

9 February, 06:00:41.6. Intensity VII--Continued.

- 2555 S. Westgate Avenue (West Los Angeles area). (VI) Felt by, awakened, and frightened all in community (observer in old, well-built, one-story wood frame building); general panic. Very hard shaking in northwest-southeast direction; lasted about 40 to 45 seconds. Building creaked and windows shook very loudly. Loud, rumbling earth noises. Trees and bushes shook; vehicles rocked. Small objects shifted, overturned, and fell. Furniture shifted. Plaster cracked. Hanging objects swung violently north-south. One window swung open; doors on medicine cabinets opened; file drawers moved out about 20 to 25 cm. "Many aftershocks during the first hour and for rest of the day, quite high in intensity; shocks felt for few days with varying degrees of intensity. Believe my family and self were in slight shock condition after the main shock. It was quite an experience." Ground: Compact, level.
- 1514 Greenfield Avenue (West Los Angeles area). (VI) Felt by, awakened, and frightened all in community (observer in old, well-built, two-story wood frame building). Everything not firmly attached to building rattled; straining noises of nails at studs and plates and crunching noises at top and bottom of studs. Water disturbed and chimneys damaged (not directly observed). Hanging objects swung violently. Small objects shifted, overturned, and fell. Furniture shifted. Ground: Gravelly, level.
- 1447 Brockton Avenue (West Los Angeles area, about 0.8 km. southwest of Veterans Administration grounds). (VI) Felt by, awakened, and frightened all in community (observer in new, well-built, two-story wood frame building). Faint earth noises. Trees and bushes shook; vehicles rocked. Water disturbed. Chimneys cracked. Hanging objects swung moderately east-west. Plaster cracked in shear walls around openings. Damage slight. "Tremor lasted about 1 minute. Period of swinging lamps slightly less than 1 sec." Ground: Gravelly, compact, level.
- 11000 Wilshire Boulevard (Federal Building, Wilshire Blvd. and Veteran Ave.). (VI) Felt by all and frightened many in community (observer working on 11th floor of new, 17-story reinforced concrete building). Continuous rolling motion; all observable area was in motion. Moderate earth noises. Plaster cracked. Damage slight. Ground: Compact, level.
- 807 Westholme Avenue (Westwood area). (VI) Felt by, awakened, and frightened all in new, two-story wood frame building. So much object and building noise that no particular noise could be identified. Small objects shifted, overturned, and fell. Furniture shifted. Numerous cracks in plaster and stucco. Ground: Compact, sloping.
- 1936 Greenfield Avenue (Westwood area). (VI) Felt by, awakened, and frightened all (observer in old, one-story wood frame building). Felt as if a 747 jet plane were flying over. Small objects shifted, overturned, and fell. Plaster cracked, broke, and fell (cracks in ceiling and about chimney). Damage slight. Ground: Level.

Montrose:

Press reported powerlines were down.

The following was reported by postmaster. Felt by, awakened, and frightened many

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in community (observer walking in 15-year-old, well-built, one-story concrete block building). Twisting motion of building. Moderate earth noises. Trees and bushes shook; vehicles rocked. Ground cracked. Water disturbed. Chimneys and water tanks cracked, twisted, and overturned. Hanging objects swung violently. Small objects shifted, overturned, and fell. Furniture shifted and overturned. Plaster cracked and broke. Windows cracked. Damage moderate. Ground: Rocky, sloping.

2261 Luana Lane. Felt by, awakened, and frightened all in old, well-built, one-story wood frame building. Very violent shaking. Chimney across street overturned. Small objects fell. Furniture shifted. Plaster cracked. Damage slight.

North Hollywood:

11304 Chandler Boulevard (report from postmaster). Felt by, awakened, and frightened all in community (observer sleeping on first floor of old, well-built, two-story cement building). Everything shook. Loud earth noises. Water mains broke. Chimneys fell. Large plate glass windows broke. Hanging objects swung violently in all directions. Furniture moved about 5 cm. in westerly direction. Plaster cracked, broke, and fell in some buildings. Exterior bricks cracked. Windows cracked at three post office stations. "Had to evacuate one carrier building." Ground: Compact.

7071 Varna Avenue. Felt by all in community; awakened and frightened all in new, well-built, one-story wood frame building. Moderate earth noises. Block walls cracked and dislocated. Hanging objects swung violently north-south. Small objects shifted, overturned, and fell. File cabinet overturned. Ground: Gravelly, sandy, river deposit, compact, level.

7262 Farmdale Avenue (about five blocks northwest of Burbank Airport). "I was awakened at 6:00 a.m. The house shook and rolled, and there were rumbling noises but not extremely loud. Climbing out of bed during the shaking, I was able to walk to my daughter's room. She was awake and was not terrified. Oven and refrigerator were shifted about 10 cm. Flat steel plates (11 kg. each) were moved on uncarpeted surface of floor. General disruption in all rooms. No readily observable cracks in ceilings or walls. Cement block wall in yard cracked at cemented joints; displacement about 2.5 cm. Immediately after the shock subsided (lasted about 20 to 30 seconds), I checked lights and phone--they still worked. Water OK. I felt about five or six aftershocks between about 6:09 and 6:19 a.m.; then I sat down to record more aftershocks." This observer reported he felt 34 shocks to 1:30 p.m., with the strongest at 6:35, 6:44, 8:00, 8:30, 10:57, and 10:59 a.m., and at 12:57 p.m. Stopped keeping record after 1:45 p.m.

5513 Morella Avenue. (VI) Felt by, awakened, and frightened all in community (observer sitting in basement of old, well-built, five-story reinforced concrete building). Moderate earth noises. Trees and bushes shook; vehicles rocked. Hanging objects swung violently east-west. Small objects shifted, overturned, and fell. Furniture shifted, overturned, and broke. Plaster cracked, broke, and fell (cracks about 0.6 cm. wide). Windows cracked. Damage moderate. Ground: Compact, level.

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5555 Morella Avenue. (VI) Felt by, awakened, and frightened all in community (observer in 24-year-old, one-story reinforced concrete block (wood roof) building). Building creaked very strongly. Moderate earth noises. Trees and bushes shook; vehicles rocked. Elliptical holes in ground observed around pipe risers for lawn sprinklers. Small objects shifted, overturned, and fell. Furniture shifted. Plaster cracked, broke, and fell (small amount at ceiling edges). Ground: Alluvium, level.

12423 Debby Street. (VI) Felt by, awakened, and frightened all in community (observer lying down in fairly new, one-story wood frame building). Building swayed strongly. Water in streets from swimming pools. Hanging objects swung violently in all directions. Small objects shifted, overturned, and fell. Extensive damage to dishes and glassware. Moderate plaster cracking. Ground: Compact, level.

7922 Lemp Avenue. (VI) Felt by, awakened, and frightened all in community (observer sitting in new, one-story wood frame building). Loud earth noises. Driveway cracked. Hanging objects swung violently. Small objects overturned and fell; dishes fell from cabinets. Furniture shifted. Plaster cracked (14 cracks in walls; four cracks in ceiling). Garden wall cracked (separated) at intersection. Ground: Clay, compact, level.

