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Both quakes registered 6 on the Richter scale—the strongest since the region in almost 40 years—and were both centered at Mammoth Lakes, southeast of Yosemite, according to seismologists at the University of California in Berkeley.

An earthquake measuring 6.0 or greater on the Richter scale is considered major and capable of inflicting severe damage.

The first quake struck at 9:33 a.m. local time, followed by another at 9:38 p.m. Numerous aftershocks occurred between and after these major shocks, and there was no immediate damage to homes or buildings.

The State Office of Emergency Services in Sacramento said the area struck by the 9:33 quake was a popular tourist area, with thousands of people visiting the Sierras and Yosemite National Park.

The second quake, at 9:38 p.m., was felt across a much larger area, including downtown Los Angeles and San Francisco.

Both quakes were felt at Lake Tahoe, more than 150 campsites were closed, and roads were impassable.

The quakes are not related to the volcanic activity at Mount St. Helens in western Washington, which was declared dead in 1986.

The Mono County Board of Supervisors declared the Mammoth Lakes area a local disaster area.

In addition, many rocks slid down the mountain, damaged houses and roads, and caused power outages in the area.

The Condict Lake area, which lies within the Mammoth Lakes area, was not affected by the quakes.

A nurse reported that a man was taken near Condict Lake suffered a badly burned leg when he was not able to get out of his car.

Third big quake in 2 days shakes Yosemite

By William Looney

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Third big quake in 2 days shakes Yosemite

By Malcolm Glover and Francis Drake

Another powerful earthquake, registrating 3.1 on the Richter scale, shook Yosemite National Park on Wednesday night. It was felt as far away as San Francisco and Los Angeles.

The quake, the third to register 6.0 or more since Sunday, was centered at Mammoth Lakes, according to the U.S. Geological Survey's seismograph Station at Berkeley. It struck at 7:50 a.m.

All of Yosemite's trails leading out of the valley were closed temporarily while rangers searched the area for injured people. The quake caused minor rock slides and one large slide west of Yosemite Village, a substantial distance from any trails.

Two people were admitted to Mammoth hospital and treated for cuts, after today's quake.

On Sunday, four men measuring 6.0 and two registering 5.7, rattled the area within four hours. Four people were injured yesterday, and two injured several years ago. A survey of holiday campers went home unhurt, their tents intact.

Those who remained were left to pick up the pieces from this morning, said Mary Tanner, a long-time resident of El Portal, which runs a tour service in Yosemite. "We're having a good time, but it's a bit of a hassle," she said.

"It knocked doors and windows out of alignment, floors and walls of several restaurants and shops," she said. "But it was not a big shock, and there was no damage.

"It knocked cabinets off of counters and doors, and damaged beams from the ceiling to the floor, according to a store manager.

Please Turn Page

Quake Pattern: May Point to Big Tremor

By George Alexander and Jerry Belcher

The pattern of earthquakes, including a brace of 6.0 and 6.2 quakes Wednesday, that has struck the Mammoth Lakes area of Mono County over the past 60 days, is similar to other seismic sequences in California and Nevada. The earthquakes are similar in size and nature, and similar in the way they have been distributed.

Prof. Alan Rhyd, a University of Nevada, Reno, geophysicist, said in a telephone interview that the Mono County sequence is similar to the swarm of earthquakes that occurred in the area in 1966.

However, there were no new reports of injuries or deaths.

Damage to homes was widespread, with damage ranging from cracks in walls to complete collapse of structures.

A hospital in Mammoth Lakes reported no injuries, and the town was left without power for several hours.

A large number of people were reported injured, but all appeared to be minor.

(Continued)
Swarm of earthquakes rattles Mammoth area

The continuing swarm of quakes west residents of the central Sierra unacceptably. A Mono County deputy sheriff said he was awakened several times last night because he was 50 miles from the center of the quake area.

"It would be like sleeping on a train over bad tracks," a Caltech spokesman said.

The Mammoth Lakes Elementary School was closed and classes at the high school were doubled to handle the students. A deputy said the school had sustained $200,000 damage, and engineers were trying to assess other public and private property damage.

The county remained in a "state of local emergency," the deputy said of the park rangers to "clamber with caution."

MAMMOTH LAKES (UPI) — A swarm of earthquakes, some reaching over 5 on the Richter scale, continued through the snow-capped Sierra Nevada range and its adjacent lake resorts yesterday after three large quakes rocked most of central California in as many weeks.

Hundreds of smaller quakes continued to shake more than a 100-mile stretch of mountain areas below the eastern slopes of the range.

"There have been 16 quakes between magnitude 2.0 and 5.9 yesterday," a Caltech seismologist said. "I have one over 5.2. There's probably a huge number below 4 we haven't got around to counting yet."

