. Sides and ceiling plaster twisted. Plaster cracked in all rooms on first and third floors. Damage slight to concrete. Ground: Sandy, sloping.

San Francisco (319 Clement St.). Dressers, stove, etc., moved. Dishes broke. Plaster and walls cracked; doors cracked at corners. Damage slight. Ground: Compact, level.

San Francisco (46 Allison St., Geneva District). Moved heavy stove about 2 inches off cups. Dishes and ornaments broke. Damage slight. Ground: Rocky, sandy, sloping.

San Francisco (318-27th Ave.). Small objects and furnishings shifted. Plaster and walls cracked. Lamps and pictures on table fell and broke. Damage slight to brick and masonry; plaster at ends of concrete front steps damaged. Ground: Sandy, level, filled in.

San Francisco (2539-43rd Ave.). Piano on rubber bases on a thick rug moved 1 inch; refrigerator moved 3 inches. Both moved in north direction. Dishes on south wall thrown down and broke. Damage slight. Ground: Soil, compact, sloping.

San Francisco (2630 Ortega St.). Small objects shifted. Dishes broke. Patio wall cracked. Damage slight. Ground: Sandy soil, slightly sloping.

San Francisco (215 South Hill Blvd.). Small objects shifted. Fireplace tile cracked. Damage slight. Ground: Compact, sloping.

San Francisco (3121 Anza St., upper floor). Small objects shifted. Dishes broke. Plaster and walls cracked. Damage slight. Ground: Loose, sloping.

San Francisco (837 Brussels St.). Small objects and furnishings shifted; moved stove 1 inch. Plaster cracked. Damage slight to concrete. Ground: Rocky soil, compact, sloping.

San Francisco (435-9th Ave.). Small objects and furnishings shifted. Ground cracked. Damage slight. Ground: Loose, level.

San Francisco (1249-18th Ave.). Small objects shifted. Walls cracked. Damage slight. Ground: Level.

San Francisco (Pier 18, Embarcadero). Plaster and walls cracked. Damage slight.

22 March, 11:44:21\*. Intensity VII. (cont.)

INTENSITY VI - San Francisco

San Francisco (845 Corbett Ave.). Refrigerator and flower pots shifted. Vase, flower pots, and lock on balcony door broke. Plaster in subbasement foundation and small place on steps cracked. Ground: Soil, compact, level.

San Francisco (2005-35th Ave.). Stove and refrigerator shifted. Dishes broke. Plaster, walls, and ground cracked. Damage slight to concrete. Ground: Sandy, loose.

San Francisco (150 St. Charles Ave.). Objects and furnishings shifted. Dishes broke. Plaster cracked. Damage slight to stucco and steps. Ground: Sandy soil, level.

San Francisco (466-31st Ave.). Small objects shifted; bookcase moved west 1 inch from wall; sliding door moved 4 inches south. Three small objects broke. Damage slight. Ground: Sandy, sloping.

San Francisco (73 Downey St.). Small objects shifted. Plaster and walls cracked. Damage slight. Ground: Rocky, sloping.

San Francisco (2246-43rd Ave.). Small objects and furnishings shifted. Dishes broke. Plaster and walls cracked. Damage slight to concrete. Ground: Sandy soil, sloping.

San Francisco (118 Terra Vista). Small objects and furnishings shifted. Damage slight to fireplace. "Many aftershocks felt not listed in newspaper." Ground: Rocky soil.

San Francisco (682-6th Ave.). Small objects shifted. Damage slight to concrete. Ground: Sandy.

San Francisco (230 Hazelwood Ave.). Refrigerator moved 1 foot. Ground: Soil, sloping.

San Francisco (59 Marne Ave.). Large objects shifted. Dishes broke. Plaster and walls cracked inside and outside. "Homes all about this house affected very little." Ground: Soil, loose, quite steep.

San Francisco (360 San Benito Way). Small objects and furnishings shifted. Dishes and windows broke. Plaster, walls, and chimney cracked; chimney twisted. Damage slight to brick and masonry. Ground: Soil, loose, level.

San Francisco (2468-14th Ave.). Small objects and furnishings shifted. Dishes broke. Plaster, walls, and chimneys cracked. Damage slight to brick and masonry. Ground: Sandy, sloping.

San Francisco (1801-28th Ave.). Small objects and furnishings shifted. Dishes broke. Walls cracked. Damage slight. Ground: Sandy, level.

San Francisco (547 Rameell St., Ingleside District). Small objects and furnishings shifted. Dishes broke. Plaster and walls cracked. Damage slight. Ground: Compact, sloping.

San Francisco (737-26th Ave.). Small objects shifted. Plaster and walls cracked. Damage slight. Ground: Sloping.

22 March, 11:44:21\*. Intensity VII. (cont.)

INTENSITY VI - San Francisco

San Francisco (2351-44th Ave.). Small objects and furnishings shifted. Dishes, windows, and furniture broke. Plaster walls cracked; mantel cracked. Damage slight.

San Francisco (1485 Market St.). "One of the fluorescent lights, about 6 feet long and one of many on the ceiling, snapped off at one end, suspending itself from the ceiling by the other end. I heard the inspector say that the tile in all the restrooms was cracked. This location is the Social Security Area office." Ground: Soil, level.

San Francisco (533-28th Ave.). Small objects and furnishings shifted. Dishes broke. Walls cracked. Damage slight. Ground: Sloping, filled in.

San Francisco (Geary and Van Ness Ave.). Small objects shifted. Plaster, windows, and walls cracked. Damage slight. Ground: Rocky.

San Francisco (27-7th Ave., Park-Presidio District). Small objects shifted. Plaster and walls cracked. Damage slight. Ground: Sandy, level.

San Francisco (447-34th Ave.). Front window broke; lamp broke; ornaments fell from shelves. Plaster cracked. Statues fell from shrines on the north and south fences; another statue twisted. In house (upstairs) statues fell from shelves on east wall only. Chimney cracked above the roof, close to east wall of house. "No other house on our block had a broken window." Ground: Sand, slightly sloping.

San Francisco (650 Stanyan St.). Planter knocked off T.V. and two flower pots fell in dining room. All plants destroyed. Plaster cracked in living room and dining room; small bits of plaster on floor. Two small tables moved sidewise from original position. Ground: Sandy soil, level.

San Francisco (1440 Harrison St.). Small objects shifted. Slab of marble broke on third floor. Damage slight. Ground: Level, filled in.

San Francisco (1871 Page St.). Light chest of drawers shifted 3-4 inches in southerly direction. Small top-heavy objects (perfume, lipsticks) knocked over on chest. Quite a bit of cracked plaster, enough for paint to chip and small pieces to fall. Worst cracks from top to bottom in corners of two rooms. "Some top-heavy objects (packages) stored on a narrow shelf were not knocked over. They were against a wall to the south, so it seems to me that the motion must have been from north to south." Damage slight.

San Francisco (2126-35th Ave.). Seven or eight potted plants fell from dining room table and broke; all fell to north side of table. Other small objects and figurines fell and broke. Kitchen stove shifted almost 1 inch to north.

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INTENSITY VI - San Francisco

San Francisco (241 Granada Ave.). Piano moved 3 inches from wall; desk and bookcase moved 6 inches. All lamps, books, bric-a-brac, and clocks thrown to floor; also, groceries, dishes, and plants. Three stucco cracks on south outer wall; two front stairs loosened and wall on either side cracked and broken for a height of 2 feet. Damage slight. Ground: Sandy soil, loose, level.

San Francisco (Southern Pacific Yards, Visitacion Valley). Some material knocked off shelves in Stores Department on first floor. Plaster cracked. Damage slight. Ground: Level, filled in.

San Francisco (286 Sagamore St.). Few plaster cracks; three window cracks. Picture fell and broke; several potted plants fell and broke; one glass broke; small bottles thrown from medicine chest and few broke. Worst damage was to intake pipe of hot water heater, where a crack opened up following aftershocks, making it necessary to shut off water. Damage slight.

San Francisco (380 Pacheco, Forest Hills). Small objects and furnishings shifted. Dishes broke. Plaster, walls, and chimneys cracked. Damage slight. Ground: Soil, sloping.

San Francisco (145 Carmel St., near Shrader). Two slight cracks in plaster walls on each side of stairs leading to basement. New terrazzo step cracked. Gas meter twisted forward, with slight leak at joint. Slight settlement of foundation. "I was thrown around and around in circles. Other shocks quite severe. Shocks have continued incessantly day and night." Damage slight. Ground: Sandy, rocky; house on steep incline.

San Francisco (334 Orizaba Ave.). "House shook violently. Coffee spouted into the air from a cup that didn't turn over. Loud rumble virtually drowned out the sound of crashing dishes, breaking bottles, etc. Heavy refrigerator facing north moved 1½ feet away from south wall and swung west in more than a 30° angle. Stucco foundation chipped and cracked. Sounds from the aftershocks seem to come from west-east before the jerking and twisting motion. Aftershocks are still being felt (March 27)."

San Francisco (3045 Jackson St., between Baker and Lyon Sts.). On 6th floor. Some large cracks with chipped paint and some hairline cracks. Shower of paint flakes in every room. Medicine cabinet cracked. Glassware moved; some broke. Pictures moved 5 inches. "Felt most aftershocks." Ground: Sloping; hill.

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INTENSITY VI - San Francisco

San Francisco (Letterman Housing, Quarters 1135-F, Presidio).

Small objects and furnishings shifted. Plaster cracked.  
Damage slight. Ground: Sloping.

San Francisco (2026-19th Ave.). Small objects and furnishings shifted. Dishes broke. Walls and ceilings cracked. Damage slight. Separated plumbing under kitchen sink (south side of house). "Sheet rock did not do as well as plastered walls. Did not roll a long time after major shake. Just a quick, hard shake. Some of the little shocks have been pretty sharp and quick, and can be heard before they are felt." Ground: Soil, loose, sloping.

San Francisco (1721 Judah St.). "When the big shock came, the only noise we heard was the joists, or the frame of the house, breaking up. It's a two-story house and I thought it would collapse before we got out. I didn't notice any particular direction, but the description I read in the paper of a 'dust mop shaken out' is most apt, to us. A salt shaker and a bottle of after-shave lotion were the only things that fell, but our square grand piano moved 2 inches. Our house is built on sandy soil and is about 33 years old. The ceilings were cracked at one time but were painted over. The paint is still intact."

San Francisco (1330-14th Ave., St. Anne's School). Small objects and furnishings shifted. Plaster cracked. Damage slight. Ground: Level.

San Francisco (28 Masonic Ave., Presentation High School). Small objects and furnishings shifted. Dishes broke. Plaster cracked. Small statues twisted. Damage slight. Ground: Level.

San Francisco (25th St., between Diamond and Douglass Sts., Noe Valley District). "My feet on the sidewalk sort of moved back and forth like a roller coaster movement. I saw a high antenna bend nearly in half. At the Bank of America, 24th and Castro Sts., people were nervous. They were taking the big pots of plants from the balcony ridge and putting them on the floor. Shoemaker said his machine rolled back and forth. On Hill Street (level) bookcase moved away from wall. Cans and packages fell in grocery store at 24th and Castro Sts., and my husband ran to the street. No great damage to the grocery store."

San Francisco (245 Leavenworth St., 6th floor). "My T.V. was at the foot of my bed on a table about 6 inches higher than bed. I fell to the floor and the T.V. hit the bed where I'd been. The place shook like a freight train going through. Two lamps fell and a bookcase fell forward. Everything in refrigerator was a mess. The subsequent tremors

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INTENSITY VI - San Francisco

were enough to make me a little jumpy, so I put everything on the floor. Dishes broke. Plaster cracked. Damage slight."

**San Francisco** (780 Junipero Serra Blvd.). "Very noisy and very heavy. Glass shelves in bathroom fell out. Water in fish bowl (2/3 full) splashed on the floor. Pictures fell from walls. Lights activated by mercury switches flashed on and off. Plaster buckled under canvas wall covering. Stove and refrigerator shifted. Minor shocks were felt, accompanied by earth noises, at frequent intervals until seven o'clock. From about ten o'clock until midnight minor tremors were felt hourly. A heavy jolt about midnight activated mercury switches again. Minor tremors were felt occasionally until Sunday night, the 24th."

Ground: Soil, compact, sloping.

**San Francisco** (698 Bush St., Apt. 506). Small objects and furnishings shifted. Plaster cracked. Damage slight. Ground: Steep.

**San Francisco** (30 Aptos Ave.). Small objects and furnishings shifted. Dishes, windows, and furniture broke. Plaster cracked. Damage slight. Ground: Compact, sloping.

**San Francisco** (Fox's Restaurant, near Bayshore Highway, at south-east county line, Leland Ave.). Small objects and furnishings shifted; tables moved. Dishes broke. Plaster cracked. Threw objects off shelves. Damage considerable to bottled goods. Ground: Soil, level.

**San Francisco** (577 Ulloa St.). Small objects shifted. Plaster cracked. Damage slight. Ground: Soil, level.

**San Francisco** (2090 Fell St.). Small objects and furnishings shifted. Plaster cracked. Damage slight. Ground: Sandy soil, sloping.

**San Francisco** (820 Rockdale Dr.). Small objects and furnishings shifted. Plaster cracked. Lamps fell; food fell out of cupboards. Damage slight. Ground: Sloping.

**San Francisco** (2183-40th Ave.). Small objects shifted. Plaster cracked beneath two windows. Damage slight. Ground: Topsoil over sand, level.

**San Francisco** (16th and Mission Sts., Lachman Bros.). Small objects and furnishings shifted. Windows and furniture broke. Damage slight. "Considerable fright among employees." Ground: Level.

**San Francisco** (Spreckels Bldg., 2 Pine St., Rm. 311). Small objects and furnishings shifted. Plaster cracked. Damage slight. Ground: Level, filled in.

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INTENSITY VI - San Francisco

San Francisco (832 York St.). Upper flat: Plaster cracked in kitchen. Sliding doors in dining room slid to north. Room seemed to twist in the lower flat. Bird cage and light fixture swung to north. Next door, 826 York St., upper flat, cupboard doors opened in pantry. Small objects shifted. In lower flat, cupboard doors opened in pantry. Ground: Compact, level.

San Francisco (221-24th Ave.). Small objects and furnishings shifted. Plaster cracked. Damage slight.

San Francisco (1622-38th Ave.). Furnishings shifted. Dishes broke. Damage slight. Ground: Loose, level.

San Francisco (271 Louisburg St.). Small objects and furnishings shifted. Plaster cracked. Ground: Sloping.

San Francisco (1366 Plymouth Ave.). Small objects and furnishings shifted. Dishes broke. Plaster cracked. Damage slight. Ground: Soil, compact, sloping.

San Francisco (1358 Plymouth Ave.). Small objects and furnishings shifted. Dishes broke. Plaster cracked. Damage slight. Ground: Soil, compact, sloping.

San Francisco (Old Medical School Bldg., University of California, Parnassus St.). Few books shifted. Plaster cracked. Ground: Rocky soil, compact, level.

San Francisco (1854-8th Ave.). Small objects shifted. Plaster cracked. Damage slight. Ground: Compact, steep.

San Francisco (228 Mc Allister St., Woodbridge Bldg.). Plaster cracked. Damage slight. Ground: Level, filled in. "Felt six or seven shocks in all. Other shocks were felt on second floor at 228 Mc Allister St., or on fourth floor at 952 Sutter St. No damage."

San Francisco (1751 Market St.). Small objects and furnishings shifted. Ceiling cracked. Ground: Compact.

San Francisco (Mission and Third Sts.). Plaster cracked. Damage slight. Ground: Filled in.

San Francisco (24th and Valencia Sts.). Dishes and windows broke. Iron light standard swayed. Damage slight. Ground: Level.

San Francisco (671-23rd Ave.). Small objects and furnishings shifted. Dishes broke. Plaster cracked. Damage slight. Ground: Soil.

San Francisco (Divisadero and Hayes Sts.). Small objects shifted. Plaster cracked. Damage slight. Ground: Sloping, filled in.

San Francisco (570 Lisbon St.). Small objects shifted. Plaster cracked. Damage slight. Ground: Rocky, steep.

San Francisco (909 Hyde St.). Plaster cracked (5th and 6th floors only) where new building joins old building. Damage slight. Ground: Level.

22 March, 11:44:21\*. Intensity VII. (cont.)

INTENSITY VI - San Francisco

San Francisco (2660 Chestnut St.). Dishes broke. Plaster cracked. Damage slight. Ground: Loose, sloping, filled in.

San Francisco (431 Flood St.). Furnishings shifted. Kitchen ceiling plaster cracked. Ground: Soil, compact, level.

San Francisco (225 Bush St., Standard Oil Bldg.). Small objects shifted. Plaster cracked. Ground: Compact, level.

San Francisco (2534-31st Ave.). Small objects shifted. Plaster cracked. Damage slight. Ground: Soil, loose.

San Francisco (16 Beale St., 3rd floor). Objects shifted. Plaster cracked. Damage slight. Ground: Level, filled in.

San Francisco (350 Faxon Ave.). Small objects and furnishings shifted. Dishes broke. Plaster and walls cracked. Damage slight. Ground: Compact, sloping.

San Francisco (100 Font Blvd., Apt. 12F). Small objects and furnishings shifted. Dishes broke. Plaster cracked. Damage slight. Ground: Loose, level, partly filled in.

San Francisco (47 Coloneal Way). Small objects shifted. Dishes broke. Plaster cracked. Damage slight. Ground: Rocky soil, compact, level.

San Francisco (311 California St., Robert Dollar Bldg.). Small objects and furnishings shifted. Dishes broke. Plaster cracked. Damage slight. Ground: Level.

San Francisco (621-4th St.). Small objects and furnishings shifted. Damage slight to concrete. Ground: Marshy, fairly level.

San Francisco (40 First St.). Light fixtures and files moved. Dishes broke. Walls cracked. Damage slight.

San Francisco (1125 Bayshore Blvd.). Furnishings shifted. Dishes broke. Plaster cracked. Damage slight. Ground: Rocky, level.

San Francisco (372 Santa Clara Ave.). Small objects and furnishings shifted. Windows broke. Plaster cracked. Damage slight. Ground: Rocky.

San Francisco (461 Market St., Sheldon Bldg.). Floor cracked at junction with beams. Ground: Filled in, but foundation of building may be on rock.

San Francisco (1414-20th Ave.). Plaster cracked. Damage slight. Ground: Sloping.

San Francisco (1979-33rd Ave.). Small objects and furnishings shifted. Some inside plaster cracked. Damage slight. Ground: Sandy, sloping.

San Francisco (1011 Bryant St., Warehouse Office Bldg., 1st floor). Plaster cracked. Damage slight. Ground: Compact.

San Francisco (224 Santa Paula Ave.). Small objects and pictures shifted. Plaster and windows cracked. Damage slight. Ground: Soil, compact, steep.

22 March, 11:44:21\*. Intensity VII. (cont.)

INTENSITY VI - San Francisco

San Francisco (1731-22nd Ave.). Small objects shifted. Dishes broke. Plaster cracked. Damage slight. Ground: Sandy, compact, level.

San Francisco (1707-23rd Ave.). Small objects and furnishings shifted, including refrigerator and double bed. Plaster and walls cracked. Ground: Level.

San Francisco (2350 Anza St.). Small objects shifted. Plaster cracked. Damage slight. Ground: Loose, level.

San Francisco (2090-43rd Ave.). Small objects and furnishings shifted. Dishes broke. Plaster broken and chipped in all seams. Damage slight. Ground: Sandy, compact, sloping.

San Francisco (15 Vasquez Ave.). Small objects shifted. Plaster walls and ceiling cracked. Damage slight. Ground: Soil, compact, slightly sloping.

San Francisco (1478 Page St.). Small objects shifted. Plaster cracked. Dirt fell down fireplace. Damage slight (about \$35). Ground: Compact, sloping.

San Francisco (2390-15th Ave.). Furniture moved 2 inches from south and east walls. One horizontal crack, about 1 foot from floor, in lower hall. Damage slight. Ground: Soil, compact, sloping.

San Francisco (839 Head St.). Small objects and furnishings shifted. Dishes, furniture, and mirrors broke. Plaster and walls cracked. Damage slight. Ground: Sloping, filled in.

San Francisco (68 Middlefield Dr.). Small objects and furnishings shifted. Plaster cracked. Damage slight. Ground: Level.

San Francisco (3747 Divisadero St.). Small objects shifted. Plaster cracked. Damage slight. Ground: Level, filled in.

San Francisco (The Emporium, between 4th and 5th Sts.). Small objects and furnishings shifted. Plaster cracked. "I ran out." Ground: Level, filled in.

San Francisco (1652 Dolores St.). Windows broke. Plaster cracked. Damage slight. Ground: Level.

San Francisco (2921 Washington St.). Small objects shifted. Plaster cracked on ground floor only. Damage slight. Ground: Level.

San Francisco (2187-25th Ave.). Plaster cracked. Damage slight. Ground: Rocky soil, sloping.

San Francisco (2301-27th Ave.). Small objects shifted. Plaster cracked. Damage slight. Ground: Sandy, level.

San Francisco (1962 Quesada). Small objects and furnishings shifted. Plaster cracked. Ground: Soil, compact, level.

San Francisco (666-20th Ave.). Plaster cracked. Damage slight. Ground: Soil, sloping.

San Francisco (501-43rd Ave.). Small objects and furnishings shifted. Three dishes broke. Plaster and walls cracked. Damage slight. Ground: Sandy, sloping.

22 March, 11:44:21\*. Intensity VII. (cont.)

INTENSITY VI - San Francisco

San Francisco (50 Urbana Dr.). Small objects and furnishings shifted. Plaster cracked. Damage slight to plaster, dishes, lamp, etc. Ground: Soil, compact, level.

San Francisco (771-29th Ave.). Small objects and furnishings shifted. Dishes broke. Plaster cracked on ceilings. Damage slight. Ground: Sloping.

San Francisco (133 Noriega St.). Small objects shifted. Plaster cracked. Damage slight. Ground: Sandy, level.

San Francisco (2387 Funston Ave.). Furnishings shifted. Dishes broke. Plaster cracked. Damage slight. Ground: Sandy, sloping.

San Francisco (234 Granada, Ingleside District). Small objects and furnishings shifted. Plaster cracked. Damage slight. Ground: Soil, compact, sloping (N-S).

San Francisco (1235-22nd Ave.). Small objects and furnishings shifted. Dishes broke. Plaster cracked. Damage slight. Ground: Loose.

San Francisco (446-5th Ave.). Small objects, pictures, mirrors, etc., shifted. Plaster cracked slightly. Damage slight. Ground: Compact, level.

San Francisco (22nd St. at Potrero Ave.). Glass vials broke. Plaster cracked. Ground: Soil, compact.

San Francisco (139 Lincoln Way). Plaster cracks in part of house. Ground: Level.

San Francisco (200 Naylor St.). Small objects and furnishings shifted. Dishes broke. Plaster cracked. Damage slight. Ground: Sandy soil, level.

San Francisco (Fulton St. at 5th Ave., Lucky Supermarket). Small objects shifted. Bottles fell from shelves and broke. Damage slight. Ground: Soil, level.

San Francisco (740-A Shrader St.). Small objects shifted. Plaster cracked in two corners of living room. Damage slight. Ground: Level, compact.

San Francisco (721 Market St., 2nd floor). Small objects shifted. Windows broke. Plaster cracked. Damage slight to concrete. Ground: Level, filled in (?).

San Francisco (711 Rutland St., Visitacion Valley). Small objects shifted. Dishes broke. Plaster cracked. Damage slight. Ground: Compact, level.

San Francisco (195 Raymond St., Visitacion Valley). Small objects and furnishings shifted. Dishes broke. Plaster cracked. Damage slight. Ground: Compact, level.

San Francisco (3466 Jackson St.). Plaster cracked. Damage slight. Ground: Level.

San Francisco (525-4th St.). Plaster cracked. Damage slight. Ground: Level, filled in.

22 March, 11:44:21\*. Intensity VII. (cont.)

INTENSITY VI - San Francisco

San Francisco (195-7th St.). Small objects shifted. Plaster cracked. Damage slight. Ground: Level.

San Francisco (2382-29th Ave.). Small objects shifted. Plaster cracked. Damage slight. Ground: Soil, level.

San Francisco (44 Forest View Dr.). Small objects shifted. Plaster cracked. Damage slight. Ground: Sandy, level.

San Francisco (2327 Van Ness Ave.). Small objects shifted. Dishes broke. Plaster and walls cracked.

San Francisco (348 De Long St.). Small objects and furnishings shifted. Dishes broke. Plaster cracked. Damage slight. Ground: Soil, sloping.

San Francisco (201 Sansom St., Royal Insurance Bldg.). Plaster and walls cracked. Damage slight. Ground: Filled in.

San Francisco (232 Dolores St.). Small objects shifted. Walls cracked. Damage slight. Ground: Soil.

San Francisco (256 Dorantes Ave.). Small objects and furnishings shifted. Dishes broke. Plaster cracked. Damage slight. "Felt all aftershocks." Ground: Sandy, compact, sloping.

San Francisco (555 Eddy St.). Small objects shifted. Plaster cracked. Ground: Sandy, level.

San Francisco (Van Ness Ave. at Post St.). Plaster cracked. Ground: Level. Damage slight.

San Francisco (415 Belvedere St.). Small objects shifted. Plaster cracked. Damage slight. Ground: Rocky soil, compact, sloping.

San Francisco (Alernany and Onondaga). Small objects and furnishings shifted. Plaster cracked. Ground: Compact, level.

San Francisco (62 Prentiss St.). Small objects shifted. Plaster cracked. Ground: Rocky, sloping.

San Francisco (2643-39th Ave.). Small objects and furnishings shifted. Stucco cracked slightly. Damage slight. Ground: Sandy, gently sloping.

San Francisco (1945 Jefferson St., 3rd floor). Very few small objects shifted. Some plaster wall cracks. Damage slight. Steel-frame apartment building. Ground: Sandy, filled in.

San Francisco (52 Vallejo St.). Light fixtures swayed violently. Ground: Level, filled in.

San Francisco (1651-45th Ave.). Small objects shifted. Plaster cracked. Damage slight to stucco. Ground: Sandy, level.

San Francisco (1871-19th Ave.). Small objects and one large object shifted. One bottle broke. Ceiling plaster cracked in basement only. Damage slight. Ground: Loose; general area slopes toward ocean.

San Francisco (3072-22nd St.). Plaster cracked. Ground: Filled in, level.

22 March, 11:44:21\*. Intensity VII. (cont.)

INTENSITY VI - San Francisco

San Francisco (2130 Fulton St., University of San Francisco). Moved outdoor bench observer was sitting on. Windows broke. Plaster cracked. St. Ignatius Church towers swayed. Damage slight. Ground: Rocky, compact, level.

San Francisco (University of San Francisco). Small objects and furnishings shifted. Plaster cracked. Damage slight. Ground: Soil.

San Francisco (Market St., near Taylor). Small objects shifted. Plaster cracked. Damage slight. Ground: Compact, level.

San Francisco (2086-45th Ave.). Small objects and furnishings shifted. Dishes broke. Plaster and walls cracked. Damage slight. Ground: Sandy, level.

San Francisco (3215 Balboa St.). Small objects shifted. Dishes broke. Plaster cracked. Damage slight. Ground: Soil, sloping.

San Francisco (1722-35th Ave.). Small objects and furnishings shifted. Dishes broke. Plaster cracked. Damage slight to concrete. Ground: Soil, compact, sloping.

San Francisco (Market and 2nd Sts.). Small objects and furnishings shifted. Windows broke. Plaster cracked. Ground: Level.

San Francisco (4524 Balboa St.). Small objects and furnishings shifted. Dishes broke. Some plaster cracked. Damage slight. Ground: Sandy.

San Francisco (429 Colon Ave.). Furnishings shifted. Dishes broke. Plaster cracked. Damage slight. Ground: Sloping.

San Francisco (3129 Geary Blvd.). Small objects shifted. Plaster cracked. Damage slight. Ground: Loose, level.

San Francisco (2170-45th Ave.). Small objects shifted. Threw lid off toilet tank onto floor. Dishes broke. Plaster ceiling cracked. Damage slight. Ground: Sandy, loose, level.

San Francisco (444 Waller St., top flat). Tank water spilled. Dishes moved slightly. Plaster cracked. Brick fell from roof of house next door (450 Waller). Ground: Compact, level.

San Francisco (2026-22nd Ave.). Small objects and furnishings shifted. Dishes and windows broke. Plaster cracked. Rugs twisted. Damage slight to dishes and bric-a-brac. Ground: Soil, compact, level.

San Francisco (1121 Mission St.). Small objects shifted. Plaster cracked. Damage slight. Ground: Soil, loose, level.

San Francisco (34 Shawnee Ave.). Small objects fell. Plaster cracked. Damage slight. Ground: Loose, sloping.

San Francisco (195-25th Ave.). Small objects and furniture shifted on fourth floor. Dishes broke. Plaster and walls cracked slightly. Damage slight. Ground: Sloping.

22 March, 11:44:21\*. Intensity VII. (cont.)

INTENSITY VI - San Francisco

San Francisco (150 Brighton Ave.). Furnishings shifted 6 inches. Dishes broke. Plaster and wallpaper cracked. Damage slight. Ground: Soil, compact, level.

San Francisco (2306-44th Ave.). Small objects and furnishings shifted. Dishes broke. Plaster and walls cracked. Damage slight. Ground: Sandy, filled in (?).

San Francisco (Woolworth's, Excelsior District). Small objects shifted. Walls cracked; windows broke. Damage slight. Ground: Soil, level.

San Francisco (257-259 Church St.). Small objects and furnishings shifted. Dishes and four windows broke. Plaster cracked. Damage slight. Ground: Rocky, sandy, sloping.

San Francisco (1600 Divisadero St., Mount Zion Hospital). Plaster cracked. Windows broke nearby. "Small objects and furnishings probably shifted." Damage slight. Ground: Soil, level, compact.

San Francisco (70 Ravenwood Dr.). Small objects and furnishings shifted. Plaster and walls cracked some. Damage slight. "Many aftershocks felt." Ground: Rocky, sloping.

San Francisco (671-35th Ave.). Small objects shifted. Dishes broke. Plaster cracked. Damage slight to exterior stucco. Ground: Soil, level.

San Francisco (2462-45th Ave., Parkside). "When objects started to fall, I ran out back with the children." Refrigerator and cupboards moved 1 inch. Few dishes broke. Ground: Sandy, level.

San Francisco (10 Linares Ave.). Small objects and furnishings moved about 6 inches. Dishes broke. Plaster and walls cracked. Damage slight. Ground: Rocky soil, level.

San Francisco (2887<sup>1</sup>/<sub>2</sub> Bush St.). Plaster cracked. Damage slight. Ground: Soil, compact, level.

San Francisco (4683-18th St.). Small objects and furnishings shifted. Plaster and walls cracked. Damage slight. Ground: Rocky soil, sloping.

San Francisco (160 Beinis St.). Furnishings shifted. Plaster cracked in few places. Damage slight. Ground: Rocky soil.

San Francisco (41 Theresa St.). Small objects shifted. Dishes broke. Plaster and windows broke. Damage slight. Ground: Compact, level.

San Francisco (133-30th Ave.). "I was standing by west windows, which look out on garden and alley. Everything seemed to move, and I thought I was going to fall over." Small vase fell and broke. Plaster cracked in one room (ceiling). Damage slight. Ground: Rocky; covered by sandy soil.

San Francisco (451 Jackson St.). Plaster cracked. Ground: Soil, sloping.

22 March, 11:44:21\*. Intensity VII. (cont.)

INTENSITY VI - San Francisco

San Francisco (2037 Rivera St.). Small objects and furnishings shifted. Dishes and bottles broke. Plaster and walls cracked (mostly fireplace wall). Damage slight. Ground: Rocky, compact, sloping, filled in.

San Francisco (232 Granada Ave.). Small objects and furnishings shifted. Dishes broke. Plaster and walls cracked. Damage slight. Ground: Compact; small hill.

San Francisco (2312-21st Ave.). Small objects and furnishings shifted. Dishes broke. Plaster cracked. Damage slight. Ground: Sandy soil, compact, sloping.

San Francisco (170 McKinley Ave., Bldg. 32, Candlestick Cove Housing Project). Small objects and furnishings shifted. Walls cracked. Damage slight.

San Francisco (2063-43rd Ave.). Stove, refrigerator, and dressers shifted. Dishes thrown out of closed cupboard. Plaster cracked. Damage slight. Ground: Sandy, sloping.

San Francisco (Sixty-Four Pine Street Bldg., 3rd floor). Eight-story, steel-frame building. Some plaster cracked.

San Francisco (180 Hernandez). Small objects shifted. Two cups broke. Slight horizontal plaster cracks between ceiling and walls. Stucco wall cracks? Damage slight? Ground: Sandy soil, probably rock base; slightly sloping.

San Francisco (Bon Omi Store, 16th and Mission Sts.). Bottles and jars fell from wall shelves. "I heard glass tinkling in the store and saw small broken plaster items." Ground: Soil, rocky, level.

San Francisco (424-40th Ave.). Small objects shifted. Plaster cracked. Damage slight. Ground: Soil, sloping.

San Francisco (235-15th St.). Small objects and furnishings shifted. Walls cracked. Damage slight to radios. Ground: Compact.

San Francisco (1610 Sutter St.). Pictures shifted. Small plaster cracks. Ground: Rocky, sloping.

San Francisco (65 Lopez Ave.). Small objects shifted. Hairline cracks in outdoor wall in yard at garage door. Damage slight. Ground: Sandy, sloping.

San Francisco (341 Foerster St.). Small objects and furnishings shifted. Vase broke. Wall plaster cracked. Damage slight. Ground: Rocky soil, level.

San Francisco (185 San Aleso Ave.). Small objects and furnishings shifted. Dishes broke. Plaster cracked. Under supports twisted. Damage slight-considerable? Ground: Rocky soil, compact, sloping.

San Francisco (80 Terrace Dr.). Small objects shifted. Chimneys cracked. Damage slight. Ground: Compact, level.

San Francisco (150 Navajo Ave.). Small objects shifted. Plaster cracked. Damage slight. Ground: Soil.

22 March, 11:44:21\*. Intensity VII. (cont.)

INTENSITY VI - San Francisco

San Francisco (2 Valdez Ave.). Objects shifted. Plaster cracked. Damage slight. Ground: Soil, sloping.

San Francisco (1192 Sanchez St.). Small objects and furnishings shifted. Opened corner trim in ceiling. Ground: Rocky, level.

San Francisco (253-2nd Ave.). Small objects and furnishings shifted. Plaster cracked. Damage slight. Ground: Soil, compact.