10432 Valley Spring Lane. (VI) Felt by, awakened, and frightened all in community (observer on first floor of old, well-built, two-story wood frame building). Building rumbled. Loud earth noises. Trees and bushes shook; vehicles rocked. Water splashed from swimming pool. Hanging objects swung violently east-west. Small objects shifted, overturned, and fell. Furniture shifted. Ground: Sandy silt, compact, level.

1113 Acama Street. (VI) Felt by, awakened, and frightened all in community (observer on second floor of well-built, three-story wood frame building). Building creaked very loudly. Loud earth noises. Hanging objects swung violently. Small objects fell. Plaster broke. Damage slight. Ground: Compact, level.

7716 Laurel Canyon Boulevard. (VI) Felt by, awakened, and frightened all in new, well-built, two-story wood frame building. Faint earth noises. Chimneys cracked. Hanging objects swung moderately east-west. Small objects shifted, overturned, and fell. Damage slight. Ground: Gravelly, level.

10848 W. Otsego Street. (VI) Felt by, awakened, and frightened all in old, well-built, one story wood frame building. Loud earth noises. Trees and bushes shook; vehicles rocked. Chimney separated from house about 0.6 cm. Small objects fell. Plaster cracked. Damage moderate. Ground: Filled in, level.

11827 Stagg Street. (VI) Felt by and awakened all (observer in new, well-built, one-story wood frame building). Loud earth noises. Hanging objects swung violently east-west and north-south. Small objects shifted, overturned, and fell. Bookcase overturned. Ground: Sandy, level.

7734 Goodland Avenue. (VI) Felt by, awakened, and frightened all in new, well-built, one-story wood frame building. Loud, roaring earth noises. Hanging objects swung violently north-south. Small objects fell; much glass breakage. Furniture

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shifted. Plaster cracked by fireplace. All objects fell to south. Wall bookshelves collapsed. Cabinets opened and bottles fell out. Ground: Firm sandy silt, level.

4932 Penny Avenue. (VI) Felt by all in community; awakened all and frightened few in old, well-built, one-story wood frame building. Straining of wall and roof framing. Moderate to loud earth noises. About 18 cm. of water sloshed from pool. Chimney separated from main portion of house. Hanging objects swung moderately to strongly, seemingly north-south. Vases and one sculpture overturned. Plaster cracked. "Strong, vertical motion felt. Lawn sprinkler system defective (possibly from earthquake)." Ground: Compact, level.

2 Toluca Estates Drive. (VI) Felt by, awakened, and frightened all in community; general panic (observer in old, well-built, one-story wood frame building). Building made loud noise. Loud earth noises. Lost 1,135 l. of water from pool. Hanging objects swung violently northeast-southwest. Many objects shifted. Furniture shifted slightly. Ground: Sandy loam, alluvial, level.

Northridge and Porter Ranch District:

Northridge Hospital (Roscoe Blvd. near Reseda Blvd.). Lew and others³ stated:

"Five-story steel frame structure with reinforced brick masonry shear walls. The exterior cladding was of brick veneer. Damage to the veneer was extensive on the east and west elevations. The shear walls in the first story were badly cracked at many places. All mechanical and electrical equipment was functioning after the earthquake, including elevators."

San Fernando Valley State College (18111 Nordhoff St.). It was reported that \$245,000 damage was sustained at the college, and was caused principally by collapsing bookshelves, toppling furniture, and falling glass from broken light fixtures and broken windows. A California Institute of Technology² report noted that only very minor cracking of structural members was found in the various buildings on this campus, which included an eight-story dormitory and an eight-story office tower.

9723 Rathburn Avenue. Felt by, awakened, and frightened all in community (observer in 14-year-old, well-built, one-story wood frame building). Building creaked loudly. Loud earth noises. Hanging objects swung east-west. Small objects fell. Furniture overturned and broke. Small plaster cracks. Block yard walls, about 1.7 m. high, demolished. "The severe shaking seemed to last for about 2 to 3 minutes. Multistory wood frame stucco buildings in neighborhood suffered extreme damage in shear walls but little damage in horizontal elements, such as floors and ceilings. Modern reinforced masonry buildings all seem damaged around corners at roof level." Ground: Silty sand, compact, level.

10027 Wish Avenue. Felt by, awakened, and frightened all in community (observer in new, well-built, one-story wood frame building). Building creaked very violently. Hanging objects swung violently north-south. "Very violent ground motion, seemed rippling, causing the house to tilt about 5°. Little or no structural damage or plaster cracking in the residences in our immediate vicinity. Considerable damage to concrete block walls in the area, particularly those oriented

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in an east-west axis. Approximately 30 m. of wall totally destroyed on my property. Floor lamps and table lamps were all tipped over. Considerable breakage of dishes and bric-a-brac." Ground: Silty alluvium, very fine, compact, level.

10952 Etiwanda Avenue (near Chatsworth St. and Reseda Blvd.). Felt by and awakened all in community; frightened many (observer in 15-year-old, well-built, one-story wood frame building). Roaring earth noises combined with noise of huge bookshelves breaking loose; all cabinets opened; great crashing noise. Vehicles rocked. Lost about 0.6 m. of pool water. Chimneys cracked, twisted, and overturned. Hanging objects swung violently south-north. Small objects fell. Furniture shifted, overturned, and broke. Plaster cracked, broke, and fell. Five-drawer steel file cabinet overturned. Ground: Filled in.

8419 Yolanda Avenue (near Roscoe and Reseda Blvds.). Felt by, awakened, and frightened all in community (observer in well-built, one-story wood frame building). House made very loud cracking noise; walls moved; floors rose and fell; difficult to distinguish earth noises from building noises. Trees and bushes shook. Above-ground pool damaged. Block wall cracked. Hanging objects swung violently southeast. Small objects fell. Upright piano moved about 20 cm. east; refrigerator moved about 0.9 m. southeast. Paint cracked. Damage slight. Ground: Adobe, very slightly sloping; high water table.

10306 Sylvia Avenue. Felt by and awakened all in community; frightened all in well-built, one-story wood frame building. Building creaked loudly. Rumbling earth noises. Driveway cracked. Swimming pool lost about 12 cm. of water. Block walls toppled and weakened. Portable planters moved. Hanging objects swung violently east-west. Small objects shifted, overturned, and fell. TV overturned. Bed moved about 15 cm. Plaster cracked slightly. Damage slight. Ground: Adobe, compact, sloping.

17527 Burton Street. Felt by and awakened all in community; frightened many (observer in fairly old, well-built, one-story wood frame building). Loud earth noises. Vehicles rocked. Water disturbed and dirty. Trailer knocked off jacks. Electricity off 30 minutes; phone out for 2 hours. Hanging objects swung violently north-south. Small objects shifted, overturned, and fell. Furniture shifted and overturned. Chest of drawers fell south. Pots and pans dumped out of cupboard (doors open to west). Movement was difficult. Many aftershocks were felt during first 2 days; several thereafter. Ground: Compact, level.