A quake of 4.1 yesterday rumbled California from Nevada to the sea and from Sacramento to Los Angeles. It was the third tremor measuring 5.0 or over with an epicenter in the Mammoth Lakes resort area in three days.

About 12 people were injured, two seriously, in the area. Since 1.5 quakes Sunday sent rocks rolling down onto hilly trails in Yosemite National Park.

A couple, Larry and Belinda Samuels, suffered serious injuries last Sunday when an avalanche of boulders roared over them in the park. Samuels suffered severe lacerations and burns. Her 2-year-old child suffered a crushed leg.

The Hilton Creek Fault is one of a series that runs roughly north and south. On a map, looking north, where one short fault ends another seems to begin. This is the case in the Mammoth Lakes earthquake area.

According to David Hill of the United States Geological Survey in Menlo Park, the Hilton Creek Fault is one of the scarps of short fault zones that are being active, and others for hundreds of thousands of years that the eastern side of the Sierra Nevada cret.

This is also an ancient volcanic area, and the Hilton Creek Fault winds northward into the remains of a long-extinct volcanic caldera, known as Mono Lake Caldera, which once marked the top of a towering volcano that exploded its surface deposits of lava debris all the way to the Pacific Ocean.

The Mono Craters, a famed cluster of volcanic formations to the north of the earthquake zone, are much younger, and were last active about 700 years ago, Hill said.

Further evidence of the deep-earth activity in this region of the mountains is the Owens Valley Fault, part of the Sierra Nevada fault system, which broke violently on March 29, 1872, in what was undoubtedly the most powerful quake in all of California's recorded history.

Its epicenter was later located between Bishop and Big Pine and it ruptured the earth's surface for at least 100 miles and killed 23 of the 250 inhabitants of Lone Pine. That shock uplifted and laid waste to at least 36 feet under the Owens Valley as much as 23 feet, and moved the mountain surface at least 36 feet horizontally along the fault trace.

That is constant movement like rafts floating atop deeper, more massive chunks of semi-solid rock that lies beneath.

West of the North American Plate, the Pacific Plate, thrusters of one-half of the North American Plate, expands much of its energy of motion as it pushes steadily against the Sierra Nevada Fault System. It is this buildup of tension between the "tectonic plates" that they grind against each other that causes the big quakes on the San Andreas.

But not all the pent-up energy of the plate collision is released along the San Andreas. Earth scientists believe what's left over feeds the surface expression today in the activity of the faults of the Sierra further inland.

A similar phenomenon, but an entirely unconnected one, is causing the volcanic activity far to the north, where Mount St. Helens is still spewing its airborne burden of pitchy ash and smoke.

There a smaller tectonic plate under the ocean of the eastern Pacific. Known as the Juan de Fuca Plate, it is piled directly westward against the North American Plate boundary zone, known as the Cascadia. But instead of ridding itself of each other along a fault zone, the two plates are grinding and bending together.

In the process the Juan de Fuca plate is dipping beneath the North American Plate in a movement called subduction.

As the crust material from the Juan de Fuca Plate sinks beneath the continent, it heats and turns into a liquid rock that forces its way up to the surface through the volcanic tubes and vents of the Cascades. Most of those volcanic tops are plugged with solidified lava, but when the pressure of rising magma builds the plugs explode — which is what has been happening at Mount St. Helens.

Map locates the epicenter of newest quake near Convict Lake in the earth.

According to David Hill of the United States Geological Survey in Menlo Park, the Hilton Creek Fault is one of the scarps of short fault zones — many of them recently active, and others for hundreds of thousands of years that the eastern side of the Sierra Nevada cret.

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Big New Sierra Quake
— 6.1 on the Richter

HUNDREDS OF CAMPERs HEAD HOME

By H. G. Reva
Chronicle Correspondent

Mammoth Lakes, Mono County

Another big earthquake — the third in as many days and felt through much of the state — gave a powerful shaking to this central Sierra region yesterday, setting off fresh slides and prompting hundreds of vacationers to pack up their camping gear and head to quieter ground.

The temblor measured 6.1 on most seismographs, and was the latest of more than 600 shocks since Sunday, including more than 30 with a magnitude greater than 4 on the Richter Scale.

"You have to understand," said a Mono County Sheriff's Department spokesman, "the earthquakes just don't stop. It's constant."

YESTERDAY'S EARTHQUAKE — which came at 7:51 a.m. and was felt as far away as San Francisco and Los Angeles — injured at least seven persons, forced the closing of six miles of highway, and was blamed for the fiery explosion of a garage when a gas line broke.

Beyond that and the usual assortment of damage, bottles and jars and other breakables jettisoned loose to splinter on floors, principal damage was confined to rockslides that raised columns of dust in remote areas.

Many residents of the area seemed to be taking the series of shocks in good spirits. A group of six sat around two television sets in a Mammoth Lake sporting goods store, watching network news coverage of the quake and cheering each time they saw themselves or people they knew on the screen.