San Francisco (340 Pacheco St.). Small objects shifted. Glasses broke. Plaster cracked around mantel. Ground: Sloping, soil.

San Francisco (7th and Clement, Lick's Market). Cans, bottles, and jars fell from shelves; bottles and jars broke. Plaster and walls cracked. Damage slight to masonry. Ground: Level.

San Francisco (181 Lowell St.). Small objects and furnishings shifted. Dishes and figurines broke. Plaster, walls, and stucco (exterior) cracked. Damage slight. Ground: Soil.

San Francisco (431-16th Ave.). Mirrors shifted. Plaster cracked. Damage slight. Ground: Soil, sloping.

San Francisco (779 Brunswick St.). Small objects and furnishings shifted. Dishes and windows broke. Plaster cracked. Damage slight. Ground: Soil, compact, sloping.

San Francisco (547-42nd Ave.). Small objects and furnishings shifted; lamps broke. Plaster and walls cracked. Damage slight. Ground: Sandy soil, sloping; on hill.

San Francisco (425 Battery St.). Small objects and furnishings shifted, including safe. Plaster cracked. Damage slight to plaster and masonry. Ground: Level, filled in.

San Francisco (1400 Eucalyptus Dr., 1 block north of Lake Merced). Small objects and furnishings shifted. Dishes and mirrors broke. Walls cracked. Damage slight. Ground: Sandy, sloping.

San Francisco (132-27th Ave.). Table turned around. Small table with flower pot fell. Damage slight. Clock facing south stopped. Ground: Sandy, loose, sloping.

San Francisco (7th and Balboa Sts.). Small objects shifted. Plaster cracked. Springs leaning against wall twisted around. Damage slight. Ground: Level.

San Francisco (2219-35th Ave.). Small objects and furnishings shifted, including stove. Dishes broke. Plaster and walls cracked. Damage slight. Ground: Loose, sandy, sloping.

San Francisco (166 Funston Ave., near Lake St.). Small objects and furnishings shifted. Plaster cracked and buckled horizontally. Damage slight. Ground: Soil, compact, level.

San Francisco (170 Fell St., 3rd floor). Plaster cracked. Damage slight. Ground: Soil, level.

22 March, 11:44:21\*. Intensity VII. (cont.)

INTENSITY VI - San Francisco

San Francisco (351 Naples St.). Small objects and furnishings shifted. Dishes broke. Plaster and walls cracked. Stove-pipe came out of wall. Damage slight. Ground: Compact.

San Francisco (2042-43rd Ave.). All furniture shifted. Dishes broke. Plaster and stucco front cracked. "Damage slight compared with Westlake area." Ground: Sandy, level.

San Francisco (2359-27th Ave.). Small objects and furnishings shifted. Plaster and walls cracked. Damage slight. Ground: Sandy soil, level.

San Francisco (1721 Filbert St., near Marina district). Small objects and furnishings shifted. Dishes broke. Plaster and walls cracked. Damage slight. Ground: Rocky soil, level.

San Francisco (907 Ellsworth St.). Small objects shifted. Plaster cracked. Damage slight. Ground: Soil, sloping.

San Francisco (795 Sutter St., corner Jones). Small objects and furnishings shifted. Plaster and chimneys cracked. Damage slight to exterior concrete. Ground: Sloping.

San Francisco (Langley Porter Clinic, Parnassus Ave. and Arguello Blvd.). Small objects and furnishings shifted; small objects fell. Plaster cracks in two walls. Damage slight.

San Francisco (110 Valdez Ave.). Small objects shifted. Plaster cracked. Damage slight (about \$1000). Ground: Sloping, soil.

San Francisco (1615 Monterey Blvd.). Dishes broke. Plaster cracked. Damage slight to concrete. Ground: Rocky soil, sloping.

San Francisco (1271-3-5 Mission St.). Plaster damage.

San Francisco (65 Santa Faula Ave.). Small objects shifted. Dishes broke. Plaster cracked. Damage slight. Ground: Sloping, compact soil.

San Francisco (30 Vasquez Ave.). Small objects and furnishings shifted. Plaster cracked. Damage slight to brick and masonry: walls cracked. Ground: Filled in.

San Francisco (Southern Pacific Hospital, Fell and Baker Sts.). Plaster cracked. Damage slight. "No apparent damage to high chimney." Ground: Rocky, level?

San Francisco (3175-26th St., at Folsom). Small objects and furnishings shifted slightly. Plaster cracked. Ground: Compact, level soil.

San Francisco (Hunter's Point Naval Shipyard, Bldg. 35-A.). Plaster cracked. Ground: Filled in.

San Francisco (143 Clearfield Dr., Lakeshore Park area). Small objects and furnishings shifted. Plaster cracked. Damage slight. Ground: Sandy, level.

22 March, 11:44:21\*. Intensity VII. (cont.)

INTENSITY VI - San Francisco

San Francisco (635 Folsom St.). Plaster and windows cracked. Damage slight. Ground: Rocky.

San Francisco (462-17th Ave.). Small objects shifted. Plaster cracked. Damage slight. Ground: Soil, sloping.

San Francisco (3328-24th St., at Mission). Small objects and furnishings shifted. Dishes and ceramics broke. Water heater chimney fell to floor. Damage slight. Ground: Soil, compact, level.

San Francisco (1580 Filbert St., at Franklin). Small objects shifted. Dishes broke. Plaster and walls cracked. Damage slight. Ground: Soil, sloping.

San Francisco (1666-25th Ave.). Small objects and furnishings shifted. Plaster and windows cracked. Damage slight. Ground: Sandy, sloping.

San Francisco (184 Santa Rosa Ave.). Small objects shifted. Plaster cracked. Damage slight. Ground: Compact, level.

San Francisco (366 Monticello St.). Small objects shifted. Dishes broke. Plaster cracked. Damage slight. Ground: Soil, level.

San Francisco (1012 Randolph St.). Small objects and furnishings shifted. Dishes broke. Plaster cracked. Damage slight. Ground: Sandy, sloping.

San Francisco (1227-47th Ave.). Small objects and furnishings shifted. Dishes broke. Damage slight to wood and brick. Ground: Loose, level.

San Francisco (1385 Greenwich St.). Small objects shifted. Plaster cracked. Damage slight. Ground: Rocky, steep.

San Francisco (2567 San Bruno Ave.). Small objects shifted. Dishes broke. Plaster cracked. Damage slight.

San Francisco (731-12th Ave.). Small objects and furnishings shifted. Walls cracked. Damage slight to concrete. Ground: Rocky, level.

San Francisco (2086-45th Ave.). Small objects shifted. Dishes broke. Plaster and walls cracked. Damage slight. Ground: Sandy, level.

San Francisco (1219 Clayton St.). Small objects shifted. Plaster cracked. Ground: Compact, sloping.

San Francisco (600 Stockton St.). Plaster cracked. Damage slight. Ground: Rocky.

San Francisco (1472 Filbert St.). Small standing objects and wall picture shifted. Plaster and walls cracked at ceiling junction. Ground: Soil, sloping, steep.

San Francisco (57 San Jacinto Way). One or two slight plaster cracks. "From past experience my home is located in a very earthquake-resistant area." Ground: Rocky slopes of Monterey Heights.

22 March, 11:44:21\*. Intensity VII. (cont.)

INTENSITY VI - San Francisco

San Francisco (2586-28th Ave.). Small objects, pictures, etc., fell. Bottles broke. Plaster cracked in basement. Damage slight. Ground: Sloping, filled in.

San Francisco (1124 Kearny St., Telegraph Hill). Plaster cracked. Ground: Rocky.

San Francisco (1950 Gough St.). Small objects shifted. Small plaster cracks.

San Francisco (3439 Ortega St.). Small objects shifted; one piece of furniture shifted. Thin stucco cracks. Damage very slight. Ground: Soil, level.

San Francisco (26 Graystone Terrace). Plaster cracked around fireplace. Damage very slight. Ground: Steep; on east side of Twin Peaks.

San Francisco (658-20th Ave.). Small objects and furnishings shifted. Plaster cracked. Ground: Sandy, level.

San Francisco (One Eleven Sutter Bldg., 18th floor). "When I tried to stand I was thrown in an easterly direction." Minor plaster cracking. Dishes, etc., broke downstairs. Ground: Level.

San Francisco (2395 Sacramento St., at Webster, 2nd floor). Books shifted. Plaster and glass floors cracked. Damage very slight. Ground: Soil, loose, sloping.

San Francisco (2170-47th Ave.). Small objects shifted. Dishes broke. Plaster cracked. "Three statues facing north were found in exactly the same place but facing south." Damage very slight. Ground: Sandy soil, level.

San Francisco (2025 Santiago St.). Small objects shifted. Plaster cracked. Damage very slight to plaster. Ground: Loose, level.

San Francisco (2155 Alemany Blvd.). Small objects and furnishings shifted. Dishes broke. Plaster cracked slightly. Damage slight. Ground: Soil, level.

San Francisco (367 Madrid, Excelsior District). Small objects shifted; few knickknacks broke. Plaster cracked slightly. Damage slight to concrete. Ground: Soil.

San Francisco (769 Joost Ave.). Small objects shifted. Dishes broke. Plaster cracked very slightly. Ground: Soil, sloping.

San Francisco (343 Sansome St.). Pictures askew. Few plaster cracks. Ground: Filled in.

San Francisco (1148 Shotwell St.). Figurines and books shifted. Slight plaster cracks. Ground: Soil, compact, level.

San Francisco (609 Sutter St.). Plaster cracked.

San Francisco (604 Irving St.). Unsecured pictures fell. Windows broke; glass in large picture broke. Thin bathroom plaster cracks. Ground: Rocky, sandy, nearly level.

22 March, 11:44:21\*. Intensity VII. (cont.)

INTENSITY VI - San Francisco

San Francisco (1900 Jefferson St.). Small objects shifted. "PG&E high voltage power wire broke between poles on Jefferson St., in front of apartment building." Ground: Level, filled in; 1915 World's Fair site.

San Francisco (608 Laguna Honda Blvd.). Small objects shifted. Plaster cracked slightly. Damage slight. Ground: Top-soil over sand, compact.

San Francisco (114 Sansome St., Adam Grant Bldg.). Small objects shifted. Plaster cracked. Damage very slight. Ground: Level.

San Francisco (Adam Grant Bldg.). V. Motion rapid, lasted 3 seconds. Moderate earth noises heard. Felt by all; frightened few.

San Francisco (Municipal Railway Bldg., Geary Blvd. and Presidio Ave.). Concrete Class A building. Office cabinets and bookcases shook very noticeably. Glass panel from fluorescent light fixture fell to floor and broke. Small objects shifted. Ground: Sandy, level.

San Francisco (121-19th Ave.). Two small objects shifted. Small plaster crack. Damage very slight. Ground: Soil, level.

San Francisco (2426-32nd Ave.). Small objects and furnishings shifted; books thrown to floor. Slight plaster cracks. All pictures tilted, with top toward east. Damage slight to plaster. Ground: Sandy, sloping.

San Francisco (1987-19th Ave.). Small objects and furnishings shifted (N-S walls). Very slight plaster cracks. Ground: Soil, level. Car rocked N-S.

San Francisco (Grand Central Market, Sacramento and Fillmore Sts.). Large windows broke.

San Francisco (642-10th Ave.). Small objects shifted. Plaster cracked very slightly. Damage very slight. Ground: Soil, loose, level.

San Francisco (123 Winding Way). Small objects and furnishings shifted. Dishes broke. Plaster cracked slightly. Ground: Rocky, sloping (4 to 100 feet). "Ground rolled like waves."

San Francisco (646-38th Ave.). Small objects and furnishings shifted. Plaster cracked slightly. Damage slight. Ground: Sandy soil, level.

San Francisco (134 Staples Ave.). Small objects shifted. Glass in picture broke. Plaster cracked slightly. Damage slight. Ground: Compact, level.

San Francisco (600 Stockton St.). Plaster cracked. Damage very slight. Ground: Compact, sloping.

San Francisco (Telephone Bldg., 140 New Montgomery St.). "I was standing still in the basement. It felt like a lift up, then rolled or swayed from side to side. No damage to amount to anything in the building." Ground: Rocky, level.

22 March, 11:44:21\*. Intensity VII. (cont.)

INTENSITY VI - San Francisco

San Francisco (2323 Laguna St., corner Washington). Small objects shifted. Plaster cracked very slightly. Ground: Sloping, compact.

San Francisco (2274-48th Ave.). Small objects and furnishings shifted. "Felt like house was going straight up in the air, then from side to side, like a ship listing." Small stucco crack. Damage slight. Ground: Sandy.

San Francisco (930 Sutter St.). Lamps shifted. Plaster cracked.

San Francisco (1050 Green St.). Small objects and furnishings shifted. Plaster cracked slightly. No damage of any consequence. Ground: Rocky, sloping in rear.

San Francisco (58 Hanover St.). China plates rolled on floor. Stovepipe fell. Ground: Rocky, sloping.

San Francisco (54 Fair Ave., Mission District). Plaster cracked very slightly. Ground: Soil, compact, sloping.

San Francisco (4027 Clement St.). Small objects shifted. Plaster cracked very slightly. Ground: Loose, sloping.

San Francisco (45 Lopez Ave., Forest Hills). Small objects and furnishings shifted. Slight plaster cracks. Ground: Rocky, sandy; on hillside.

San Francisco (440 Turk St.). Plaster cracked.

San Francisco (1370-9th Ave.). Plaster cracked. "Fifty-year-old building." No damage other than plaster.

INTENSITY V - San Francisco

San Francisco (Shell Bldg., 100 Bush St.). Slight paint flaking at existing cracks. One light fixture in general office area (5th floor) in south bays dropped slightly. It was reported that chimes in old grandfather clock were set in motion. Slight movement was noted along existing crack in partition in southeast corner of building off lobby on first floor. Crack occurs along juncture of partition to column. Light fixture at ceiling reported to have shifted slightly. 100 Bush Street: Existing crack at juncture of partition to south wall column opened. This was the most notable damage. In the subbasement a slight leak developed in the 8-inch main steam line at the point where the horizontal line joins the tee fitting to the main riser. The repairs consisted of replacing the gasket, which had been in service 27 years. Top of building: Wedges shimming wood flagpole, where it passes through roof of small tower structure, dropped out. This may have occurred during the earthquake or they may have worked loose prior to the earthquake. Essentially no damage to the building. No damage noted in building adjoining to the north (465 Battery St.).

22 March, 11:44:21\*. Intensity VII. (cont.)

INTENSITY V - San Francisco

San Francisco (California Commercial Union Bldg., 315 Montgomery St.). Motion rapid, lasted about 3 seconds. Moderate earth noises heard by many at beginning of shock. Felt by all in building; frightened many. Windows and doors rattled. Small objects shifted.

San Francisco (Physicians Bldg., 516 Sutter St.). Motion rapid, lasted few seconds. Felt by several on third floor of strongly built brick building (active); frightened few. Windows and doors rattled.

San Francisco (Four Fifty Sutter Bldg.). Motion slow, lasted 45 seconds. Felt by all on sixth floor of steel and concrete building; frightened many in community.

San Francisco (Hyde and Greenwich Sts.). Motion rapid, lasted several seconds. Loud earth noises from W heard by many. Felt by and frightened many (some outdoors; active). Windows, doors, and dishes (everything) rattled. Hanging objects swung. Trees, bushes shaken strongly. Small objects shifted and overturned; one knickknack fell. "Damage very slight, practically nil. Reinforced-concrete building. Many heavy shocks over a period of three days." Ground: Rocky, compact, sloping.

San Francisco (142 Downey St.). Motion rapid, lasted 5-10 seconds. Felt by all; frightened all in home. Ground: Rocky.

San Francisco (51 Belden St.). Basement of concrete building. "The shock did not feel too strong here." One object shifted.

San Francisco (Battery St., at Clay). "Trolley wires swayed a great deal. This was the only indication I had of a shock. I was walking rapidly northward. However, a few seconds later people 'boiled' out of the buildings along Battery St."

San Francisco:

2622 Yorba St.

485 Eddy St., 4th floor

Capitol and Montana Sts., Ocean View Playground

1733 Geneva Ave.

1511-30th Ave.

1360 Lombard St.

2850 Golden Gate Ave.

182 Inverness Dr.

1428-9th Ave.

140 Alton Ave.

2421 Quintara St.

2318-17th Ave.

120 Westmorland Dr.

1951-11th Ave.

1 Grant Ave.

245 San Fernando Way

22 March, 11:44:21\*. Intensity VII. (cont.)

INTENSITY V - San Francisco

**San Francisco:**

1718 Funston Ave.  
372-4th Ave.  
I. Magnin & Co., Union Square  
270-15th Ave.  
3251 Washington St.  
460 Ransell St.  
630-6th Ave.  
630 Joost Ave.  
3020-23rd Ave.  
2650 Pacific Ave.  
1770 Green St., Apt. 604  
722-43rd Ave.  
1618-38th Ave.  
1324-46th Ave.  
235 Montgomery St., Russ Bldg., 8th floor  
1936 Quintara St.  
133 Beulah St., off Stanyan  
310 Sansome St., Alaska Commercial Bldg.  
1910-12-14-16 Ellis St.  
800 Font Blvd.  
Bay and Mason St.  
2210-38th Ave.  
22nd and Eureka Sts.  
150 Sadova St.  
Kearny and Sutter Sts.  
1336-16th Ave.  
190 Funston Ave.  
U.C. Medical Center on 9th Ave., between Moraga and Noriega.  
49 Burlwood Dr.  
781 Lakeview  
76 Leland Ave.  
4616 California St.  
420 Lake St.  
855 Waller St.  
509 Chenery St., Glen Park District  
68 Diamond St.  
2132 Bayshore Blvd.  
2nd and Townsend Sts. (restaurant)  
1194 Guerrero St.  
121-11th Ave.  
225 Buckingham Way (Stonestown)  
1218-21st Ave.  
Chestnut and Jones Sts.  
507 Polk St., Rm. 305  
39th Ave. and Judah Sts. (grocery store)  
1012 Page St.

22 March, 11:44:21<sup>o</sup>. Intensity VII. (cont.)

INTENSITY V - San Francisco

San Francisco:

2535-38th Ave.  
1275 Arguello Blvd.  
1770 Green St., 6th floor  
2319-40th Ave.  
155 Clearfield Dr.  
25 Santa Ana Ave.  
61 Carmelita  
69 Allston Way  
25 Tulagi Rd.  
2570-36th Ave.  
1728 Divisadero St.  
1746-33rd Ave.  
Rincon Annex Post Office, Spear and Mission Sts.  
U.C. Hospital, 12th floor  
2570-29th Ave.  
33 Woodland Ave.  
San Francisco Naval Shipyard, Bldg. 101  
201 Teresita Blvd.  
110 Market St., 6th floor  
76 Fairfield Way  
3230 Moraga St.  
1475-41st Ave.  
22-22nd Ave.  
2627 Vicente St.  
176 Jordan Ave.  
1654-24th Ave.  
17th St., Castro and Market Sts.  
2195-35th Ave.  
135-28th Ave.  
2687-42nd Ave.  
2208<sup>1</sup><sub>2</sub> Steiner St.  
2028 Burrows St.  
694 Hearst Ave.  
3714 Rivera St.  
2551-27th Ave.  
887 Bush St., Apt. 603  
503 Market St., Cunard Bldg., Rm. 905  
3020 Ulloa St.  
University of San Francisco, 4th fl., Liberal Arts Bldg.  
2423-28th Ave.  
1895 Jefferson St., Apt. 205  
110 Cardenas Ave.  
3265 Baker St.  
2752-35th Ave.  
1589-16th Ave.

22 March, 11:44:21\*. Intensity VII. (cont.)

INTENSITY V - San Francisco

San Francisco:

2527-46th Ave.  
1390-43rd Ave.  
2418 Van Ness Ave.  
3312-14 Clay St.  
455 Locust St.  
640 Sutter St., 5th fl., Woman's Athletic Club  
9th Ave. and Fulton; 266-A 8th Ave.  
333 Pine St.  
1 Montgomery St., 7th fl., Crocker First National Bank Bldg.  
1893 San Jose Ave.  
850 Castro St.  
1959 California St., between Gough and Octavia Sts.  
172 Arguello Blvd.  
300 Montgomery St., Rm. 842, Bank of America  
127 Stillings Ave.  
784-48th Ave.  
1232 Market St.  
290 Lombard, 4th fl., Telegraph Hill  
170 Carl St.  
Mariposa and Missouri Sts.  
635 Page St., at Fillmore  
4320 Cabrillo St.  
166 Hermann St.  
106 Sanchez St.  
576 Lisbon St.  
1080 Eddy St., Apt. 502  
150 Van Ness Ave., 2nd fl., C.S.A.A.  
70 Levant St.  
1909 Silver Ave.  
2174-35th Ave.  
2440 Polk St.  
1296 Haight St.  
4945-17th St.  
86 Iris St., at Euclid  
2850 Divisadero St.  
2625 Baker St., between Green and Union Sts.  
333 Avila St., between Beach and Prado  
115-2nd Ave.  
117 Delmar St.  
3401 Clay St., 7-story concrete apartment building  
Dolores and 14th St.  
42nd Ave. and Geary St.  
346 Athens St.  
Midtown Terrace, south slope of Twin Peaks  
28th Ave., opposite new reservoir (2031)

22 March, 11:44:21\*. Intensity VII. (cont.)

INTENSITY V - San Francisco

San Francisco:

1464-17th Ave.  
342 Staples Ave.  
527-35th Ave.  
960 Corbett Ave.  
Treasure Island  
1515 Broadway  
810 Hyde St., corner Sutter  
1823 Steiner St.  
205-9th Ave.  
806-41st Ave.  
122 Bemis St., Glen Park District  
2232 North Point St.  
451 Burnett Ave., east side Twin Peaks  
148 Freights Ave.  
1624 Sacramento St.  
177 Capp St.  
2300 Leavenworth St.  
1695 Beach St.  
2354-46th Ave.  
425 Mason St., 4th floor  
2140 Clement St.  
2701 Larkin St.  
1804 Broadway St.  
1151 Broderick St.  
106 Circular Ave.  
601 Buena Vista Ave., Ashbury Heights  
949 Fell St., between Steiner and Pierce Sts.  
6140 California St.  
One Eleven Sutter Bldg., Rm. 2200  
1800 Franklin St., Apt. 402  
2410 Clay St., near Stanford Hospital  
1525 Lawton St.  
1651 Market St.  
625 Market St., 3rd floor  
191 Elmira St.  
225 Mallorca Way, Marina District  
1980 Vallejo St., 3rd Fl., 11-story concrete building  
1626 North Point, Apt. 201  
75 Buena Vista, E.  
510 Talbert  
55 Mason St., Ambassador Hotel  
2517 Filbert St.  
4308-23rd St.  
526 Peralta Ave., Bernal Heights

22 March, 11:44:21\*. Intensity VII. (cont.)

INTENSITY VII - San Francisco

San Francisco:

101 Noe St.  
2675-44th Ave.  
2747 Mission St.  
229 Juanita Way  
777 Buena Vista Ave., W.  
77-A Miguel St.  
1258-33rd Ave.  
298 Collingwood St.  
St. Francis Hotel, 11th fl., Powell and Geary Sts.  
16th and Potrero  
130 St. Elmo Way, Monterey Heights  
475 Campbell Ave., Visitacion Valley  
208-A Anzavista Ave.  
890-37th Ave.  
265 Ewing Terrace  
535-46th Ave.  
256 Mission St.  
750-148th Ave.  
195 Alhambra Dr., Marina District  
116 Divisadero St.  
2027-31st Ave.  
220 Eureka St.  
Muni Tire Shop, Powell at Bay Sts.  
110 Bacon St.  
1870 Jackson St.  
1669 Fillmore St.  
2618 Buchanan St.  
377 Corbett Ave.  
2475 Pacific Ave.  
158-18th Ave.  
1219 Stanyan St.  
1655-148th Ave.  
862-26th Ave.  
130 Sutro Heights Ave.  
239 Market St., Diamond Lunch  
427 Hamilton St.  
390-28th St., at Noe  
682-39th Ave., at Balboa  
61 Rockwood Court  
535 Geary St.  
220 Arlington St. (House 75 years old.)  
545 O'Farrell St.  
1477-7th Ave.  
1012-14th St., at Castro

22 March, 11:44:21\*. Intensity VII. (cont.)

INTENSITY V - San Francisco

San Francisco:

318 Kearny St.  
224 Kirkham St.  
2463-16th Ave.  
870 Market St., 11th fl., Flood Bldg.  
575 Spruce St.  
Mark Hopkins Hotel, Main floor, California and Mason Sts.  
404 Texas St.  
2345 Green St.  
906 Capitol Ave.  
1258 Jackson St.  
55 Jules Ave., Ingleside District  
420 Shields St.  
75 Williar Ave.  
2059-32nd Ave.  
111 Commonwealth Ave.  
100 Edgewood Ave., 3rd floor  
544 Golden Gate Ave.  
164 Sea Cliff Ave.  
568-5th Ave.  
2748 San Bruno Ave.  
1206-35th Ave.  
Judah St., between 28th and 29th Ave.  
109 Geary St.  
848 Clipper St., East Twin Peaks  
690 Market St.  
55 New Montgomery St., Sharon Bldg.  
919 Oxford St.  
Fillert and Columbus Sts., North Beach District  
681 Market St., Monadnock Bldg.  
537 Front St.  
137-9th Ave.  
1782 Beach St.  
2201 Eaker St.  
754 Clement St., Maxine's Ice Cream Store  
37 Serrano Dr.  
333 Montgomery St., Pacific National Bank  
412 Shrader St.  
2565 Larkin St.  
Quint St. and Evans Ave.  
405 Montgomery St., Financial Center Bldg.  
321 Judson Ave.  
834 Niagara Ave.  
774 Spruce St.  
543-46th Ave.  
1930-34th Ave.

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INTENSITY V - San Francisco

San Francisco:

771-9th Ave.  
333 Louisburg St.  
717 Ralph St.  
New Montgomery and Natoma Sts.  
327-29th Ave.  
658 Market St., Manning's  
259 Candlestick Rd.  
2020 Great Highway  
326 Elsie St.  
952 Sutter St., 5th floor  
Fort Miley Veterans Hospital, Lincoln Park District  
444-4th Ave.  
1675 York St.  
2727-17th St., Oroweit Baking Co.  
1640 Steiner St.  
347 Clay St.

INTENSITY IV - San Francisco

No shifting of objects

San Francisco:

640 Mason St., 5th floor  
1335 Washington St., Apt. 2  
90-2nd St.  
Russ Bldg., 10th floor  
585 Laurel St. "Across the street to the north and east  
(Laurel and California Sts.) the Fireman's Fund Insurance  
Company is just completing a three-story office building.  
Reinforced-concrete floors, roof and columns; plate glass  
in aluminum frames; brick-faced walls. Building covers  
about three acres. The engineer in charge of construction  
told me there was no glass breakage or damage of any kind.  
Probably 80 or 90 per cent of the exterior walls are glass."  
609 Banks St., 1½ blocks from Alemany Blvd.  
400 Montgomery St., Rohl Bldg., 11th floor  
461 Roosevelt Way  
Stanford Hospital, Clay and Webster Sts.  
2052-14th Ave.  
770 Carolina St.  
2186-25th Ave.  
Hunters Point, SFNS, Quarters O-1-B (quonset)  
406 Gates St.  
University of San Francisco Campus (huts)  
650-5th St., 5th floor

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INTENSITY IV - San Francisco

San Francisco:

150 Otis St.  
1453-10th Ave.  
Clay-Jones Apartments, 1250 Jones St., Apt. 503  
308 Maple St.  
100 Valmar Terrace, Corner Peru St.  
City of Paris, 6th floor, Stockton and Geary Sts.  
430 Scott St., between Oak and Fell Sts.  
1779 Oakdale Ave.  
124 Moline Dr., south slope of Mt. Davidson  
Olympic Club, 524 Post St.  
1 Princeton St.  
335 Bay St.  
853 Ashbury St.  
3rd and Townsend, S. P. Depot  
797 Bush St.  
176 Nueve Ave.  
212 Tacoloma Ave.  
81 Buena Vista Terrace  
1450 Santiago St.  
1250 Vallejo St.  
560 Mission St., 3rd floor  
932 Vallejo St., Cottage 2  
116 New Montgomery St., 6th floor  
801 Castro St.  
87-89 Collins St.  
31 Los Palmos Dr., east slope Mt. Davidson  
Hooper Foundation, U.C. Medical Center, 2nd and Parnassus  
23 Cresta Vista Dr.  
509-44th Ave.  
2105 Jackson St.  
1501 Sutter St., Apt. 109  
251 Kearny St., Rm. 610, Charleston Bldg.  
537 Belvedere St.  
Mission St., back of Emporium  
1801 Hyde St.  
899 Noe St. "Jars and plants didn't even fall off window sill."  
821 Market St., Pacific Building  
870 Market St., Flood Bldg., 12th floor  
3120 Gough St., between Chestnut and Francisco  
1739 Pine St.  
1363-28th Ave.  
655 Sutter St., 4th floor  
50 Yerba Buena Ave.  
2173 California St.  
201 Buchanan St.

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INTENSITY IV - San Francisco

San Francisco:

1625 Van Ness Ave.  
178 Eureka St.  
3035 Divisadero St.  
120 Montgomery St., 19th floor, Equitable Life Bldg.  
555 Chestnut St., Telegraph Hill Neighborhood Center  
55 West View Ave.  
118 Dellbrook, Forest Hills District  
190 Belgrave Ave.  
578 Vermont St., at 18th St.  
1043-53 Fell St.  
133 Kearny St., near Sutter St.  
330 Utah St.  
Patrick Henry School, 19th and Vermont Sts.  
2114-22nd Ave.  
580 Teresita Blvd.  
86 Mullen Ave.  
36 Diamond St.  
Sacramento and Buchanan Sts.  
1550-9th Ave.  
171-27th St.  
105 Montgomery St., 11th floor, California Pacific Bldg.  
75 Hernandez Ave.  
3728-22nd St.  
220 Bush St., 3rd floor  
49 Kearny St., 4th floor  
2507-15th Ave.  
Jackson and Van Ness Ave., 5th floor  
510-4th Ave.  
1531-17th Ave.  
Golden Gate Park, Duck Pond  
3095 Turk St.  
666 Edinburgh St. "All major shocks felt."  
2120 California St.  
550-9th Ave.  
Fort Mason, Building 212  
3904 Clay St.  
359 Hyde St., Apt. 257  
1820 Mason St.

Reported not felt in San Francisco:

Golden Gate Park, near Japanese Tea Garden. "We did not feel it nor did we note any excitement among about 100 persons in the vicinity."

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Reported not felt in San Francisco (cont.):

En Route from Presidio to Hyde and Sutter Sts. "I was reading a newspaper most of the way and wasn't conscious of any unusual motion."

California and Grant. "On way to old St. Mary's church." Battery and Clay Sts. Not felt by observer walking north on Battery St.

1005 Jones St., near Pine St. Not felt by observer while working in apartment.

490 Post St., Medico-Dental Bldg. Not felt by observer in moving elevator.

Sharp Park area:

Sharp Park (172 McKinney). Motion rapid, lasted 5 seconds. Direction NE-SW. Loud earth noises heard. Small objects and furnishings shifted. Dishes, windows, and furniture broke. Plaster, windows, walls, and chimneys cracked; chimneys fell. Damage to brick and masonry, \$500. Ground: Compact, sloping.

Sharp Park. VI. Motion rapid. Direction E-W. Loud earth noises from E-W heard by many. Felt by and frightened all in community. Windows, doors, and dishes rattled; building creaked. Hanging objects swung. Trees, bushes shaken strongly. Small objects and furnishings shifted. Plaster, windows, walls, and ground cracked. Dishes and windows broke. Damage slight to wood, masonry, and concrete. Ground: Soil, compact, level.

Sharp Park (Edgemar, 320 Beaumont Blvd.). VI. Motion rapid, lasted 15-20 seconds. Direction up and down and W-E. "Had the jolt of about a 6-foot down jump." Loud crashing and rumbling earth noises heard. Small objects shifted. Dishes broke. Walls cracked. Columns twisted. Damage slight to brick, masonry, and concrete: two blocks broke loose. "Could feel ground rumble every few minutes all morning." Ground: Soil, sand, clay, compact, level.

Sharp Park (720 Lundy Way, Fairway Park). VI. Motion rapid, lasted about 1 minute or more. Loud earth noises heard. Small objects and furnishings shifted. Pencil thin stucco cracks around entire house. Damage slight. Ground: Level.

Sharp Park (135 McKinney, Pacific Manor). VI. Motion very rough, lasted about 2-3 minutes. Direction S. Loud earth noises heard. Lamps and chairs shifted. Chimneys and ground cracked. Damage slight. Ground: Rocky.

Sharp Park (215 Nelson, Pacific Manor). VI. Motion very rapid. Direction NE. Loud earth noises heard. Small objects, pictures, and furnishings shifted. Dishes and all knick-knacks broke. Very slight wall cracks. Damage slight. Ground: Compact, level.

22 March, 11:44:21\*. Intensity VII. (cont.)

Sharp Park (332 Avalon Dr., Pacific Manor). VI. Motion rapid, lasted about 30 seconds. Direction E-W. Loud earth noises heard. Small objects and furnishings shifted. Dishes broke. Damage slight. Ground: Soil, sloping, filled in.

Sharp Park (26 Cragmont Court, Pacific Manor). VI. Motion rapid, like ocean waves, lasted several minutes. Direction E-W. Loud earth noises heard. Small objects shifted. Dishes broke. Damage slight. Ground: Soil, compact, sloping.

Sharp Park (378 Bancroft Way, Edgemar). VI. Motion rapid, like a giant hand slammed against E wall of house. "I ran out fast." Ground danced underfoot, first N-S, then E-W. Loud earth noises, first rumble then explosivelike sound. Small objects "walked." One medicine bottle broke. Hairline cracks in stucco. Ground: Soil, compact, steep.

Sharp Park (5 Eastlake Ave.). VI. Motion rapid, lasted about 2 minutes. Loud earth noises heard. Small objects shifted. Jars broke. Ground: Compact, steep.

Intensity VI:

Agnew. Motion rapid, lasted 1 minute. Faint earth noises heard. Felt by all and frightened many in community. Windows and doors rattled; house creaked. Hanging objects swung. Small objects shifted. Plaster cracked. Damage slight. Ground: Soil, level.

Alameda (1513 Pearl St.). Brick fireplace (front and flooring) cracked; fireplace moved 1/2 inch from wall. Damage slight. Ground: Level.