18822 Chase Street. Felt by, awakened, and frightened all in community (observer in new, one-story wood frame building). Everything rumbled and rattled. Sounded as if the house were being shaken down. Loud earth noises. Patio cement cracked and old cracks widened. Chimney fell next door. Block walls weakened and ready to topple. Hanging objects swung east-west. One lamp toppled; one glass swag fixture broke. Water cooler broke. Shower glass cracked. Plaster cracked. Water sloshed out of toilet bowl. "We were awakened from a sound sleep by the violent motion and noise. With much difficulty we made our way into the children's bedroom. One bedroom door was jammed

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shut. All four of us were in the hall long before the tremor of the first shock had subsided. I was nauseated as soon as I got to our bedroom doorway, and for about a half-hour afterward I felt as if I were walking uphill. I cut my toe on some broken glass but I was so numb that I didn't notice it until about 7 a.m. I have adjusted fairly well to the numerous aftershocks. The only ones that bother me are the ones that jerk the house. The shock of February 20 renewed much of the terror I had felt but forgotten." Ground: Alluvium, level.

19530 Pine Valley Avenue (west Porter Ranch District). Felt by, awakened, and frightened all in community (observer in new, two-story wood frame building). Building rumbled, groaned, and swayed northeast-southwest. Earth noises so loud that noise from falling objects could not be heard. Trees and bushes shook. Lost 0.6 m. of water from swimming pool; metal pool cover thrown about 2 m. to west. Chimneys cracked, twisted, and overturned in the vicinity. Wrought-iron fence broke. Hanging objects swung violently in circular direction; hanging light with about 2.4 m. chain swung in large circle. Small objects fell; dishes broke. Door lock broke. Furniture shifted. Plaster fell. Small overhang roof (tile) sagged and must be replaced. "Aftershocks have caused cracks in plaster and small, partial roof and garage door to sag. For the first several hours we felt seasick." Ground: Compact, on hill.

18908 Kirkcoln Lane (about 5.5 km. due west of Lower Van Norman Lake, in Porter Ranch District). Felt by, awakened, and frightened all in community (observer in new, one-story wood frame building). Building made violent sounds. Loud earth noises. Power out. No water for 4 days. Exterior block walls fell, breaking windows and putting holes in stucco walls and doors. Hanging objects swung violently north-south. Small objects shifted, overturned, and fell. Furniture shifted. Plaster cracked. Damage slight. "A remarkable experience to live through." Ground: Compact, level, and sloping.

17735 Fullerfarm Street. (VI) Felt by and awakened all in community; frightened few (observer in new, well-built, one-story wood frame building; large windows on south side). Trees and bushes shook. Lost about 20 cm. of water from swimming pool. Large rocks moved. Hanging objects swung violently east-west. Lamps overturned. Calculator fell to floor. No damage. Ground: Sandy clay, compact, level.

17060 Parthenia Street. (VI) Felt by, awakened, and frightened all in community (observer in old, well-built, one-story wood frame building). Floors and walls creaked and swayed. Trees and bushes shook; vehicles rocked. Lost about 0.6 m. of water from swimming pool. Hanging objects swung violently; light bulbs broke. Water sloshed out of toilet bowls. Small objects fell; dishes broke. Damage slight. Ground: Level.

19100 Celtic Street. (VI) Felt by and awakened all in community; frightened many (observer in new, two-story wood frame building on slab). Extreme creaking of building. Loud earth noises preceded shock. Street lights swayed. Hanging objects swung violently in all directions. Small objects fell. Small tables overturned in easterly direction; water cooler and lamps overturned. "I was sitting in the

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kitchen. I heard a deep, distant rumbling sound and immediately thought it was an earthquake. I moved to the stairs to alert my wife, but as I reached the stairs, a series of short, sharp jolts struck the building and I was unable to walk up the stairs. I then found myself braced in the kitchen doorway, but how I got there I don't know. In the meanwhile it seemed that the jolts had built up rather steadily in intensity and frequency; motion seemed to be predominantly east-west. Souvenir spoons held in reverse tapered slots were dislodged and fell to the floor. Damage to furnishings was assessed at about \$6.20. Observable damage in the immediate neighborhood was relatively minor. A small, nondesigned block retaining wall collapsed. About 30 to 45 cm. of water sloshed out of swimming pool." Ground: Filled in, sloping.

19101 Celtic Street. (VI) Felt by and awakened all in community; frightened all in new, well-built, two-story wood frame building. Building creaked very loudly. Loud earth noises. Water splashed from swimming pool and commodes. Hanging objects swung violently east-west. Small objects shifted, overturned, and fell. Furniture shifted, overturned, and broke. Next-door swimming pool cracked. Next-door neighbor's wall knocked over; five blocks in upper course of 1.8-m.-high block wall knocked over. Damage slight. Ground: Compact, about 0.6 m. of fill.

9200 Wilbur Avenue. (VI) Felt by, awakened, and frightened all in new, well-built, one-story wood frame building. Faint earth noises. Hanging objects swung moderately. Small objects shifted, overturned, and fell. Furniture shifted. Plaster fell. Damage slight. Ground: Compact, level.

8806 Zelzah Avenue. (VI) Felt by and awakened all; frightened many (observer in well-built, two-story wood frame building). Loud earth noises. Trees and bushes shook; vehicles rocked. Pool lost about 0.6 m. of water. Hanging objects swung violently. Small objects overturned and fell. Furniture shifted, overturned, and broke. Ground: Compact, level.

9809 Donna Avenue. (VI) Felt by all in community; awakened and frightened all in new, one-story wood frame building. Building rocked back and forth and floor seemed to go up and down in undulating movement. Moderate earth noises. Everything shook. Slight crack at top of chimney. Hanging objects swung moderately north-south. Small objects overturned and fell; many dishes broke. Furniture shifted. "The houses in our neighborhood held up well. Experienced considerable movement in basically north-south direction and what felt like undulating of the floor. Many block walls, 1.5 to 1.8 m. high, toppled, particularly in the north-south direction, as personally observed." Ground: Sandy silt; former orchard.

10917 Des Moines Avenue. (VI) Felt by, awakened, and frightened all (observer in two-story wood frame building). Moderate earth noises. Water disturbed. Cement walls cracked. Hanging objects swung moderately east-west. Small objects shifted, overturned, and fell. Plaster cracked, broke, and fell very slightly (drywalls). Ground: Compact, sloping.

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Pacoima (excluding the more strongly shaken areas of northern Pacoima) and Arleta District south of Pacoima:

Van Nuys Boulevard, near Telfair Avenue (Pacoima Post Office; report from post-master). Felt by, awakened, and frightened all in community (observer in old, well-built, one-story block building). Vehicles rocked. Ground cracked. Gas-lines broke. Chimneys overturned; outside block walls knocked down. Hanging objects swung violently. Small objects fell. Furniture overturned. Building shook rapidly back and forth for 1 minute. Crack in floor the length of the building (post office). Damage moderate. Ground: Sandy, sloping.

13563 Montague Street (Arleta district, south of Pacoima, in area just east of Panorama City). Felt by, awakened, and frightened all in community (observer in old, well-built, one-story wood frame building). Loud, roaring earth noises. Water disturbed. Hanging objects swung violently east-west. Small objects shifted, overturned, and fell. Furniture shifted, overturned, and broke. Plaster and windows cracked. Damage slight. "In our house the refrigerator door opened and everything fell out, also most things from the cupboards. Our next-door neighbor's cupboards face the same direction as ours but she lost only one bottle of catsup. Our kitchen had to be cleaned out with a shovel. Most of the furniture in the family room moved at least 15 to 20 cm. from walls, including a large player piano. We couldn't tell in which direction it was shaking--seemed to be both bouncing and swaying. We tried to walk through the house to get the children and had to hold onto the walls to keep from falling. Our block fences are all cracked but still standing. We have many cracks outside, but few cracks inside." Ground: Level, filled in.