One of the viewers, Kim Ger-

rand, said that since the steady stream of quakes started Sunday morning, "We have renamed the town — we're now calling it Mammo-
h QUAKE."

Dorothy Dewey's sporting goods store suffered extensive damage during the quake. The ceiling tiles buckled and fell after Sunday's shock, and the fire sprinkler caused the floor covered with six inches of water.

The quake also wiped out Dewey's burglar alarm system. Asked if he was concerned about looters, Dewey said, "There's a

Mammoth Elementary School, which was closed, had a big crack in the playground

crack in the playground near the front of the school.

Jim Greenleaf, who runs the town's international inn with his wife, said that Sunday's quake smashed a large picture window in the lobby and knocked television sets off tables onto the floors. All the inn's mirrors were shattered by the quake and the drapes in the guest rooms were damaged.

"I was in the lobby with a seismologist from the University of Nevada at Reno and a group of other seismologists when the quake hit this morning," Greenleaf said yesterday. "Everybody took off running out the door."

"I told the seismologist from the university that I thought it had been about a six on the Richter scale." Greenleaf grinned. "He came back later in the day and told me I was right — and offered me a job as a portable seismo-
graph."

Elsewhere, the mood was not so light-hearted.

Hardware store owner Dale Waterson said, "These last few days have been too much for some of the residents here. Yesterday, a friend of mine packed it all up and moved his family to Bishop, where he says he's going to open a motel."

Indeed, something of an exo-

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d from the 4900-resident mountain community already appear to have begun. Yesterday, the local Bank of America branch had to close its doors because so many residents had withdrawn money to leave the area that the bank had run short of cash.

Bambi Tidwell, a kindergarten teacher at Mammoth Elementary School, spent yesterday trying to straighten out the mess the quake had made in her classroom. Two 8-

foot-tall cabinets had been thrown open by the temblor, pitching blocks, toys, papers and the rest of their contents all over the floor.

"Oh! — look at that! This is the pits," she fumed as she struggled to clean the place.

"We really were lucky that we weren't in school when the quake hit," she added, looking at the disarray surrounding her.

The school has remained closed since Sunday's shake. Elementary school students are slated to start classes again tomorrow at Mammoth High School, and both high school and grade school children will attend staggered sessions to avoid overcrowding.

After the newest quake, geolo-
gists, who were drawn to the area Sunday when the Hilton Creek Fault slipped for the first time in 80 years, discovered that a 15-mile crack had opened up along the fault line.

The latest series of tremors is south of the epicenter of a quake that in 1975 raised the elevation of the Sierra 37 feet along a 70-mile span in the Owens Valley, said the California Division of Mines.

Yosemite National Park chief ranger Bill Wendt said boulders came tumbling down on several hiking trails yesterday. Because of this, the park closed all trails leading from Yosemite Valley, and rangers were sent into the field to ensure that anyone was uninjured.

Convict Lake was declared off-limits at least until Sunday because of the tremors earth.

A man and a woman caught by a slide in Yosemite by one of Sunday's two earthquakes remained hospital intensive care yesterday. Belinda Samuel, 28, who was eight months pregnant, lost her child. One of her legs was crushed. Her husband, Larry, had two legs broken, and injuries to the body.

The temblor occurred along the Hilton Creek Fault and was felt in the eastern section of the Sierra Nevada mountain range.

Another minor tremor, registering 4.6, occurred at 8:37 a.m. Wednesday and was centered 23 miles west of Santa Maria, a Caltech spokesman said.

Meanwhile, reports that the Crow-

Lake dam had been cracked by the shaking were denied by the Los Angeles Department of Water and Power. Jim White, a northern district engineer for the department, said a superficial crack, 30 feet long and 4 inches wide, was developed in an asphalt road atop the earth-and-rock-

filled dam, but there was no danger of the dam failing.

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Los Angeles Times
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Earthquake Damages Could Reach 2 Million Dollars

Office of the Commissioner, Geologist

Damage is estimated at $400,000, but when all damages are determined, the figure should be closer to $2 million. State Seismologist, John Geary, said the earthquake caused no damage to structures, but it did cause damage to crops and irrigation systems.

MAMMOTH 

MAJOR EARTHQUAKE ROUND-UP

May 25
9:35 A.M. 6.9
3:16 P.M. 5.7
7:05 A.M. 5.7
1:34 P.M. 5.7
May 26
3:50 A.M. 5.2
9:20 A.M. 5.0
1:19 P.M. 5.5
May 27
7:50 A.M. 5.7
12:01 P.M. 4.9

Seismologists, Geologists Converge On Mammoth

Last Monday the REVIEW contacted several of the seismologists and geologists who have converged on Mammoth from throughout the West. We literally followed them along the recent ground fissures in an attempt to report on the earthquakes that have rocked Mammoth and西部 Mono County since Sunday. Some of the comments included: earth fissures and volcanic activity are not necessarily associated; it is not known whether earthquakes cause increased geothermal activity; or whether geothermal changes prompt earthquakes; it is not likely that (if it is possible) we will have stronger quakes than occurred on Tuesday— but the earthquake swarms are expected to continue for some time.