Alameda (Encinal High School). Motion rapid, lasted 30 seconds. Direction N. Moderate earth noises heard. Small objects shifted. Windows broke. Plaster cracked. Damage slight. Ground: Level, filled in.

Alameda (Webster Street Post Office). V. Motion rapid. Moderate earth noises heard by many 1 second before shock. Felt by all (sitting and active) on first floor of strongly built concrete-block building; frightened few. Windows and doors rattled; walls creaked. Hanging objects swung. Small objects shifted. Ground: Soil, level.

Alameda (Post Office). V. Motion rapid, lasted 30 seconds. Direction N. Moderate earth noises from N heard by many 1 second before shock. Felt by all on second floor of strongly built masonry building (sitting); frightened many. Windows, doors, and dishes rattled; building creaked. Hanging objects swung N. Trees, bushes shaken strongly. Small objects shifted. Ground: Soil, level.

Alameda (Naval Air Station Branch Post Office). V. Motion rapid, lasted 20 seconds. Direction NE. Loud earth noises from

22 March, 11:44:21\*. Intensity VI. (cont.)

NE heard by many. Felt by all at work in strongly built concrete building; frightened few. Windows and doors rattled; walls creaked. Hanging objects swung NE. Trees, bushes shaken strongly. Furnishings shifted. Ground: Sandy, level.

Alameda (east end). V. Small objects shifted. Ground: Soil, compact, level.

Alameda (2598 Washington Way). V. Small objects shifted. Ground: Soil, compact, level.

Alameda (914 San Antonio Ave.). IV. Sharp motion, then slow waves. Ground: Sandy soil, level.

Alameda (1630 Clinton Ave.). III. Motion rapid, pause, then rolling, lasted 20 seconds. Loud earth noises heard. Direction N-S. Ground: Level.

Alameda (2305 Buena Vista). Moderate earth noises heard. Ground: Sandy soil.

Alameda (3031 Windsor Dr.). Motion rapid, lasted 1-3 minutes. Ground: Sandy, level.

Alameda (1300 Grand St.). Motion rapid, lasted 1-1½ minutes. Moderate earth noises heard. Ground: Soil, compact, level.

Alameda (1901 Central Ave.). Motion moderate, lasted about 30 seconds. Moderate earth noises heard. Ground: Sandy, loose.

Alameda (Naval Air Station Cafeteria). Felt.

Albany (1526 Visalis Ave.). Motion rapid, lasted 3 minutes. Faint earth noises heard. Plaster cracked. Damage slight to masonry. Ground: Soil, compact, level.

Albany (720 Madison St.). Separation crack between chimney and house (precasting). "May have moved slightly during earthquake."

Albany. V. Motion rapid, lasted 30 seconds. Faint earth noises heard by few 5 seconds before shock. Felt by many (some outdoors; active) and frightened few in community. Windows, doors, and dishes rattled; house creaked. Hanging objects swung. Small objects shifted; knickknacks and pictures fell. Ground: Soil, compact, level.

Albany (959 Peralta Ave.). V. Faint earth noises heard. Cracks widened. Ground: Rocky soil, slightly sloping.

Albany (719 Buchanan St.). Motion rapid, lasted 30 seconds. Loud earth noises heard. Ground: Soil, compact, sloping.

Associated. Motion slow, lasted 30 seconds. Moderate earth noises heard by many 1 second before shock. Felt by all at Tidewater Associated Oil Refinery; frightened many in community. Windows rattled. Hanging objects swung. Trees, bushes shaken slightly. Small objects shifted and overturned; knickknacks fell. Ground: Compact, level.

Atherton. Motion rapid, lasted 3-4 seconds. Started slow, then rapid, then a northerly swaying, then more shaking, but not

22 March, 11:44:21\*. Intensity VI. (cont.)  
so violent. Felt by several in office; frightened many in community. Windows and doors rattled. Hanging objects swung. "Have been told that water in some swimming pools splashed like large waves." Ground: Soil, level.

Atherton (52 Wilburn Ave.). IV. Motion rapid, lasted 10 seconds. Very decided sidewise motion. Moderate earth noises heard. Ground: Soil, level.

Atherton (83 Moulton Dr.). III. Motion moderate, lasted about 20 seconds. Direction NE. Ground: Soil, compact.

Atherton (28 Selby Lane). II. Motion rapid, lasted 30 seconds. Faint earth noises heard. Ground: Rocky soil, level.

Bayshore City (about 4 miles east of Daly City). Motion rapid, lasted 30 seconds or more. Direction S-N. Loud explosive-like earth noises heard. Felt by many or all. Few dishes broke. Ground: Soil, loose, level.

Belmont (Post Office). Motion rapid, lasted 1 minute. Loud earth noises heard. Direction SW. Felt by all in community; frightened few or many. Windows, doors, and dishes rattled; building creaked. Hanging objects swung SW. Trees, bushes shaken moderately. Small objects and furnishings shifted; small objects overturned; knickknacks fell. Damage none or slight. Ground: Soil, level.

Belmont (1828 Bayview). V. Motion slow, lasted about 1 minute. Dishes rattled. Lamps swayed. Ground: Rocky soil, compact; slight grade to street.

Belmont (1730 Valley View Ave.). IV. Motion rapid, lasted less than 1 minute. Direction NW. Moderate earth noises heard. "Everything just trembled." Ground: Rocky, sloping.

Belmont (502 Dale View). II. Motion moderate, rolling, lasted 30 seconds. Faint earth noises heard. Ground: Compact, level, filled in.

Belmont (508 Cambridge St.). Motion "not too hard," lasted about 1 minute. Very loud rumbling earth noises, like trains, heard. Ground: Marshy, level; by bay.

Belmont (1802 Ralston Ave.). Motion rapid, lasted about 30 seconds. Moderate earth noises heard. Ground: Compact, level.

Belmont (404 Chesterton Ave.). Motion slow, lasted about 3 minutes. Faint earth noises heard. Ground: Level, filled in.

Belvedere (5 Hilarita Circle). Motion moderate. Moderate earth noises heard. Small objects shifted. Slight plaster cracks and slight concrete cracks in patio. Ground: Level, filled in.

Belvedere-Tiburon. V. Motion rapid. Direction NE. Loud earth noises from NE heard by many 1 second before shock. Felt by all and frightened many in community. Doors and suspended heater rattled; house creaked. Hanging objects swung. Trees, bushes shaken strongly. "My house is on a very steep slope near the bay. No damage. Frame structure." Ground: Filled in.

22 March, 11:44:21\*. Intensity VI. (cont.)  
Belvedere (5 Tamalpais Ave.). V. Motion rapid, lasted about 1 minute. Direction N-S. Small objects shifted. Walls creaked. Ground: Level; shell mound.

Belvedere (Raed Heights, along Tiburon Blvd.). III. Motion rapid, lasted few seconds. Direction E-W. Moderate earth noises heard. Ground: Rocky, sloping, some fill.

Belvedere (12 Edgewater Rd.). Motion slow, lasted about 30 seconds. Ground: Filled in.

Belvedere (559 San Rafael Ave.). Motion rapid, lasted 1-2 seconds. "This was the only shock felt." Ground: Level.

Benicia. Motion rapid. Loud earth noises heard by many. Felt by all on first floor of strongly built brick post office building (active); frightened all in community. Windows and doors rattled. Hanging objects swung. Ground: Soil, compact, level.

Benicia. V Motion rapid. House rocked. Water in drinking water bottle rocked N-S. Ground: Rocky soil, sloping.

Benicia. Motion rapid, lasted about 30 seconds. Moderate earth noises heard. Ground: Soil, compact, level.

Berkeley. Press reported tile was cracked at the Public Health Building, 2151 Berkeley Way, on third and fourth floors and at the junction of top floor ceiling with exterior walls.

Berkeley (Post Office). Motion slow. Felt by all; frightened few. Windows and doors rattled. Plaster and windows cracked. Damage slight.

Berkeley (2705 Webster St.). Motion rapid, lasted 25 seconds. Direction E-W. Loud earth noises from NW-SE heard by observer 15 seconds before shock. Felt by several on first floor of strongly built stucco building (sitting and active). Windows rattled; walls creaked. Plaster cracked. Damage slight to stucco. Ground: Level, soil.

Berkeley (1010 Dwight Way). Motion rapid. Direction E. Loud earth noises heard. Small objects and furnishings shifted. Windows broke. Plaster, walls, chimney, and fireplace cracked. Damage considerable to brick and masonry.

Berkeley (fishing pier, 1½ miles out in bay). Motion rapid, lasted 5 seconds. Direction W. Moderate earth noises heard. Fisherman knocked down.

Berkeley (1647-A Walnut). Motion rapid. Loud earth noises heard. Small objects shifted. Plaster cracked. Ground: Soil, level, compact.

Berkeley (1027 Euclid Ave., in hills). Motion rapid, lasted 30 seconds. Faint earth noises heard. Plaster cracked. Damage slight. Ground: Soil, compact, sloping.

Berkeley (1265 Hopkins). Motion rapid, lasted 1-2 seconds. Moderate earth noises heard. Plaster cracked. Damage slight. Ground: Soil, level.

22 March, 11:44:21\*. Intensity VI. (cont.)  
Berkeley (2951 Linden Ave., Ashby-Claremont area). Motion rapid, lasted a full minute. Faint earth noises heard. Small objects shifted. Few dishes broke. Minor chimney cracks. Damage slight to brick and masonry. Ground: Soil, compact.  
Berkeley (2955 Regent St.). Motion rapid, lasted 1-2 minutes. Moderate earth noises heard. Small objects shifted. Plaster cracked. Damage slight. Ground: Compact.  
Berkeley (1 Canyon Rd.). Motion slow but sharp, lasted 1 minute. Direction indoors S-N. Moderate earth noises heard. Damage slight to brick and masonry (garden wall). Ground: Yellow clay, compact, steep; next to U.C. Stadium on Hayward Fault.  
Berkeley. Motion rapid, lasted 10-15 seconds. Moderate earth noises heard. Furnishings shifted; two-ton press jumped. Plaster cracked. Damage slight. Ground: Compact, sloping.

INTENSITY V - Berkeley

Berkeley (South Berkeley Post Office). Motion rapid, lasted 30 seconds. Faint earth noises heard by many 1 second before shock. Felt by all and frightened many in community. Windows and doors rattled; walls creaked. Hanging objects swung. Ground: Soil, level.  
Berkeley (2511 Durant St.). Motion slow, rolling, lasted 6-7 seconds. Moderately loud earth noises heard by many. Felt by all at Sather Gate Post Office; frightened few. Windows and doors rattled; building creaked. Ground: Soil, compact.  
Berkeley (2900 Sacramento). Motion rapid, lasted 10 seconds. Faint earth noises heard. Felt by all in community. Windows rattled. Hanging objects swung. Ground: Level.  
Berkeley. Motion rapid. Loud earth noises heard. Felt by all; frightened many in community. Windows, doors, and dishes rattled; frame creaked. Hanging objects swung N. Trees, bushes shaken strongly. Small objects shifted. Ground: Soil.  
Berkeley (1501 Henry). Small objects shifted. Ground: Sloping.  
Berkeley (1924 Woolsey St.). Few books fell from end of top shelf. Ground: Compact, sloping toward bay.  
Berkeley (Shattuck, corner of Center St.). Loud earth noises heard. Small objects shifted in drugstore. Ground: Level.  
Berkeley (U.C. Radiation Laboratory). Motion slow, up and down. Faint earth noises heard. Plaster cracked some. Damage very slight. Ground: Rocky soil.  
Berkeley (2501 Prince St.). Small objects shifted. Ground: Level, compact.  
Berkeley (2200 Grove St.). Small objects shifted. Ground: Soil, compact, level.

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INTENSITY V - Berkeley

Berkeley (1305 Bayview). Small objects shifted. One vase broke.  
Ground: Rocky, compact, level.

Berkeley (1740 Walnut St.). Small objects shifted. Ground:  
Compact, level.

Berkeley (2338 Telegraph Ave.). Small objects shifted. Ground:  
Compact, sloping.

Berkeley (School for Blind). Small objects and furnishings  
shifted. Ground: Level.

Berkeley (Shattuck and Center, Hotel Shattuck Bldg.). Chande-  
liers swung violently. Damage none or slight.

Berkeley (1419 Campus Dr.). Very slight plaster cracks. Ground:  
Rocky, compact, level.

Berkeley (609 Santa Barbara; in hills). Chairs rocked. Small  
objects fell. Ground: Sloping.

Berkeley (2709 Dwight Way). Furnishings shifted. Ground: Soil,  
compact, sloping.

Berkeley (1102-A 10th St.). Opened oven door. No damage in old  
building constructed about 1850. Ground: Soil, sloping,  
filled in; former beach line.

Berkeley (1743 Addison). Entire building seemed to rock back and  
forth N-S. Ground: Soil, compact, level.

Berkeley. The following locations reported no shifted or fallen  
objects and no damage:  
1829 Berkeley Way  
Grant and Bancroft  
571 Neilson St.  
1788 Sonoma St.  
29 Live Oak Rd.  
U.C. Campus, Life Science Bldg.  
U.C. Campus, Virus Laboratory, 5th floor  
Durant near Shattuck (on street)  
1024 Mariposa Ave.  
2951 Pine St.  
2615 Etna St.  
2355 Hilgard Ave.  
1522 Channing Way  
139 Purdue Ave.  
1150 Arch St.  
2161 Allston Way  
953 Arlington Ave.  
3028 College Ave.  
1154 Spruce St.  
10 Rock Lane  
1256 Queen's Rd.  
810 San Luis Rd.  
780 Euclid

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INTENSITY V - Berkeley

Berkeley. Locations reporting no shifted or fallen objects and no damage. (cont.)  
1332 Hopkins Court  
6 Sunset Lane  
1890 Arch St.

Berkeley. No damage was found in Berkeley schools.

Bodega Bay. Direction N. Moderate earth noises heard by many 2 seconds before shock. Felt by all; frightened many. Windows, doors, and dishes rattled. Hanging objects swung. Small objects shifted; books fell.

Bolinas. Press reported food market was in shambles from fallen merchandise.

Bolinas. Moderate earth noises heard by many 2 seconds before shock. Felt outdoors by observer (active); frightened all in community. "Shock severely felt here. No damage to post office but quite a bit to goods in local grocery store. Quite a bit of glass knickknacks and antiques broke in one home. Seemed to rock from SW-NE but am not certain."

Boyes Hot Springs. Motion rapid. Earth noises heard by few. Felt by many on first floor of strongly built stucco post office building (active); frightened few in community. Windows and doors rattled. Few plaster cracks reported. Ground: Rocky, sloping.

Boyes Hot Springs. V. Motion slow, lasted 30 seconds. Direction W. Pendulum clock stopped. Moderate earth noises heard. Ground: Soil, level.

Brisbane. Motion rapid. Loud earth noises heard by many. Direction W. Felt by all and frightened many in community. Windows, doors, and dishes rattled; house creaked. Hanging objects swung. Trees, bushes shaken strongly. Small objects and furnishings shifted; vases and small objects overturned. Plaster, windows, walls cracked. Knickknacks, pictures, and plaster fell. Dishes and windows broke. Damage considerable. Ground: Rocky, compact, sloping and steep.

Brisbane (school). Motion rapid, pause of about 20 seconds, then shaking for 20 seconds. Loud earth noises heard. Small objects and furniture shifted. Plaster cracked. Ground: Soil over rock, sloping.

Brisbane. Motion rapid, rolling, lasted 4-5 seconds. Direction S-N. Moderate earth noises heard. Large pieces of furniture shifted. Damage slight. Ground: Compact, sloping.

22 March, 11:44:21\*. Intensity VI. (cont.)

Burlingame. Press reported police and fire departments had no reports of serious building damage. Ledge broke loose from a house on Adeline Drive; two gas mains ruptured in the Hillsdale Industrial Park. Woman reportedly thrown from chair in home, receiving minor shoulder injury; another woman fainted. People left stores.

Burlingame. District Superintendent of Burlingame Schools reported no damage had been found in Burlingame schools.

Burlingame (1811 Adrian Rd.). Motion rapid, lasted 15-30 seconds. Direction NE-SW. Small objects and furnishings shifted. Plaster, walls, and ground cracked. Damage slight to concrete. Ground: Level, filled in.

Burlingame (208 Clarendon Rd.). Motion rapid, lasted about 1 minute. Moderate earth noises heard. Small objects shifted. Chimney cracked. Damage slight to brick and masonry. Ground: Filled in.

Burlingame (Primrose Rd.). Motion rapid, lasted about 20 seconds. Moderate earth noises heard. Small objects shifted. Chimneys cracked next door. Damage slight. Ground: Level.

Burlingame (1718 Easton Dr.). Motion rapid, sharp up-and-down jerks. Trees swayed NE. Small stucco cracks. Ground: Soil, compact, level.

#### INTENSITY V - Burlingame

Burlingame. Direction E-W. Moderate earth noises from E-W heard by many 2 seconds before shock. Felt by all in post office building; frightened many in community. Windows, doors, and dishes rattled; building creaked. Hanging objects swung E-W. Small objects shifted. Ground: Soil, compact, level.

Burlingame (1450 Lincoln Ave.). Motion rapid, lasted 10 seconds. Rumbling earth noises heard. Felt by many; frightened few. Pictures tilted. Ground: Soil, compact, level.

Burlingame (north section). Motion rapid, lasted about 30 seconds. Loud earth noises heard by observer 1-2 seconds before shock. Felt by all. Windows, doors, and dishes rattled; walls creaked. Small objects shifted. Ground: Soil.

Burlingame (1505 Los Montes Dr.). Small objects and canned goods shifted. "Most aftershocks felt." Ground: Level, compact.

Burlingame (north Burlingame hills). Dishes broke. Ground: Compact, sloping.

Burlingame (1544 Carol Ave.). Bric-a-brac and pictures on walls shifted. Ground: Compact.

Burlingame (1412 Alvarado, north Burlingame). Every picture in house shifted. Ground: Sloping.

22 March, 11:44:21\*. Intensity VI. (cont.)

INTENSITY V - Burlingame

Burlingame (1511 Drake Ave.). Roll of shelf paper and two bottles in closet fell. One bottle partly filled with liquid. Ground: Compact.

Burlingame (1000 Larkspur Dr.). Small objects shifted.

Burlingame (1400 Bellevue Ave.). Two small train cars fell from shelf and broke; small objects shifted. Ground: Compact, level.

Burlingame (2301 Hillside Dr.). Small objects shifted. Ground: Level.

Burlingame (464 Marin Dr.). Small objects shifted. Ground: Soil, compact, level, filled in.

Burlingame (1532 Howard Ave.). Small objects and furnishings shifted slightly. Ground: Soil, compact, level.

Burlingame (1457 Bellevue Ave.). Small objects shifted. Ground: Soil, compact, level.

Burlingame (113 Los Montes Dr.). Small objects shifted. Dogs barked. Ground: Soil, compact, level.

Burlingame (1620 Forest View). Small objects shifted. Ground: Soil, compact, level.

Burlingame (2932 Hillside Dr.). Pictures and books shifted. Ground: Rocky, sloping.

Burlingame (1471 Drake Ave.). Small objects shifted. Ground: Soil, sloping.

Burlingame (933 Bayshore Blvd.). Small objects shifted. Damage slight. Ground: Soil, level.

Burlingame (Purity Store). Small objects shifted. Ground: Soil, compact, level.

Burlingame (1489 Burlingame Ave.). Small objects shifted. Ground: Compact, level.

Burlingame (391 Lexington Way). Small objects and furnishings shifted. "Felt several subsequent single jolts." Ground: Soil, compact, level.

Burlingame (1921 Devereux Dr.). Dishes broke. Small objects shifted. Ground: Soil, compact, level.

Burlingame (1410 Grove St.). Small objects and furnishings shifted.

Burlingame. Trees in nursery swayed some. Ground: Soil, level.

Burlingame. Locations reporting no shifted or fallen objects and no damage:  
845 Acacia  
1519 Columbus Ave. "Felt a total of nine distinct shocks."

Canyon. Motion rapid, lasted 30 seconds. Moderate to loud earth noises from NE heard by many 1 second before shock. Direction NNE. Felt by all and frightened all in community. Windows, doors, and dishes rattled; walls creaked. Doors

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swung. Pendulum clock stopped. Trees, bushes shaken strongly. Plaster, windows, walls, and chimneys cracked. Pictures fell. Windows broke. Damage slight to brick, masonry, and concrete. Ground: Rocky, loose, sloping.

Canyon. V. Motion rapid, lasted about 15-30 seconds. Felt by all neighbors; frightened few; dog very frightened. Windows and doors rattled; walls creaked. Floor lamp swayed. "Those questioned all heard rumble. One person reported three distinct shocks from E-W, one of which was a continuous up-and-down and sidewise shock. Persons living in houses high on hills felt only the major shock. Store on floor of canyon reported six shocks were felt: 08:38, 10:48, 11:44, 15:14, 16:26, and 00:13."

Concord. Press reported 90 square feet of composition subceil ~~ing~~ fell at the year-old Mayfair Market; canned goods shaken from shelves. This was the only reported damage in Contra Costa County.

Concord. V. Motion rapid, lasted about 1 minute. Felt by many in community; frightened many on first floor of strongly built cement-block post office building. Walls creaked. Ground: Soil, compact, level.

Concord (200 Detroit Ave.). V. Motion slow, lasted about 30 seconds. Direction NE. Glassware in greenhouse rattled. Cracks in drying-cut soil slightly lengthened. "The only shifting I noticed was that of one bench which is built around and attached to a center post support. The bench legs shifted about 1/3 inch in a NE direction, and remained in the new position, making the bench wobbly." Ground: Soil, compact, level.

Concord (1692 Georgia Dr.). V. Motion rapid, lasted full 30 seconds. Direction NE. Moderate earth noises heard. Small objects shifted. Ground: Soil, level.

Concord (1549 Grove Way). V. Motion rapid, lasted few seconds. Direction E-W. Moderate earth noises heard. "I was watching T.V. The picture moved from side to side, the sound went off, then we felt the shock." Ground: Soil, compact, level.

Concord (1167 Carey Dr.). III. Motion slow, rocking, lasted 1-2 minutes. Direction N-S. Ground: Soil, compact, level.

Concord (2036 Highland Dr.). III. Lasted 5-10 seconds. Direction indoors NW-SE with some vertical components. Moderate earth noises heard. Ground: Soil, compact, sloping.

Concord (2212 Channing Court). II. Motion rolling, fairly rapid, lasted 30 seconds or less. Faint earth noises heard. Ground: Soil and adobe, level.

Corte Madera. Motion rapid, lasted 15 seconds. Loud earth noises heard by many. Felt by all and frightened few in community. Windows, doors, and dishes rattled; houses creaked. Hanging objects swung. Small objects shifted. Damage slight. Ground: Soil.

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Corte Madera (811 MeadowSweet Rd.). Motion slow, wavelike.

Direction N. Loud earth noises heard. "North and south walls in living room of one apartment were severely shaken but the plaster remained undamaged, while on the opposite sides tongue-and-groove boards broke apart 1/16 to 1/8 inch at the joints. Plaster in downstairs room had new crack at girder." Damage slight. Ground: Rocky, sloping.

Corte Madera (21 Lakeside Dr.). Motion slow, then rapid, lasted about 20 seconds. Direction SE-NW. Loud earth noises heard. Small objects shifted. Very fine stucco cracks. "Man living directly across street did not feel shock. It was the most severe shock I have ever felt. Damage insignificant here. The 11:44 shock was the only one I felt." Ground: Filled in marshland.

Corte Madera (55 Chickasaw Court). Motion rapid, sharp, followed by slow waves, lasted 30 seconds. Loud earth noises heard. Small objects shifted. Very small wall plaster cracks. Damage slight. Ground: Filled in, level.

Corte Madera (171 Summit Dr.). IV. Motion very rapid. Loud earth noises heard. Direction seemed N-S. House seemed to roll several times. Ground: Rocky; on steep hillside.

Crockett. Motion rapid, lasted 1 minute. Faint earth noises heard by few. Felt by all in post office; outdoors by others (active); frightened many in community. Windows, doors, and dishes rattled; walls creaked. Trees, bushes shaken slightly. Small objects and furnishings shifted. Damage slight. Ground: Filled in, level.

Danville. Motion rapid, lasted 30 seconds. Direction W-E. Moderate earth noises from W-E heard by many. Felt by and frightened many in community. Windows and doors rattled; house creaked. Trees, bushes shaken slightly. Ground cracked. Damage none or slight to brick and concrete. Ground: Soil, compact, level.

Danville (782 Danville Highway, Route 2). V. Motion rapid, lasted 2 minutes. Direction NE. Earth noises sounded like heavy truck passing. "I was in the kitchen and saw the counters sway."

Danville (89 Turrine Circle). IV. Lasted 15-20 seconds. House creaked strongly. Ground: Wet adobe and soil, compact, level.

El Sobrante (4067 Wesley Way). Motion slow, lasted several seconds. Direction S. Hairline cracks in stucco. Damage slight. Ground: Soil, compact, sloping.

El Sobrante. V. Direction E. Moderate earth noises from NW heard by many few seconds before shock. Felt by all and frightened few in community. Hanging objects swung E. Ground: Compact.

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El Sobrante (4563 Utah Dr.). IV. Motion rapid. Faint earth noises heard. Bird cage rocked. Ground: Soil, sloping.  
Fairfax. Motion rapid, lasted 6 seconds. Moderate earth noises heard by few. Felt by all in post office, by others outdoors; awakened few and frightened many in community. Windows, doors rattled; building creaked. Hanging objects swung. Small objects and furnishings shifted; vases and small objects overturned. Plaster cracked. Knickknacks fell. Damage slight. Ground: Rocky, level.  
Fairfax (Cascade). IV. Motion rapid, lasted about 15 seconds. Direction E-W. Loud earth noises sounded like a big cement truck coming down the hill. Ground: Rocky soil, compact, sloping.  
Fairfax (485 Scenic Rd.). IV. Motion moderate. Felt like house was hit at SE corner. Direction NE. Ground: Rocky, sloping; hillside.  
Fairfax (100 San Gabriel Dr.). IV. Motion rapid, lasted 3-4 minutes. Moderate earth noises heard. Few small objects rattled. Ground: Rocky, sloping.  
Fairfax (31 Gregory Dr.). III. Motion rapid, lasted 30 seconds. Direction NE. Moderate earth noises heard. Ground: Compact, level.  
Fairfax (22 Fir Path). II. Motion rapid, lasted 3 seconds. Ground: Loose, sloping.  
Tremont. Motion rapid, lasted 45 seconds. Direction NE. Faint earth noises from NE heard. Felt by many (some outdoors; active) and frightened many in community. Windows, doors, and dishes rattled; house creaked. Small objects shifted; vases, etc., overturned. Plaster cracked. Knickknacks and pictures fell. Ground: Soil, compact.  
Glen Ellen. Motion rapid, lasted 30 seconds. Direction NE. Faint earth noises from NE heard by few. Felt by all in community; frightened many. Windows, doors, and dishes rattled; house creaked. Hanging objects swung NE. Pendulum clocks stopped. Trees, bushes shaken moderately. Damage slight. Ground: Rocky, level, sloping.  
Gulf of the Farallones. Lightship on the bar, about 9 miles offshore of San Francisco, reported "heavy shock and violent flapping of anchor chains."  
Half Moon Bay. Motion slow, lasted 10 seconds. Direction E. Felt by and frightened all in community. Hanging objects swung E-W. Trees, bushes shaken strongly. Small objects shifted and overturned. Plaster and walls cracked. Knickknacks, books, and plaster fell. Damage slight. Ground: Soil, compact, level.  
Half Moon Bay. Press reported fuse was shaken loose in substation, causing temporary power failure.

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Hillsborough. Press reported Hillsborough apparently had no damage except for a small water line which broke in front of 640 Marlborough Road.

Hillsborough (551 Craig Rd., Carolands). Motion rapid, lasted 2 seconds. Moderate earth noises heard. Small objects shifted. Plaster and walls cracked. Damage slight. Ground: Soil, compact, level and sloping.

Hillsborough (986 Baileyana Rd.). Motion rapid, lasted 5 minutes. Loud earth noises heard. Plaster and ground cracked. Damage slight. Ground: Soil, compact, level.

Hillsborough (960 Black Mountain Rd.). Motion slow, lasted 5-10 seconds. Direction N. Loud earth noises heard. Some retaining walls cracked. Small objects and furnishings shifted. Ground: Clay, some shale; hillside.

Hillsborough (550 Pullman Rd.). V. Motion rapid, lasted about 1½ minutes. Direction NNE. Loud earth noises heard. Small objects shifted. Ground: Rocky.

Hillsborough (1763 Forest View Rd.). V. Motion slow, lasted 5-6 seconds. Direction N-S. Small objects shifted. Ground: Compact, level.

Hillsborough (70 Downey Way). V. Motion slow, lasted 30-40 seconds. Moderate earth noises heard. Small objects shifted. Brick and masonry planter outdoors slightly damaged. Ground: Soil, loose, sloping.

Hillsborough (about 1½ miles east of Crystal Springs Lake, 815 Hillsborough Blvd.). V. Motion rapid, rolling, lasted about 8 seconds. House rolled. Two objects fell toward S. "Very minor dish breakage. Three doors on N-S axis seem to stick less than usual." Ground: Soil, compact, level.

Hillsborough (550 Ramillard Dr.). III. Motion rapid, lasted few seconds. Direction W-E. Ground: Rocky soil.

Hillsborough. III. Motion slow. Direction N. Faint earth noises heard. Ground: Rocky, compact, sloping.

Kentfield. Motion rapid, lasted 1 minute. Direction NW. Loud earth noises heard. Plaster cracked. Damage slight. Ground: Soil, sloping.

Kentfield. V. Motion rapid, lasted 1 minute. Moderate to loud earth noises heard by many. Felt by and frightened all. "Noise was frightening. I had never heard that before." Ground: Level.

Kentfield. V. Motion trembling, abrupt onset. Earth noises heard by several. Visible swaying of buildings and trees. Observer reported slight damage to buildings (type and extent unknown). Ground: Clay.

Kentfield (837 Sir Francis Drake). V. Motion rapid, lasted about 10 seconds. Direction N. Moderate earth noises heard. Trunks shifted. Ground: Rocky.

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**Kentfield** (111 Diablo Dr.). V. Motion rapid, lasted about 15 seconds. Moderate earth noises heard. Small objects shifted. Ground: Rocky soil, compact, steep.

**Kentfield**. IV. Motion rapid, lasted 10 seconds. Direction E. Felt by observer on first floor of strongly built wood-brick building (sitting); frightened few in community. Loud earth noises from W heard by many. Windows rattled; walls creaked. Ground: Marshy.

**Marin City**. Motion rapid, lasted 30 seconds. Loud earth noises heard. Felt by all and frightened many in community. Windows, doors, and dishes rattled; house creaked. Furnishings shifted. Ground: Level, loose, filled in.

**Menlo Park** (on San Francisquito Creek, just across from the Stanford Campus, 1925 Oak Ave.). "Heard low-pitched earth noise for at least 2 seconds before I felt any motion. Then the house vibrated at such a rapid rate I first thought that something had broken in one of the appliance motors around the house and that the vibration was caused by a motor running with unbalanced shaft. Frying pan on the burner of a built-in electric range (mounted on a wall about 4 feet above a concrete foundation) made a terrific noise and seemed to jump up and down, but chairs and tables supported by a more springy wooden floor did not. I concluded from this that the vertical component of acceleration came very close to 'g.' The frequency was not far from the pitch of the lowest note on a piano, and I would say that a vertical motion of perhaps 15-20 cycles/sec and amplitude of nearly a half-millimeter would account quite well for what was noticed in the house. The duration seemed about 30 seconds; however, I imagine it was really closer to 5 seconds. As soon as I realized it was an earthquake, I decided to watch the water in a swimming pool just outside the house. By this time the vibrations had slowed down somewhat, and the surface of the water was covered with small waves (wave length perhaps 4 inches) moving in a N-S direction; so it seems that the initial motion also had a N-S component. There was a period of a few seconds of comparative quiet, then a very much slower E-W motion started, which set up waves on the pool with a wave length of perhaps 4 feet and an amplitude of nearly 3 inches, almost splashing the water over the coping. The pool is 36 feet long in the E-W direction. Motion of the water in the pool could still be seen 20 minutes later."

**Menlo Park** (1325 Crane St.). Motion began gradual, then increased in intensity, lasted about 4 minutes. Direction NE. Loud earth noises heard. Plaster cracked. Ground: Soil, level.

**Menlo Park** (302 Leland Ave.). V. Motion rapid, rolling, strong for 35 seconds. Direction N and W-E. Moderate roaring earth noises heard. Glassware and door chimes shifted. Ground: Underground river 20 feet below surface.

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Menlo Park (1075 Sherman Ave.). V. Motion moderately rapid, lasted 3 minutes. Direction easterly. House rocked. Water in aquarium moved. Ground: Level, filled in.

Menlo Park (620 Olive St.). V. Motion rapid, lasted about 5 minutes. Direction NW. Moderate earth noises heard. House creaked. Small objects shifted. Long brass tubes (part of doorbell chimes) swung in NW-SE direction for 5 minutes after shock. Five-gallon water container (full) swayed violently NW-SE. Ground: Soil, level.

Menlo Park (308 Hedge Rd.). V. Motion slow, lasted 8-10 seconds. Direction NW-SE. Moderate earth noises heard. Small objects shifted. Ground: Soil, compact, level.

Menlo Park (760 Hobart St.). V. Motion rapid, lasted 2 minutes. Direction N-S. Moderate earth noises heard. Small objects and furnishings shifted. Ground: Soil, level, filled in.

Menlo Park. Locations reporting no shifted or fallen objects and no damage:

837 Partridge Ave.

1045 Noel Dr.

102 Britton Ave., Maurice Beauty Salon

723 Fremont St.

281 Stanford Ave.

No. 2 Coleman Place

19 Bishop Lane. "I felt only the one shock at 11:44."

1038 Marcussen

971 Alice Lane

Menlo Park (west of, Portola Valley, 34 Grove Dr.). "Most of my neighbors felt the shock. I did not feel it due to noise and vibration made by radio, children, and household equipment."

Millbrae. Press reported the City Hall and a Safeway market at Hillcrest Boulevard were severely damaged. Front of the City Hall was badly cracked; window broke in water department. Firemen reported one chimney cracked at 543 Bayview Avenue and several water heaters were broken. Undetermined number of plate glass windows broke and glass strewn out on sidewalks along El Camino Real and Broadway. Plaster may have fallen from ceilings in a number of buildings. Six injuries were reported.

Millbrae Schools:

Capuchino High School. Glass fell.

Greenhills School. Sash fell.

Taylor Boulevard School. Heavy acoustical tile fell from ceiling.