9217 Dorrington Place (Arleta district). (VI) Felt by, awakened, and frightened all in community (observer in well-built, one-story wood frame building; on slab). Faint earth noises. Water spilled from toilets and fishbowl. Small objects shifted, overturned, and fell. Furniture shifted. Damage slight. "No structural damage; new cracks limited to stucco at corners of door frames and windows. Less damage to interior objects than in neighbor's house on conventional foundation." Ground: Compact, level.

9844 Mercedes Avenue (Arleta district). (VI) Felt by, awakened, and frightened all in old, well-built, one-story wood frame building. Entire house shook. Car rocked. Pool overflowed. Hanging objects swung east-west. Small objects fell and broke. Furniture shifted. Ground: Gravelly, level.

Panorama City:

13652 Cantara Street (Kaiser Foundation Hospital). Lew and others³ reported: "Ten-story reinforced lightweight concrete shear wall structure. There was severe cracking of the shear walls in the first, second, and third stories. The doors to the interior stairwell on the second and third floors were rendered inoperable due to the crushing of the spandrel beam in the shear wall. The fourth-floor slab, which is the transfer slab between the circular tower shear walls and the walls below, cracked and displaced vertically. There was no apparent sign of structural damage above the fourth-floor level. About 50 glass panels fell from the building. All the elevators were out of service after the earthquake. The entire hospital remained in operation."

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14545 Lanark Street and 8155 Van Nuys Avenue. Building at 14545 Lanark Street was reported as very badly damaged. Building at 8155 Van Nuys Avenue also was damaged. (From a letter by Superintendent of Buildings, Department of County Engineer, Los Angeles.)

14861 Lorne Street. (VI) Felt by, awakened, and frightened all, except 3-year-old, in old, well-built, one-story wood frame building. Loud earth noises. Lamp and few books fell; fell toward south. Waterline broke between meter and house. Stucco cracked. Damage slight. "Both vertical and lateral movement of house was very pronounced." Ground: Compact, level.

8734 Tyrone Avenue. (VI) Felt by, awakened, and frightened all in old, well-built, wood frame building. Building moved and vibrated. Electricity went off at once over entire area. Hanging objects swung violently east-west. Small objects shifted and fell. Furniture shifted. Plaster cracked.

Pasadena:

The following, from Steinbrugge and others⁸, does not include publicly owned structures: "10 buildings damaged; posted unsafe, 4; demolished or to be demolished--churches and schools, 1; 2,000 chimneys damaged; estimated total dollar loss, \$2-1/2 million." A press report of Feb. 19, 1971, stated Pasadena city officials roughly estimated damage at \$200,000 to public property, with the majority of the loss attributed to road damage. The largest single item occurred on Park View Avenue, which runs parallel and east of Linda Vista Avenue. There approximately 243 m. of retaining wall standing 3 m. high was affected, with approximately 91 m. of the wall reduced to rubble. Estimates for repair of the wall make up the major portion of the \$200,000 figure.

4800 N. Oakgrove Avenue (Jet Propulsion Laboratory). One engineer at the laboratory estimated minor damage to the laboratory at about \$200,000. Another engineer reported: "I arrived at work about 7:50 a.m., and made numerous surveys of buildings on the laboratory grounds to assess structural damage. Structural damage was superficial. Some spalling of concrete columns and concrete block walls. Some cracking of concrete walls. Considerable damage to architectural finishes (plaster, suspended ceilings, lighting fixtures). Expansion joints and seismic joints had worked and caused buckling of threshold strips and buckling and displacement of metal water stops at joints. Some waterlines broke." The structure is a 12-story steel and concrete building. Ground: Compact, sloping.

1201 E. California Boulevard (Millikan Library, California Institute of Technology). The California Institute of Technology² reported: "Nine-story reinforced concrete building. Many bookshelves collapsed on the upper floors, and threw many books to the floor. With the exception of hairline cracking in the plaster around some window panels, no damage to the building itself was observed."

721 St. John Avenue. Felt by and awakened all in old, two-story wood frame building; frightened many. Much splashing of pool water. One chimney toppled, one damaged severely. Hanging objects swung violently. Small objects overturned. Plaster on three walls badly shattered. "House has cobblestone veneer on first floor which moved about 2.5 cm. The shortest chimney, about 1 m. above

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the roof, was completely destroyed. A second chimney, about 2.5 m. above the roof, was badly shattered and needs to be rebuilt. The third chimney, about 3.5 m. above the roof, had been rebuilt with reinforced masonry and it survived very well." Ground: Gravelly, alluvial fan, compact, level.

2150 Canyon Close Road. Felt by all in community (observer in new, well-built, one-story wood frame building). "Probably awakened all." Faint earth noises. Trees and bushes shook; vehicles rocked. Chimneys cracked, twisted, and overturned. Small objects shifted, overturned, and fell. Furniture shifted, overturned, and broke. Plaster cracked, broke, and fell. Windows cracked. Damage slight in the area. Ground: Rocky, gravelly, gently sloping.

116 Club Road. Felt by, awakened, and frightened all in community (observer in strongly built wood frame building). Loud earth noises. Hanging objects swung north. Furnishings shifted; vases, etc., overturned. Plaster, windows, walls, and chimneys cracked. Chimneys fell. Knickknacks, books, pictures, and plaster fell. Dishes and windows broke. Damage slight to brick. Ground: Compact, sloping.

890 S. Rosemead Boulevard. (VI) Felt by, awakened, and frightened many in community (observer in well-built, two-story wood frame building; went outside during shock). Building racked severely. Ground rolled. About 25 percent of water sloshed out of swimming pool. Chandelier swung violently north-south. Small objects shifted, overturned, and fell. Plaster cracked. Damage slight. Ground: Compact, level.

About 1-1/2 blocks from California Institute of Technology. (VI) Felt by observer in wood frame building. Loud earth noises; then severe earthquake. Motion seemed to last more than 2 minutes. Personal effects were tossed about the rooms; items tossed off furniture; furniture, including heavy appliances, was far from original position. Bookcases almost emptied; dishes and utensils jarred from cabinets. Lights flickered.

325 S. Orange Grove Boulevard. (VI) Felt by and awakened all in community; frightened few (observer in 11-year-old wood frame building; part of an apartment complex of 18 apartments in four two-story buildings). Loud earth noises. Chimneys cracked in neighborhood. Hanging objects swung moderately to violently. Small objects fell off tables, etc. Furniture overturned. Plaster cracked, especially around fireplaces. Windows cracked. Water thrown out of swimming pool, and seemed to indicate maximum motion in east-west direction. "Checking of other apartment also indicated maximum motion in east-west direction. Pendulum on grandfather clock hit sides and stopped. The upper removable part of a china cabinet moved east and one of its four supports left a groove about 10 cm. long." Ground: Loam, level.

281 E. Colorado (Post Office). (VI) Felt by all in old, well-built, two-story concrete and steel building; general panic. Several rolling jerks. Loud earth noises. Hanging objects swung violently east-west. Furniture shifted. Plaster broke and fell. Damage slight. Ground: Compact, level.