Seismologists Dr. Thomas Toppozada of the California Division of Mines & Geology in Sacramento explained the geography of the area and the location of the fault lines. He, along with geologists James Kadle and the Division of Mines & Geology, theorized on the causes of the recent quakes and what may happen in the future.

There are two major faults affecting Mono County. Both run parallel to the eastern slopes of the Sierra. There is an east-west fault along the Long Valley Caldera eight miles long, which runs from the Mammoth lakes area to Convict Creek then veers to the south. (The fault follows Hwy. 20 to US 395 about two or three miles west of the road). Previous earthquake swarm activity over the past year has been oriented along this fault. (See chart.)

The Hill Creek fault intersects the east-west fault just east of the University of California Experimental Station along US 395 and runs north-south for 15 miles. It is projected to cross US 395 in the vicinity of its intersection with the White Mountain Hot Springs Rd.

Dr. Toppozada stated that the movement on the Hill fault could be sympathetic movement triggered by the fault to the west which generated the strong quake in Mammoth Lakes.

Old US 395

Old US 395 is closed between Swall Meadows and the new highway due to earthquake damage. Rock Creek Rd. is also closed.

Mammoth Lakes — May 25. Included in the resolution was a request for a ceremonial proclamation declaring Mono County a state of disaster.

Supervisors Declare State of Emergency

The Mono County Board of Supervisors passed a resolution Tuesday declaring a state of emergency in Mono County. The resolution requested the California Office of Emergency Services to acknowledge the commencement of a state of emergency on May 27 as the result of the earthquake.

School District Reviews Damage

Mono County Damage Being Assessed

Sheriff Mary Strebeck reported Monday that earthquake damage claims in southern Mono County are currently being assessed and that the project should be completed sometime during the first week of June. Government funds to rehabilitate public buildings will be made available through coordination with the state Office of Emergency Services.

Privately-owned property and businesses may be eligible for small Business Administration disaster loans.

Wings West Offers Aid in Crisis

Wings West Airlines Vice President Mark Maru offered to aid Mono County during the earthquake crisis this week. Maru offered to make planes available for any and all emergencies.

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Scientists Converge on Mammoth

Continued from page 1

All of the scientists felt that it was unlikely that a quake of larger proportions than the one at 12:45 p.m. today would occur in the near future. All felt that small magnitude earthquakes would continue—perhaps for several months as the readjustment in the earth takes place. Dr. Topozada stated that the epicenter of the first quake was approximately halfway between the Shafter and Substation along Convict Lake. That quake measured 6.0. At press time, specific epicenters had not pinpointed pending thorough analysis of the data collected.

According to geologist Kahl, it appears that the shift on sections of the Hilton Creek fault moved 15 to 16 centimeters (0.5 to 0.6 inches).—The western side of the fault moved up, the eastern side went down. However, Kahl did express surprise that larger or more intense quakes have occurred after the initial shock was recorded at 9:30 a.m. Topozada explained that the Hilton fault is probably not capable of an earthquake much greater than the magnitude of Sunday's quake.

All of the scientists stated that there is positive connection between the quakes occurring in Mammoth and the volcanic activity at Mount St. Helens. Even though in the past there has been significant volcanic activity in the Mammoth Lakes area, Mammoth is an entirely different geological environment than the Cascade Volcanic Chain of which St. Helens is a part. The underground sources of the volcanic eruptions are totally different.

"There is evidence of volcanic activity in the southern Mono County; however, it is not known if there is a correlation between recent earthquakes and volcanic activity," stated Rick McJunke, geologist for the USGS, Division of Mines and Geology.

In addition, the major quakes reported on Sunday, the seismograph at the experimental station south of the airport recorded over 30 quakes registering 4.0 or more on the Richter scale during the first 24 hours after the first quake, McGee Mountain, Laurelt Mountain and Little Morrison, which face the facility, all showed evidence of major rock slides and snow avalanches. All the roads reported in roads and yards are secondary features resulting from the ground shaking and are not faults.

When questioned on what to look forward to in the near future, geologist McJunke answered:

Q: What is the prognosis?
A: There are small quakes and more ground cracking.
Q: Will a volcanic eruption occur? (Rumors have it that the area is on the verge of a volcanic eruption.)
A: There is no evidence of any significant eruption. The quakes are being induced by volcanic activity. They appear to be induced by the movement of the Hilton Creek fault or sympathetic movement of the Hilton Creek fault.