Millbrae. Motion rapid, lasted 15 seconds. Loud earth noises heard 2 seconds before shock. Felt by and frightened all in community. Windows, doors, and dishes rattled; house creaked. Hanging objects swung N-S. Small objects and

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furnishings shifted; vases, etc., small objects and furniture overturned. Plaster cracked. Knickknacks, books, and pictures fell. Dishes broke. Damage moderate. "While the shock was severe, damage in this community was moderate and mainly limited to loose items being shaken to the floor or ground." Ground: Compact, level.

Millbrae (311 Juanita Ave.). Two distinct types of motion. Loud earth noises heard. Small objects and furnishings shifted. Dishes broke. Chimneys twisted. Damage slight. Ground: Sloping.

Millbrae (1304 Vista Grande). Motion slow, lasted 4-5 seconds. Loud earth noises heard. Plaster and walls cracked. Damage slight. Ground: Compact, level, filled in.

Millbrae. Motion rapid, lasted 30 seconds. Direction W-E. Loud earth noises heard. Small objects and furnishings shifted. Dishes broke. Retaining wall cracked. Damage slight to concrete. Ground: Sloping.

Millbrae (311 Poplar Ave.). Motion slow, lasted about 1 minute. Direction N. Loud earth noises heard. Small objects and furnishings shifted. Dishes broke. "Our house is 1½-story Mediterranean style built on compact, sloping ground. A deep rumbling noise was heard. The house seemed to rise up as if on the crest of a wave, tilted precariously to the north, shuddered violently, then jolted down into place, then quivered and rattled for what seemed to me a full minute. Plaster between 6-inch brick in the patio cracked. Brick chimney on side of house was dislodged about  $\frac{1}{4}$  inch. In all, minor damage. At intervals during the afternoon a swaying motion was felt, with an occasional violent shake."

Millbrae (Broadway Market, El Camino Real). Motion slow, lasted 20-30 seconds. Direction N-S. Small objects and furnishings shifted. Dishes broke. Plaster cracked. Damage slight. Ground: Soil, compact, level.

Millbrae (679 Santa Barbara). Motion rapid, rolling, lasted about 1 minute. Moderate earth noises heard. Furnishings shifted about 6 inches from walls. Dishes and one window broke. Very slight ground cracks. Damage slight. Ground: Soil and clay, compact, sloping.

Millbrae. Motion rapid, lasted about 1 minute. Direction N-S. Loud earth noises heard. Small objects and furnishings shifted. Walls and ground cracked. Damage to concrete (extent unknown). Ground: Marshy, filled in.

Millbrae (1380 Vista Grande, near Skyline Blvd.). Motion slow, but definite. Direction indoors E-W. Loud earth noises heard. Small objects shifted. Chimneys cracked slightly. Ground cracked. Damage slight to brick, masonry, and concrete. Ground: Rocky soil, sloping.

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Millbrae (607 Cypress Ave., 1 block from Capuchino High School).

Motion rapid, severe shaking up and down and sidewise, lasted 4-5 minutes. "From direction taken by fallen objects would say motion was N-S." After first loud thud, moderate earth noises heard. Refrigerator and stove shifted slightly. Fine plaster cracks and dust. Damage slight. Ground: Soil, compact, sloping.

Millbrae (62 Spruce St.). Motion rapid, lasted 1-2 minutes. Loud earth noises heard. Very slight plaster cracks. Ground: Loose, level, filled in.

INTENSITY V - Millbrae

Millbrae (18 Corte Princesa). Lamps and bric-a-brac fell. Ground: Soil, compact, sloping.

Millbrae (1379 Vista Grande). Small objects shifted. Ground: Soil, compact, sloping.

Millbrae (140 Alta Loma). Small objects and furnishings shifted. Ground: Soil, compact, sloping.

Millbrae (1399 Vista Grande). Small objects and furnishings shifted. Dishes broke. Damage slight. Ground: Hard clay, sloping and steep (canyon bank).

Millbrae (33 El Bonito). Shifted small objects. Dishes broke. Ground: Compact, sloping.

Millbrae (244 Helen Dr.). Small objects and furnishings shifted. Small plaster cracks opened. Damage slight. Ground: Soil.

Millbrae (865 Brookdale Lane). Small objects shifted. Damage slight. Ground: Compact, level.

Millbrae (1119 Hillcrest Blvd.). Small objects shifted. Ground: Soil, compact, sloping.

Millbrae (1332 Vista Grande). Small objects shifted. Dishes broke. Damage slight. Ground: Soil, compact, level and sloping.

Millbrae (395 Ashton Ave.). Small objects and furnishings shifted. Dishes broke. Damage slight. Ground: Rocky, sloping.

Millbrae (608 Geraldine Dr.). Small objects and bed shifted. Figurines and jars broke. Existing cracks lengthened. Ground: Soil, loose.

Millbrae (1336 Ridgewood Dr.). Small objects shifted. Dishes broke. Damage slight. Ground: Rocky.

Millbrae (1107 Hillcrest). Small objects fell. Ground: Rocky, sloping.

Millbrae (143 Park Blvd., north Millbrae). Small objects shifted and table (on rollers) rolled east. Ground: Soil, compact, level.

Mill Valley (107 Walnut Ave.). "Shaking preceded by rumbling sound, as though a huge truck were passing by, then in accompaniment with the noise, which grew louder and louder, things started to vibrate, slowly at first, then harder,

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until I felt thoroughly shaken. It all diminished with a slower motion. I was not conscious of any direction. My son was outdoors and said the house 'wiggled awful.' House is on firm, level ground, very compact, even though situated right next to a creek. Rumbling seemed to come up from the ground. In some rooms nothing moved; in others, almost everything moved. For the most part, objects along outside walls didn't move at all, while objects on the inside walls did. Plaster cracked on inside walls only. One crack had a corresponding crack in the next room but did not actually go all the way through the wall. Felt no twisting sensation at all. No chimneys or uprights fell. Foundations, walls, etc., are in good shape. The only damage was to plaster and small objects which fell."

Mill Valley (59 Lomita Dr.). Motion rapid, lasted 10 seconds. Faint earth noises heard. Damage considerable to concrete foundations and retaining walls. Ground: Rocky soil, sloping.

Mill Valley (900 feet up on the ridge above Muir Woods). Motion rapid. Direction S-N. Loud earth noises heard. Small objects and furnishings shifted. Plaster cracked. Damage slight. Cupboard moved  $\frac{1}{2}$  inch from wall. Pictures on walls shifted. Two cracks in sheet rock wall of stairway. Ground: Rocky, sloping, steep.

#### INTENSITY V - Mill Valley

Mill Valley. Motion rapid, lasted 10 seconds. Felt by all on first floor of strongly built cement building (sitting), by others outdoors (active); frightened many in community. Windows rattled. Ground: Rocky soil, level.

Mill Valley (Tamalpais Valley, 376 Sunset Way). Small objects and furnishings shifted slightly. Closed a crack between outside wall and chimney. Ground: Soil, compact, sloping.

Mill Valley (27 W. Blithedale). Small objects and furnishings shifted slightly. Ground: Compact.

Mill Valley (200 Sycamore). Small objects shifted. Ground: Level, compact.

Mill Valley (403 Spruce St.). Small objects shifted. Ground: Level, filled in.

Mill Valley (206 W. Blithedale). Old minor crack opened. Ground: Soil, compact, level.

Mill Valley (208 Corte Madera). Small objects shifted. Ground: Soil, compact.

Mill Valley (146 Blackfield Dr.). Small objects and T.V. shifted; mirror fell off wall. Ground: Soil, compact, level.

Mill Valley (Tamalpais High School). Windows broke. Damage slight. Ground: Compact, sloping.

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INTENSITY V - Mill Valley

Mill Valley (65 W. Blithedale Ave., bottom of Blithedale Ave.).

Two or three slight plaster cracks. Ground: Bottom of canyon; 30 inches topsoil over 9 feet gravel and conglomerate, then hard, blue bedrock.

Mill Valley (422 Marion Ave.). Small objects shifted. Ground: Soil, compact, sloping.

Mill Valley (52 Bigelow Ave.). Small objects and furnishings shifted slightly. Ground: Rocky, hardpan.

Mill Valley (200 Eldridge). Small objects shifted very slightly. Ground: Rocky, compact, steep.

Mill Valley (at school). Books in desk shifted slightly. Ground: Level, marshy, filled in.

Mill Valley. Locations reporting no shifted or fallen objects and no damage:

740 Summit Ave.

24 Lorelei Lane

135 Belvedere Dr. (Strawberry Point)

33 Homestead Blvd.

452 Throckmorton

22 Apollo Rd.

501 Midvale Way

15 Altamont

24 Parkwood Ave.

286 Marion Ave.

528 Marin Ave.

Safeway Market

357 Karen Way

239 Leed Blvd.

Mill Valley (south edge of Richardson's Bay). Motion rapid, lasted less than 1 minute. Direction N-S. Felt by all on second floor of strongly built wooden house (sitting); frightened few in community. Windows, doors, and dishes rattled; house creaked. Hanging objects swung. "I did not feel any previous shocks nor any aftershocks. Movement increased slowly in rapidity and intensity. Thought it was a train going by at first." Ground: Rocky, sloping and steep.

Napa. Motion rapid, lasted 5 seconds. Loud earth noises heard by many. Felt by all in post office; outdoors by others (active); awakened and frightened few in community. Windows, doors, and dishes rattled; building creaked. Hanging objects swung. Plaster cracked. Damage slight. Ground: Soil, level.

Napa (2031 Pine St.). One rapid movement, then slow trembling, lasted 5-8 minutes. Direction N-S. Faint earth noises heard.

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Small objects and furnishings shifted. Plaster cracked.  
Damage slight. Ground: Compact, level.

INTENSITY V - Napa

Napa (16 Geraldine Court). Small objects shifted. Ground: Soil, compact, level.

Napa (317 Coombs St.). Chandelier swung like a pendulum. Floor swayed "like ocean waves." Ground: Adobe, level.

Napa (741 Ornduff St.). Small objects and furnishings shifted. Car in carport rolled up and back. Ground: Soil, compact, level.

Napa (1121 Brown St.). Small objects and furnishings shifted. Ground: Soil, level.

Napa (102 Casswell St.). Small objects and furnishings shifted. Ground: Rocky soil, level.

Napa (1938 First St.). Small objects and furnishings shifted. Ground: Soil, level.

Napa (3 miles east of, 3051 Vichy Ave.). Small objects and furnishings shifted. Ground: Soil, compact, level.

Napa (605 Patchett St.). Small objects and furnishings shifted. Ground: Compact.

Napa (2601 Wimbledon). Small objects shifted. Slight crack in wood molding over front door. Ground: Soil, level.

Napa (SW section, Sheveland Ranch). III. Motion rapid, E-W, lasted 30 seconds. Faint earth noises heard. Ground: Soil, compact.

Napa (1373 El Capitan Way). III. Motion slow, lasted  $1\frac{1}{2}$  minutes. Direction N-S. Ground: Soil.

Niles. Motion slow, momentary duration. Faint earth noises heard. Felt by all and frightened many in community. Windows, doors, and dishes rattled; house creaked. Trees, bushes shaken slightly. Small objects shifted. Ground: Soil, compact, level.

Novato. Motion rapid, lasted 20 seconds. Moderate earth noises heard by many 5 seconds before shock. Felt by many (some outdoors; active) and frightened many in community. Windows, doors, and dishes rattled; house creaked. Hanging objects swung. Small objects shifted and overturned. Walls cracked. Knickknacks and pictures fell. Dishes broke. Damage slight to brick and masonry. Ground: Soil, level.

Novato (750 Kendon Lane). V. Motion rapid, lasted 3-4 seconds. Loud earth noises heard. "The ground under our house undulated violently in a strong W-E motion. The roof sounded like it was being torn completely off. Small objects seemed to bounce. The shade on a large lamp was displaced but the lamp did not fall. I was looking at a huge picture

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that hangs on the inside wall of the living room. It swung out from the wall from the bottom to a distance of about 6 inches but did not tilt at any angle when it stopped moving. All other pictures and mirrors in the house were tilted. The noise was astonishingly loud and sounded like a swiftly moving train had suddenly run under the house. Noise was unlike any sound I have ever heard. As far as we can determine, there was no damage, not even any new cracks. Our house is made of concrete blocks, 8 inches thick, reinforced with steel rods, and built off the ground about 3 feet. One other interesting fact which I noticed was that three large dishes, which I keep on top of a fence for the birds drinking water, were not disturbed in any way, but only the day before, all three were knocked to the ground by the sonic boom that was felt and heard here in Novato." Ground: Soil, compact, level.

Novato (Marion School). V. Motion slow, lasted about 3 seconds. Faint to moderate earth noises heard. Jarred pencils and rulers off desks. Ground: Compact, level.

Novato (1547 Center Rd.). V. Motion rapid, lasted 30 seconds. Direction E. Loud earth noises heard. Small objects shifted. "We were sitting in the living room. The house seemed to fall straight down with a heavy jolt. Dishes shifted around but none broke." Ground: Rocky soil.

Novato (2 miles west of, 715 Eucalyptus). III. Motion slow, then a jolt, lasted 30 seconds or less. Direction E-W. Moderate to loud earth noises heard. Ground: Soil.

Novato (1028-6th St.). II. Motion rapid, lasted 30 seconds. Faint earth noises heard. Ground: Soil, compact, level.

Novato (1680 Indian Valley Rd.). II. Motion slow, lasted about 1 minute. Faint earth noises heard. Ground: Rocky, compact, steep.

Oakland. Press reported Oakland's tallest building, the telephone structure at 15th and Franklin Sts., swayed like a tree. Hundreds of persons at the Leamington Hotel sought safety beneath doorways, or rushed headlong into the streets. Large cracks appeared in the outside walls of the Oakland Veterans Administration Hospital. Almost every grocery store and supermarket throughout the two counties (Alameda and Contra Costa) reported masses of toppled canned goods. Two giant skylight windowpanes in the Highland Hospital surgery broke, and upper-story windows of the Town House, 20th and Broadway, broke.

Oakland (City Hall). Minor plaster cracking.

Oakland Schools. "All Oakland schools, except those consisting entirely of portable buildings, were inspected. Only very minor cracking seemed to have occurred in State approved schools. In a few cases, extensive cracking occurred in a few unapproved school structures such as Emerson,

22 March, 11:44:21\*. Intensity VI. (cont.)

Hoover Jr. High, Oakland Junior College (Merritt), Santa Fe, and Wilson (Academic Building). In many cases it was questionable whether the cracks were due to settlement or shrinkage or whether they were caused by the earthquake."

Chabot. Academic Building. Cracks in wood ceiling beams. Plaster cracks in Art Room hall.

Clawson. Small break under sun deck at NW corner of building. Plaster crack in Room 30 at window. Plaster crack at transom at west end of upper corridor.

Cleveland. Horizontal crack on outside of building near Auditorium entrance.

Crocker Highlands. Old 2-story building. Cracks around skylights in second story corridors.

Durant. Room 24: Old plaster crack opened up. Room 15: Crack across back of room and plaster crack on wall opposite entrance to room.

Emerson. Cornice cracked in foyer. Plaster badly cracked in teachers' rest room and lunch room. Teachers' toilet (east side of building): Plaster fell, some loose.

Traffic patrol room: Plaster loose. Tile on gable end (rear of building) had appearance of being loose. Tile at southwest corner appeared broken. On rear of building wall was cracked over windows of Room 14 and boys' and girls' toilets.

Fruitvale. Many plaster cracks which appear to be shrinkage cracks.

Golden Gate. Loose plaster in Room 120.

Grant. Room 1 (NW corner): Crack in plaster. Room 7 (SW corner): Plaster crack from ceiling to floor, also shows on stairwell side. Southwest corner on exterior: Half-timber is loose. Room 5 (NE corner): Crack from ceiling to floor. Kindergarten Terrace (S side): Horizontal crack below floor.

Hillcrest. Plaster soffit on west side of Kindergarten - piece fell off. Cracks in corridor near Rooms 2 and 3.

Hoover Jr. High. Old break in wall between Shop and Girls' Gymnasium seemed to have opened up. Plaster cracks in Rooms 34 and 36.

Jefferson. Annex: Cracks reopened in northeast corner.

Lafayette. Plaster crack at ceiling beam between lobby and corridor. Cracks at corridor entrances to stage and cafeteria.

Lakeview. Loose plaster in Room 16. Plaster cracks in stairway at west end. Rooms 1, 3, 4: Plaster cracks showed signs of opening up.

Laurel. Classroom and Auditorium Building: Roof tile on north of Auditorium looked loose where it projects beyond gutter.

22 March, 11:44:21\*. Intensity VI. (cont.)

Oakland Schools (cont.)

Maxwell Park. Run plaster molding over main entrance loosened.

McChesney. Crack on exterior through two stories at junction of Auditorium and north wing (cause of this crack doubtful since there were no fragments of stucco on ground).

McClymonds. Plaster crack in wall and tile wainscot near custodian's room near staff dining room. Plaster crack in corridor near Rooms 210, 211, 212.

Oakland Junior College (Merritt). Academic Building: Bulging plaster on ceiling in Room 49. Bulging plaster in men's toilet in rear of corridor. Pieces of cast cement on terrace floor at entrance to Auditorium (may have dropped from columns and pilasters).

Peralta. Some plaster appeared loosened in ceiling of Auditorium.

Santa Fe. Main Academic Building: Loose brick in entrance arch to Auditorium. Crack in arcade near street entrance. Classroom Annex: Crack in one of the arcade arches.

Washington. Crack in concrete wall west of main entrance.

Wilson. Academic Building: Crack in southwest corner of dining room. Cast stone capitals over main entrance showed a very wide joint at base. Crack in concrete wall at west stage entrance. Room 13: Crack in plaster. Library: Crack in plaster. Second floor corridor: Plaster cracks in southwest corner. Girls' toilet (second floor): Plaster cracks. Stair Hall (northeast corner): Horizontal crack above landing. Same stair - crack at head of stair on left side. Room 10 (northeast corner): Bulge in plaster. Girls' gymnasium (southwest corner): Crack in concrete wall, also cracks in south wall. Room 54: Bulges in plaster ceiling.

No leaks reported in gas lines at any school.

Oakland. Motion rapid, lasted 1 minute. Felt by all at work in Bayshore Annex post office; frightened many in community. Windows and doors rattled. Hanging objects swung. Plaster cracked. Damage slight. Ground: Level, marshy, filled in.

Oakland (490 Lake Park Ave.). Motion rapid. Direction N. "I was having lunch in car at time of shock. Car (parked E-W) rocked with vigorous sidewise motion. Felt by all at post office; frightened few. Trees, bushes shaken moderately.

Plaster cracked. Damage slight. Ground: Level, filled in. Oakland (Fruitvale Post Office Station). Motion rapid, lasted 2 minutes. Direction E. Moderate earth noises from E heard by many. Felt by all; frightened few. Windows and doors rattled; walls creaked. Hanging objects swung.

22 March, 11:44:21\*. Intensity VI. (cont.)  
Trees, bushes shaken strongly. Small objects and furnishings shifted. Broke mail from cases. Ground: Compact.  
Oakland (4255 St. Andrews Rd.). Motion rapid, lasted 40-45 seconds. Direction E-W. Moderate earth noises heard. Small objects and furnishings shifted. Concrete walls cracked. Ground: Rocky.  
Oakland (3520 Brighton Ave.). Motion rapid, lasted 15-20 seconds. Small objects shifted. Plaster, windows, and walls cracked. Damage slight.  
Oakland (4041 Oakmore Rd.). Motion rapid, lasted about 10 seconds. Moderate earth noises heard. Plaster cracked. Damage slight. Ground: Soil, compact, sloping.  
Oakland (1025-2nd Ave.). Motion slow, lasted about 30 seconds. Moderate earth noises heard. Furnishings shifted. Plaster cracked. Damage slight. Ground: Level, filled in.  
Oakland (East Oakland, 5717 Foothill Blvd.). Motion rapid, lasted about 1 minute. Moderate earth noises heard. No objects moved in store. Plaster and walls cracked. Damage slight. Ground: Level.  
Oakland (6214 Acacia). Motion rapid, lasted 30 seconds. Moderate earth noises heard. Small objects and furnishings shifted. Few plaster cracks. Ground: Rocky, sloping.  
Oakland (Highland Hospital). Motion moderate, lasted about 1 minute. Small objects shifted. Plaster and windows cracked. Damage slight. Ground: Soil, sloping.  
Oakland (East Oakland, 1019 E. 52nd Ave.). Light fixture swung violently. Iron tie rods in hollow brick building snapped and knocked against each other noisily for some time after shock. Two men, feeling the building was threatened, ran from this building and the adjoining shop. Ground: Level.

#### INTENSITY V - Oakland

Oakland (Hotel Leamington). Chandeliers swung 1 foot. Ground: Level.  
Oakland (3544 Fruitvale Ave.). Motion rapid, two shocks, lasted 30 seconds. Direction S-N. Felt by all in post office, by others outdoors (active); frightened few in community. Windows, doors, rattled strongly; entire building creaked. Hanging objects swung. Ground: Soil, level, compact.  
Oakland (Temescal Post Office, 48th and Telegraph Ave.). Motion rapid, lasted 30 seconds. Direction N. Moderate earth noises from N heard by many. Felt by all in station; by others outdoors (active); frightened few. Doors rattled; walls creaked. Hanging objects swung N.  
Oakland (Elmhurst Post Office Station). Motion rapid, lasted 30 seconds. Moderate earth noises heard by few before shock. Felt by and frightened all in building. Ground: Compact, level.

22 March, 11:44:21\*. Intensity VI. (cont.)

INTENSITY V - Oakland

Oakland (West Oakland Post Office Station). Motion rapid, lasted 10 seconds. Felt by several in station; frightened many in community. Windows and doors rattled; walls creaked. Hanging objects swung E-W. Ground: Soil, level.

Oakland (Rockridge Post Office Station). Motion rapid, lasted 3 seconds. Moderate earth noises heard by many. Felt by all; frightened few in community. Windows rattled. Ground: Compact, level.

Oakland (Mills College Post Office Station). Motion slow, lasted 20 seconds. Felt by all. Windows and doors rattled; building creaked.

Oakland (Post Office Building). Motion slow. Felt by and frightened all in strongly built building. Ground: Soil, compact, level.

Oakland. Motion rapid, lasted 30 seconds. Felt by all in community. Loud earth noises heard by many. Windows and doors rattled; building creaked.

Oakland (374-17th St.). Motion swaying E-W, then abrupt N-S, rapid onset, seemed to last about 15 seconds. Felt by all. Slight rattling of loose objects and creaking of building heard by all. Light fixtures swung. Ground: Sandy silt.

Oakland (PG&E Garage, Washington and Water Sts.). Small objects and furnishings shifted. Five-foot vertical antenna on PG&E service truck whipped almost due E-W. Ground: Compact, level.

Oakland (5915 Ross St., near Broadway Tunnel Rd.). Caused doors to sag. Ground: Compact, level.

Oakland (2729 Alvingroom Court). Lamps knocked off end tables on third floor. Ground: Loose, sloping.

Oakland (420 Broadway). Slight loosening of metal strips between acoustical tile on ceiling. Ground: Soil, level.

Oakland (1519 Alice St.). Disconnected oven stovepipe in kitchen from wall. Felt like building swayed 3-4 inches. Ground: Compact, level, filled in.

Oakland (Montclair business district). Doors banged. Ground: Soil, sloping.

Oakland (First Western Bank Bldg.). Suspended lights swung freely on 13th floor. Clocks stopped.

Oakland. Locations reporting shifting or movement of small objects:

119-7th St.

265-91st Ave.

Bay Area Army Terminal, Warehouse ?

1138-90th Ave.

3022 East 14th St., Fruitvale Medical Building

22 March, 11:44:21\*. Intensity VI. (cont.)

INTENSITY V - Oakland

705 East 15th St.  
903-84th St.  
6309 Outlook Ave.  
Naval Air Station  
364-14th St.  
4101 Maple Ave.  
Near 35th Ave. and MacArthur Blvd., East Oakland  
9447 D St.  
66th Ave. and East 14th St.  
506-16th Ave.  
1801-108th Ave.  
1143 East 14th St.  
93 Vernon St.  
850 Sunnyhills Rd.  
5118 Clarke St.

INTENSITY IV - Oakland

Oakland (Eastmont Post Office Station, 6948 Foothill Blvd.). Motion slcw, lasted 5 seconds. Moderate earth noises heard. Felt by several in station (active). Windows and doors rattled; walls creaked. Ground: Sloping.

Oakland (Naval Hospital Post Office Station). Motion rapid, lasted 30 seconds. Faint earth noises heard. Felt by observer on second floor of strongly built wooden building. Windows and doors rattled.

Oakland (2228-42nd Ave.). Motion slow. Loud earth noises heard. Felt by and frightened three in home. Windows rattled; walls creaked.

Oakland (Chabot Observatory). Motion rapid, rolling, circular, lasted 4-5 seconds. "Quite noisy." Frightened few in home. Windows, doors, and dishes rattled; building creaked. Trees, bushes shaken moderately. Ground: Rocky; on hill.

Oakland. Locations reporting no shifted or fallen objects:

1420 Franklin St.  
616 Apgar St.  
69th Ave. and Foothill Blvd.  
2028 Foothill Blvd.  
Near Lake Merritt on Lakeshore Highlands  
17th and Peralta (West Oakland)  
Lakeshore Ave.  
578 Grand Ave.  
Lake Merritt Boat House  
Kahn's Store, 17th and Telegraph Ave.  
607 Beacon St.

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INTENSITY IV - Oakland

660 Beacon St.  
3516 Harrison St.  
Naval Supply Center  
1625 Clay St., PG&E System Dispatcher's Office

Palo Alto (195 Walter Hays). Motion rapid, lasted about 1 minute. Direction NE. Moderate earth noises heard. Bath tub shifted slightly. Plaster, walls, and ceiling cracked. Damage slight. Ground: Soil, compact, level.

Palo Alto (near Bayshore Highway). Building moved up and down then swayed. Lasted 1-2 minutes. Faint earth noises heard. Doorway cracked. Damage slight. Ground: Compact, level.

Palo Alto (878 Clara Dr.). Motion rapid, lasted several seconds. Loud roaring earth noises heard. Eaves and drainpipe pulled loose on one side of house. Caused toilet to flush. Ground: Adobe, level.

Palo Alto (Palo Alto Senior High School). Motion fairly rapid, lasted 30 seconds. Direction E-W. Faint earth noises heard. Roof (probably ceiling) of Classroom 45 cracked.

INTENSITY V - Palo Alto

Palo Alto (Veterans Hospital Branch Post Office). Direction E. Felt by all (quiet) in strongly built concrete building; by others outdoors (quiet); awakened few; frightened many in community. Building creaked. Hanging objects swung. Ground: Soil.

Palo Alto (2245 Webster St.). Chandelier swung from side to side then in complete circles. Heavy shock. Ground: Compact, level.

Palo Alto. Locations reporting shifting of small objects:

1525 Walnut Dr.  
3918 Duncan Pl.  
1107 Galvez Dr.  
1135 Fulton St.  
3718 Redwood Circle  
Stanford University  
60 Alannah Court  
2420 Illinois St. (SE section)  
575 Embarcadero Rd.

INTENSITY IV - Palo Alto

Palo Alto. Motion rapid and slow, lasted 30 seconds. Felt by many (sitting) on first floor of strongly built concrete

22 March, 11:44:21\*. Intensity VI. (cont.)

INTENSITY IV - Palo Alto

building; by others outdoors; frightened few. Hanging objects swung. Ground: Soil, level.

Palo Alto. Locations reporting no shifted or fallen objects:  
4045 Laguna Way (south Palo Alto)  
1187 Lincoln Ave.  
3359 St. Michael Court  
241 Creekside Dr.  
526 Lowell Ave.  
2521 Louis Rd.  
1503 Escobite  
523 Webster  
228 Seale Ave.  
15 Roosevelt  
769 Garland Dr.  
South Palo Alto  
846 Lytton Ave.  
3209 Morris Dr.  
533 Cowper  
318 Hawthorne Ave.  
1405 Edgewood  
2325 Santa Ana

Pedro Valley (Linda Mar). Press reported a Pacific Manor supermarket was damaged so badly it was closed.

Pedro Valley (Linda Mar). Six-inch pipe separation at the sewage plant. It was reported that this was due to settlement and that it seemed likely much of the settlement took place prior to the earthquake.

Pedro Valley. Heavy shock. Loud earth noises heard. Lasted 30 seconds. Frightened many in community. Windows, doors, and dishes rattled; house creaked. Hanging objects swung. Dishes and articles on shelves fell at liquor and hardware stores. Damage slight. Ground: Soil, level, marshy.

Pedro Valley (816 Crepsi Dr., Linda Mar). Motion rapid, lasted 3-4 minutes. Moderate earth noises heard. Small objects and furnishings shifted. Dishes broke. Cement porch and driveway cracked. Damage slight to concrete.

Pedro Valley (803 Crepsi Dr.). Motion moderately rapid, rocking, lasted 3 minutes. Moderate earth noises heard. Small objects shifted. Ground cracked. Water heater broke. Ground: Rocky, sloping.

Pedro Valley (Linda Mar). Motion rapid, lasted 20 seconds. Direction NE. Moderate earth noises heard. Small objects and furnishings shifted. Plaster, walls, and ground cracked. Damage slight. Ground: Loose, level, sloping.

22 March, 11:44:21\*. Intensity VI. (cont.)

Pedro Valley (1028 Monte Verde Dr.). Motion rapid, lasted 30 seconds. Direction NE. Loud earth noises heard. Small objects shifted. Hairline cracks in stucco. Damage slight. Ground: Soil, compact, sloping.

Pedro Valley (675 Malaga Dr.). Motion rapid, lasted 15 seconds. Direction E-W. Loud earth noises heard. Small objects and books shifted. Driveway cracked. Ground: Soil, compact, level.

Pedro Valley (839 Arguello Blvd.). Motion rapid, lasted 5 seconds. Direction E. Loud earth noises heard. Small objects shifted. Ground cracked. Ground: Compact.

Pedro Valley (852 Serra Dr.). V. Motion rapid. Direction SW. Loud earth noises heard. Small objects shifted. Ground: Compact, level.

Pedro Valley (852 Malaga Dr.). V. Motion rapid, lasted 1 minute. Direction NE. Moderate earth noises heard. Small objects shifted. Ground: Soil, compact, level.

Pedro Valley (1435 Serra Dr.). V. Motion rapid, lasted 30-45 seconds. Direction N-S. Moderate earth noises like a "whooshing" roar heard. Small objects shifted. Ground: Adobe soil, level.

Pedro Valley (Purity Store, Linda Mar). V. Motion rapid, lasted 15-20 seconds. Direction N-S. Moderate earth noises heard. Small objects and furnishings shifted. "In my home (1140 Rosita) it twisted and knocked pictures and bottles." Ground: Level.

Pedro Valley (1636 Rosita Rd.). V. Motion slow, lasted about 1½ minutes. Direction NE. Moderately loud earth noises heard. Small objects and furnishings shifted. Ground: Compact.

Pedro Valley (1364 Castro Court). V. Motion rapid, lasted 15 seconds. Moderate earth noises heard. Small objects and furnishings shifted. Ground: Soil, level, filled in.

Pedro Valley (904 Linda Mar Blvd.). V. Motion moderately rapid, lasted 30-40 seconds. Moderate earth noises heard. Small objects and furnishings shifted. Ground: Filled in, level.

Pescadero Elementary School. School showed no apparent structural damage. Minor plaster cracking and few exterior minor stucco cracks.

Pescadero. V. Motion rapid. Loud earth noises heard. Frightened all in community. Ground: Soil.

Pinole. Motion rapid. Moderate earth noises heard by many. Felt by all and frightened many in community. Windows, doors, and dishes rattled; house creaked. Hanging objects swung. Trees, bushes shaken moderately. Small objects shifted and overturned. Damage slight. Ground: Rocky, level.

Pittsburg. Motion slow, lasted 30 seconds. Direction E. Frightened many in community. Windows and doors rattled; walls creaked. Hanging objects swung NE. Plaster cracked. Damage slight. Ground: Soil, compact, level.

22 March, 11:44:21\*. Intensity VI. (cont.)

Pittsburg (354 Andrew Ave.). Motion slow, lasted about 20 seconds. Moderate earth noises heard. Curtains and blinds swayed noticeably. Hairline cracks in outside stucco. Ground: Soil, compact, level.

Pittsburg (Camp Stoneman). IV. Motion rapid, lasted 10 seconds. Direction E-W. Felt by many (some outdoors; quiet); frightened few in office. Windows and office machines rattled; frame and floor creaked. Hanging objects swung. Ground: Soil, compact, level.

Pittsburg (American Trust Bldg.). III. Motion slow, lasted 3-5 seconds. Direction N. Ground: Level, marshy, filled in.

Point Reyes Station. Moderate earth noises heard. Felt by all; frightened few. House creaked. Hanging objects swung. Trees, bushes shaken moderately. Small objects shifted. Chimneys cracked. Damage slight. Ground: Compact, level.

Point Reyes Station. II. Motion rapid, lasted 10 seconds. Faint earth noises heard. Ground: Soil, level.

Port Chicago. Motion rapid, lasted about 45 seconds. Felt by many (some outdoors; active); frightened many in community. Windows, doors, and dishes rattled. Trees, bushes shaken strongly. Damage slight. Ground: Compact.

Port Costa. Motion rapid. Felt by and frightened all in community. Windows, doors, and dishes rattled; house creaked. Wall cracked. Ground: Rocky soil, compact.

Port Costa. Motion rapid, lasted 2 minutes. Felt by all in home and community; frightened few. Windows, doors, and dishes rattled; house creaked. Plaster, windows, and walls cracked slightly. Knickknacks, books, pictures, and plaster fell. "Had to dismiss school. Damage to school building. Many small aftershocks felt." Ground: Filled in.

Redwood City (at intersection of Woodside Road and Massachusetts Ave.). "Very definite ground waves as indicated by overhead electric wires and telephone cables. Those running parallel to Massachusetts Avenue alternately sagged very low then snapped taut. I saw this repeated twice; may have occurred again, but I failed to observe it. Utility lines on Woodside Road did not move with the sagging-stretching motion, but swayed from side to side. No foreshocks noticed; some subsequent ones noticed but time not recorded."

Redwood City (984 Glennan Dr.). Motion rapid, lasted at least 2 minutes. Loud earth noises heard. Small objects shifted. Cement garage floor cracked. Ground: Rocky, steep.

Redwood City (No. 3 Fire Station, 2nd and Bay Rd.). Motion slow, lasted about 7 seconds. Fire trucks in station (with hand brakes on) moved back and forth at least a foot. Ground: Soil, level.