515 S. Bonita Avenue. (VI) Felt by and awakened all in old, well-built, two-story

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wood frame building; frightened few. Small objects shifted, overturned, and fell. Brick chimney cracked. Small amount of plaster cracking. Ground: Gravelly, alluvial fan, level.

2223 Loma Vista Street. (VI) Felt by and awakened all in community; frightened few (observer in old, well-built, one-story wood frame building). Moderate earth noises. One small vase fell. Furniture shifted slightly. Superficial plaster cracks. "Some windows cracked and some chimneys cracked and twisted in community." Ground: Gravelly, gently sloping.

1140 Hastings Ranch Drive. (VI) Felt by all in community; awakened and frightened all in well-built, one-story wood frame building. General building noise. Some cracking of chimneys. Some small objects shifted, overturned, and fell. Some plaster cracked. "No real damage." Ground: Compact, sloping.

1405 S. Oakland Avenue. (VI) Felt by, awakened, and frightened all in community (observer in old, well-built, one-story wood frame building). Building creaked and thumped. Loud earth noises. Small objects shifted and overturned. Items shifted to north. Furniture shifted. "Chimneys cracked and overturned in the area but not at my residence." Ground: Clayey, sloping.

140 Glen Summer Road. (VI) Felt by and awakened all in community; frightened many (observer in old, well-built, one-story wood frame building). Chimneys cracked. Small objects shifted, overturned, and fell. Ground: Compact, level.

1989 E. Mountain Street. (VI) Felt by and awakened all in community; frightened many (observer in strongly built wood frame building). Moderate rumbling earth noises from all directions about 5 seconds before shock. Trees and bushes shook moderately. Small objects and furnishings shifted; small objects overturned. Plaster, walls, and chimneys cracked. Knickknacks, books, pictures, and plaster fell. Dishes broke. Damage slight. Ground: Conglomerate, level.

6 Westmoreland Place. (VI) Felt by, awakened, and frightened all in community (observer in strongly built, two-story wood frame building). Loud earth noises, seemed from all directions but especially from underneath, heard about 5 seconds before shock. Hanging objects swung mostly north-south. Trees and bushes shook moderately. Mirrors and pictures fell from walls, etc.; statues and clocks fell. Plaster, walls, and chimneys cracked; chimney moved 12 to 15 cm. west and a part of it fell. "Mostly just minor damage to building." Ground: Soil, compact, on slope.

916 Linda Vista Avenue. (VI) Awakened and frightened all in strongly built, two-story wood frame building. Loud earth noises from east. Hanging objects, doors, etc., swung. Trees and bushes shook slightly. Small objects shifted; mirrors and clocks broke. Plaster cracked. Damage slight. Ground: Compact, level.

1355 Daveric Drive (northeast Pasadena, north of Foothill Blvd.). (VI) Felt by and awakened all in community; frightened few (observer in new, well-built, one-story wood frame building). Loud earth noises. Bushes shook; vehicles rocked. Chimneys and ground cracked. Hanging objects swung violently. Small objects fell. Furniture shifted. Plaster cracked. Damage slight. Ground: Decomposed granite, steep.

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Reseda:

- 7032 Reseda Boulevard. Felt by and awakened all in community; frightened many (observer in new, fairly well-built, one-story wood frame building). Building made wrenching sound. Loud, rumbling earth noises. Water slopped from tubs. Block garden wall fell in southerly direction. Hanging objects swung violently west. Small objects shifted, overturned, and fell. Refrigerator shifted. Plaster cracked. "The 1.8-m.-high block garden wall that fell was not reinforced by steel. Some roofs in the area buckled. Asphalt driveways and some new sidewalk around power poles cracked. Doors on cupboards and furniture facing north or south flew open; on shelves running north-south, nothing fell, not even from those near the ceiling. Windows in house are all aluminum-framed and did not crack, though quite large. Damage moderate and slight. Stucco cracks were widened by aftershocks." Ground: Clay, partly filled in, level.
- 7320 Reseda Boulevard (Post Office). (VI) Felt by all in old, well-built, one-story brick building; frightened few. Waterline in air-conditioning system broke. Hanging objects swung east-west. Canceling machine moved about 10 cm. "During the initial shock I was standing near the center of the floor in the workroom. The floor seemed to move back and forth in an east-west direction. Because of the large expanse of the ceiling, with no support posts, there was considerable creaking of the roof trusses. The workroom floor is about 30 by 45 m. Some plaster fell from the Postal Inspector's galley, which runs through the center of the building, and mostly fell from the end and from the area around the steel side supports. Before the tremor ceased, all lights in the building went out. The 50 or more employees left the building. No apparent structural damage." Ground: Compact, level.
- 7211 Reseda Boulevard. (VI) Felt by, awakened, and frightened all in old, well-built, two-story wood frame and stucco building. Small objects overturned and fell. Furniture shifted. Plaster cracked. Damage slight. Ground: Compact, level.
- 19438 Calvert Street. (VI) Felt by, awakened, and frightened all (observer in 15-year-old, one-story wood frame building). Faint earth noises. Swimming pools overflowed. Hanging objects swung violently east-west. Small objects shifted, overturned, and fell. "Block garden walls fell." No damage to observer's house.
- 7913 White Oak Avenue. (VI) Felt by, awakened, and frightened all in community (observer in old, one-story wood frame building). House shook violently. Loud, roaring earth noises. Bookcase overturned. Dishes and cans fell out of cupboard; dishes broke. Hanging objects swung violently south. Post on porch shifted. Plaster cracked on ceiling. Damage slight. Ground: Sandy, level.
- 18707 Haynes Street. (VI) Felt by and awakened all in community; frightened many (observer in 15-year-old, well-built, wood frame building). Moderate earth noises. Trees and bushes shook; vehicles rocked. Hanging objects swung violently east-west and north-south. Small objects shifted, overturned, and broke. Plaster cracked. Ground: Level.

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Sepulveda:

Holiday Inn (corner of Roscoe Blvd. and Orion St.). The California Institute of Technology² reported: "Seven-story reinforced concrete building. Extensive damage to interior plaster walls, to the plumbing fixtures, etc., on the second, third, and fourth floors. The upper three floors were not damaged severely. The non-structural damage has been estimated at approximately \$250,000."

Veterans Administration Hospital (about 4 km. south of the Lower Van Norman Reservoir). Lew and others³ reported: "Buildings range from one to six stories and are designed to resist earthquake forces. Overall, there was only minimal structural damage to the hospital. The operation of the hospital was not interrupted. However, extensive elevator and plaster repairs were required and a number of seismic joints required replacement."

9037 Burnet Avenue (2 blocks east of Sepulveda Blvd., 1/2 block south of Nordhoff). Felt by, awakened, and frightened all in community (observer in about 40-year-old, well-built, one-story wood frame building). Very loud, rumbling earth noises. "Telephone pole tilted east-west (across street). Chimney cracked vertically where it lies against the house. Huge crack on cement foundation of garage floor, running east-west across the floor. Small chicken shed tilted south. The house was a mess inside. Anything on top of furniture, mantels, tables, etc.) was thrown down and broken. Stove and icebox in kitchen moved. In the garage, a 1.8- by 1.8-m. bookcase, full of books, was overturned. Garage had to be 'dug through' to put things back in place. It suffered worse than the house. We inspected the house and did not see any new cracks, but since the aftershocks, we have found many new cracks, running south-north, about the thickness of a razor blade. There are many old cracks running in the same direction. All of our cement porches (three) have shifted about 2 cm. away from the house. We have found exterior cracks on garage and house since the aftershocks. In our house, all objects on north-south walls fell; in neighbor's house (across street), all objects on east-west walls fell, none on north-south walls." Ground: Creek bottom, sandy, level.