On May 15, ten days prior to the major earthquakes, Review editor John Johnson took on the assignment of researching earthquakes in Mono County. The Review decided to publish Johnson's story on May 29—totally unaware of the 6.0 quakes that struck on May 25. Her interview with Dr. Malcolm Sonnino, a geologist at the University of Nevada, adds to the information which the Review has gathered.

Dr. Thomas Topozada of the Survey of Mines and Geology in Sacramento said that there was no apparent reason for the quakes that hit Mammoth last October and November which were followed by a quiet period in January and February, and another earthquake in March, a quiet period in April and then the big ones in May. Sonnino stated that there is no connection between the Mt. St. Helens quakes and volcanic activity in those in Mono County. He further stated that the quakes are not related to further volcanic activity in Mono County. These quakes are related to stresses which affect the earth's crust. Seismologists are not certain why earthquakes cause geothermal activity or the reverse. Geothermal areas containing hot springs indicate that water percolating from the depths up natural fissures. Consequently, most geothermal areas experience earthquakes because of these fissures and hot springs.

Sonnino did indicate that the Mono Lake quakes are not unprecedented. In 1941-42, earthquakes of 5.0 magnitudes struck Walker Creek. For two years after these quakes, 3.0 and 4.0 quakes occurred in a manner similar to those which have occurred in Mono County since 1976. After the earth quakes, the area was quiet for 10 years. The same thing could happen in Mono County.

Although Sonnino emphasized that he is a volcanologist, he did say that all evidence points to the fact that the underground magma at Mount Mammoth is actually going down and is in fact tending. He went on to say that the Mono Lake area is currently the most active volcanic section of Mono County.

He stated that the Mono Lake area is not volcanically dead but that there are signs of future activity at this time. Sonnino feels that some eruptions at Mono Lake are likely to take place during the early 1990s.

Some True, Others are Not

Earthquake Rumors Abound

At the height of the earthquake swarm which hit Mammoth on Sunday, rumors ran rampant. At times it was difficult to sort out the fact from fiction, which made it particularly difficult for the local media to accurately report the events as they occurred.

The first rumor was that of a plane crash at Mammoth Municipal Airport during the height of the quakes. It turned out to be a low-flying California Edison plane checking the power lines. There was no crash.

Then reports filtered in that a number of booms had turned over on Convict Lake and that fishermen were being pulled from the water. Another report of numerous injuries at Convict Lake and people trapped in the backcountry was reported.

Perhaps the wildest of all was that another quake in the Convict area would cause immediately the surrounding mountains to topple into the lake, driving water down Convict Road and on to US 995.

Reports of locusts at Silver Lake turned out to be a man attempting to install a wind turbine on Convict Lakes. Many of the rumors that turned out to be true.

Mr. Beason of Los Angeles was fishing in Convict Lake when he was thrown to the ground by the force of the quakes.
Earthquakes Continue in Mammoth

Mono County Sheriff Martin Streeteck reports that tremors are continuing in Mono County. The area is reporting shocks ranging up to 5.0 on the Richter scale.

To safeguard campers, hikers and sightseers, the US Forest Service upon the recommendations of law enforcement and geology experts have established a closure of the mountainous area south of Mammoth Lakes ranging from Sheridan Bowl on the north, Rock Creek on the south, the Sierras on the west and Convict Lake Lodge on the east. Convict Lake Rd. is open to traffic to the lodge but has been closed to all traffic from that point, including Convict Lake campground.

Geologists predict continuing lesser shocks for a period of up to a week; it is recommended as precautionary measures that bottlers of drinking water and emergency lighting such as Coleman lanterns be kept in residents’ homes.

To determine the extent of damage to the Mammoth Lakes schools and the hospital, the California Office of Emergency Services has obtained the expertise of structural engineers of the Structural Engineers Assoc. of Calif. San Diego Chapter who were flown in to Mammoth Lakes Monday evening by the Civil Air Patrol. Their evaluation commenced immediately upon arrival.

In preparation for application to the State of California for financial assistance for the repair of damage to public facilities, the county has commenced assessment of damage.

SHORTLY after 10 a.m. an emergency communications center was established by Streeteck at the Mammoth Lakes Fire Dept. Immediately, reports began coming in regarding possible injuries at Convict Lake, lost backpackers, broken water and gas mains, roadblocks along US 395 and damage to structures. The sheriff, with the CHP, the Mammoth Lakes Fire Dept., Mammoth Mountain Ski Patrol, law enforcement and rescue teams, the USFS, the National Forest at Fallen Leaf and LeMoyne immediately pressed into service. Four helicopters arrived by noon—one from the Fallen and LeMoyne National Forests, two from the CHP and the USFS.