22 March, 11:44:21\*. Intensity VI. (cont.)

INTENSITY V - Redwood City

Redwood City. Motion rapid, lasted about 1 second. Felt by all in community; frightened all in home. Windows, doors, and dishes rattled; house creaked. Hanging objects swung. Ground: Soil, level.

Redwood City. Moderate earth noises heard by few. Felt by and frightened all in strongly built wooden house (active). House creaked. Ground: Soil, compact, level.

Redwood City (3694 Country Club Dr.). Motion slow, lasted 30 seconds. Direction N-S. Moderate earth noises heard. Small crack in one wall. Ground: Rocky soil, level and sloping.

Redwood City (Cleveland and Jefferson Ave.). Motion rapid, lasted about 30 seconds. Direction E-W. Small objects shifted. Ground: Compact, level.

Redwood City (2734 Ohio St.). Motion rapid, lasted 30-45 seconds. Faint earth noises heard. Small objects shifted. Ground: Soil, adobe, compact, level.

Redwood City (2043 Maryland St., near Woodside Rd.). Motion rapid (vibration rather than motion), lasted about 30 seconds. Moderate earth noises heard. Small objects and furnishings shifted slightly. "Cement slab construction; very steady." Ground: Adobe, soil, compact, level.

INTENSITY IV - Redwood City

Redwood City. Locations reporting no shifted or fallen objects:

952 Castle Hill Rd.

928 Castle Hill Rd.

301 Beresford Ave.

1233 Alameda

61 Renato Court

169 Duane St.

290 Nevada St.

687 Lassen St.

3060 Broadway

408 Alameda de las Pulgas

107 Lakeview Way

93 Arch St.

1039 Hopkins

279 Santiago Ave.

1257 Foothill St.

98 Melanie Lane

2761 Spring St.

Richmond. Press reported huge beams of steel were shaken off storage racks at the Butler Manufacturing Company.

22 March, 11:44:21\*. Intensity VI. (cont.)  
Richmond (2801 Gaynor Ave.). V. Motion rapid, lasted 25 seconds. Direction S-N. Moderate earth noises heard. Small objects and furnishings shifted. Plaster wall cracked. Damage very slight.

Richmond (21st and Chanslor Ave., McVittie Annex Post Office). V. Motion rapid. Felt by many on first floor of strongly built building (active); frightened few. Moderate earth noises heard by observer at beginning of shock. Windows rattled; building creaked. Hanging objects swung. "Federal Building at 11th and Nevin shook considerably." Ground: Compact, level.

Richmond (Point Richmond, 737 Ocean Ave.). IV. Motion rapid, hammerlike, lasted about 10 seconds. Direction NW. Faint earth noises heard. "I was standing still, facing NW. Not nearly as much ground motion felt as during bridge blasting." Ground: Rocky, compact, sloping.

Richmond (central section). IV. At least three shocks felt. Motion rocking, E-W, rapid onset. Felt by several. Observer sitting in basement boiler room of new three-story brick and reinforced-concrete building. Ground: Gumbo.

Richmond (1117 Coalanga). III. Motion slow, lasted 30 seconds. Direction N. Loud earth noises heard. Ground: Level, filled in.

Richmond (2600 MacDonald Ave.). III. Motion slow, lasted 15 seconds. Direction E-W. Ground: Soil, level.

Richmond (2410 San Mateo). II. Motion slow, lasted about 20 seconds. Moderate earth noises heard. "So slight the direction was not discernible." Ground: Rocky.

Richmond (1903 Tassajara Ave.). II. Motion rapid, lasted 5 seconds. Loud earth noises heard.

Richmond (Point Richmond, 111 Western Dr.). II. Motion rapid, lasted about 5 minutes. Loud earth noises heard. Ground: Rocky, steep.

Rockaway Beach. Motion rapid. Moderate earth noises heard by many. Felt by all and frightened many in community. Windows, doors, and dishes rattled; house creaked. Hanging objects swung. Electric clock facing NE stopped. Small objects shifted and overturned. Plaster, windows, and walls cracked. Knickknacks and books fell. Dishes and windows broke. Damage considerable. "No damage to the post office but across the street houses were damaged by cracking plaster, and many articles were thrown from shelves and walls. Some homes in the community were badly affected, others not at all. My home shows no damage and very few objects fell from the shelves. The post office (built on cement) creaked, but there was no shifting of furniture, fixtures, or even small articles."

Rockaway Beach. Press reported cosmetic bottles broke in beauty salon; wall mirror broke in barber shop; acoustical ceiling cracked in real estate office.

22 March, 11:44:21\*. Intensity VI. (cont.)

Rodeo. Motion rapid. Direction N-S. Faint earth noises heard by few. Felt by all and frightened few in community. Windows, doors, and dishes rattled; walls creaked. Hanging objects swung. Small objects shifted; vases overturned. Plaster cracked. Knickknacks fell. Damage slight. Ground: Rocky.

Ross. Motion rapid, lasted 6 seconds. Direction N. Loud earth noises heard by many. Felt by all and frightened many in community. Windows, doors, and dishes rattled; house creaked. Ceiling fixture broke loose. Trees, bushes shaken slightly. Small objects shifted and overturned. Plaster cracked. Damage slight. Ground: Level.

Ross (Foothill and Norwood). Motion rapid, vertical, and N. Loud earth noises heard. Bric-a-brac broke. Basement cement cracked. Damage slight. Stucco house. Ground: Soil, compact, level.

Ross (east side of Ross Valley). V. Motion rapid. Direction indoors SW. Clock stopped. Ground: Sloping; top of hill.

Ross (78 Bayview). III. Motion rapid, lasted about 1 minute. Direction N. Faint earth noises heard. Ground: Rocky, compact, steep.

Ross (1 Upper Rd.). Motion rapid. Ground: Rocky.

Saint Mary's College (Moraga). Motion rapid, lasted 6 seconds. Ground cracked. Damage slight to water pipes. Ground: Soil, compact, sloping.

Saint Mary's College (Moraga). V. Motion gentle, rolling, circular, gradual onset. Felt by most persons. Moderately loud rumbling and bumping earth noises heard by most persons before and during shock. Visible swaying of walls, chapel, and tower. Chandeliers in chapel swung slightly. "I was standing by window and heard rumbling and knocking sounds from hills in back of college. Sounds preceded motion by about 5 seconds. Motion was gentle, large amplitude, and sort of circular. Trees outside of window (in leaf) made a sort of swishing sound. Motion felt continuously for about 12 seconds by observer and others questioned." Ground: Sandy.

San Anselmo. Press reported ammonia line broke in meat market and market was a shambles from fallen merchandise.

San Anselmo (138 Alder Ave.). Motion rapid. Moderate earth noises heard. Plaster cracked in front bedroom (crack runs E-W). "Felt many aftershocks." Ground: Soil, sloping toward creek.

San Anselmo (224 Drake Blvd.). V. Motion rapid, lasted 20-30 seconds. Frightened all in community. "Strongest shock felt since 1906." Ground: Adobe.

San Anselmo. V. Motion rapid. Direction E-W. Loud earth noises from E-W heard by many. Felt by all and frightened many in community. Windows, doors, and dishes rattled; house

22 March, 11:44:21\*. Intensity VI. (cont.)  
creaked. Hanging objects swung E-W. Trees, bushes shaken  
strongly. Ground: Soil, compact, sloping.

San Anselmo (58 Medway Rd.). V. Motion slow, lasted about 2-4  
minutes. Direction seemed N-S. Moderate earth noises  
heard. Two pictures shifted. Enlarged wall cracks. House  
60 years old. Ground: Soil, sloping.

San Anselmo (33 Richmond Rd.). V. Motion rapid, lasted 30-40  
seconds. Direction seemed NE. Loud earth noises heard.  
Small objects shifted. Ground: Soil, compact, level.

San Anselmo (270 Butterfield Rd.). V. Motion rapid, brief,  
vertical jolt, lasted 5 seconds. "I was on a ladder re-  
moving leaves from carport roof. Ladder hopped upward  
and at same time the composition roofing made flapping  
noise against sheeting. Brick chimney and antenna rocked." Ground: Rocky, compact, level.

San Anselmo (Sleepy Hollow). V. Motion rapid, lasted 30 seconds.  
Direction E-W. Faint earth noises heard. One small plaster  
crack. Ground: Soil, compact, level.

San Anselmo (1556 San Anselmo Ave.). V. Motion rapid, lasted  
about 1 minute. Furnishings rocked. Ground: Soil, compact,  
sloping.

San Carlos. Motion rapid, lasted 10 seconds or less. Faint  
earth noises heard. Factory building cracked to an unknown  
extent. Ground: Soil.

San Carlos (Library). Motion rapid, lasted 20-30 seconds. Moder-  
ate earth noises heard. Large plate glass window shifted  
1/4 inch to one side and out of frame. Damage slight.  
Ground: Soil, level.

San Carlos. Motion rapid, lasted few seconds. Moderate earth  
noises heard. Small objects shifted. Plaster cracked.  
Damage slight. Ground: Compact, level.

San Carlos (2702 San Carlos Ave.). V. Motion slow, rolling and  
shaking, lasted 2 minutes or more. Loud earth noises heard.  
Objects and furnishings shifted; beds, rocking horse, and  
other objects moved; garage door moved. Ground: Soil,  
compact, sloping.

San Carlos. V. Motion rapid, lasted 15 seconds. Felt by all;  
frightened few. Loud earth noises heard 1 second before  
shock. Windows rattled; walls creaked. Ground: Rocky soil.

San Carlos (49 Ensenada Rd.). V. Motion rapid, lasted few  
seconds. Moderate rumbling earth noises, then thud. Hair-  
line plaster crack (may be old crack).

San Carlos (128 Northam Ave.). V. Motion slow, lasted about 12  
seconds. Small objects shifted E and SE. Fine, long  
cracks in brick masonry of tall living room fireplace but  
origin uncertain.

San Carlos (780 Cedar St.). V. Motion rapid. Faint earth noises  
heard. Small objects shifted. Ground: Compact, sloping.

22 March, 11:44:21\*. Intensity VI. (cont.)  
San Carlos (173 Fairmont Ave.). V. Motion rapid, lasted 35 seconds. Direction N. Small objects and furnishings shifted slightly. Ground: Soil, level.

San Carlos (1015 Northwood). IV. Motion rapid, lasted 15-20 seconds. Direction indoors N. Moderate earth noises heard. Rafters creaked (stone house). Ground: Soil, compact, level.

San Carlos (362 Glenwood). III. Lasted 1 minute. Direction NE. Loud earth noises heard. Ground: Compact, sloping.

San Carlos (1503 Eaton Ave.). III. Motion slow, lasted about 10 seconds. Moderate earth noises heard. Ground: Soil, compact, level.

San Carlos (2079 Birch St.). III. Motion slow, lasted about 30 seconds. Faint earth noises heard. Ground: Compact, level, filled in.

San Carlos (122 Hillcrest Rd.). Loud blastlike noise like something collapsing heard. No motion felt; nothing shook. Ground: Rocky; on hillside.

San Geronimo. Motion rapid, lasted 30 seconds. Moderate earth noises heard by many. Felt by many in home; outdoors by others (quiet); frightened many in community. Windows, doors, and dishes rattled; walls creaked. Hanging objects swung. Trees, bushes shaken moderately. Small objects shifted; vases, etc., small objects overturned; knickknacks and pictures fell. Damage slight. Ground: Rocky, level.

San Geronimo. V. Motion rapid, lasted about 1 minute. Loud earth noises heard. "Ran from house." Ground: Compact, level.

San Jose. Press reported plaster fell from the second-story walls of the old Santa Clara County Courthouse.

San Jose (Winchester Mystery House). V. Motion rapid. Moderate earth noises heard. Overhead pipes and floors swayed. Ground: Soil.

San Jose (3180 Todd Way, Cambrian District). V. Motion slow, rolling, like sitting on flowing mud. Direction N. Faint earth noises heard. Pictures on walls shifted. "Damage slight to nerves." Ground: Rocky soil, compact, level.

San Jose (86 S. Third St.). IV. Motion rapid, lasted 30 seconds. Direction S-N. Felt by all (sitting) on third floor of strongly built concrete building. Hanging objects swung. Ground: Soil, compact, level.

San Jose (1262 University Ave.). IV. Motion rapid, up and down and N-S, lasted 40-50 seconds. Loud earth noises preceded shock. Light fixtures swayed. Ground: Soil, compact, level.

San Jose (30 Kirk Ave, E). IV. Motion rapid, followed by undulating motion, momentary duration. Doors and windows rattled. Ground: Adobe, compact, sloping.

22 March, 11:44:21\*. Intensity VI. (cont.)

San Jose (east foothills section). IV. Motion rapid, lasted 15 seconds. Joggled pictures on wall; floor lamp and windows rattled. Ground: Soil, compact, sloping.

San Jose (1714 Montemar Way). IV. Lasted about 1 minute. Moderately loud earth noises heard. Hanging light fixtures swayed; table lamps rattled. Ground: Soil, compact, level.

San Jose (485 So. Willard St.). III. Motion slow at first, then rapid, lasted 2-3 minutes. Loud earth noises heard. Ground: Soil, level.

San Jose (1000 No. 4th St., grocery store). III. Motion moderate, lasted 30 seconds. Nothing moved in store. Ground: Soil, compact, level.

San Jose (1377 Yosemite Ave.). III. Motion slow at first, then rapid. Faint earth noises heard. Ground: Adobe, level.

San Jose (282 Younger, north San Jose). III. Motion slow, lasted 3 seconds. Ground: Alluvium, level.

San Leandro (1650-138th Ave.). Motion moderate, lasted 15-20 seconds. Faint earth noises heard. Small objects shifted. Plaster cracked. Damage slight to concrete. Ground: Level.

San Leandro (1105 First Ave.). V. Motion rapid, lasted 20 seconds. Loud earth noises heard. Small objects and furnishings shifted.

San Leandro. V. Motion rapid, lasted 30 seconds. Moderate earth noises heard by many. Felt by all (active) on first floor of strongly built cement-block post office building; frightened few. Windows and doors rattled. "Strong shock. Seemed to be in two pulses, the second of which was more prolonged." Ground: Soil, level, compact.

San Leandro (1165 Grove St.). V. Lasted 30 seconds. Direction E-W. "Was outdoors and felt as if I had lost my sense of balance." Ground: Soil, level.

San Leandro. IV. Motion slow, lasted fully a minute. Felt by many. Dishes and chandelier rattled; chandelier swung in circle. "Sitting at table writing letters when a rocking motion was felt which seemed to gain in magnitude, leveled off, then was repeated. Other minor shocks noticed by hearing light bulb rattle in chandelier. These occurred at 15:14 and 18:48." Ground: Rocky soil, sloping.

San Leandro (16341 Foothill Blvd.). IV. Motion slow, like a wave, and up and down. Faint earth noises heard. Spoon (upside down) on table rolled back and forth. House creaked. "Birds went wild." Ground: Soil, sloping.

San Leandro (16300 Foothill Blvd.). III. Motion moderate, lasted about 45 seconds. Moderate earth noises heard. Ground: Sloping.

San Leandro (14764 Lark St.). III. Motion slow, lasted about 30 seconds. Moderate earth noises heard. Ground: Soil, compact, level.

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San Leandro (858 E 14th St.). III. Motion rapid, lasted 3-4 minutes. Moderate earth noises heard. Ground: Soil.  
San Leandro (16263 Maubert Ave.). Motion rapid. Earth noises like airplane passing overhead heard. Ground: Compact, level.  
San Lorenzo (15701 Lorenzo Ave.). Strong shaking, then rolling, lasted about 1 minute. Direction E. Faint earth noises heard. Small objects shifted. Hanging lamps swayed. Plaster cracked. Damage slight. Ground: Filled in.  
San Lorenzo (199 Devonshire Ave.). Motion rapid, lasted 1-2 minutes. Wall heater shook. Slight crack over door. Ground all cracked." Ground: Compact, level.  
San Lorenzo (188 Hubbard Ave.). V. Motion slow, with rumble and rattle; feeling of imbalance. Small objects shifted. "Apparently those outdoors here didn't feel it."  
San Lorenzo (91 Via Lasqua). V. Motion rapid, lasted several seconds. Moderate earth noises heard. Small objects and furnishings shifted. Ground: Level, filled in.  
San Lorenzo (15323 Vassar Ave.). V. Motion rapid. Loud earth noises heard. Observer very frightened. Ground: Soil, level.  
San Lorenzo (17152 Via Media). III. Motion rapid, rolling, lasted 3 minutes. Moderate rumbling earth noises heard. Ground: Soil, compact, level.  
San Mateo. Press reported the 11-story apartment house at 120 West Third Avenue lost several windows. A number of homes and stores reported broken windows, fallen plaster, and minor wall cracks. Mills and Community hospital attendants said patients did not panic. Some patients thought heavy equipment was being moved down the corridor. Damage was confined to small plaster cracks. Racetrack patrons and workers ran from the grandstand and clubhouse at Bay Meadows. The peninsula overpass lighting system was damaged and three electroliers were either broken or left hanging by wiring.  
San Mateo (25th Ave.). Motion rapid, lasted 3 minutes. Moderate earth noises heard. Small objects shifted. Plaster and ground cracked. Damage slight. Ground: Level, filled in.  
San Mateo (Macy's Hillsdale Store). Motion rapid, lasted 30 seconds. Direction N-S. Loud earth noises heard. Small objects shifted. Plaster cracked. Damage slight. Ground: Level.  
San Mateo (661 Edna Way). Motion rapid, jolting, shuddering, lasted 20-30 seconds. Moderate earth noises heard. Small objects, furnishings, and refrigerator shifted. Ground: Soil, compact, level, filled in.  
San Mateo (277-42nd Ave.). Motion slow, lasted about 30 seconds. Direction N. Loud earth noises heard. Plaster cracked. Damage slight. Ground: Rocky, steep.

22 March, 11:44:21\*. Intensity VI. (cont.)

San Mateo (304 Cavanaugh St., Shoreview District). Motion slow, then rapid and shuddering. Faint rumbling earth noises like a heavy truck passing heard. Baby food in cupboard shifted. Bookcase broke and books tumbled to floor.

Damage slight. Ground: Level, filled in.

San Mateo (378 N. Delaware). Motion rapid, lasted 20 seconds. Moderate earth noises heard. Small objects and furnishings shifted. Plaster cracked. Damage slight. Ground: Compact, level.

San Mateo (625 S. Delaware). Motion rapid, lasted about 30 seconds. Direction E. Loud earth noises heard. Sidewalk cracked. Ground: Soil, compact.

San Mateo (580 Remillard). Motion rapid, vertical. Plaster cracked. Ground: Level.

San Mateo (262 W. 37th Ave.). Motion rapid, lasted about 1 minute. Direction N. Loud earth noises heard. Small objects shifted. Cement in garage cracked. Ground: Compact, sloping.

San Mateo (529 W. Poplar). Motion rapid, lasted about 30 seconds. Direction N-S. Moderate earth noises heard. Small objects and furnishings shifted. Plaster cracked. Damage slight to concrete and plaster. Ground: Soil, sloping.

San Mateo (745 Birch St.). Motion rapid, lasted 1 minute. Direction N-S. Faint earth noises heard. Small objects shifted; ornaments fell to floor. Plaster cracked behind fireplace. Ground: Soil, level.

#### INTENSITY V - San Mateo

San Mateo. District Superintendent of the San Mateo Elementary School District reported no damage was found in the schools. Skylight may have cracked in the San Mateo High School gymnasium but it was not certain whether this was caused by the earthquake. The High School superintendent was returning to his office by auto and did not feel the shock.

San Mateo Junior College (Coyote Point). Mild swaying motion. Closed the shutoff gas valve in one of the buildings.

San Mateo (97-21st Ave.). Small objects shifted.

San Mateo (848 Katherine, south Shoreview District). Objects shook. Folding chair fell from shelf in garage. Ground: Filled in.

San Mateo (220-8th Ave.). Old cracks slightly enlarged. Damage slight. Ground: Soil, compact, level.

San Mateo (25th and Flores). Objects fell from shelf in Draeger's store. Ground: Compact, level. "Immediately after the shock I went down to the 37th Street supermarket and they had not even felt the shock."

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INTENSITY V - San Mateo

San Mateo (3041 Hacienda St.). Small objects shifted; two vases overturned. Ground: Soil, compact, level.

San Mateo (10 De Sabla Rd., 19th floor). Small objects shifted; dishes broke. Ground: Level.

San Mateo (Hillsdale apartment). Small objects shifted: one dish. Ground: Soil, level, filled in.

San Mateo (317 Estrella Way). Small objects and furnishings shifted. Ground: Soil, compact, level.

San Mateo (328 Greenfield, south San Mateo, near Belmont, in hills). Paintings on E-W wall shifted. Ground: Rocky soil, compact, sloping.

San Mateo (65-A E. 40th Ave., Hillsdale area). Small objects and furnishings shifted. Ground: Soil, compact, level.

San Mateo (135 Chestnut Lane, Hillsdale area). Pictures swayed. Ground: Soil, level.

San Mateo (253 W. Third Ave.). Pictures shifted. Ground: Soil, level.

San Mateo (117 Robles Ave.). Small objects shifted. Ground: Compact, level.

San Mateo (601 Maple St.). Small objects and furnishings shifted. Two dishes broke. Damage slight. Ground: Soil, level.

San Mateo (660 W. Hillsdale Blvd.). Small objects shifted. Ground: Rocky soil, level, filled in.

San Mateo (1750 Celeste Dr.). Small objects and furnishings shifted slightly. Loosened cork tile. Damage slight. Ground: Level, marshy, filled in.

INTENSITY IV - San Mateo

San Mateo. Locations reporting no shifted or fallen objects:

4102 Beresford St.  
1755 Ivy St.  
4020 Alameda  
1709 Date Ave.  
205 E. Third St.  
55-4th Ave.  
329 E. 39th Ave.  
1417 Nadina St.  
510 Georgetown  
Villa Terrace  
5th Ave. (playground)

San Rafael (159 Glen Park). Motion rapid, lasted few seconds. Moderate earth noises heard. Small objects and furnishings shifted, also washing machine in garage. Garage floor,

22 March, 11:44:21\*. Intensity VI. (cont.)  
chimney, and concrete wall in yard cracked. Damage slight.  
Ground: Soil, compact, level.

San Rafael. Motion slow, lasted 20-30 seconds. Direction SW-NE.  
Moderate earth noises heard. "Two large Western Transport  
truck and trailer combinations (in gear) rocked back and  
forth 2 feet and moved back NE about 8 inches." Ground:  
Level, filled in.

San Rafael (1752 Lincoln Ave.). Motion rapid. Very loud earth  
noises heard. Plaster cracked. "Blast then roar. My  
house seemed to bounce up and down. I thought it was  
going right off the foundation. Also felt two other heavy  
shakes and subsequent minor ones." Ground: Level, filled  
in for over 50 years.

San Rafael (4th and B Sts.). Motion slow, steady, lasted about  
5 seconds. Direction E-W. Rumbling earth noises heard.  
Small objects and furnishings shifted. Plaster cracked.  
Damage slight. Ground: Compact, level. Four-story brick  
building, steel beams.

San Rafael (311 Locust St.). Motion slow, lasted about 5 seconds.  
Direction indoors W-E. Small objects shifted. Plaster  
cracked. Ground: Compact, sloping.

San Rafael. Press reported windows broke in the Marin County  
Courthouse and in the Isabel Cook Elementary School.

INTENSITY V - San Rafael

San Rafael (Mary E. Silvera School). Motion slow, lasted about  
30 seconds. Direction E-W. Loud earth noises heard.  
Books in bookcase, pencils, etc., shifted. Ground: Soil,  
compact, level.

San Rafael (316 Laurel Place). Motion rapid, trembling, swaying.  
Direction E-W. Loud earth noises heard. "Our back garden  
is about 50 by 100 feet, with many shrubs and a tall pine  
tree. I think most of the sound was caused by the needles  
of the tree and leaves of the shrubbery rubbing together.  
I could see the house tremble. Do not recall a first  
violent jerk, only the rocking and swaying." Ground:  
Yellow clay, sloping; deep excavation.

San Rafael (145 Corte Anita, Greenbrae). Motion rapid, lasted  
10 seconds. Direction NE. Moderate earth noises heard.  
Small objects shifted. Ground: Rocky, sloping.

San Rafael (24 Hacienda Court). Motion rapid, lasted about 1½  
minutes. Faint earth noises heard. Dishes shifted.  
Ground: Rocky, sloping.

San Rafael (320-3rd St.). Motion rapid, lasted 45 seconds. Faint  
earth noises heard. Small objects and furnishings shifted.  
Ground: Compact.

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INTENSITY IV - San Rafael

San Rafael. Locations reporting no shifted or fallen objects:

26 Inverness Dr., Loch Lomond  
38-B Jessup St.  
1867 Lincoln Ave.  
217 Brete Harte Rd.  
58 Hill View Ave.  
22 Ranch Rd.

Santa Rosa. Press reported this was the strongest shock felt in Santa Rosa since 1906. Frightened and excited persons jammed telephone switchboards with calls. At the 49-year-old County Courthouse hundreds of fine paint cracks (stated to be new) were found in an outer wall of an old two-level vault in the County Administrator's office. A large globe-like lighting fixture hanging from a chain over a top-floor stairwell swung for 5 minutes after the shock; swinging courtroom doors flapped. Liquor display fell in one store. In another store dress racks "looked like they would fall." Many ran to the streets in downtown and residential areas, and many suffered dizzy spells.

Santa Rosa. Motion rapid, lasted 30 seconds. Direction E-W. Faint earth noises heard by few. Felt by all in community; frightened few. Windows, doors, and dishes rattled. Pendulum clocks facing E stopped. Trees, bushes shaken strongly. Small objects overturned; knickknacks and books fell. Damage slight. Ground: All kinds.

Santa Rosa (410 Carrillo St.). Motion rapid, heavy, lasted 1-1½ minutes. Direction E-W. Plaster and chimneys cracked. Damage slight to masonry. Ground: Compact, level.

Santa Rosa (540 Southwood). Motion slow, lasted 5-8 seconds. Direction NE. Small objects shifted. Plasterboard cracked some. Damage none to slight in the area. Ground: Rocky.

Santa Rosa (619 Brittain Lane). V. Motion slow, lasted 2 minutes. Small objects shifted. Ground: Soil, compact, level.

Santa Rosa (NE section). V. Motion rolling, swaying, abrupt onset. Felt by many. Bells rang. Visible swaying of buildings. Ground: Rocky.

Santa Rosa (3176 Rocklin). IV. Motion rapid to slow, lasted 5-10 seconds. Faint earth noises heard. Cups on saucers moved. Ground: Adobe soil, level.

Santa Rosa (1620 Humboldt St.). II. Motion slow. Direction N. Ground: Soil, level.

Santa Rosa (2731 Claremont Dr.). II. Motion slow, lasted about 30 seconds. Ground: Compact, level.

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Sausalito. Motion rapid. Loud earth noises from N heard.

Felt by all and frightened many. Windows, doors, and dishes rattled; house creaked. Hanging objects swung. Trees, bushes shaken strongly. Small objects shifted and overturned. Plaster and windows cracked. Knick-knacks, books, pictures, and plaster fell. Dishes and windows broke. Damage considerable. "Several very sharp shocks felt." Ground: Soil.

Sausalito (87 San Carlos Ave.). Motion rapid, lasted 30 seconds.

Direction N-S. Loud earth noises heard. Small objects shifted. Plaster and walls cracked. Damage slight. "Knocked my daughter out of bed and me to the floor." Ground: Rocky soil, compact, steep.

Sausalito (721 Bridgeway). Motion rapid, lasted 15 seconds.

Direction N to SE. Moderate earth noises heard. Plaster cracked. Damage slight to brick and masonry. Ground: Compact, level.

Sausalito (28 Filbert St.). One sharp, whiplike jolt, with three smaller ones. Direction SW. Faint earth noises heard. Small objects and furnishings shifted. Mirror broke. Two foundation posts shifted several inches. Damage slight. Ground: Rocky soil, compact, sloping.

Sausalito (17 Sunshine Ave.). Motion rapid, E-W, then up and down, seemed to last about 2 minutes. Observer very frightened. Books, mirrors, and trays fell. One inside wall cracked. Damage slight to plaster. House has 18-inch rock foundation. Ground: Soil, compact, sloping.

Sausalito (148 Harrison). "The roll seemed to go from S-N. The house shuddered violently and as the floor rolled, the walls appeared to be moving up and down. I looked up over my head and saw the kitchen wall above a door cracking. The entire house made a tremendous cracking noise. Plate glass mirror, about 6 by 4 feet, over fireplace was knocked loose from wall and broke into hundreds of pieces. One living room window cracked. All lamps in living room fell to floor and most of the books in floor-to-ceiling bookcase on the floor. Plaster cracked in every room of seven-room house; some fell from upstairs walls; windows cracked. Heavy bureau moved about 2 feet. Our neighbor's house suffered damage about the same as our house, but people across the street didn't even have a tilted picture. Our house is a two-story shingle house, built about 1905."

Sausalito (waterfront). Motion rapid, lasted 10 seconds. Direction N-S. Small objects and furnishings shifted. Dishes, windows, and furniture broke. Damage slight. Ground: Deck piling.

Sausalito (60 Woodward). V. Motion rapid, lasted about 20-40 seconds. Direction N. Loud earth noises heard. Small objects shifted. Ground: Soil, compact.

22 March, 11:44:21\*. Intensity VI. (cont.)  
Sausalito (68 Central Ave.). V. Motion sharp, rapid, sort of twisting, brief duration. Direction N-S. Loud earth noises like jet plane heard. Cabinet doors opened. Ground: Rocky, compact, steep.

Sausalito (63 Spencer Ave.). V. Motion moderately rapid, lasted about 30 seconds. Direction N. Faint earth noises heard. Moved two pictures only. Ground: Rocky soil, compact, sloping.

Sausalito (Wolfback Ridge). III. Motion slow. Direction N-S. Faint earth noises heard. Ground: Rocky, steep.

Sausalito (Professional Building). III. Motion rapid, lasted 10-12 seconds. Moderate earth noises heard. Building vibrated. New, three-story building. Ground: Soil, level.

Sonoma. Motion rapid, lasted 30 seconds. Direction NE. Faint earth noises heard by many 5 seconds before shock. Frightened all in community. Windows, doors, and dishes rattled; building creaked. Hanging objects swung. Trees, bushes shaken moderately. Small objects shifted. Plaster and walls cracked. Knickknacks and pictures fell. Damage slight. Ground: Rocky.

Sonoma. Press reported huge wine casks rolled and dirt crumbled down in the limestone caves at the Buena Vista Vineyards just outside of Sonoma.

Sonoma (331 Perkins St.). V. Motion slow, lasted about 30 seconds. Direction E-W. Faint earth noises heard. Few fine cracks in plaster. Ground: Soil, compact.

Sonoma (590 Verano Ave.). V. Motion moderate, undulating, lasted about 1 minute. Beds shifted. Ground: Rocky, sloping.

Sonoma (161 E. Napa St.). V. Motion rapid, lasted about 30 seconds. Faint earth noises heard. Small objects shifted. Shelves in grocery store cracked. Alerted cat and dog. Damage slight. Ground: Soil, marshy, level.

Sonoma (583-3rd E). V. Motion rapid, lasted 8 seconds. Direction NE. Small objects shifted. Ground: Compact, level.

Sonoma (21855 Hyde Rd.). III. Motion slow, lasted 30 seconds. Direction indoors N. Faint earth noises heard.

South San Francisco. Press reported there were many minor fires, gas leaks, broken water pipes, and broken chimneys, but damage was minor. Windows broke at various locations. Cornice atop the Metropolitan Hotel, Linden and Grand Avenues, was loosened and finally removed. Groceries and liquor fell from shelves in supermarkets. At Kaiser Foundation Hospital only two minor injuries were reported.

South San Francisco School District.

Avalon. Two panes of glass broke. Minor plaster cracking.

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South San Francisco School District. (cont.)

Buri-Buri. Two clocks thrown off walls. Five panes of glass broke in long (E-W) walls and two panes broke in short (N-S) walls. Storage shelving thrown over in the Administration Building.

El Rancho. One pane of glass broke in E-W wall of M.P. room.

South San Francisco High School. About twelve panes of glass broke and plaster cracked slightly. Storage batteries for emergency power supply dislodged from shelf and shorted out.

South San Francisco. Motion rapid, lasted 5 seconds. Direction SW-NE. Loud earth noises from SW-NE heard by observer before beginning of shock. Felt by all on first floor of strongly built steel and concrete-block building; frightened all in community. Windows rattled. Hanging objects swung. Small objects shifted. Ground: Rocky, level.

South San Francisco (San Bruno Point). Motion rapid, jarring, lasted 20 seconds. Windows broke. Plaster cracked. Damage slight. Ground: Level, filled in.

South San Francisco (214 Oreano Dr., Buri-Buri District). Motion rapid, sharp, lasted 1-2 minutes. Direction N. Loud earth noises heard. Everything shifted. Few glasses broke. Plaster cracked inside and outside. Damage slight to concrete. Ground: Gumbo, clay, dampish.

South San Francisco (Buri-Buri). "When I arrived home I found the following: Dishes and glasses off shelves and broken; all books out of bookcase; pictures off walls; objects thrown down in all closets and cupboards; refrigerator moved about 3/4 inch. We have a stucco house. There were several cracks and some cracks on the walls inside."

South San Francisco (Avalon Park, 448 Valderde Dr.). Motion rapid, lasted 30 seconds. Direction E-W. Loud earth noises heard. Furnishings shifted. Dishes broke. Plaster, walls, and ground cracked. Damage slight. Ground: Soil, level.

South San Francisco (754 Serra Dr., between Junipero Serra and El Camino). Motion rapid. Loud earth noises heard. Small objects and furnishings shifted. Dishes, windows, and furniture broke. Plaster, stucco walls, and ground cracked. Damage slight. Ground: Clay, sloping.

South San Francisco (747 Larch Ave.). Motion rapid, lasted 30 seconds. Loud earth noises heard. Plaster cracked; molding pulled from wall. Damage slight. Ground: Rocky, steep.

South San Francisco (252 San Felipe Ave., Serra Highlands). Motion rapid, lasted about 15 seconds. Moderate earth noises

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heard. Small objects and furnishings shifted. Dishes broke. Plaster and walls cracked. Damage slight to concrete. Ground: Clay soil, sloping.

South San Francisco (117 Arroyo Dr.). Motion rapid, lasted several seconds. Direction N. Loud earth noises heard. Small objects and furnishings shifted very much. Dishes and furniture broke. Damage considerable. Ground: Sloping, compact.