10108 Gloria Avenue. Felt by and awakened all in community; frightened many (observer in well-built, one-story wood frame building). Loud earth noises. Trees and bushes shook; vehicles rocked. About 18 m. of block wall fell and about 45 m. cracked. Hanging objects swung violently. Small objects fell from kitchen cabinets and in garage. Dishes and lamps broke. Interior and exterior plaster cracks. Damage moderate. Ground: Compact, level.

9752 Marklein Avenue. Felt by all in community; awakened and frightened all in new, well-built, one-story wood frame building. Water disturbed. Garden wall cracked. Stucco slightly cracked; minor kitchen counter tile cracking. Hanging objects swung violently north-south. Furniture shifted. Heavy books on north-south shelves fell sideways--not off shelves. Portable TV against north wall fell to floor. Kitchen and both bathroom floors were littered with broken glass. Hot water heater tank connections loosened; water leaked. China cabinet and refrigerator on east-west walls shifted about 15 cm. from walls. No structural damage." Ground: Compact, filled in, level.

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Post Office (report from postmaster). Felt by and awakened all in community; frightened few (observer in new, well-built, one-story concrete block building). Loud earth noises. Trees and bushes shook; vehicles rocked. Ground cracked; landslides; water disturbed. Chimneys cracked. Hanging objects swung violently in all directions. Small objects shifted, overturned, and fell. Furniture shifted. Plaster and windows cracked. Slight nonstructural damage to post office building. Ground: Compact, level.

8861 Langdon Avenue. (VI) Felt by, awakened, and frightened all in community (observer in new, two-story wood frame and stucco building). Building bounced up and down. Loud, banging earth noises. One-third of water splashed from swimming pool. Lights out. Small objects fell, some broke. Furniture shifted. Walls cracked; plaster cracked. Damage moderate. Ground: Compact, level.

15901 Gledhill Street (near Veterans Administration Hospital). (VI) Felt by all in community; awakened and frightened all in well-built, one-story wood frame building. Loud earth noises. Slight spalling of sidewalk at pool joints. Hanging objects swung violently. Small objects shifted, overturned, and fell; dishes broke. Planter, about 0.9 m. high, moved about 0.6 cm. from south wall. Ground: Adobe, underlain by sand, level.

Corner of Sepulveda Avenue and Nordhoff Street. (VI) Felt by, awakened, and frightened all in community (observer in old, well-built, 5.2-m. travel trailer). Rumbling earth noises. Trees and bushes shook; vehicles rocked. Water and gas service disturbed. Hanging objects swung moderately. Small objects in cupboard overturned; radio fell. "Plaster cracked and fell; many windows cracked in the area, including windows at furniture store. Damage very slight at our place." Ground: Level.

Sherman Oaks:

Union Bank Building (northeast corner of Sepulveda and Ventura Blvds.). The USGS-NOAA⁹ reported the following: "The structure is 13 stories high over a two-level subterranean garage. Structural damage was limited principally to the four-corner columns." Nonstructural damage was reported as: "Elevators out of commission; several doors in the second, third, fourth, and fifth floors were slightly jammed, indicating some partition movement; considerable areas of ceiling tile over the second floor fell; one dry-wall partition at the east end of the building buckled and showed horizontal movement; some steel stairlandings pulled away from their supports but were still functional; five large panes of glass in the first floor cracked or broke; marble veneer in the first-floor lobby cracked and fell away from the walls and had to be replaced. The upper floors showed the least damage, and the penthouse showed no damage. The mechanical equipment in the penthouse was intact and securely mounted."

Bank of California Building (across street from the Union Bank Building). Lew and others³ reported: "Twelve-story reinforced concrete building. There were cracks in the building frame over most of its height. These were especially pronounced in the connection of the lightweight concrete beams to the normal weight concrete columns. This damage was being repaired with epoxy."

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- 3817 Cody Road. Felt by, awakened, and frightened all in community (observer in 15-year-old, one-story wood frame building). Moderate earth noises. Trees and bushes shook; vehicles rocked. Ground cracked slightly. Unreinforced chimneys cracked, twisted, and overturned. Hanging objects swung violently. Small objects shifted and overturned. Plaster cracked. Damage slight. "The major ground motion seemed to be east-west; lasted for about 1 minute. Very little damage to houses in general vicinity (hillside houses on rock), but houses at lower elevations on softer substrata appeared to sustain larger accelerations and more damage." Ground: Rocky, hillside.
- 15204 Sutton Street. Felt by, awakened, and frightened all in community (observer in old, well-built, one-story wood frame building). Loud, roaring, thunderlike earth noises. Sidewalk slab cracked. Chimneys cracked. Small objects overturned and fell. Plaster, on both east-west and north-south walls, cracked in several rooms. Drawers and cabinets on north wall of kitchen were disturbed more than others in the house. Candelabra rolled or was thrown from piano top in an easterly direction for a distance of about 2 m. "All people remarked that vertical motion definitely occurred as well as horizontal motion." Ground: Silty clay, alluvial, 4 percent slope toward north.
- 4245 Longridge Avenue. (VI) Felt by and awakened all in community; general panic (observer in well-built, two-story wood frame building). Loud earth noises. Hanging objects swung violently north-south. Small objects fell; bottles broke. TV set fell off shelf. Ground: Compact, level.
- 4628 Allott Avenue. (VI) Felt by, awakened, and frightened all in community (observer in old, well-built, one-story wood frame building). Loud earth noises. Water press regulator broke; heater gas valve cracked. Small objects fell. Plaster cracked. Damage slight. Ground: Compact, level.
- 13141 Addison Street. (VI) Awakened and frightened all in community; general panic (observer in old, well-built, two-story wood frame and stone building). Trees and bushes shook; vehicles rocked. Hanging objects swung back and forth. Small objects shifted, overturned, and fell. Plaster cracked, broke, and fell. Damage slight. Ground: Loose, level.
- 13140 Otsego Street. (VI) Felt by and awakened all in community; frightened all in old, well-built, one-story wood frame building. House jerked violently north-south. Everything in house disturbed. Water in pool splashed out. Hanging objects swung violently north-south. Furniture shifted. "All power was out. Telephone out of order. Water was not fit for drinking." Ground: Alluvium, level.
- 2370 Roscomare Road. (VI) Felt by, awakened, and frightened all in community (observer in new, well-built, two-story wood frame building). Moderate earth noises. Trees and bushes shook; vehicles rocked. Hanging objects swung north-south. Small objects shifted. Plaster cracked in few places. Ground: Loose, very steep; house on level lot.
- 3720 Stone Canyon Avenue. (VI) Felt by, awakened, and frightened all in new, well-built, one-story wood frame building. Building creaked very loudly. Loud earth noises. Trees and bushes shook; vehicles rocked. Pool water disturbed.