Four reconnaissance flights were completed by 3 p.m. Although there were reports of considerable damage in the backcountry, no stranded hikers were observed, according to Mammoth Mountain Search and Rescue team member Bob Turrell. At 4:30 p.m. the Convict Lake area was evacuated because of the slide danger in the area. By 5 p.m. Streeteck ordered Mammoth closed to tourist traffic.

During the long afternoon, reports of damage filtered into the emergency communications center. Mammoth Salesway reported $50,000 to $100,000 worth of damage to fixtures and stock. Stock lost at the Village Pharmacy. The Winery and many restaurants was severe. The Tall Building, the high school, Warming Hut No. 2 and shoe store Fire IV all received moderate damage.

The Fish Hatchery received considerable damage, Water mains broke at the Sierra Nevada Inn, and flooding was reported in parts of the facility. Many house and contents were damaged, some badly. A number of chimneys fell after the initial shock. Cracked walls, discolored beams, broken windows and damaged contents were widespread.

Terry Feddall, of the Mono County Sheriff’s Dept., said 13 backcountry hikers had been reported in the Donnie Lake and Mt. Morris area, but were reported to be okay. Fourteen Boy Scouts hikers of the Convict area earlier.

Closures of Backcountry

Continued from page 1

The boundaries are set so that it is possible to drive up the Rock Creek road but not to hike into any backcountry on the north side of that drainage. The eastern boundary of the closed area follows Forest Service land ownership and does not include the BLM land that parallels US 395. The southern edge of the closed area follows the boundary of the northern portion of the John Muir Wilderness.

Convict Lake campgrounds and the nearby lake will remain closed to fishermen and day users, as well as campers. Hot Creek is also closed due to earthquake hazards. A map of all areas closed may be seen at the Forest Service offices at Mammoth, Le Vining and Bishop.

Forest Service staff will attempt to help anyone holding a wilderness permit for entry from the Rock Creek, Convict Creek, Mill Creek, Hiltsen Creek, Convict Lake, Laurel Canyon, Duck

6.0 Earthquakes Rock Southern Mono

Southern Mono County residents were rocked by a 6.0 earthquake at 9:22 a.m. Sunday, May 11, a 5.0 quake at 12:45 p.m. and a 6.1 quake at 5:50 a.m. on May 12, followed by a 5.0 quake at 12:45 p.m. and another 5.0 at 1:50 p.m.

Several 4.5 and 3.5 quakes followed during the day and throughout the early morning on Saturday and Sunday with 35 quakes ranging 4.0 or more being recorded since Saturday—over 500 shocks in total.

No serious injuries were reported in Mono County, although hikers were injured in Yosemite. Damage to dwellings in Mammoth was minor to moderate. All major systems were functioning, 11 a.m. water, power, etc. Mammoth Lakes was without power for an hour, but was back up by noon. Mammoth Mountain closed after the first quake. There were no evacuated skiers from the lifts via auxiliary power.

Seismologists from the University of Nevada at Reno told The Review that the quakes pro-

ably took place along the Hilton Fault which extends from Rock Creek Lake to Long Valley. This fault, dormant for many years, was active approximately 1,000 years ago.

Somerville believes that the fault broke and that the worst is over. However, he said that aftershocks could occur for a couple of months or longer.

The last major quake to hit Mono County took place on Oct. 5, 1976 and registered 5.7 on the Richter Scale. Since that quake, no quakes have occurred in the southern Mono area since September of last year.

The Sylmar quakes (Los Angeles) in 1971 registered 6.5 and was three times the intensity of the Mono County quakes. The 6.0 quake in Mammoth had only one percent of the intensity of the 1976 Alaska quake.

The Mono County quakes were felt from Los Angeles to Sacramento, but with much less intensity.

Mono County Sheriff Martin Streeteck, Defense Coordinator Gene Hanson declared a state of emergency at 11:35 a.m.

Injuries Reported at Yosemite

Linda Abbott, public relations manager for Yosemite National Park, told The Review that only two serious injuries occurred at Yosemite National Park on Sunday. No injuries have occurred since then. There has been no structural damage. All roads and trails into the park are closed until further notice.

SBA Loans Under Consideration

Mono County Supervisor Joan Green, local representative of the Small Business Administration, announced Tuesday that she had con-
tacted Bob Bott, County Regional Disaster Coordinator in San Francisco to request pertinent information and forms for SBA disaster loans. The Board of Supervisors Tuesday declared Mammoth a disaster area.

If the governor contacts county, Mono County could be eligible for disaster loans. For more information, contact Joan Green at 600-7451.

SBA Loans Under Consideration

The Hot Creek Fish Hatchery was also seriously damaged, with much of the fish being released.

The Geothermal Activity at Hot Creek

As a result of the recent earthquakes, new geothermal activity is taking place in the Creek area, and the Creek is currently closed to the public. Three geysers spout water up to six feet high and 30 feet long, and 50 foot tall. The Creek area is particularly susceptible to geothermal changes and further changes in the geology are expected as the quakes continue.