South San Francisco (708 Circle Court). Motion rapid. Direction NE. Observer very frightened. Loud earth noises heard. Small objects shifted. Plaster cracked. Damage slight. Ground: Rocky.

South San Francisco (218 Pinehurst Way). Motion rapid, lasted 35-40 seconds. Loud earth noises heard. Small objects and furnishings shifted. Plaster cracked. Ground: Level, compact.

South San Francisco (Norton and Mission, Hibernia Bank). Motion rapid, lasted 20 seconds. Direction E. Loud earth noises heard. Windows broke in ten stores. Damage slight.

South San Francisco (125 Cresta Dr.). Motion rapid, lasted 20 seconds. Direction E. Loud earth noises heard. Plaster and walls cracked. Damage slight. Ground: Soil, level.

South San Francisco (380 Granada Dr., Avalon Park). Motion rapid, lasted 8-10 seconds. Direction NE. Moderate earth noises heard. Small objects and furnishings shifted. Dishes broke. Plaster and walls cracked. Damage slight, about \$250. Ground: Sloping, filled in.

South San Francisco (207 Lomitas Ave.). Motion rapid, lasted about 1 minute. Direction NW-SE. Loud earth noises heard. Small objects and furnishings shifted. Dishes broke; window broke from flying objects. Plaster cracked slightly. Damage slight, but big mess from fallen objects. Ground: Soil, level.

South San Francisco (126 Sherwood Way). Motion rapid, lasted about 1 minute. Direction NW. Loud earth noises heard. Small objects and furnishings shifted. Dishes broke. Walls cracked slightly. Damage slight. Ground: Soil, sloping.

South San Francisco (1450 El Camino Real, greenhouse). Motion rapid, lasted 2-3 seconds. Direction S. Faint earth noises heard. Small objects and furnishings shifted. Dishes and windows broke. Walls cracked. Damage considerable to glass and pottery. Ground: Soil, compact, level.

South San Francisco (Winston Manor). Motion rapid, lasted 30 seconds. Direction E-W. Loud earth noises heard. Small objects and furnishings shifted. Dishes broke. Damage slight. Ground cracked. Ground: Soil, sloping.

South San Francisco (45 Arlington Dr.). Motion rapid, lasted 1 minute. Direction SE-NW. Moderate earth noises heard.

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Small objects and furnishings shifted. Dishes broke. Water heater twisted. Damage slight. Ground: Rocky, soil, compact, level.

South San Francisco (332 A St.). Strong jolt, then rolling motion, lasted about 10 seconds. Direction approximately SW. Loud earth noises heard. Plants fell to floor; dresser moved 3 inches. Damage slight. Ground: Soil, level.

South San Francisco (129 Duval Dr.). Motion rapid. Too much noise in house to hear earth noises. Small objects and furnishings shifted. Dishes broke. Chimney cracked. "We had a considerable number of cracks in stucco and the chimney settled more. Engineers seem to think our house is on some little fault since damage to our house was more than in the immediate area." Ground: Soil, clay, adobe, compact.

South San Francisco (239 Mansfield Dr.). Motion rapid. Loud earth noises heard. Small objects and furnishings shifted. Dishes broke. Plaster and ground cracked. Furniture shifted; lambrequins fell. Toilet leaked. Damage slight. Ground: Compact, sloping, filled in.

South San Francisco (314 Hazelwood Dr., Brentwood Tract). Motion moderate jerking, seemed to last a minute. Sensation of imbalance, as if walking at an angle. Direction NW-SE. Loud earth noises heard. Dresser, canned goods, dishes, etc., shifted. Slight cracks in bathroom tile. Damage slight. "Aftershocks seem to be more noise than motion." Ground: Soil, compact, sloping.

South San Francisco (352 Holly St.). Motion slow, lasted 15-30 seconds. Too much noise in house to distinguish earth noises. Threw objects S-N; shook objects W-E. Plaster cracked. Damage slight. Ground: Soil, sloping, filled in.

South San Francisco (760 Serra Dr., Serra Highlands). Motion rapid, lasted 30 seconds or more. Loud earth noises heard. Small objects and furnishings shifted. Dishes and furniture broke. Plaster, windows, and walls cracked. Damage considerable. Ground: Soil.

South San Francisco (291 Dundee Dr.). Motion rapid, rolling and twisting, lasted a minute or two. Direction seemed to be W-E. Loud rumble heard. Furnishings shifted. Dishes and furniture broke. Ground cracked. Damage slight. Ground: Compact, sloping, filled in.

South San Francisco (218 Dundee Dr.). Motion rapid, lasted about 3 minutes. Direction E-W. Faint earth noises heard. Bed, chests, piano, and refrigerator shifted. Bathroom cabinet contents and flower pots broke. Damage slight. Ground: Soil, compact, level, filled in.

22 March, 11:44:21\*. Intensity VI. (cont.)

South San Francisco (125 Edison Ave.). Motion rapid. Loud earth noises heard. Small objects and furnishings shifted. Dishes broke. Plaster cracked. Damage slight. Ground: Rocky soil, marshy, sloping.

South San Francisco (122 Alta Mesa, Buri-Buri). Motion rapid, sharp, lasted 12-15 seconds. Direction NW. Loud, frightening earth noises heard. Small objects and furnishings shifted. Dishes and furniture broke. Plaster, concrete, and walls cracked. "Interior doors do not fit well now." Damage considerable to concrete. Frame house on concrete blocks. Ground: Soil, compact, sloping.

South San Francisco (376 Granada Ave.). Motion rapid. Moderate earth noises with every tremor. Small objects and furnishings shifted. Dishes broke. Concrete cracked. Damage slight. Ground: Soil, compact, sloping, filled in.

South San Francisco (359 Erica Dr.). Motion rapid, pitching and jerking, lasted 5-6 seconds. Direction indoors SE. Loud earth noises heard. Small objects shifted. Dishes broke. Plaster and walls cracked. Damage slight. Ground: Soil, compact, sloping.

South San Francisco (730 Larch Ave.). Motion rapid, lasted 30 seconds. Direction NE. Loud earth noises heard. Small objects shifted. Dishes broke. Fireplace flue cracked. Damage slight. Ground: Compact, level.

South San Francisco (781 Circle Court). Motion rapid, lasted 30 seconds. Direction NE-SW. Loud earth noises heard. Small objects and furnishings shifted. Dishes and furniture broke. Damage slight, about \$10. Ground: Compact, level.

South San Francisco (1201 Baywood, Sunshine Gardens). Motion rapid. Loud earth noises heard. Small objects and furnishings shifted. Damage slight. Ground: Mostly soil, partly filled in, sloping (split-level house).

South San Francisco (117 Francisco Dr., Francisco Terrace). Motion rapid. Visible swaying of house; house seemed to rock E-W. Moderate earth noises heard. Small objects shifted and furnishings shifted 2-3 inches from E-W walls. Small objects and jars of fruit broke. Damage slight. "We have a concrete slab foundation." Ground: Compact, clay, marshy, filled in, fairly level.

South San Francisco (103 Greenwood Dr.). Motion slow, lasted about 30 seconds. Moderate earth noises heard. Small objects and furnishings shifted. Dishes broke. Damage slight. Ground: Soil, level.

South San Francisco (928 Newman Dr.). Motion rapid, lasted less than 1 minute. Direction E. Moderate earth noises heard. Small objects and furnishings shifted. Damage slight. Ground: Soil, compact, sloping.

22 March, 11:44:21\*. Intensity VI. (cont.)

South San Francisco (323 Catherine Dr., Serra Highlands). Motion rapid. Direction W-E. Loud earth noises heard. Small objects and furnishings shifted. Dishes broke. Damage slight. Ground: Compact, sloping.

South San Francisco (4 El Campo Dr.). Motion rapid. Loud earth noises heard. Small objects and furnishings shifted. Dishes and windows broke. Damage slight. Ground: Soil, compact.

South San Francisco (454 Ferndale, Sunshine Gardens). Motion rapid, lasted 25-30 seconds. Moderate earth noises heard. Small objects and furnishings shifted. Damage slight. Ground: Compact, sloping.

South San Francisco (880 Alta Loma Dr.). Motion rapid, lasted about 30 seconds. Loud earth noises heard like airplane crashing into house. Small objects and furnishings shifted. Small items broke. Damage slight. "Felt shocks through Sunday." Ground: Soil, compact, level.

South San Francisco (Grand and Linden, Crocker Anglo Bank). Motion rapid, lasted about 40 seconds. Very loud earth noises heard. Small objects shifted. Dishes, etc., broke. Plaster and window cracked. Damage slight. Ground: Compact, level.

South San Francisco (8 Jacinto Lane, Buri-Buri). Motion rapid, lasted 25-30 seconds. Loud earth noises heard. Small objects and furnishings shifted. Dishes and large wall mirror broke. Damage slight. Ground: Soil, compact, sloping.

South San Francisco (707 Southwood Dr.). V. Motion rapid, momentary duration. Moderate earth noises heard. Small objects shifted. Ground: Soil, compact, sloping.

South San Francisco. V. Motion rapid, lasted 20 seconds. Felt by and frightened many in community. Loud earth noises from NE heard by many. Windows and doors rattled. Gas earthquake safety valve shut off gas. Ground: Soil, compact.

South San Francisco (1141 Morningside Ave., Sunshine Gardens). V. Motion rapid, duration seemed like a minute. Direction N-S. Loud earth noises heard. Small objects shifted. Dishes broke. Damage none or slight. Ground: Rocky, sloping.

South San Francisco (California Golf Club). Felt by observer on fairway. Motion rapid, lasted about 1 minute. Direction NW. Loud earth noises heard. Ground: Compact.

Sunnyvale (1385 Sandia Ave.). Motion slow to rapid, lasted 2-3 minutes. Direction SE. Loud rumbling earth noises heard. Lamps on tables rocked. Plaster and walls cracked. Damage slight to concrete in seams of house. Ground: Clay, compact.

Sunnyvale. V. Motion slow, lasted 5 seconds. Loud earth noises from N heard by many 2 seconds before shock. Felt by all

22 March, 11:44:21\*. Intensity VI. (cont.)  
in strongly built concrete and cement post office building, outdoors by others (active). Windows and doors rattled. Hanging objects swung. Trees, bushes shaken strongly. Ground: Soil, level.

Sunnyvale (165 $\frac{1}{2}$  E. McKinley Ave.). V. Motion rapid, lasted 5 minutes. Direction E. Loud earth noises heard. Small objects and furnishings shifted. Ground: Compact, level.

Sunnyvale (12585 Betty Court). V. Motion slow, lasted 15-20 seconds. Small objects and furnishings shifted. Ground: Compact, soil, level.

Sunnyvale (factory building). V. Motion rapid, lasted 30-45 seconds. Direction E-W. Small objects shifted. Ground: Soil, compact, level.

Sunnyvale (Westinghouse Electric Corp.). V. Motion rapid, lasted few seconds. Loud earth noises heard. Small objects shifted. "I work at Westinghouse. We felt the earthquake pretty strongly. Frightened the entire office force. Light fixtures swung for about 10 minutes after shock. File cabinets swayed some." Ground: Soil, level.

Sunnyvale (1151 West Iowa). IV. Motion similar to vibration of escalator. Lasted about 20 seconds. Rattling of patio doors mainly. Ground: Compact, level.

Sunnyvale (1265 Lime Dr.). III. Motion moderate, lasted 1-2 minutes. Direction NE. Moderate rumbling earth noises heard. Ground: Soil.

Sunnyvale (432 Morse Ave.). III. Motion rapid, lasted 45 seconds. Direction N-S. Moderate earth noises heard. Ground: Soil, level.

Sunnyvale (1152 Packington Ave.). II. Motion rapid, lasted about 30 seconds. Ground: Compact, level.

Sunnyvale. Motion moderate. Faint earth noises heard. Ground: Soil, compact.

Tiburon (694 Hawthorne Dr.). Motion rapid, lasted 20-35 seconds. Small objects shifted. Plaster cracked. Damage slight to plaster. Ground: Soil, compact, sloping.

Tiburon (on pier). V. Motion rapid, lasted 5-10 seconds. Moderate earth noises heard. Small objects shifted.

Tiburon (600 Ridge Rd., about 420 feet above Raccoon Straits). IV. Motion rapid. Hanging lamp swung N-S. Ground: Rocky.

Tiburon (1845 Mt. View Dr.). II. Motion rapid, brief. Direction seemed southwesterly. Ground: Rocky, sloping.

Vallejo. Motion rapid and slow. Direction S-N. Moderate earth noises from S heard by many. Felt by all (sitting) on second floor of strongly built brick building; by others outdoors; frightened many in community. Windows, doors, and dishes rattled; building creaked. Hanging objects swung N. Trees, bushes shaken moderately. Small objects shifted; vases, etc., overturned; pictures fell. Ground: Soil, compact.

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Vallejo Jr. College. V. Motion slow, lasted 3-4 seconds. Direction N. Felt by all (active) on first floor of masonry building; by others outdoors (active). Small objects shifted.

Vallejo (Maritime Academy, north shore Carquinez Strait). V. Motion slow, lasted 30 seconds. Faint earth noises heard. Small objects and furnishings shifted. Ground: Soil, level.

Vallejo. V. Motion rapid, lasted about 30 seconds. Direction SE. Moderate earth noises heard. Small objects shifted. Ground: Compact, level.

Vallejo (351 Los Altos). IV. Motion slow, one sharp jar, lasted about 3 seconds. Faint earth noises heard. Light fixtures swayed NW-SE. Ground: Soil, level.

Vallejo (No. 440 on Highway 40). IV. Motion rapid, lasted 10 seconds. "The motion was easily noticed above traffic vibrations." Felt by many (active) on first floor of weakly built wooden post office building. Moderate earth noises heard by few. Windows and doors rattled; walls creaked.

Vallejo. IV. Motion slow. Windowpanes undulated. Ground: Soil, compact, level.

Vallejo (Dept. of Motor Vehicles, 1328 Virginia St.). III. Motion rapid, lasted 3 seconds. Direction N-S. Loud earth noises heard.

Vallejo (1953 Rose St.). Moderate earth noises heard, but no motion felt. Ground: Compact.

Vineburg. Lasted 30 seconds. Felt by all in community; frightened few. Windows, doors, and dishes rattled; house creaked. Hanging objects swung. Small objects and furnishings shifted. Ground: Compact.

Warm Springs. Felt by all in community; frightened few. Dishes rattled. Small objects shifted; knickknacks fell. Ground: Soil, compact.

#### Intensity V:

Antioch (1301 Louis Dr.). Motion slow, lasted about 20 seconds. Direction E. Small objects and furnishings shifted. Ground: Compact, level.

Antioch (112 E 16th St.). III. Motion slow, lasted 2-3 seconds. Direction N-S. Ground: Soil, level.

Antioch. III. Felt by several in community. Ground: Soil.

Alamo. Motion rapid. Felt by many in home; frightened many in community. Dishes rattled; house creaked. Ground: Soil, compact.

Alvarado. Motion slow. Direction S-W. Felt by all in home; frightened many. Windows and doors rattled.

Alviso. Motion rapid, lasted 30 seconds. Direction N. Felt outdoors by observer and others (quiet and active);

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frightened few in community. Windows, doors, and dishes rattled; house creaked. Hanging objects swung N. Small objects shifted; pictures fell. Ground: Marshy, level, filled in.

**Bethel Island.** Motion rapid, brief. Faint earth noises heard. Felt by several (sitting) on first floor of strongly built wooden post office building; frightened many in community. Windows and doors rattled; frame creaked. Hanging objects swung. Small objects shifted. Ground: Rocky.

**Big Basin.** Motion rapid. Felt by and frightened all in home. House creaked. Shook frame house violently.

**Birds Landing.** Direction E. Loud earth noises from E heard. Felt by all (active) on first floor of strongly built wooden building; frightened many in community. Windows rattled; walls creaked.

**Boulder Creek and vicinity.** Motion rapid, lasted 2-8 seconds. "No one seems to be able to give direction of the earth noises and outdoor motion. With few exceptions, most of the severe noises and motions seemed to have been felt E and NE of Highway 9 and the San Lorenzo River." Felt by many and frightened few in community. Windows, doors, and dishes rattled; walls creaked. Hanging objects swung. Trees, bushes shaken slightly. Small objects shifted and overturned; knickknacks fell. Damage none or slight. Ground: Rocky soil, sloping and steep.

**Campbell (San Tomas Branch Post Office).** Motion slow, rolling, lasted 30 seconds. Faint earth noises heard by observer. Felt by many in community (some outdoors); frightened few. Windows rattled; walls creaked. Small objects shifted. Ground: Rocky soil.

**Campbell.** IV. Motion rapid. Felt by many (some outdoors); frightened few. Moderate earth noises heard by few. Windows and dishes rattled; frame creaked. Trees, bushes shaken slightly. Hanging objects swung. Ground: Soil, compact, level.

**Campbell.** IV. Motion slow. Felt by many in strongly built brick building.

**Camp Meeker.** Motion rapid. Frightened few. Frame creaked. Hanging objects swung. Trees, bushes shaken slightly. Small objects shifted and overturned.

**Castro Valley.** Motion slow, lasted 2 seconds. Moderate earth noises heard by few 1 second before shock. Felt by all in strongly built brick post office building (sitting and active); frightened many. Windows and doors rattled. Hanging objects swung N. Ground: Soil, compact, level.

**Castro Valley (18361 Carlwyn Dr.).** Motion rapid, lasted about 10-15 seconds. Direction NE. Loud earth noises heard just before shock. Dogs howled and were quite excited. Sliding glass door slid open about 10 inches. Ground: Soil, rocky, compact, sloping.

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Castro Valley (9275 Glen Ave.). Motion slow, rocking. Stove moved up and down and back and forth.  
Castro Valley (9114 Edwards Lane). II. Motion rapid, lasted about 1 minute. Moderate earth noises heard.  
Centerville (455 Eggers Dr.). Motion slow, lasted 20 seconds. Faint earth noises heard. Small objects shifted. Ground: Compact soil.  
Centerville (338 Northdale Dr.). Began with slight motion then grew stronger, lasted 5 seconds. Pictures shifted. Ground: Soil, level.  
Centerville (144 Dondero Way). III. Motion slow, lasted few seconds. Direction SW-NE. Ground: Soil, level.  
Clayton. Motion rapid, lasted 60 seconds. Felt by many in community; frightened few. Windows, doors, and dishes rattled. Hanging objects swung. Small objects and furnishings shifted. Damage slight. Ground: Compact, level.  
Clearlake Highlands (Lake County). Motion slow, rocking, lasted 2 seconds. Direction N. Faint earth noises heard. Small objects shifted. Ground: Rocky soil, compact, level.  
Cotati. Motion rapid, lasted 10 seconds. Direction N. Moderate earth noises from N heard by many. Felt by and frightened many in community. Doors rattled; walls creaked. Hanging objects swung N. Ground: Soil, level, compact.  
Cowell. Vibration like heavy truck passing. Faint earth noises heard. Felt by many; outdoors by observer and others (quiet); frightened many. Felt more inside of buildings. "Felt more in Walnut Creek than in Concord or Cowell."  
Decoto. Motion rapid. Moderate earth noises heard. Felt by all in home; frightened many. Walls creaked. Hanging objects swung. Small objects shifted. Ground: Level.  
Decoto (413 Whipple Rd.). Motion rapid, lasted 3 minutes. Moderate earth noises heard. Furnishings shifted. "Everything in the house was moving. Thought lamps would fall. Called telephone operator in Hayward. She was frightened and said it was about the same there."  
Dillon Beach. Felt by many in community; frightened few. Windows, doors, and dishes rattled; house creaked. Hanging objects swung. Trees, bushes shaken moderately. "On ranch, 1/2 mile east, animals and fowls seemed very disturbed." Ground: Sloping, level.  
Duncan Mills. Direction NE. Faint earth noises heard by few. Felt by all (active) on first floor of strongly built wooden building; by others outdoors (active); frightened few in community. Windows and dishes rattled; house creaked. Hanging objects swung. Small objects overturned. "Few saw ground in rolling motion. Light cars rolled back and forth. Heaviest shock since 1906." Ground: Compact, level.

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El Cerrito. Motion rapid. Felt by all (active) on first floor of strongly built brick building; by others outdoors. Windows rattled; building creaked.

El Cerrito (1724 Arlington). Small continuation of crack in chimney. "Child in house (reading) complained the small children in the playroom had been jumping and shook the entire house. No other noises." Ground: Rocky.

El Cerrito (5447 Poinsett Ave.). IV. Motion slow, rolling, lasted about 30 seconds. Direction toward N. Loud rumbling, deep, earth noises heard. Furnishings and walls shook.

El Cerrito (High School). IV. Motion slow, lasted 15 or more seconds. Direction NE. Loud earth noises heard. "Felt like a twist from the floor, as if the floor or earth were being pushed upward. Concrete and steel structure." Ground: Soil, level.

El Cerrito (2645 Arlington Blvd.). IV. Motion rapid, lasted 15-20 seconds. House made loud noises. Ground: Rocky soil, sloping; crest of hill.

El Cerrito (1226 King Dr.). III. Motion slow. Loud earth noises heard. "My first impression was that a very large truck must be going past the house on an uphill grade." Ground: Rocky soil, sloping.

El Granada. Motion slow, lasted 1-2 minutes. Loud earth noises heard by few. Felt by several in home and community, some outdoors (active); frightened few. Windows, doors, and dishes rattled; house creaked. Small objects shifted and overturned. Ground: Soil, level.

El Verano. Motion rapid. Direction N. Moderate earth noises heard by many. Felt by and frightened many in community, some outdoors (quiet). Windows, doors, and dishes rattled. Hanging objects swung. Ground: Compact, level.

Emeryville. Motion rapid. Loud earth noises from W heard by many. Felt by all (active) on first floor of strongly built brick building; outdoors by some (active); frightened few. Hanging objects swung. Ground: Soil, compact, level.

Emeryville (5837 San Jose Ave.). III. Motion rapid, lasted 3-4 seconds. Direction NE. Loud earth noises heard. Ground: Rocky, compact, level, filled in; covered with blacktop.

Fairfield. Motion slow, lasted 10 seconds. Moderate earth noises heard. Felt by many and frightened few in community. Windows, doors, and dishes rattled; house creaked. Hanging objects swung. Small objects and furnishings shifted. "Shock was apparently felt by only those indoors." Ground: Compact, level.

Fairfield (1312 Cleveland St.). Motion slow, lasted about 10 seconds. Furnishings shifted. Ground: Rocky, level, filled in.

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Fairfield (307 East Bell). IV. Motion rapid, lasted 6-7 seconds. Faint earth noises heard. Furnishings shook. Ground: Soil, compact, level.

Fallon. Motion rapid. Direction W-E. Moderate earth noises from E-W heard by many. Felt by and frightened many in community (some outdoors; active). Windows, doors, and dishes rattled; house creaked. Hanging objects swung. Trees, bushes shaken slightly. Small objects shifted. Ground: Rocky, level.

Felton. Motion moderate, lasted 30 seconds. Direction N. Felt by many in community. Windows, doors, and dishes rattled; house creaked. Trees, bushes shaken moderately. Small objects shifted. Ground: Soil, level.

Forest Knolls. Motion rapid, lasted 10 seconds. Direction E-W. Felt by many on first floor of strongly built wooden post office building; by others outdoors (quiet); frightened many. Earth noises heard 1 second before shock. Doors rattled; walls creaked. Small objects and furnishings shifted. "First shock felt by this observer in the last five years." Ground: Compact.

Forestville. Motion slow, lasted 30 seconds. Moderate earth noises from S heard by many 1 second before shock. Felt by all (sitting) in strongly built stucco building with cement floor; frightened few. Windows, doors, and dishes rattled; house creaked some. Hanging objects swung. Trees, bushes shaken slightly. Small objects shifted and overturned. Ground: Compact soil, sloping.

Gilroy. Motion slow. Direction N. Moderate earth noises from N heard. Felt by many in community (some outdoors; quiet); frightened few. Windows rattled; frame creaked. Hanging objects swung. Small objects shifted. Ground: Compact soil.

Guerneville. Motion rapid. Direction W. Faint earth noises heard by many. Felt by many (some outdoors; active); house creaked. Trees, bushes shaken moderately. "Strong enough to shake cans off the store shelves."

Guerneville. Motion slow, twisting, rocking, lasted about 15-20 seconds. Some cans fell from shelf in Safeway store. "I have found no damage nor have I heard of any in this area." Faint earth noises heard. Ground: Soil, rocky, compact, level.

Hamilton Air Force Base. Motion rapid, lasted 35 seconds. Direction W-E. Loud earth noises heard by many 5-10 seconds before shock. Felt by all in post office; frightened few. Windows and doors rattled; frame creaked. Hanging objects swung W-E. Pendulum clock facing W stopped. Ground: Marshy, filled in, level.

Hamilton Air Force Base. Motion rapid, lasted 5 seconds or more. Chair, bed, table, and clock shifted. Ground: Sloping; hill.

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Hamilton Air Force Base. Motion rapid, lasted 12 seconds. Direction E-W. Loud crackling earth noises heard. Small objects shifted E-W. Ground: Level, filled in.

Hamilton Air Force Base. II. Motion rapid, lasted about 30 seconds. Loud earth noises heard. Ground: Level.

Hayward. Motion slow, lasted 40 seconds. Felt by many in post office building; frightened many. Ground: Soil, compact.

Hayward Airport. Motion rapid, lasted about 12-15 seconds.

Moderate earth noises heard. Small objects shifted. Ground: Soil, compact, level.

Hayward (Palma Cira Village). Motion rapid, lasted 2 minutes. Moderate earth noises heard. Small objects and furnishings shifted. Ground: Soil.

Hayward (402 Dale St.). Motion slow, lasted about 1 minute. Moderate earth noises heard. Small objects shifted. Ground: Soil, compact, level.

Hayward (near Hayward Airport). Motion rapid, lasted about 2 minutes. Direction NW. Loud thunderous earth noises heard. Wall pictures shifted. Dog barked during shock. Ground: Soil, compact, level.

Hayward (opposite airport). Two sharp jolts, then swirling roll, lasted 20 seconds. Direction NW-SE. Moderate earth noises heard. Small objects shifted; bottle fell when cupboard doors opened. Visible twisting of ground. Ground: Soil, level.

Hayward. Motion rapid, lasted 30 seconds. Moderate earth noises heard. Small objects shifted. Ground: Soil.

Hayward (3 miles east of). Motion moderate, lasted 30 seconds. Faint earth noises heard. Small objects shifted. Ground: Rocky.

Hayward (3 miles south of, on Niles Road). III. Motion rapid, lasted 30 seconds. Loud earth noises heard. Ground: Soil, adobe, compact, level.

Hayward (26460 Regal). III. Motion slow, lasted 1 minute. Ground: Soil, compact, level.

Healdsburg (419 Fitch St.). Motion moderate, lasted few seconds. Direction E-W. Four-foot-long plaster crack in hallway. "I was in the house (sitting) when I felt the shock. House shook quite plainly. I went to the door and asked my daughter if she had felt it outside. She said she didn't feel it." Ground: Compact, gentle slope.

Healdsburg. IV. Motion slow, lasted 10 seconds. Felt by many in community. Hanging objects swung. Ground: Level.

Healdsburg (511 Prince St.). III. Motion moderate, lasted about 1 minute. Moderate earth noises heard. Ground: Soil, level.

Hercules. Motion rapid. Moderate earth noises heard by many. Felt by many in post office; frightened many in community. House creaked. Trees, bushes shaken moderately. Small objects shifted; knickknacks fell. Ground: Soil, compact.

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Holy City. Motion slow. Direction E-W. Faint earth noises heard by few about 5 seconds before shock. Felt by all in home, by others outdoors (quiet); frightened few in community. Small objects shifted.

Holy City. IV. Motion trembling, gradual onset. Felt by many. Creaking of buildings and rattling of loose objects heard by many. Noticed by nearly everyone at school. Ground: Filled in.

Imola. Motion slow, lasted 1 minute. Faint roaring earth noises heard by some. Felt by several (standing) on first floor of strongly built brick building; frightened few in community. Dishes rattled. Hanging objects swung N. "Was in post office doing routine work. Platform of scale moved; blinds swayed N-S. Did not feel any vertical movement."

Inverness. Motion rapid, lasted 10 seconds. Direction N. Felt by many in home, by others outdoors (quiet); frightened few. Windows rattled. Small objects shifted and overturned. Ground: Compact.

Isleton. Strong jolt, lasted 1 minute. Direction NE. Felt by many in post office, by others outdoors (active); frightened many. Post office equipment swayed. Walls creaked. Ground: Soil, loose, level.

Jenner. "Shock reported quite severe at Jenner, near mouth of Russian River. Apparently felt by everyone, even those moving about. Seems to have been felt stronger on the northeasterly side of the San Andreas Fault. Lines swayed at Jenner and it was reported a tractor on blocks was almost dislodged."

Kenwood (Post Office). Motion rapid, lasted 1 second. Direction SE. Felt by and frightened many. Hanging objects swung. Small objects and furnishings shifted and overturned; knick-knacks fell. Ground: Soil, level.

Lafayette. Motion rapid. Moderate earth noises heard by many. Felt by and frightened many in community. Windows, doors, and dishes rattled; house creaked. Hanging objects swung. Ground: Soil, level.

Lafayette (1107 Orchard Rd.). Motion rapid, lasted 30 seconds. "Could not distinguish house noises from earth noises." Plaster cracked slightly. Damage none to slight. Ground: Soil, compact, steep.

Lafayette (3309 Betty Lane). II. Motion rapid, lasted about 3 seconds. Moderate earth noises heard. Ground: Rocky soil, level.

Lafayette (3350 O'Connor Dr.). II. Motion slow, lasted 10 seconds. Ground: Compact, level.

Lagunitas. Motion rapid, lasted 1 minute. Direction E-W. Felt by and frightened all in community. Doors rattled; house creaked. Hanging objects swung. "It was a good hard shake,

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but I have heard of no reports of damage here. I found nothing even slightly displaced." Ground: Rocky soil, compact, level.

Lagunitas. Motion rapid, up and down, lasted 1-2 minutes. Direction NE to E. Damage slight. Ground: Rocky, adobe, sloping and steep.

Larkspur (33 Myrtle Ave.). Motion rapid, increasing in intensity, lasted 10-12 seconds. Direction indoors NE-SW. Small objects and furnishings shifted. Ground: Clay; concrete slab and rock fill.

Larkspur (11 Midway). Motion rapid, lasted 20-30 seconds. Loud earth noises heard. Small objects shifted. Ground: Level, marshy, filled in.

Larkspur (Greenbrae). Motion rapid, severe shaking for a matter of seconds. Loud rumbling earth noises heard. "Seemed to be a twisting motion indoors. Did not go outdoors until severe part was over." Small objects shifted. Paint may have flaked slightly from old stucco cracks. Ground: Rocky soil, compact, sloping; some fill in one corner?

Larkspur. Motion rapid, lasted 10-12 seconds. "Shock felt or noticed in rear of 70-foot clear-span building. Concrete slab. Direction came from NW-SE. Motion increased then faded. Walls seemed to tip up. No damage to slab or walls." Ground: Clay.

Larkspur (130 Acacia Ave.). IV. Motion rapid, increasing in intensity, lasted a few seconds. Direction SW. Loud earth noises heard. Ground: Rocky, sloping, steep.

Larkspur (5 Cedar Ave.). "Was outdoors and felt no earth movement, but felt or sensed unusual air movement after loud noise, -thought it was a jet plane. Felt impelled to look NW. Small plaster crack noticed but may not be due to shock." Ground: Rocky soil, compact, sloping to steep.

Livermore (Arroyo Sanitarium). Moderate earth noises heard by many. Felt by and frightened many in community. Windows, doors, and dishes rattled; house creaked slightly. "Probably the sharpest I have felt here in over 38 years. However, it did not knock anything off the shelves as did some of those we had several years ago."

Livermore. Motion slow, lasted about 50 seconds. Faint earth noises heard. Damage slight. Ground: Rocky, level.

Livermore (Veterans Hospital). IV. Motion rapid, lasted 5 seconds. Felt by several on second floor of brick building. Doors and hanging objects swung.

Livermore. IV. Motion slow, rolling, lasted about 30 seconds. Direction easterly. Ceiling lights swung. Ground: Soil, compact, level.

Livermore (Post Office). III. Motion rapid, lasted 2 seconds. Felt by several (sitting) in strongly built concrete building. Hanging objects swung. Ground: Gravelly soil.

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Livermore (2 miles east of, 235 Jensen St.). III. Motion slow, undulating, lasted about 20 seconds. Direction E-W. Ground: Alternate sand-gravel-clay to at least 700 feet.

Lodi (central section). Motion swaying, abrupt onset. Felt by many. Four-tube fluorescent light fixture, 4 feet long, mounted N-S, and hung from ceiling with two 30-inch semirigid rods, swung E-W through 2-inch arc. Pendulum clock, 18-inch pendulum, facing N-S stopped. Pendulum clock on E wall of S.P.R.R. depot, 18-inch pendulum swinging N-S, did not stop. Weight-activated clock at same location and mounted on N-S wall had its weight (on 20-inch chain) swung in a NE-SW direction through a 4-inch arc. Many noted nothing unusual; no alarm.

Lodi (west section). Motion swaying, rolling, abrupt onset. Felt by many. Light fixtures moved or swayed slightly for several minutes. Pendulum clock on N-S wall stopped. "A check of the area showed there was no damage. However, many persons felt the shock." Ground: Mokelumne River delta.

Lodi (Terminus Elementary School, on Highway 12). Motion rapid. Building swayed S. "The student body was inside at the time and seated. The cook reported she was standing and almost fell. Noise sounded like two or three loud explosive-like sounds moving southward and becoming a rumble. Shock was not felt in my home at Stockton." Ground: Reclaimed peat land, level.

Los Altos (81 Hawthorne Ave.). Motion rapid, lasted about 3 minutes. Loud earth noises heard. Small objects shifted. Ground: Loose; orchard.

Los Altos Hills (Hilltop Dr.). Motion slow, lasted 30 seconds to 1 minute. Direction NNE. Moderate to loud earth noises heard. Small objects shifted. Ground: Soil, compact, sloping.

Los Altos (143 W. Portola Ave., near Camino). Motion jerking, with slower aftershocks, brief. Direction N-S. Possible slight buckling of tar and gravel roof. Ground: Compact soil, sloping.

Los Altos (409 La Renda Rd.). Motion rapid. Chandelier swayed and fern boxes hanging from porch roof swayed. Ground: Soil, compact, level; stones throughout soil but water puddles before seeping into ground.