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Hanging objects swung violently east-west. Small objects overturned. Plaster cracked. Damage slight. "Movement was primarily horizontal; very little vertical motion. The period seemed very long, about 1.5 sec. Duration also was very long and constant, about 30 sec." Ground: Gravelly, sloping.

South Pasadena:

The following, from Steinbrugge and others⁸, does not include publicly owned structures: "Buildings damaged, 20; posted unsafe, 1; 300 chimneys damaged; estimated total dollar loss, \$275,000." Observer reported community water tank leaked.

1645 Amberwood Drive, No. 15. Felt by, awakened, and frightened all (observer in old, moderately well-built, three-story wood frame building). Faint earth noises. Earth moved in southeast direction. Pool water disturbed. Some chimneys damaged on older houses in the area. Frictionless objects on floor displaced about 0.6 m. Hanging objects swung violently northwest. Small objects overturned and fell. Refrigerator moved about 0.3 m. in northwest direction. Small plaster cracks over doors and windows. Damage slight. Ground: On slope of Raymond Hill; on Raymond Fault.

2018 Berkshire Avenue. (VI) Felt by, awakened, and frightened all in community (observer in old, well-built, three-story wood frame building). Moderate earth noises. Two chimneys damaged (bricks fell and all others loosened). Water in swimming pool sloshed out about 2 m. on each side of pool. Hanging objects swung violently. Small objects overturned and fell. Furniture shifted. Plaster cracked. Damage slight. "One ground crack on Monterey Road. About 75 chimneys damaged in the community (75 reported to city, probably substantially more affected). Large plate glass windows in several stores broke." Ground: Compact, sloping.

1336 Elmpark Street. (VI) Felt by and frightened all in well-built, one-story wood frame building. Indoor house planter, 0.9 m. high, overturned to northwest. Water from aquarium sloshed to north. Hanging objects swung violently. Many knickknacks fell and broke; china and crockery fell and broke. "Greatest damage to chinaware was caused by items falling from window valances on west wall of house and from items falling out of open-front china closet against west wall and facing northeast." Ground: Adobe, level.

218 Los Laurees (Monterey Hills area). (VI) Felt by and awakened all in community; frightened many (observer in new, well-built, one-story wood frame building; slab in most of building). Walls shook strongly. Moderate earth noises. Hanging objects swung moderately east-west. Lamps, vases, etc., overturned. Water sloshed out of one toilet bowl. One old crack in garage slab appeared to be widened slightly. "One hundred chimneys were down in South Pasadena and at least that many were damaged." Ground: Compacted fill, sloping.

1326 Via Del Rey. (VI) Felt by and awakened all in community; frightened few (observer in new, well-built, one-story wood frame building). Loud earth noises. Chimneys cracked. Hanging objects swung moderately east-west. House shook as from an unbalanced ventilating fan. No damage to house or contents. "In the

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old section of town many unreinforced brick chimneys cracked or fell. Some old brick parapets fell in the commercial area. One or two buildings of unreinforced masonry construction showed severe cracking." Ground: Rocky, shale; level pad on hillside.

- 413 El Coronado. (VI) Felt by all in community; awakened and frightened all (observer on second floor of new, two-story wood frame building). Loud earth noises. Wood fence door fell. Hanging objects swung violently north-south. Small objects fell. Furniture shifted. Plaster cracked, some fell. Two large windows shattered. Damage moderate. Ground: Gravelly, level.
- 720 Orange Grove Avenue. (VI) Felt by and awakened all in old, well-built, two-story wood frame building. Building rocked. Moderate earth noises. Chimney separated from building by about 2.5 cm. at top of roof ridge. Candlesticks overturned; minor displacement of dishes. "Motion seemed to be in all directions, including vertical (house faces due west); heavy shaking; not wavelike or rhythmic." Ground: Compact, level.
- 1608 Amberwood Drive. (VI) Felt by, awakened, and frightened all in community (observer in 10-year-old, well-built, two-story wood frame building). Building rocked and creaked. Moderate earth noises. Hanging objects swung violently north-south. Some dishes broke. Furniture shifted. Minor plaster cracks. Damage slight. "Shock was quite severe." Ground: Gravelly, top of hill, level stress slope front to rear.

Sunland:

- 8632 Le Berthon Street (northwest Sunland area). Felt by, awakened, and frightened all in community (observer in well-built, one-story wood frame and stucco building). Loud earth noises. Trees and bushes shook. Block walls fell. Hanging objects swung east-west. Small objects shifted, overturned, and fell. Furniture shifted, overturned, and broke. "Our heavy plate glass mirror in bedroom was ripped off the wall, taking some plaster off the wall. Built-in oven was sprung from the cabinet. The hutch in dining room was thrown down, breaking all contents, and landed on the dining room table, badly damaged." Ground: Sandy loam, level, and terraced.
- 8442 Oswego Street. Felt by, awakened, and frightened all in community (observer in well-built, one-story wood frame building). Loud earth noises. Trees and bushes shaken strongly. Small objects and furnishings shifted; vases, etc., small objects, and furniture overturned. Plaster, windows, walls, chimneys, and ground cracked. Knickknacks, books, pictures, plaster, and walls fell. Dishes, windows, and furniture broke. Damage slight to brick. Ground: Level.
- 10734 Nassau Avenue. (VI) Felt by, awakened, and frightened all in community (observer in old, well-built, one-story wood frame building). Patio roof groaned and shuddered. Rocks in garden rolled. Hanging objects swung north-south. Small objects shifted, overturned, and fell. Furniture shifted, overturned, and broke. Plaster cracked, broke, and fell. Windows cracked. "Damage to furniture and dishes was in excess of \$900." Ground: Sloping.
- 10114 McBroom Street (west Sunland area). (VI) Felt by and frightened all in old, one-story wood frame building. Building creaked loudly. Loud earth noises.

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Hanging objects swung violently. Glasses, food, etc., fell from cupboards. Furniture shifted. "Shock was violent enough to knock one off his feet if not holding on to something solid." Ground: Rocky, slightly sloping.

Sun Valley:

No address given (report from postmaster). Felt by, awakened, and frightened all in community (observer in well-built, one-story brick building). Faint earth noises. Trees and bushes shook; vehicles rocked. Chimneys cracked, twisted, and overturned. Hanging objects swung violently. Small objects shifted, overturned, and fell. Damage moderate. "Motion of shock was in different directions--east-west, north-south; stronger in some areas. Many aftershocks." Ground: Compact, level.

13146 Schoenborn Street. (VI) Felt by all and frightened many in community; awakened all in 16-year-old, one-story wood frame building. Moderate rumble. Water in street due to sloshing of swimming pools. Hanging objects swung violently northwest-southeast. Small objects shifted, overturned, and fell; crystal broke. Furniture shifted and overturned. "I was standing at the time; motion was a violent northwest-southeast shaking. Dining room fixture, on 1.2-m. chain, swung to the ceiling. Glass and crystal fell from every china closet in the neighborhood. No apparent damage to houses in this neighborhood. Typical one-story stucco tract houses seem to react well with no apparent cracking or other damage." Ground: Sandy silt, level.