The Hot Creek Fish Hatchery was also seriously damaged, with much of the fish being released.
Major quakes rock Sierra

More earthquake photos inside

Three earthquakes, 6.0 on the Richter scale rocked Mammoth-Crowley Lake area last week and were felt from San Francisco to Los Angeles.

The three massive quakes followed hundreds of lesser tremors that had been recorded in the Mammoth-Crowley area the past several years. The first 6.0 quake hit about 9:33 a.m. Sunday, knocking out power in the Mammoth area, and causing minor injuries in stores, homes and buildings on the floors. A 5.8 aftershock was recorded at 9:49 a.m. The second 6.0 quake was at 12:44 p.m. Sunday. The third large quake hit about 7:51 a.m. Tuesday, and drew a rating of 6.1 from the Berkeley seismograph, and 6.0 from Caltech.

The center of the Tuesday quake was at the mooney Grove Park, near Visalia, on the west side of the Sierra. Aftershocks since the 6.1 quake have registered as high as 4.5 and 4.2.

The quakes closed several Mammoth business firms (for cleanup sessions), and closed several elementary and high schools both Tuesday and Wednesday. The elementary school students will complete the school year in double sessions starting Thursday of this week...at the high school, Supr. Marvin Heinsohl stated.

The biggest loss could be to Hot Creek hatchery. See story elsewhere in this issue.

Highway travel is Mammoth Village and Convict Lake was closed for periods, but was back to normal by press time.

Los Angeles Dept. of Water and Power checked their dams and installations on a 24-hour basis this week and report no deficiencies up to press time, despite rumors that Crowley "had a crack."

A roundup Tuesday afternoon showed eight water breaks had been reported in Mammoth since the three major quakes, only two leaks and 20 fire calls, mostly of them to report cracked chimneys, and other fire hazards. The gas companies asked that folks determine where and how to shut off gas, so gas can be shut off immediately. The gas companies are maintaining phone and personnel service 24 hours daily during the emergency.

Sunday and Monday's quakes didn't dampen the enthusiasm of skiing skiers at Mammoth Mt. More than 3,000 were on the mountain Sunday, and most were issued "quake checks" of 9:30 a.m. quake knocked out power at the substation. Dave McCoy of Mammoth Mtn. Ski Area, said he was real proud of the mammoth effort his crew handled the emergency, getting folks off the lifts. Power was restored about noon, and the next day more than 3,000 skiers were back on the slopes. There was a good crowd on Tuesday, despite that 6.1 quake at 7:51 a.m. Tuesday.

State Senator John Garamendi and Assemblyman Norm Waters were to fly to Mono Wednesday to confer with local officials and agencies and inspect damage.

Supervisor Joan Green of June Lake, who has been Mono county's liaison with the Small Business Administration during the drought years, conferred early this week with the SBA on disaster relief assistance. and said Mono's request for aid would be handled by Robert Belloni, regional disaster coordinator, at the SBA office, San Francisco, phone (415) 556-4696. Belloni is forwarding to Mrs. Green the paper work for establishing eligibility of the county. Mono board of supervisors, which met Tuesday in Mammoth, toured some of the damaged sites Tuesday afternoon including Mammoth elementary school at Hot Creek fish hatchery.

Despite the severity of the quakes, May 23-26-27 at Mammoth Lakes and Crowley Lake southern California Edison Co. suffered relatively little damage, Charles Miller, district manager, stated.

Electrical service was interrupted following the initial quake Sunday morning in the Mammoth Lakes area. Miller reported, when the quake damaged lightning arrestors at the Casa Diablo substation. This occurred at 9:45 Sunday morning and full power was restored by noon when the damage was repaired.

One plane and two helicopters were used Sunday and Monday by Edison personnel in an aerial inspection of the power lines but no further damage was found or repaired.

At the Tri-County Fairgrounds in Bishop where the annual Mule Days Celebration was underway, there were no injuries or damage reported.

 Persons in the grandstands reported feeling swaying motion but there was no mass exit. The situation was a bit different at the Charles Brown Auditorium, however, where an art fair was underway. Reporter Marilyn Fisher, who was in the auditorium when the 9:30 a.m. quake struck, said there were only 50 or so exhibitors in the building and many of those persons were really frightened. None of the displays were toppled in the auditorium. When the 12:45 p.m. quake hit, however, there were several hundred persons in the building who began running for the doors, creating a lot of traffic. Exhibitors who had been in the building earlier recognized the potential 'stampede' danger and yelled to the crowd to quiet running and instead calmly exit. The crowd obeyed and filled out of the building in an orderly fashion.

Don Austin, manager of Mammoth Safeway store, said that product damage, clean-up, and other costs of the quakes, may hit in the neighborhood of $30,000. The Lazy A Safeway store in Bishop, was closed twice briefly on Sunday for clean-up routines following the two big quakes. The downtown Bishop Safeway had only minor product loss from bottles tumbling from shelves.