Los Altos. IV. "District Superintendent of Los Altos Elementary School District was seated on a concrete step in the basement of the school building and barely felt the shock. Distinctly felt in upper stories but barely felt if sitting on a good solid ground floor."

Los Altos (116 Osage, near downtown area). IV. Motion slow, lasted few seconds. Television picture quite disturbed. Draperies moved slightly. Trees moved E-W. "I live in a flat-top,

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beamed-ceiling house, with concrete floors, and I did not  
feel the shock. A neighbor, 75 feet away, living in a  
conventional-type house, said the motion shook furniture."  
Ground: Soil, loose, level.

Los Altos. IV. Motion fairly rapid, lasted 10 seconds. Di-  
rection NW. Felt by several in community. Hanging ob-  
jects swung NW-SE. Ground: Soil, level.

Los Altos (barber shop on Main Street). III. Motion slow,  
rolling, lasted 25 seconds. Direction NW. Ground: Adobe  
soil, level.

Los Altos (217 Van Buren St.). III. Motion slow, lasted 15  
seconds. Direction indoors W-E. Very moderate earth  
noises heard. "My husband was sitting and felt it; I was  
standing and did not feel it." Ground: Loose, level.

Los Altos (668 Arboleda Dr.). II. Motion slow, lasted 10 seconds.  
Faint earth noises heard. Ground: Adobe soil.

Los Altos (479 La Prenda Rd.). II. Motion slow, lasted 10  
seconds. Ground: Level; former orchard.

Mare Island. Motion rapid. Loud earth noises from NE heard by  
many. Felt by many (some outdoors; active); frightened  
many in community. Windows and doors rattled; building  
creaked. Hanging objects swung NE. Ground: Rocky soil,  
level.

Mare Island (Design Building, 3rd floor). Motion rapid, strong  
for 3-4 seconds, then some small vibrations. Direction  
N (the long axis of Mare Island). Moderate earth noises  
heard. Small objects shifted. "This is a modern build-  
ing. People to the north ran from wood structures."  
Ground: Soil, compact, sloping.

Marshall. Motion rapid, lasted about 1 minute. Moderate earth  
noises heard. Felt by many in community (some outdoors;  
active); frightened few. Windows and doors rattled.  
Hanging objects swung. Trees, bushes shaken moderately.  
Ground: Filled in.

Martinez (Route 1, Box 250-B). Motion rapid, lasted few seconds.  
Moderate earth noises heard. Small objects shifted.  
Ground: Soil, level.

Martinez (Contra Costa County Hospital). Motion rapid, lasted  
about 4 minutes? Moderate earth noises heard. Damage  
slight. Ground: Soil, level.

Martinez (1 mile south of Courthouse). III. Motion rapid,  
lasted about 1 minute. Ground: Soil, gentle slope;  
orchard.

Milpitas. Motion rapid, lasted 5 seconds. Direction N. Faint  
earth noises heard. Felt by all in community; frightened  
many. Windows, doors, and dishes rattled; house creaked.  
Hanging objects swung. Trees, bushes shaken moderately.  
Ground: Soil, compact.

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Moffett Field (Naval Air Station). Motion slow, jerky, lasted 10-15 seconds. Direction from NW. Faint rumbling earth noises heard. Small objects shifted. Ground: Soil, compact, level; tideland.

Moffett Field (west of Moffett Field hangar, across highway). IV. Motion slow. Two shakes, first mild, lasted 30 seconds; second, big shake, lasted possibly 1 minute. Direction E-W. "A power mower running on lawn at the time and I thought the vibration (sitting in car with brakes on) was due to the mower until I saw a car move near me. Car I was in seemed to roll." Ground: Compact.

Moffett Field. IV. Motion rapid, lasted 10 seconds. Felt by all (active) on first floor of strongly built wooden post office building; frightened few. Windows and doors rattled; frame creaked. Ground: Marshy.

Montara. Motion rapid, seemed long duration. Moderate earth noises heard. Small objects shifted. "Felt nine small shocks." Ground: Soil, compact, sloping.

Moraga. Motion rapid. Felt by all on second floor of strongly built brick office building; frightened many in community. Windows, doors, and dishes rattled; building creaked. Hanging objects swung. Small objects and furnishings shifted.

Moss Beach. Motion rapid, lasted about 20 seconds. Direction NW-SE. Earth noises from NW like a jet plane breaking sound barrier heard by many 2 seconds before shock. Felt by all and frightened many in community. Windows, doors, and dishes rattled; house creaked. "More of a grinding vibration or crunching effect. Too short and rapid a vibration to swing things in this building, but where there was a swing of hanging objects the direction was NW-SE." Ground: Rocky, compact, level, sloping.

Mountain View. Motion slow. Direction NE. Faint earth noises from NE heard by few. Felt by all in community; frightened few. Hanging objects swung NE. Ground: Compact, level.

Mountain View (1056 Joaquin Rd.). Motion rapid, lasted 5 seconds. Direction N. Faint earth noises heard. Small objects shifted. Ground: Filled in.

Mountain View (1157-A Villa St.). IV. Motion slow, lasted about 2 minutes. Direction N-S. Faint earth noises heard. Objects and windows rattled. Ground: Soil.

Mountain View (926 Tulane Dr.). IV. Motion rapid, lasted few seconds. Entire house seemed to shake. Ground: Soil, compact, level.

Mountain View (172 Hamilton Ave.). III. Motion rapid, jarring, lasted 30-45 seconds. Direction W-E. Loud earth noises heard. Ground: Soil, compact, level.

Mountain View (1591 Dennis Lane). II. Motion rapid, jerking, very brief. Moderate earth noises heard. Ground: Soil, compact.

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**Newark.** Motion rapid. Moderate earth noises heard by many.

Felt by and frightened many in community. Windows, doors, and dishes rattled; building creaked. Hanging objects swung. Trees, bushes shaken moderately. Ground: Soil.

**Nicasio.** Motion rapid, lasted 3 seconds. Direction W-E. Loud earth noises from W heard by many before shock. Felt by and frightened many in community (some outdoors); awakened few. Dishes rattled; frame creaked. Hanging objects swung. Small objects shifted. Ground: Rocky, level.

**Oakley.** Lasted about 30 seconds. Felt by several in community. Small objects shifted.

**Occidental.** Motion slow, lasted 6 seconds. Direction N. Small objects shifted. Dishes broke. Damage none to slight.

**Occidental.** IV. Motion rapid, rocking, lasted 2 seconds. Felt by many in community (some outdoors; active). Windows rattled. "On the sidewalk people called to one another about the shock. I was moving around in the post office and did not feel it." Ground: Soil, compact, level.

**Occidental** (about 2 miles west of). IV. Motion slow but heavy, lasted about 30 seconds. Direction N. Faint earth noises heard. Disturbed 3,500 chickens at ranch.

**Olema.** Loud earth noises heard. Felt by all. House creaked.

**Orinda** (88 Loma Vista Dr.). Motion rapid, jolting, lasted 5 seconds. Loud earth noises heard. Small objects shifted. Ground: Compact, sloping.

**Orinda** (70 La Cresta Rd.). Motion rapid, lasted about 3 seconds. Direction mostly NE. Pictures shifted. Ground: Compact soil, level.

**Orinda** (11 Cascade Lane). IV. Motion slow and slight, lasted 1/2 second. Direction indoors N. Bird cage swung N-S. Ground: Soil, adobe, sloping.

**Orinda** (120 Brookside Rd.). IV. Motion rapid, lasted 30 seconds. Direction N. Faint earth noises heard. Cups on hooks swung. Ground: Level; along creek bed.

**Orinda.** IV. Motion rapid, lasted 2 minutes. Direction E. Moderate earth noises from E heard by observer 2 seconds before shock. Windows, doors, and dishes rattled. Ground: Soil.

**Orinda** (333 Glorietta Blvd.). IV. Motion rapid, lasted 30 seconds. Vibration like that from passing truck. Dishes rattled. Ground: Soil, compact, sloping.

**Orinda** (61 Van Ripper Lane). Motion slow, lasted several seconds. Ground: Compact, sloping.

**Parks Air Force Base (Oakland Branch Post Office).** Motion rapid, lasted 30 seconds. Moderate earth noises heard by many 2 seconds before shock. Felt by many at Base; frightened few. Windows and doors rattled; house creaked. Walls cracked (plaster?). "Personnel in this office were at lunch when the shock hit. Everyone was calm. The table and chairs seemed to rock and vibrate for a good 20-30

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seconds after the shock. The building creaked and stretched.  
No apparent real damage to building." Ground: Soil, level.  
Penngrove. Motion rapid, lasted 10 seconds. Direction NE. Moderate earth noises from NE heard by many 2 seconds before shock. Felt by many (some outdoors; quiet) and frightened many in community. Windows and dishes rattled; frame creaked. Hanging objects swung NE. Trees, bushes shaken slightly. Some small objects shifted. "Felt by all in buildings; many outdoors did not feel it." Ground: Level, compact.  
Petaluma. Press described the shock as the heaviest felt in many years. Children were evacuated from schools and hundreds of people left homes and office buildings. Large window-pane in front of the Chamber of Commerce office "quivered like jelly."  
Petaluma. Motion rapid, lasted 15 seconds. Direction N. Moderate earth noises heard. Felt by many in community (some outdoors); frightened few. Windows, doors, and dishes rattled; walls creaked. Hanging objects swung. Small objects shifted. Ground: Compact.  
Petaluma (821 Madison St.). Motion rapid, lasted 30 seconds to 1 minute. Direction W-E. Loud earth noises heard. Small objects and furnishings shifted. Ground: Soil, adobe, level, compact.  
Petaluma (101 Burlington Dr.). Motion very rapid, lasted less than 1 minute. Moderate earth noises heard. Small objects shifted and broke. Ground: Adobe soil, level.  
Petaluma (east section). Motion rapid, lasted about 2-3 seconds. Direction NE. Loud earth noises heard. "Our old house rocked like a cradle. My husband and I ran outdoors, as did all our neighbors." Ground: Level; farmland.  
Petaluma (51 Rayman St.). III. Motion rapid, lasted 1 minute. Direction NW-SE. Moderate earth noises heard. Ground: Steep; on hill.  
Petaluma (520 Cleveland). Motion rapid, lasted less than a minute. Loud earth noises heard. Ground: Compact, level.  
Pleasant Hill. Motion slow, lasted 3-5 seconds. Direction N. Felt by all in community; frightened few. Windows rattled. Hanging objects swung N. Ground: Soil, compact, level.  
Pleasant Hill (112 Hubbard Ave.). Motion moderate, lasted 30-60 seconds. Direction N-S. Loud earth noises heard. Mirrors, etc., shifted. Ground: Soil, compact.  
Pleasant Hill (125 Byron Dr.). Motion rolling, rocking, E-W, as if house on wheels. Lightweight small objects shifted. "House creaks more." Ground: Soil, adobe, sloping.  
Pleasant Hill (47 Arelda Dr.). III. Motion rapid, lasted about 3 seconds. Direction E-W. Faint earth noises heard. Ground: Soil, compact, level.

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**Pleasant Hill (1012 Pleasant Valley Dr.). III. Motion rapid, lasted 10 seconds. Direction SW. "I was standing outside on cement driveway. Heard loud noise, but felt no motion." Ground: Soil, compact, level.**

**Redwood Estates. Motion rapid. Direction NE. Faint earth noises heard by few. Felt by all in community. Windows, doors, and dishes rattled; house creaked. Hanging objects swung NE. Trees, bushes shaken slightly. Small objects shifted. "Just quick shake. No damage in this area to the best of my knowledge." Ground: Rocky soil, compact, level, steep.**

**Rio Nido and Guerneville. Motion rapid, momentary duration. Felt by (some outdoors) and frightened many in community. Windows rattled; everything shook. Glass chimes rocked. "As if giant hands took the house and shook it. My husband was in the basement washing the car and he didn't feel a thing. I felt it upstairs." Ground: Compact, sloping.**

**Rio Vista. Motion rapid. Direction E. Moderate earth noises from E heard by many before shock. Felt by many (some outdoors); awakened and frightened one. Windows rattled; walls creaked. Trees, bushes shaken moderately. Hanging objects swung. Plaster cracked. Ground: Soil, sloping.**

**Rio Vista. IV. Motion rapid, lasted several seconds. Felt by many; frightened few. "One person reported she thought trailer house was being rocked by jet planes until she heard occupants of other trailers calling excitedly. Only shock of series felt by persons questioned."**

**Saint Helena. Press reported students were evacuated from the stone Saint Helena High School. Students on the fire escape noticed it swung considerably. Light fixtures swung crazily, and at the Star newspaper office the large front windows moved in and out but did not break. Door chimes swung back and forth, causing some to ring. Pendulum clock stopped. Buildings creaked. Shock accompanied by sounds resembling a high wind.**

**Saint Helena. Motion rapid, momentary duration. Direction N. Faint earth noises from S heard by few. Felt by practically everyone in community (some outdoors; active); frightened few in community. Windows rattled; walls creaked. Trees, bushes shaken slightly. "This shock was felt quite strongly here. In the post office, a solidly built concrete building (built 1940), the windows rattled, typewriter shook visibly, and most everyone complained of experiencing a sinking feeling. Perhaps strongest shock felt since 1906." Ground: Soil, level.**

**Saint Helena (1604 Madrona Ave.). Motion rapid, momentary duration. Faint earth noises heard. "I stood at the stove starting lunch. Suddenly I was shaken back and forth E-W, then thrown forward against the stove. Frying pan and coffee**

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pot on stove jumped up and down. Not felt by neighbors working in gardens."

Saint Helena (east section). IV. Motion trembling, N-S, gradual onset. Felt by many. Creaking of building and rattling of loose objects heard by several. "I was just observing the thermometers in the shelter when the shock started. The shelter shook and trembled for several seconds." Ground: Sandy.

Saint Helena (1417 Kearny St.). IV. Motion rapid, lasted less than 15 seconds. Definite south to north push. Everything loose rattled. Moderate earth noises heard. Ground: Level, compact, filled in.

San Martin. Motion rapid, lasted few seconds. Direction N-S. Loud earth noises from NE-SW heard by many before shock. Felt by many in community. Windows and doors rattled; walls creaked. Hanging objects swung. Small objects shifted. Ground: Soil.

Santa Clara (622 Enright). Motion rapid, lasted 20 seconds. Faint earth noises heard. Small objects shifted. Ground: Soil, compact, level.

Santa Cruz. Motion rapid. Felt by all; frightened many. Windows, doors, and dishes rattled; house creaked.

Santa Cruz (168 Plateau). Motion slow, lasted 20 seconds. Direction NE. Faint earth noises heard. Small objects shifted. Ground: Soil, compact, level.

Santa Cruz (Scotts Valley). Motion rapid, lasted few seconds. Faint earth noises heard. Small objects shifted. "A vase of flowers (trillium) on a bookcase vibrated strongly, and the flowers wilted." Ground: Soil, loose, sloping.

Santa Cruz (1 block from ocean). IV. Two shocks, lasted about 15 seconds each. Sharp, bobbing motion, similar to driving over cobblestones, felt by observer in car. Direction N-S. Objects rattled. Ground: Rocky soil, compact, level.

Santa Cruz. IV. Motion rapid, lasted 30 seconds. Felt by many on second floor of strongly built wooden post office building; frightened few in community. Windows, doors, and dishes rattled. Ground: Rocky, level.

Santa Cruz (central section). III. Motion trembling, rapid onset. Felt by several; by observer (standing) on first floor of well-constructed reinforced-concrete building. One shock felt.

Santa Cruz (downtown). III. Motion rapid, then slow, lasted more than a minute. Ground: Soil, level.

Santa Cruz. II. Motion slow, lasted 5 seconds. Felt by observer (sitting) in home. Ground: Compact, sloping.

Santa Cruz (west side). II. Motion rapid, lasted 2-3 seconds. Ground: Rocky, level.

Santa Cruz. "Very mild shock."

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San Quentin. Motion slow, lasted 1 minute. Direction SE. Loud earth noises from SE heard. Felt by and frightened many. Windows rattled. Ground: Compact, level.

Saratoga. Motion jerking, lasted 4 seconds. Direction W. Loud earth noises heard. Damage very slight to brick and masonry.

Saratoga. Motion rapid. Felt by several (active) on first floor of strongly built brick building; frightened few. Hanging objects swung.

Sebastopol. Motion rapid. Moderate earth noises heard. Felt by many (some outdoors; quiet); frightened few. Windows and doors rattled; frame creaked. Hanging objects swung E-W. Trees, bushes shaken strongly. "Steel columns appeared to move E-W." Ground: Compact, level.

Sebastopol. Press reported the shock was severe, but no damage was reported.

Sebastopol (151 Bodega Ave.). II. Motion moderate, lasted about 30 seconds. Faint earth noises heard. Ground: Soil, level.

Sebastopol (253 Florence Ave.). II. Motion slow, lasted 45 seconds. Moderate earth noises heard. Ground: Soil, level.

Selby. Faint earth noises heard by many. Felt by all in community; frightened few. Windows rattled; building creaked. Hanging objects swung. Trees, bushes shaken moderately. Ground: Compact, level.

Stewarts Point (4 miles east of). Motion rapid. Faint earth noises heard. Felt by many (some outdoors); frightened few. Windows, doors, and dishes rattled; house creaked. Hanging objects swung. Trees, bushes shaken strongly. Small objects shifted. "Knocked down a high pole and logging equipment rigging." Damage slight. Ground: Compact.

Stinson Beach. Motion rapid. Direction SE. Felt by all in community; frightened many (all in home). Windows, doors, and dishes rattled strongly; house creaked very strongly. Hanging objects swung for 15 minutes or more after the heavy shaking. Ground: Rocky soil, loose, compact, level, sloping and steep.

Suisun City. Lasted 15 seconds. Felt by all and frightened few in community. Windows, doors, and dishes rattled; building creaked. Hanging objects swung E. Pendulum clock facing E stopped. "Shock severe, but no damage in this community." Ground: Soil, marshy, filled in.

Suisun (Grizzly Island). Motion slow, lasted 30 seconds. Direction N. Pictures shifted. Ground: Level, filled in.

Tomales. Motion slow, slight, lasted 3-4 seconds. Direction N. Faint earth noises heard by few. Felt by many. Windows rattled; house creaked. Hanging objects swung N. Few small objects overturned.

Tracy (1400 East St.). Motion slow, lasted over 1 minute. Direction indoors W-E. Very slight rattling of piled dishes.

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"Finished cracking (cracked about 5 years ago) concrete aggregate wall surrounding garden. Small vertical cracks have appeared in central section of house walls on east and west sides of house. No inside plaster cracks. One-story house of concrete aggregate bricks, with heavy foundation and steel rod reinforcing. I have had difficulty with settlement in long central portion of house due to drying of adobe beneath house."

Tracy. IV. Motion slow. Felt by many in community (some outdoors); frightened few. House creaked. Hanging objects swung. Ground: Soil, compact, level.

Tracy (242 W. Lowell). III. Motion moderate, lasted about 5 seconds. Direction indoors N-S. Felt by observer on second floor of 2-story cinder-block building.

Valley Ford. Motion rapid, lasted 30 seconds. Moderate earth noises heard by many. Felt by many in store; frightened many. Windows and doors rattled. Hanging objects swung. Ground: Compact.

Veterans Home. Motion rapid, lasted 30 seconds. Felt by all. Walls creaked. Hanging objects swung. Small objects shifted. Ground: Compact.

Walnut Creek. Motion slow, lasted 3 minutes. Direction N. Felt by many (some outdoors; active); frightened many. Windows, doors, and dishes rattled; walls creaked. Hanging objects swung. Trees, bushes shaken moderately. Ground: Rocky soil, compact, level, sloping and steep.

Walnut Creek (20 Carmella Rd.). Motion rolling, lasted 30 seconds. Direction E-W. Moderate earth noises heard. Two or three unstable figurines tipped over. Ground: Soil, compact, sloping.

Walnut Creek (31 Supreme Court). IV. Motion slow, rolling, lasted about 15 seconds. Direction indoors N-S. Hanging lights swung back and forth. "What impressed me most was the quietness of the shock here. Nothing rattled; no creaking of house. I was standing in a closet reaching for something on the shelf when I started to rock gently back and forth. At first I thought I was just dizzy, then I noticed hanging lights were swinging back and forth in a N-S direction and realized it must be an earthquake. But it was just a fairly slow rolling motion like waves." Ground: Soil, compact, level.

Woodacre. Motion rapid. Moderate earth noises from W heard by many. Felt by several on first floor of wooden post office building; by others outdoors; frightened few in community. Windows, doors, and dishes rattled; building creaked. Pendulum clock stopped. Ground: Soil, compact, level.

Woodacre. III. Motion slow, lasted about 15 seconds. Direction N. Ground: Rocky.

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Woodside (20007 Skyline Blvd.). Motion rapid, jerking, lasted about 1 minute. Small objects and furnishings shifted. Old concrete floor cracks enlarged. Ground: Rocky, sloping.

Woodside (127 Glenwood Ave.). Motion rapid, lasted 30 seconds. Direction NE. Moderate earth noises heard. Small objects shifted. "Aftershocks ranged from sharp jolts to gentle shaking motions." Ground: Soil, compact, sloping.

Woodside. IV. Motion slow, lasted 5 seconds. Faint earth noises heard. Felt by many (active) at place of business on first and second floors of strongly built wooden building; frightened few. Windows rattled. Trees, bushes shaken slightly.

Woodside (435 Whiskey Hill Rd.). III. Motion rapid, lasted about 10 seconds. Direction SE-NW. Moderate earth noises heard. Ground: Rocky, level.

Intensity IV:

Angwin. Motion rapid, lasted 10 seconds. Moderate earth noises heard. Felt by many in community; frightened few. Windows, doors, and dishes rattled; walls creaked. Hanging objects swung.

Annapolis. Motion slow, lasted 10 seconds. Direction SE. Faint earth noises from SE heard by few. Felt by many (some outdoors; quiet); frightened few. Windows, doors, and dishes rattled; frame creaked. Trees, bushes shaken moderately. Ground: Rocky soil, sloping.

Aptos. Motion slow, lasted 10 seconds. Direction E-W. Felt by many in home. Windows and doors rattled. Ground: Soil.

Ben Lomond. Motion jarring, rapid shaking, lasted 30 seconds. Direction N-S. Felt by many; by observer and others (sitting) on first floor of strongly built building. Hanging objects swung. Ground: Compact soil.

Ben Lomond. Motion slow, long duration. Felt by many (sitting) on first floor of strongly built wooden house. Windows, doors, and dishes rattled; house creaked. Ground: Soil, compact, level.

Ben Lomond. III. Motion rapid, lasted 10-12 seconds. Direction NE. Faint earth noises heard. Light fixtures swayed. Ground: Adobe, compact, sloping.

Brooks. Motion slow, momentary duration. Direction NE. Felt by many in community (some outdoors; quiet). Trees, bushes shaken slightly. Ground: Soil, compact, level.

Byron. Moderate earth noises heard. Felt by several; frightened few.

Calistoga. Felt by many in community (some outdoors); frightened few. Windows, doors, and dishes rattled; house creaked. Hanging objects swung. "I did not feel it. Those sitting or quiet felt it." Ground: Compact.

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Capitola. Motion slow, lasted 20 seconds. Felt by many in community; frightened few. "Was sitting at desk during shock. Gentle but very distinct. Seemed to come from N-S. Clerk in dressing room did not feel it and wife at home in garden did not feel it." Ground: Level; beach.

Cazadero. Motion slow, lasted 3 seconds. Felt by many in home and at post office; frightened few. Doors rattled.

Chair in which observer was sitting rocked. Ground: Rocky.

Cazadero. III. Motion slight, lasted 2 seconds. Felt by several (active) in strongly built wooden building. "Very slight." Ground: Rocky.

Clarksburg. Motion slow, rolling, lasted 2 seconds. Direction E-W. Moderate shock felt by several in strongly built 2-story wooden store building. Moderate earth noises from W-E heard. Windows, doors, and dishes rattled; house creaked. Hanging objects swung. Trees, bushes shaken moderately. Ground: Compact.

Clarksburg (American Crystal Sugar Co.). III. Motion swaying, E-W, abrupt onset. Felt by three on second floor of well-built brick building (sitting).

Courtland. Motion rapid. Direction NE. Felt by several in home (sitting); outdoors by observer. Windows rattled. Ground: Loose.

Coyote. Motion rapid, brief. Direction NNE. Faint earth noises from NE heard. Felt by several in community; by others outdoors (quiet); frightened few. Windows rattled. Hanging objects swung NE. Trees, bushes shaken slightly. Ground: Soil, level.

Cupertino. Motion rapid, lasted about 30 seconds. Direction from W. Loud whistling sounds heard. "I thought it was a tornado. Seemed to hear sounds first. My husband outside felt nothing."

Davenport. Motion slow. Faint earth noises heard. Felt by few in community. Windows rattled. Ground: Soil, level.

Diablo. Motion slow, lasted about 2 minutes. Faint earth noises heard by many. Felt by many in community (some outdoors; quiet). Windows rattled; house creaked some. Hanging objects swung. Trees, bushes shaken slightly. Ground: Adobe, compact.

Dixon. Motion slow. Felt by many in community. Hanging objects swung. "Many complained of a rather sick feeling during the shock, although they said it was only slightly felt." Ground: Soil.

Eldridge. Motion slow, lasted 20 seconds. Loud earth noises heard. Direction E. Felt by all in post office; frightened few. Windows, doors, and dishes rattled; building creaked. Hanging objects swung. Ground: Soil.

Elmira. Felt by several in community; awakened few. Windows rattled.

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**Fort Ross** and 2 miles northeast of. Motion jolting, rapid onset.

Felt by one at Fort Ross (sitting); by one 2 miles NE of Fort Ross. Buildings creaked at both places. Hanging objects swung. Rumbling earth noises heard and disturbed objects observed 2 miles NE of Fort Ross. Ground: Rocky.

**Fulton**. Motion rapid. Loud earth noises from W-E heard by many. Felt by several in community; frightened few. Windows and lights rattled; mailboxes rocked very strongly; house creaked. Trees, bushes shaken moderately. "Thought an automobile had bumped into the building." Ground: Level, compact.

**Graton**. Motion rapid, lasted 8 seconds. Felt by many (some outdoors; quiet); frightened few in community. Building creaked. Hanging objects swung E-W. Trees, bushes shaken moderately. Ground: Soil, compact, level.

**Guinda**. Motion rapid, lasted about 30 seconds. Felt by many in home; frightened few. Windows, doors, and dishes rattled; house creaked. Hanging objects swung. Ground: Soil.

**Hoberge**. Motion rapid, lasted 8-10 seconds. Direction E-W. Felt by many in community; frightened few. House creaked moderately. Ground: Soil, compact, level, sloping.

**Hollister**. Motion slow, brief. Direction N. Felt by several on first floor of strongly built concrete building (sitting); by others outdoors (quiet). Trees, bushes shaken slightly. "Slight shock." Ground: Soil, level.

**Hollister** (1 mile south of). Lasted about 10 seconds. Cups on hooks and window shade pulls swayed. Ground: Compact, level.

**Hollister**, II. Felt by few. "Barely felt."

**Holt**. Motion slow, lasted 5 seconds. Direction N-S. Felt on second floor of weakly built wooden post office and store building (active). Frame creaked. Ground: Soil, level.

**Hood**. Motion slow, momentary duration. Felt on first floor of wooden post office building (sitting); by others outdoors. "Felt very slightly. First noticed desk sort of rocking. No damage in this vicinity."

**Irvington**. Motion rapid, lasted 1 second. Moderate earth noises heard. Felt by several at work on first floor of strongly built building. Windows and doors rattled. "It was a 'good' shock."

**Knightsen**. Motion rapid. Moderate earth noises heard. Felt by many in community. Windows creaked. Hanging objects swung. Trees, bushes shaken moderately.

**Lathrop**. Motion rapid, lasted 1 second. Faint earth noises heard. Felt by many and frightened few in community. Hanging objects swung. Ground: Soil, compact.

**Los Gatos**. Motion slow. Direction N-S. Felt by several in community (some outdoors; quiet). Trees, bushes shaken slightly. Ground: Compact, level.

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Los Gatos (20531 Bear Creek Rd., 3 miles WNW of Holy City).

"Started with house creaking and cracking. Sharp rumble. Rising and falling roll, ending with fainter W-E jerks. Donkey thrown off balance during roll. Dogs worried but not barking. No damage to buildings."

Lower Lake. Motion slow. Faint earth noises heard. Felt by many in community. Walls creaked. Trees, bushes shaken slightly.

Lyton. Motion slow, lasted 10 seconds. Felt by many in community. Hanging objects swung. Ground: Level.

Madrone. Motion slow. Felt by many in home; frightened few. Ground: Compact, level.

Manteca. Motion slow, lasted 5 seconds. Faint earth noises heard 5 seconds before shock. Felt by many in community (some outdoors; quiet). Trees, bushes shaken slightly. Ground: Compact.

Middletown. Motion rapid, strong, rolling, lasted 30 seconds. Direction NW. Felt by many (some outdoors; active). Windows rattled; walls creaked. Hanging objects swung. Trees, bushes shaken slightly. "Strong rolling motion felt in strongly built concrete-block post office building." Ground: Rocky soil, level.

Mission San Jose. Motion slow, lasted 30 seconds. Direction E-W. Loud earth noises from W heard by few 10 seconds before shock. Felt by many (observer outdoors; active); frightened few. Windows, doors, and dishes rattled; walls creaked. Hanging objects swung. Ground: Compact, level.

Morgan Hill. Motion slow, lasted 5 seconds. Direction N. Faint earth noises from N heard by few. Felt by several on first floor of strongly built wooden house (sitting). Windows, doors, and dishes rattled. Hanging objects swung N. Ground: Soil, sloping.

Morgan Hill. Felt by many in community; by observer on first floor of strongly built wooden building; frightened few.

Morgan Hill. Felt by many. Not felt by four persons in old one-story, well-built building. Wooden building with concrete slab floor.

Mount Hamilton. Motion slow, lasted about 5 seconds. Felt by several (sitting) on first and second floors of brick and reinforced-concrete building. Doors rattled slightly; walls creaked. "Generally speaking this was a light shock. Felt only by those sitting or standing quietly. Some who were standing and doing light work or walking did not feel the shock." Ground: Rocky.

Mount Hermon. Motion slow, lasted 5 seconds. Felt by several; by observer (active) on first floor of strongly built wooden building; frightened few. Windows and doors rattled; frame creaked. Ground: Loose, sloping.

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New Almaden. Motion slow. Faint earth noises heard by few.

Felt by several (sitting) on first floor of weakly built wooden post office building. Building creaked. Trees, bushes shaken slightly. "Very slight, rapid jerk. Many people did not feel it at all. Those outdoors were not aware of it." Ground: Rocky soil.

Permanente (near Cupertino). Motion slow, lasted 10 seconds.

Felt by many (some outdoors; quiet); frightened few.

Blinds rattled. Ground: Compact, level.

Pleasanton. Felt by many. Windows, doors, and dishes rattled.

Hanging objects swung. Ground: Rocky soil.

Prunedale (10 miles N of Salinas). Felt by several in community (some outdoors; quiet). Windows and dishes rattled.

"Slightly felt. However, several persons not moving around did feel it and saw light fixtures swaying."

Ground: Soil.

Ripon. Motion slow, lasted 10 seconds. Faint earth noises heard.

Felt by several in community; frightened few.

Windows and dishes rattled. Hanging objects swung. Ground: Soil.

Ryde. Felt by many; by observer (active) on first floor of wooden post office building; frightened few in community. "First shock was sudden and severe, as though building shifted on foundation back and forth. Followed by slight tremors that made me feel dizzy. People on second floor of Ryde Hotel felt rocking motion more severely and longer than was felt in post office building. Post office is built on the Sacramento River levee."

Soquel (1/2 mile off, between Soquel and Capitola). Motion rapid, lasted 1 minute. Moderate earth noises from N heard by observer 3 seconds before shock. Felt by several (active) on first floor of strongly built house; awakened one in home. Windows, doors, and dishes rattled. Hanging objects swung N. "Clerk alone in post office building at Soquel did not feel shock at all." Ground: Soil, level.

Stockton. Motion slow, lasted 1 minute. Felt by observer in strongly built wooden house. Doors rattled. Ground: Soil.

Stockton. Motion slow. Felt by several (active) on second floor of concrete post office building. Windows, doors, and dishes rattled slightly; building creaked slightly. "Felt in post office building by only a few and very slightly. Felt in community and more so by those in the taller buildings."

Stockton (near Port of Stockton). Motion slow, horizontal. Faint earth noises heard. Building rocked; lights moved. Ground: Possibly filled in.

Stockton (Rough and Ready Island). III. Motion slow, lasted about 1 second. Direction E-W. Light fixtures swayed. Ground: Level, filled in.

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Stockton (944 E. Scotts Ave.). III. Motion rapid. "Just two, short, rapid, sharp shakes." Ground: Compact, soil.

Stockton (1045 N. Van Buren St.). III. Motion rapid, lasted 5 seconds. Direction E-W. Ground: Hardpan, level.

Stockton (3622 San Mateo). II. Motion slow, lasted 1 minute. Ground: Level.

Sunol. Motion rapid, lasted 30 seconds. Felt by several (standing) on first floor of strongly built stucco post office building. Windows and doors rattled; walls creaked. Hanging objects swung. Ground: Rocky soil, level.

Thornton. Motion rapid, lasted 2 seconds. Direction N-S. Felt by several in community (some outdoors; quiet); frightened few. Windows rattled. Hanging objects swung. Trees, bushes shaken slightly. Ground: Soil, level.

Vacaville. Motion rapid, lasted about 4 seconds. Direction S. Felt by many in community; by some on first floor of concrete building (active); by others outdoors (quiet). Windows, doors, and dishes rattled very slightly. "Rather sharp, but no damage." Ground: Soil, level.

Vacaville (2 miles NW of). Motion rapid, rocking. Dishes rattled. Ground: Compact, level.

Vernalis. Motion slow, lasted 45 seconds. Felt by several in community; by observer in strongly built wooden building (sitting). Windows rattled; building creaked. Hanging objects swung. Ground: Soil, compact.

Villa Grande. Motion rapid, lasted 30 seconds. Earth noises from N heard by few. Felt by many; by observer outdoors (active); frightened few in community. Windows, doors, and dishes rattled; house creaked. Hanging objects swung. Trees, bushes shaken slightly. Ground: Loose, level.

Walnut Grove. Motion rapid, slow. Direction E-W. Faint earth noises from E-W heard by few. Felt by many (some outdoors; active); frightened few. Windows, doors, and dishes rattled; house creaked. Hanging objects swung. Trees, bushes shaken slightly. Ground: Soil. "My first awareness was being slightly jerked, then swaying E-W motion. Man sitting in parked car said it was suddenly jerked east then back again."