12444 Jerome Street. (VI) Felt by, awakened, and frightened all in community (observer in 16-year-old, moderately well-built, one-story wood frame building; drywalls). Building creaked loudly; sounded like cracking of wood rafters and studs. Loud, rumbling earth noises. Trees and bushes shook; vehicles rocked. Outside reinforced concrete block wall cracked. Many small objects shifted, overturned, and fell. Furniture shifted slightly. Damage slight. Ground: Sandy, level.

10448 La Tuna Canyon Road (about 2.5 km. northeast of Sunland in La Tuna Canyon). (VI) Felt by, awakened, and frightened all in community (observer in old, well-built, one-story wood frame building). Building sounded as if it were tearing apart. Loud, explosivelike earth noises. "Many people thought it was a bomb. A terrible clap of thunder and lightning combined, then the shaking." Trees and bushes shook; vehicles rocked. Water disturbed. Hanging objects swung violently. Objects moved east-west, piano, refrigerator, etc. Plaster cracked. Damage slight. Ground: Loose, sloping.

Tarzana:

18525 Linnet Street. Felt by, awakened, and frightened all in community (observer in 20-year-old, well-built, one-story wood frame building). Loud earth noises. Trees and bushes shook; vehicles rocked. Water disturbed. House foundation cracked. Waterpipe broke. Small objects shifted, overturned, and fell. Furniture shifted; bed moved up and down and across the floor. Plaster and windows cracked. Toilet and bathtub line damaged. Damage moderate. "There are still (Mar. 9) numerous strong aftershocks. Since we are only 1 block from the area which was evacuated, there was some fear of danger from the Van Norman Dam." Ground: Compact, level.

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18648 Clark Street (Post Office). (VI) Felt by, awakened, and frightened all in community (observer in well-built, one-story wood frame and brick building). Faint earth noises. Vehicles rocked. Hanging objects swung violently north-south. Small objects shifted. Furniture shifted. Plaster fell. Slight damage to brick. Ground: Adobe, level.

18210 Karen Drive. (VI) Felt by and awakened all in community; frightened many (observer in 18-year-old, one-story wood frame building). Trees and bushes shook; vehicles rocked. Cracks widened in pavement and asphalt driveways. Hanging objects swung moderately. Small objects shifted, overturned, and fell. Plaster cracked and fell. Damage slight. "The initial shock was like a sledge-hammer blow; then a creaking, chattering, shaking, and rocking motion, lasting about 20 to 30 seconds. Aftershocks were also hammerlike blows, with shaking." Ground: Shale outcrop, level and sloping; part pad, part fill.

Tujunga:

9427 Crystal View Drive. Felt by and awakened all in community; frightened many (observer in well-built, one-story wood frame building). Faint earth noises. Trees and bushes shook; vehicles rocked. Minor cracking of pavement. Chimneys cracked. Hanging objects swung violently. Small objects shifted, overturned, and fell. Windows cracked (limited mostly to commercial buildings). "Most of the dwellings in the area suffered only minor damage. Some older dwellings suffered moderate to major damage, but these were very few. Many commercial buildings had broken plate glass. Few commercial buildings suffered moderate damage." Damage slight (to observer's home). Ground: Rocky, compact, sloping and steep; many dwellings in area on compacted fill.

Report from postmaster. Felt by, awakened, and frightened all in community (observer walking in well-built, two-story concrete block building). Loud earth noises. Trees and bushes shook; vehicles rocked. Ground cracked. Chimneys cracked, twisted, and fell. Electrical wires down. Hanging objects swung violently east-west. Glass broke. Fixture fell. Small objects fell. Furniture shifted. Plaster and windows cracked. Brick and cement dust fell. Damage slight. Ground: Rocky, sloping.

10346 Fernglen Avenue. Felt by, awakened, and frightened all in community (observer in well-built, one-story wood frame building). Building bounced up and down at least 15 cm. Loud earth noises. Waterpipe, 1.9-cm. diameter, broke. Chimneys cracked and overturned on some houses (not observer's). Hanging objects swung violently. Small objects overturned and fell. Furniture shifted. Plaster and windows cracked. Damage moderate. "From February 9 through February 13 we experienced an average of 12 aftershocks; on February 14, four; on February 15, three. Some came with no warning and just caused a rolling sensation; others would give a warning that sounded like a freight train in the distance, becoming slightly louder, then the jolt. Some jolts shook the house back and forth; others hit with one explosivelike sound and shaking like a sonic boom." Ground: Rocky, overlain by 0.9 m. of top soil, sloping.

10549 Pinyon Avenue (near mountains). (VI) Felt by, awakened, and frightened all

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in community (observer in old, well-built, two-story wood frame building). Building rattled very loudly. Loud, growling earth noises. Trees and bushes shook; vehicles rocked. Chimneys cracked. Hanging objects swung violently north-south, east-west. Small objects shifted and fell. Furniture shifted. Plaster cracked. Two dozen windows cracked. Damage slight. Ground: Rocky, compact, sloping to west.

Van Nuys:

8183 Lesner Avenue (west of Van Nuys Airport, near Balboa Blvd.). Felt by, awakened, and frightened all in community (observer in old, well-built, one-story wood frame building). Everything rattled; building creaked loudly. Moderate earth noises; some loud noises. Ground cracked. Water disturbed. Chimneys cracked, twisted, and overturned. Hanging objects swung violently west-east. Many items broke. Furniture shifted and broke. Many cracks in interior plaster. "People were very frightened, but kept control. In our general area, loss was mostly to dishes and personal items. Parts of block walls came down; water heaters moved, some off elevated stands (most were inside of houses in service porch area). Some people were thrown out of bed. Some cars rolled out of driveways or garages. Traffic became a major problem on streets in the area." Ground: Compact, level.

17464 Runnymede Street (west of San Diego Freeway). Felt by, awakened, and frightened all in community (observer in 17-year-old wood frame building (slab floor). Building sounded as if it were cracking. Loud, roaring and rumbling earth noises. Block walls cracked. Pool water sloshed over top of house; pool water lowered by 1.2 m. Water muddy. Hanging objects swung violently east-west. Lamps, books, and stereo fell. TV and chairs shifted about 0.6 m. Plaster cracked in most rooms. One window cracked. Slab cracked. Damage moderate; more outside than inside. Ground: Compact, level.

7863 Greenbush Avenue. (VI) Felt by, awakened, and frightened all in new, well-built, one-story wood frame building. Pool water sloshed; water lowered by about 20 cm. Water splashed out of toilet bowl. Hanging objects swung violently. Books toppled from bookcases and figurines fell from shelves. Furniture overturned. Plaster cracked. Damage slight. Ground: Loose, silty sand.

5224 Allott Avenue. (VI) Felt by and awakened all in community; frightened many (observer in 20-year-old, well-built, one story wood frame building). Faint earth noises. Water sloshed from pool; water lowered by about 20 cm. Hanging objects swung moderately north-south. Small objects shifted. Ground: Compact, silty loam.

7454 Vista Del Monte. (VI) Felt by and awakened all in community; frightened many (observer in 15-year-old, well-built, one-story wood frame building). Moderate earth noises. Vehicles rocked. Pool water lowered by about 22 cm. Chimneys in vicinity cracked (not at observer's home). Hanging objects swung north-north-east-south-southwest. Small objects shifted, overturned, and fell. "Practically no damage to my house; only minor crack in pool deck. Cantilever deck kept more water from splashing out." Ground: Deep alluvium, level.