Watsonville. Motion slow, lasted 15 seconds. Faint earth noises heard. Felt by many in strongly built building. Windows rattled.

Watsonville (La Selva Beach Post Office). II. Felt by one (lying down) on second floor of stucco building.

Windsor. Motion rapid and slow, lasted 40 seconds. Felt by many in community and in concrete-block post office building (sitting). Trees, bushes shaken moderately. "A dizzy sensation was felt by many when shock started. Ground rolled E-W." Ground: Compact.

Winters. Motion slow, brief. Felt by several and frightened few in community. Faint earth noises heard. "Not very strong nor long." Ground: Level.

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Intensity I to III:

Albion. Felt by few on first floor of wooden building. Dishes rattled.

Banta. Motion rapid, lasted 2 seconds. Felt by several in community; some on first floor of strongly built brick building (active). Ground: Compact, level.

Brentwood. Motion slow, lasted 5 seconds. Felt by observer in strongly built brick building (active). Trees, bushes shaken slightly. "This shock was so light that it was barely noticeable. Motion seemed to be from W-E. No damage of any kind." Ground: Soil, loose, level.

Brookdale (along the San Lorenzo River, San Lorenzo Valley). Motion slow, lasted 5 seconds. Direction NE-SW. Faint earth noises from NE-SW heard by observer. Felt by several; some on second floor of wooden building (active). Ground: Rocky, level.

Camanche. Motion slow. Direction N-S. Felt by several in community; some in strongly built wooden building (sitting). Hanging objects swung a little. Ground: Sandy, sloping, soil.

Capay. "Several persons said their houses trembled slightly. Most thought nothing of it until news came over radio."

Chualar. "Very light shock." Felt by observer (sitting) on first floor of weakly built post office building. Doors rattled.

Cloverdale. Felt by several in community (some outdoors; quiet).

Cobb. "Very light." Motion slow. Felt by several; some on first floor of strongly built wooden building (sitting). Ground: Compact, level.

Espero. Felt by several; some on first floor of strongly built wooden building (sitting); by others outdoors; quiet. Hanging objects swung. Ground: Compact.

Gustine. Felt by several; some on first floor of strongly built wooden building.

Knights Landing. Felt by several in community; some in wooden building (sitting). Ground: Marshy.

Marina. Motion slow. Felt by several in community; some in weakly built wooden building (sitting); by others outdoors. Ground: Sandy, sloping.

Moss Landing. Motion slow. Felt by several; some on first floor of weakly built wooden post office building (sitting).

Newman. Felt by several in home and community; some on second floor of strongly built building (sitting). Faint earth noises heard. Hanging objects swung. "Shock seemed to be a sort of gentle swaying back and forth, causing hanging fixtures to swing, but doing no damage."

Pacific Grove. Felt by several in community. "Reports of feeling shock were scattered and uncertain. No definite information."

22 March, 11:44:21\*. Intensity I to III. (cont.)

Patterson. Motion slow, lasted 8-10 seconds. Direction E.  
Ground: Compact.

Point Arena. "A loosely constructed window fell out of the post office building about the time of the shock. This could or could not have been due to the shock. A forest ranger in Point Arena told me that he was resting his head on a table at the time and that he had a glass of water in front of him. The water level in the glass began to shake. The two incidents are the only ones I have heard of in this area."

Princeton Beach (on Half Moon Bay). Motion rapid, lasted 30 seconds. Direction NW-SE. Moderate earth noises heard.  
Ground: Sandy; beach.

Sacramento (Capitol Building). "Observer with school group on first floor of Capitol Building. Upon entering room all noticed large chandelier swinging E-W. No one felt shock. When questioned, guide was unable to give any explanation for the swinging, but he did move out from under it. No one thought of a shock, as no motion was felt."

Sacramento (1507-21st St.). Motion rapid, lasted about 20 seconds. Direction NE. Loud earth noises heard. Felt by observer on third floor of three-story concrete office building.  
Ground: Soil, level.

Sacramento (721 Capitol Ave.). Motion moderate, lasted about 30 seconds. Venetian blinds and cords swayed. Felt by observer on fourth floor of concrete building.

Salinas. Motion rapid. Felt by several in community. Hanging objects swung N. Ground: Compact.

Sonora. Motion slow, lasted few seconds. Felt by observer on first floor of strongly built wood and cement building.  
Ground: Compact.

Travis Air Force Base (Fairfield). Motion rapid. Faint earth noises heard by observer. Felt by observer on first floor of strongly built concrete building (sitting). Hanging objects swung. Ground: Soil.

West Sacramento. "Some residents said they felt the shock."

Wilton. Motion slow. Felt by observer on first floor of weakly built wooden building (lying down). Light on drop cord swung. "Only one person reported feeling it."

Reported heard in Nevada:

Reno. "I heard very low, distant rumbling sounds, rather continuous, then pauses, then repetition. My husband did not hear the sounds at all. I was standing in living room. I ran to our kitchen clock and it was 11:45 A.M. I said to my husband, 'You're going to hear or read something of this.'"

22 March, 11:44:21\*. (cont.)

Reported not felt: Acampo, Adelaida (west of Paso Robles), Altaville, Antelope, Arbuckle, Aromas, Asti, Atwater, Auburn, Aukum, Avenal, Big Sur, Biola, Boonville, Broderick, Bryte, Burrel, Butte City, Camp McCallum (Monterey), Cantua Creek, Carmel, Carmel Valley, Carmichael, Caruthers, Caspar, Castroville, Cayucos, Ceres, Chinese Camp, Cholame, Citrus Heights, Clearlake Oaks, Clements, Coalinga, College City, Colusa, Comptche, Copperopolis, Corcoran, Coulterville, Creston, Crows Landing, Davis, Denair, Dos Palos, Dunnigan, East Nicolaus, East Santa Cruz, Elk Creek, Elk Grove, El Nido, Elverta, Empire, Escalon, Fair Oaks, Farmington, Finley, Firebaugh, Five Points, Florin, Folsom, Fort Bragg, Fort Crd, Freedom, French Camp, Fresno, Friant, Galt, Gonzales, Greenfield, Gridley, Grimes, Groveland, Gualala, Hanford, Harmony, Helm, Herald, Herndon, Hopland, Hornitos, Hughson, Huron, Idria, Ione, Jackson, Jolon, Kelseyville, Kettleman City, Keyes, King City, Lakeport, Le Grand, Lincoln, Linden, Live Oak, Lockeford, Lotus, Longvale, Loomis, Los Banos, Lucerne, McClellan Air Force Base (Sacramento), Madera, Madison, Manchester, Mariposa, Mather Air Force Base (Sacramento), Marysville, Maxwell, Mendocino, Mendota, Merced, Merced Falls, Meridian, Modesto, Monterey, Natoma, Navarro, North Highlands, Oakdale, Orangeville, Paicines, Paso Robles, Pebble Beach, Perkins, Pinnacles National Monument, Placerville, Pleasant Grove, Plymouth, Potter Valley, Princeton, Raymond, Represa, Richvale, Rio Linda, Rio Oso, Riverbank, Riverdale, Robbins, Rumsey, Salida, San Andreas, San Ardo, San Benito, San Joaquin, San Juan Bautista, San Lucas, San Miguel, Santa Rita Park, Seaside, Shandon, Sheridan, Shingle Springs, Sloughhouse, Soledad, Snelling, Stevenson, Stonyford, Tranquillity, Tres Pinos, Trowbridge, Turlock, Tuttletown (rural area of Sonora), Upper Lake, Valley Home, Valley Springs, Victor, Volta, Wallace, Waterford, Weimar, Westhaven, Westley, Westpoint, Williams, Willits, Willows, Woodbridge, Woodland, Yolo, Yorkville, Yountville, Yuba City, and Zamora.

22 March, 11:50:16\*, 11:52:30\*. B. Aftershocks of 22 March.

San Francisco (Federal Office Building, Civic Center). Slight.

22 March, 11:57:36\*. B. Aftershock of 22 March.

San Francisco (Federal Office Building). Slight.

San Francisco (425 Mason St., 4th floor). Light. "Seven men in conference and all arose from their chairs."

22 March, 12:00:26\*. B. Aftershock of 22 March.

San Francisco (70 Ravenwood Dr.). Motion slow. "Many aftershocks felt."

22 March, 12:27.1\*, 12:29:01\*. B. Aftershocks of 22 March.

San Francisco (1750-48th Ave.). Two light shocks felt.

22 March, 12:32:16\*. 12:35:35\*. B. Aftershocks of 22 March.  
San Francisco (Federal Office Building). Slight shocks.  
Sonoma (583-3rd E.). (12:32:16) Felt.

22 March, 13:07:47\*. Aftershock of 22 March. Magnitude 3.6.  
Epicenter  $37^{\circ}41'$  north,  $122^{\circ}29'$  west, southwest of Daly City, B.  
San Francisco (465 California St.). III. Motion seemed to be  
vertical. Lasted 2 seconds. Felt on 10th floor of re-  
inforced-concrete building.  
San Francisco (Federal Office Building). Moderate circular  
motion.

22 March, 13:18:29\*. Aftershock of 22 March. Magnitude 3.8.  
Epicenter  $37^{\circ}40'$  north,  $122^{\circ}29'$  west, east of Mussel Rock, B.  
Martinez (Contra Costa County Hospital). Felt.  
Oakland (1625 Clay St., PG&E). II. Motion slow, lasted 5  
seconds.  
San Anselmo (224 Drake Blvd.). Felt.  
San Francisco (Federal Office Building). "Light shock but could  
hear shock wave approach from south."  
San Francisco (Franklin Hospital, 14th and Noe Sts.). Felt.  
San Francisco (465 California St.). Felt on 10th floor of re-  
inforced-concrete office building.

22 March, 15:14:35\*. Aftershock of 22 March. Magnitude 4.4.  
Epicenter  $37^{\circ}39'$  north,  $122^{\circ}27'$  west, south of Colma, B.  
Alameda (Naval Air Station Cafeteria). Felt.  
Benicia. Felt.  
Burlingame (1511 Drake Ave.). IV. Windows rattled; walls shook.  
Ground: Compact.  
Canyon. Felt at store on floor of canyon.  
Castro Valley (9114 Edwards Lane). II. Motion slow, lasted about  
10 seconds.  
Los Gatos. III. Faint jolts felt. Lasted only a few seconds.  
House creaked.  
Millbrae. V. Press reported the City Hall was closed when file  
cabinets rolled 6 inches from walls.  
Oakland (Chabot Observatory). IV. Motion rapid, lasted 4  
seconds. Direction E. Felt by several (lying down and  
sitting) on second floor of wooden house at Observatory;  
frightened few. Windows, doors, and dishes rattled;  
house creaked. Ground: Rocky, hilly.  
Oakland (near Lake Merritt in Lakeshore Highlands). "Not as  
heavy as first shock."  
Oakland (1625 Clay St., PG&E). II. Motion rapid, lasted 20  
seconds.  
San Anselmo (224 Drake Blvd.). Felt.  
San Carlos (49 Ensenada Rd.). Felt.  
San Carlos (122 Hillcrest Rd.). Felt.

22 March, 15:14:35\*. (cont.)

San Francisco (Mills Building). IV. Motion circular, lasted 20 seconds. Felt by all (active) on 6th floor of strongly built masonry building; frightened few in community. Windows rattled. Hanging objects swung E-W. "I was having coffee and the table and chair rocked. Overhead lights swung back and forth." Ground: Compact, level.

San Francisco (465 California St.). IV. Lasted 10 seconds. Direction NW. Felt by all on 10th floor of reinforced-concrete building; frightened few. Windows rattled. "Four or five rolls to NW."

San Francisco (No. 1 Montgomery St., 12th floor). IV. Motion rapid. Direction N-S. Small objects may have shifted. Ground: Compact, clay and sand.

San Francisco (Howard and Third Sts.). IV. Lasted 15 seconds. Car full of tools shook.

San Francisco (Rm. 14 Old Mint Building, 5th and Mission Sts.). IV. Strongly felt. Doors rattled.

San Francisco (Shell Building, 16th floor). Sharp shock. Ground: Filled in.

San Francisco (347 Clay St., 3rd floor). Definite N-S motion. "Not as strong as 11:44:21 shock."

San Francisco (50 Church St.). "Was at 50 Church Street when the second strong shock was felt. No damage that anyone could find."

San Francisco (245 Leavenworth St., 6th floor). "As I lit the stove, I thought it had blown up. I quickly turned it off. That shock was enough for one day."

San Francisco (Federal Office Building). Moderate N-S rocking.

San Francisco (Naval Shipyard, Bldg. 35-A). Felt.

San Francisco (Langley Forter Clinic). Lasted less than 30 seconds.

San Francisco (Franklin Hospital, 14th and Noe Sts.). Felt.

San Francisco (Presidio). Felt.

San Francisco (1750-18th Ave.). Moderate shock felt.

San Francisco (315 Montgomery St.). Felt.

San Leandro. II. "Minor shock noticed by light bulb rattling in chandelier." Ground: Rocky soil, sloping.

San Mateo (329 E. 39th St.). Felt.

Vallejo (351 Los Altos). Felt.

22 March, 16:26:55\*. Aftershock of 22 March. Magnitude 4.0. Epicenter  $37^{\circ}39'$  north,  $122^{\circ}29'$  west, southeast of Edgemar, B. Benicia. Felt.

Canyon. Felt at store on floor of canyon.

Oakland (near Lake Merritt in Lakeshore Highlands). "Just a bump."

San Bruno (909-3rd Ave.). "Seemed to come from NE."

San Francisco (Federal Office Building). V. Moderate rolling motion. Picture swung.

22 March, 16:26:55\*. (cont.)

San Francisco (19 Presidio Terrace). V. Motion fairly rapid.

Direction N-S. Small objects shifted. Frame house; ground floor. Ground: Sandy clay.

San Francisco (465 California St.). Felt on 10th floor of reinforced-concrete building.

San Jose (86 So. Third St.). III. Motion rapid, lasted 3 seconds. Felt by several (sitting and active) on third floor of strongly built concrete building. Ground: Soil.

San Mateo (4102 Beresford St.). IV. Heavy, shaking jolt.

San Mateo (329 E. 39th St.). Felt.

22 March, 17:45:30\*. Aftershock of 22 March.

Epicenter  $37^{\circ}39'$  north,  $122^{\circ}30'$  west, off California coast, west of Edgemar, B.

San Francisco (3120 Gough St.). Felt.

22 March, 18:15. Aftershock of 22 March.

San Francisco (106 Sanchez St.). IV. "Shook everything in the room."

22 March, 18:48:08\*.

Epicenter  $37^{\circ}42'$  north,  $122^{\circ}30'$  west, off California coast, west of Daly City, B.

Oakland (1625 Clay St., PG&E). II. Motion rapid, lasted 5 seconds. Felt on 7th floor of brick building (sitting). Ground: Soil, level.

San Francisco (19 Presidio Terrace). V. Motion fairly rapid. Direction vertical. Observer on ground floor of frame house. Small objects shifted. Ground: Sandy, clay.

San Francisco (1750-48th Ave.). Moderate shock.

San Leandro. II. "Minor shock noticed by light bulb rattling in chandelier." Ground: Rocky soil, sloping.

22 March, 19:00:15\*. B. Aftershock of 22 March.

Daly City (1087 Mayfair Ave.). "Very loud cracking sound preceded loud rumble of short duration."

22 March, 19:28:53\*. Aftershock of 22 March.

Epicenter  $37^{\circ}40'$  north,  $122^{\circ}27'$  west, southeast of Colma, B.

San Francisco (9th Ave. and Ortega). IV. Lasted about 1 second. Felt by all (active) on first floor of strongly built frame house. Direction NE. Windows rattled; walls creaked. "The house started to rattle and shake. It felt like an extremely strong gust of wind swept through the building." Ground: Compact.

22 March, 21:42:13\*. Aftershock of 22 March.

Epicenter  $37^{\circ}42'$  north,  $122^{\circ}30'$  west, off California coast, west of Daly City, B.

22 March, 21:42:13\*. (cont.)

San Francisco (19 Presidio Terrace). V. Motion fairly rapid. Direction vertical. Small objects shifted. Observer on ground floor of frame house. "Lighter than shock at 18:48:08." Ground: Sandy clay.

San Francisco (25th St., between Diamond and Douglass). Felt rather strongly.

San Francisco (1750-48th Ave.). Moderate shock.

San Francisco (2400 Pacific Ave.). Felt. "Several small shocks felt during the day."

22 March, 22:14:23\*. Aftershock of 22 March.

Epicenter  $37^{\circ}41'$  north,  $122^{\circ}31'$  west, off California coast, northwest of Mussel Rock, B.

San Francisco (1870-9th Ave.). III. Motion rapid, jerking, lasted 2 seconds. Direction E-W. Felt by observer and several others (sitting) on first floor of strongly built wood-frame house.

22 March, 23:54:00\*, B. Aftershock of 22 March.

Canyon. Felt in store on floor of canyon.

23 March, 00:13:48\*. Aftershock of 22 March. Magnitude 4.2.

Epicenter  $37^{\circ}42'$  north,  $122^{\circ}31'$  west, off California coast, west of Daly City, B.

Alameda (2528 Washington Way). Felt.

Alamo. Felt.

Benicia (822 W. 2nd St.). V. Motion rapid, lasted 1 second. Direction N. Felt by several (active) on first floor of wooden house. Windows, doors, and dishes rattled. Small objects shifted and overturned; knickknacks fell. Ground: Soil, compact, level.

Benicia. IV. House rocked.

Boyes Hot Springs. IV. Windows, doors, and dishes rattled.

Burlingame (212 Bancroft Rd.). IV. Awakened observer.

Canyon. IV. Motion rapid, lasted 10 seconds. Felt by two of four (lying down) on second floor of strongly built wooden house; awakened few in community. Windows rattled. "I was home by 5 P.M., March 22. Only shock felt was at 00:13:48." Ground: Adobe, shale, compact, sloping and steep.

Centerville (455 Eggers Dr.). Motion rapid.

Fallon. Felt.

Hamilton Air Force Base. "Similar to 11:44:21 but shorter."

Menlo Park (851-14th Ave.). VI. Motion rapid, lasted 30 seconds. Loud earth noises heard. Small objects shifted and fell to floor. Plaster, walls, and ceiling cracked. Damage slight.

Millbrae. Press reported a house fire was started at 411 Paramount Drive, apparently the result of the earthquake.

23 March, 00:13:48\*. (cont.)  
Mill Valley (52 Bigelow Ave.). Felt.  
Oakland. V. Press reported people in Oakland and the surrounding areas were awakened, but no damage was reported.  
Oakland (3916 Huntington St.). Felt.  
Orinda (71 Ardilla Rd.). II. Motion rapid, lasted few seconds.  
Ground: Soil, compact, sloping and steep.  
Palo Alto (523 Webster St.). IV. "Some persons awakened in two-story apartment building. Others on same floor did not feel it at all."  
Port Costa. V. Awakened all in home and community. "Many small aftershocks."  
Ryde. IV. "Felt tremor which awakened me late at night."  
Saint Helena. III. Felt by few.  
Saint Mary's College (Morega). IV. Awakened observer and frightened caged birds.  
San Bruno (909-3rd Ave.). "Seemed to come from south."  
San Franciacc. VI. Press reported a large crack was opened in the concrete retaining wall of O'Shaughnessy Boulevard (opposite Glen Park) and that a half-mile section between Portola and Congo Streets was roped off. Firemen theorized that a fire, which started 9 minutes after the shock at the Twin Peaks Hotel, 2160 Market Street, and adjacent buildings, was caused by a leaking gas main in the basement of an apartment building at 2156 Market Street. The gas main was believed to have been broken by the shock.  
San Franciaco (179-15th Ave.). VI. Motion slow, lasted about 12 seconds. Felt by, awakened, and frightened all in strongly built stucco house. Faint earth noises heard. Windows, doors, and dishes rattled; house creaked. Plaster cracked. Ground: Soil, level.  
San Francisco (Moffitt Hospital, Arguello Blvd. and Parnassus Ave.). V. Motion rapid, lasted 45 seconds. Felt by all; frightened many. Loud earth noises from N-S heard. Windows and dishes rattled; building creaked. Hanging objects swung. Small objects and furnishings shifted and overturned. Ground: Sandy, rocky.  
San Francisco (106 Sanchez St.). V. "Felt like I would be thrown out of bed. Direction E-W. Got up and dressed on account of the fire at Market and Sanchez."  
San Franciacc (2 Valdez Ave., south of Mt. Davidson and north of Ocean Avenue, in Westwood Park). V. "So quick and violent and there was such a cracking noise outside I thought surely the sidewalk in back had been split open. The noise was a terrific crack. Otherwise I haven't noticed much noise as far as loud rumblings go. The bigger shocks have been too sudden and violent to notice the noise."  
San Francisco (2400 Pacific Ave.). V. Bronze lamp and pictures swayed.

23 March, 00:13:48\*. (cont.)

San Francisco (780 Junipero Serra Blvd.). V. "Heavy jolt.

Activated mercury switches again. Minor tremors felt until Sunday night."

San Francisco (25th St., between Diamond and Douglass). V.

"Felt like our bedroom walls were coming together. The paper on the ceiling and sides just kind of opened, and I 'flew' down to the front steps. Loud crackling noise. My son said they did not feel it at the University of California Hospital."

San Francisco (341 Foerester St.). IV. Very sharp. Entire house shook.

San Francisco (133 Beulah St., off Stanyan, near Kezar Stadium).

IV. "We felt about six of the big ones. The one at midnight shook the bedroom like a dog shakes a rat, but no damage."

San Francisco (650 Stanyan, corner Page). IV. "Night shocks heavy, particularly around 19:00 and 00:13:48. Both accompanied by heavy jar and twisting motion."

San Francisco (19 Presidio Terrace). IV. Observer awakened from sound sleep. "Impression that shock was moderately severe."

San Francisco (1750-48th Ave.). IV. House moved NE in jerking motion. Brief duration. Observer awakened by rumble. "Seemed as strong as the one at 11:44:21."

San Francisco (639 Bush St.). "Shock felt, but nothing disturbed. No damage to this building from any of the shocks. My little figurines, perfume bottles, etc., are as usual."

San Francisco (Downtown Center Garage). "Felt another good shake."

San Francisco (1167 Bush St.). Sharp shock.

San Francisco (250 Moncada Way). Lasted about 1 minute. "Many other brief shocks felt."

San Francisco (Federal Office Building). Moderate shock.

San Francisco (1951-11th Ave.). Felt.

San Francisco (470-19th Ave.). Six shocks felt. First at 00:13:48, last at 22:26:51.

San Francisco (350 Grove St.). Moderate shock. Ground: Sandy, level.

San Leandro. Felt.

San Mateo (329 E. 39th St.). Motion rolling. "Stronger than the shocks on the 22nd at 15:44:35 and 16:26:55."

San Mateo (4102 Beresford St.). "Shocks felt through night of 23rd."

Santa Rosa (410 Carrillo St.). Light shock.

Stinson Beach. IV. Awakened few.

Sunol. IV. Motion rapid, lasted 20 seconds. Felt by many (lying down) on first floor of strongly built wooden house; awakened few. Windows rattled. Ground: Soil, level.

Vallejo (351 Los Altos St.). Minor vibrations.

Walnut Creek (1233 Boulevard Way). Felt.

23 March, 00:48:07\*, B. Aftershock of 22 March.  
Burlingame (212 Bancroft Rd.). IV. Awakened observer.

23 March, 02:57.3\*, B. Aftershock of 22 March.  
San Francisco (133 Beulah St.). Felt.

23 March, 04:54:33\*. Aftershock of 22 March. Magnitude 3.8.  
Epicenter  $37^{\circ}40'$  north,  $122^{\circ}29'$  west, north of Edgemar, B.  
Fallon. Felt.  
San Francisco (133 Beulah St.). Felt.  
San Francisco (2611 San Jose Ave.). Hard shock.

23 March, 05:56:11\*, B. Aftershock of 22 March.  
San Francisco (2611 San Jose Ave.). Very brief shock.

23 March, between 6 and 7 (a.m. or p.m. not given). Aftershock of  
22 March.  
San Francisco (Downtown Center Garage). "Felt rumblings sometimes  
between 6 and 7."

23 March, 08:56:32\*. Aftershock of 22 March.  
Epicenter  $37^{\circ}41'$  north,  $122^{\circ}30'$  west, coastline north of Mussel  
Rock, B.  
San Francisco (2611 San Jose Ave.). Very brief shock.

23 March, 14:48:00\*. Aftershock of 22 March.  
Epicenter  $37^{\circ}39'$  north,  $122^{\circ}28'$  west, east of Edgemar, B.  
San Francisco (19 Presidio Terrace). IV. Sharp jolt. Felt by  
observer on first floor. "Small objects may have shifted."  
Ground: Sandy clay.

23 March, 14:55:16\*, B. Aftershock of 22 March.  
San Francisco (2611 San Jose Ave.). Very brief shock. "Sunday  
was quiet and peaceful."

23 March, 16:35:28\*. Aftershock of 22 March.  
Epicenter  $37^{\circ}40'$  north,  $122^{\circ}30'$  west, east of Mussel Rock, B.  
San Francisco (19 Presidio Terrace). IV. Felt by observer on  
first floor of frame house. "Small objects may have  
shifted." Ground: Sandy clay.

23 March, 16:47.  
San Diego. III. Motion rapid. Direction N. Hanging objects  
swung. Ground: Rocky. Felt at Suncrest as a rolling  
motion.

23 March, 19:36:00\*. Aftershock of 22 March.  
Epicenter  $37^{\circ}41'$  north,  $122^{\circ}30'$  west, coastline southwest of  
Daly City, B.  
San Francisco (19 Presidio Terrace). IV. Felt by observer on

23 March, 19:36:00\*. (cont.)  
second floor of frame house. Sharp jolt. "Small objects may have shifted." Many very minor shocks felt in two-day period. Ground: Sandy clay.  
San Francisco (1750-48th Ave.). IV. Light shock. Floor shook. Plants in pot rocked.

23 March, 22:26:51\*. Aftershock of 22 March.  
Epicenter  $37^{\circ}41'$  north,  $122^{\circ}29'$  west, near coast, southwest of Daly City, B.  
San Francisco (1750-48th Ave.). IV. Slight shock. Dishes in china closet rattled.  
San Francisco (470-19th Ave.). Felt.

24 March, 07:34:12\*, 09:43:13\*, 11:11:16\*, 11:52:33\*, B. Aftershocks of 22 March.  
San Francisco (470-19th Ave.). Four shocks felt.  
San Francisco (380 Chester St., Junipero Serra and Alemany Blvd.). (11:52:33). Felt.

25 March, 04:36:09\*, B. Aftershock of 22 March.  
San Francisco (2 Valdez Ave., south of Mt. Davidson and north of Ocean Ave., Westwood Park). Decided lurch of the earth from east to west. "One big lurch and nothing else."

25 March, 06:45 (about). Nothing recorded on seismograph, B.  
San Bruno (1723 Hickory Ave.). Felt.

25 March, 07:28. Nothing recorded on seismograph, B.  
San Francisco (470-19th Ave.). "Shock felt at 07:28 only."

25 March, 08:58. Nothing recorded on seismograph, B.  
San Francisco (2 Valdez Ave.) "Seemed to shake from S-N. There's been a lot of constant shaking and it is still going on now, three minutes later."

25 March, night and morning, and 15:00. Nothing recorded on seismograph at 15:00, B.  
San Francisco (604 Irving St.). IV. "We did not feel the night and morning shocks very much but they did awaken us. I felt a prolonged shock at 15:00 on March 25."

25 March, 23:13:32\*, B. Aftershock of 22 March.  
San Francisco (975 Holloway Ave.). "Noise last heard about 23:12 on March 25."

26 March, 06:51:29\*. Aftershock of 22 March.  
Epicenter  $37^{\circ}40'$  north,  $122^{\circ}31'$  west, off coast, northwest of Mussel Rock, B.  
San Francisco-Daly City areas. V. Press reported aftershocks

26 March, 06:51:29\*. (cont.)

jolted the northern peninsula and parts of San Francisco. Many persons, particularly in the Daly City and Westlake areas and elsewhere in the northern peninsula, said they were awakened by the 06:51 jolt. Dishes and headboard of bed rattled at 8 Crestview Drive. Four shocks in the early morning were reported felt at 83 Crestview Drive.

26 March, 07:20:53\*. Aftershock of 22 March.

Epicenter  $37^{\circ}41'$  north,  $122^{\circ}31'$  west, off coast, west-southwest of Daly City, B.

Daly City (92 Crestview Drive). Felt.  
San Francisco (470-19th Ave.). Felt.

26 March, 15:45, 15:50. Nothing recorded on seismograph, B.  
San Francisco (604 Irving St.). Felt.

26 March, 18:13:25\*. Aftershock of 22 March.

Epicenter  $37^{\circ}40'$  north,  $122^{\circ}30'$  west, off coast, west of Mussel Rock, B.  
San Francisco (470-19th Ave.). Felt.

26 March, 23:04:49\*, B. Aftershock of 22 March.  
San Francisco (470-19th Ave.). Felt.

27 March, 02:41:53\*. Aftershock of 22 March.

Epicenter  $37^{\circ}42'$  north,  $122^{\circ}31'$  west, off coast, west of Daly City, B.  
San Francisco area. V. Press reported many were awakened.

27 March, 05:22:12\*.

Epicenter  $39^{\circ}19'$  north,  $118^{\circ}32'$  west, southeast of Fallon, Nev., B.  
Salt Wells, Nev. IV. "Residents were awakened by three mild earthquakes. The University of Nevada gave the time of one of the shocks at 5:22 A.M., PST, with epicenter 12 miles east of Fallon, and magnitude 3. No damage was reported." (BSSA, July 1957.)

27 March, during night.

Suncrest (San Diego). Rumblings reported during the night.

28 March, 01:09.

San Diego. Press reported a "fairly sharp" earthquake shook the the San Diego area.

San Diego. III. Motion rapid. Direction N-S. Felt by observer in home. Hanging objects swung.

29 March, in a.m. Aftershocks of 22 March.

San Francisco (10 Homewood Court, near Wildwood and Saxon, near El Rey Theater). Several shocks reported felt in a.m. Also many shocks felt during week. Ground: New fill; hillside.

30 March, 13:34:49\*.

Epicenter  $33^{\circ}08'$  north,  $116^{\circ}28'$  west, northeast of Julian, P. San Diego. III. Motion rapid. Direction N-S. Felt by several in community. "Calls from Alpine, Mount Helix, and Spring Valley."

31 March, 08:43:26\*, B. Aftershock of 22 March.

San Francisco. Press reported the shock was felt in the Daly City-Westlake area.

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#### WASHINGTON AND OREGON

(120th Meridian or Pacific Standard Time)

25 January, 17:16:06\*. State of Washington.

Epicenter  $48^{\circ}20'$  north,  $122^{\circ}26'$  west, near mouth of Skagit River, S. Felt over an area of approximately 15,000 square miles of north-western Washington. (See map, page 193.) Maximum intensity VI was reported from Clearlake, where plaster cracked and fell on second floor of school.

##### Intensity VI:

Clearlake. Motion rapid, lasted 3 seconds. Direction NW. Felt by many; frightened few. Dishes rattled; frame creaked. Knickknack shelf shifted. Plaster cracked and fell on second floor of school. In barber shop suspended lights swayed and barber was forced to stop cutting hair until vibrations ceased. Ground: Marshy, level.

##### Intensity V:

Acme. Motion rapid, lasted 2 seconds. Felt by several. House creaked. Trees, bushes shaken slightly. "I immediately went outside to see which way power and telephone wires were swaying. East-west wires seemed to sway more than north-south wires." Ground: Soil, level.

Anacortes. Motion slow, lasted 1 minute. Moderate earth noises heard by many. Felt by several (some outdoors; quiet). Windows, doors, and dishes rattled. Hanging objects swung. Trees, bushes shaken slightly. Nothing shifted or overturned. Plaster cracked.

Anacortes. Press reported the shock as a minor earthquake. One press report stated an old wall was cracked in Anacortes, but the report was unconfirmed by any official sources in the city.

25 January, 17:16:06\*. Intensity V. (cont.)

Anacortes. III. Felt by several in community. Not felt by observer (sitting) on first floor of the old reinforced-concrete City Hall. Earth noises heard by several. No alarm.

Arlington. Motion rapid, lasted 1 minute. Felt by all; frightened few. Windows, doors, and dishes rattled. Ground: Rocky, soil, level.

Bothell. Motion rapid, lasted 1-2 seconds. Felt by all. Hanging objects swung S-N. Ground: Soil, compact, level.

Bow. Motion rapid, lasted 1-2 minutes. Felt by all. Windows and dishes rattled.

Burlington. Motion rapid, lasted 3-4 seconds. Felt by all. Windows rattled. "Just rattling of front windows for a few seconds."

Burlington (near). III. Felt by one (typing) out of three persons in home.

Chimacum. Motion rapid, lasted 2 seconds. Direction N. Felt by all. Windows and doors rattled; frame creaked. Hanging objects swung N. Ground: Compact, sloping.

Clinton. Loud earth noises heard. Lasted 2 seconds. Felt by many (some outdoors; active); frightened few. Windows, doors, and dishes rattled. Hanging objects swung. Knick-knacks fell. Ground: Compact, level.

Clipper. Motion rolling, lasted 1-2 minutes. Direction N-S. Low rumbling earth noises heard. Felt by observer on second floor of wooden house (lying down). Dishes rattled; walls creaked. Small objects shifted. Hanging objects swung.

Deming. Motion rapid, lasted 1 minute. Felt by several. Windows, doors, and dishes rattled. Cans in store shifted. Plaster cracked. Ground: Soil.

Friday Harbor. Motion rapid, lasted 4 seconds. Felt by all; frightened few. "Very rapid motion. No customary noise before shock. Hard to tell whether noise was from outside or made by the house." Ground: Soil, compact, level.

Granite Falls. Motion rapid, lasted 10-12 seconds. Felt by all; all slightly frightened. House creaked. Trees, bushes shaken slightly. "Had just sat down to dinner. Table very rigid. First three or four shocks, NNE-SSW, almost caused milk to spill over top of glasses filled to about 1/2 inch from top." Ground: Compact, sloping.

Greenbank (Sec. 8, T30N, R2E). Motion slow, lasted 30 seconds. Felt by all. Walls creaked. "While sitting, facing NW, felt two slight shocks, then a third severe shock. Motion seemed to be slightly NW-SE. Some noise with third shock but could not identify it as earth or building noise." Ground: Compact, sloping.