MONO HERALD, CHRONICLE UNION - THURSDAY, MAY 29, 1980

WHAT A WILD WEEKEND... and since. It started only that strong wind on Friday, took it to cold Sunday, Monday, Sunday, and Tuesday earth quakes put us in the national limelight. Just the kind of publicity we don't need. As of this writing there could have been worse... no one killed, few injuries, and material damage far less than one would expect. The cold weather put back the construction work to a minimum to probably saving many lives that could have been lost in massive rock slides. The permit system for backcountry use is appropriate for this case. The permits are based on where in what number. In the early 1960's we didn't have the permit system, and the area was loaded with July 4th weekend hikers. A strong earthquake made a dust storm out of the crumbling-crashing High Sierra granite rocks... ha ha... injury... just a lot of obliterated and rock strewn trails. The media didn't even mention the early 80's earthquakes in Inyo-Mono. Not so this week. We phoned out of state media outlets Sunday morning quickly to assure them the area had survived. None had any figure on the severity of the 9:30 a.m. quake, not even the seismic center. They didn't stop the mail. They tell us people run to fly to Mammoth and put us on TV... and the phones have been ringing since. No way how much this media overkill will affect our tourist cash flow. On the big island of Hawaii they have hundreds of earth tremors 24 hours a day, the citizens don't unduly shaken. Hopefully, the pack trains this year won't suffer from a very late season and earthquake fever.

Last used to be used in May 29-30 quake in Long Beach, and the Nov. 26, 1975 quake of 7.3 on the big island of Hawaii; and saw the earthquake damaged areas of Anchorage, Alaska. But this week's shakers still give one that uneasy feeling that goes back to seeing brick walls fall on oceole in 1933 in Long Beach.

For those keeping score...

Earthquakes recorded by date and time at the University of Nevada at Reno's seismograph and the seismographic recording station at U. C. Berkeley. May 24, 12:49 p.m., 4.9, plus three events of 3.0 or larger.

May 15, 5:39 a.m., 4.6, plus six events of 3.0 to 3.8.

May 17 No records

May 18, 5:47 a.m., 4.2; 1:11 a.m. 4.0; plus four events of 3.0-3.8.

May 19, 3:19 p.m.; 40.

May 20, three events, 3.0 to 3.8.

May 21, no events over 3.0.

May 22, no events over 2.6.

May 23, no events over 2.2.

May 24, 9:24 a.m., 4.0, no other events over 2.3.

May 25, 9:24 a.m., 2.8; 9:33 a.m., 5.9; 9:33 a.m., 6.0; 10:31 a.m., 3.5; 11:44 a.m., 4.8; 12:13 p.m., 5.5; 5:19 p.m., 5.2; 6:19 p.m., 4.5. 10:47 a.m; 4 events of 3.0-3.8 and hundreds of aftershocks ranging from 4.8 and downward.

May 26, 5:24 a.m., 4.9; 9:21 a.m., 4.7; 11:18 a.m., 5.5; 12:24 p.m., 4.6; and hundreds of 3.3 and lesser aftershocks.

May 27, 7:31 a.m., 4.0; 12:01 p.m., 4.6; 10:16 p.m., 4.6; 10:49 p.m., 4.3; and dozens of lesser magnitude aftershocks.
16 Scary Quakes Shake
The Sierra in One Day

This Is Driving Us To the Brink

by H.C. Reis
Chronicle Correspondent

Mammoth Lakes, Mono County

New earthquakes rolled through the Sierra Nevada with nerve-jangling regularity yesterday.

But no major injuries or property damage were reported in the Mono County district, despite the seeming regularity of the quakes.

Scientists recorded more than 18 quakes measuring between 3 and 5 on the Richter scale, and one seismologist said "there's probably a huge number below 4 that we haven't got around to counting yet."

In this village just north of the big quake's epicenter, nerves were on edge but the cleanup work continued and students at the damaged Mammoth Elementary School, where classes were canceled after the quakes began, were told to report this afternoon for substitute classes at Mammoth High School, five miles away.

But elementary principal Irene Marson, who has been at the village's only elementary school for 31 years, wasn't sure how many of her 400 students will be attending.

"So many families are leaving town that I'll be happy if 100 show up," she said, surveying damaged buildings.

never be rebuilt where it is, county School Superintendent Marvin Heinsohn said. Damage is more than $200,000 he originally estimated.

A fixture in the town was the building's concrete foundation and floor, where it peeled off several vinyl tiles as much as two feet away from the school parking lot through the building to the playground.

Quakes had sent books sliding from the walls of the library to the floor, where two volumes which came to rest right-side-up told the story. "Our Quaking Earth" and "One Thousand and One Questions Answered About Natural Land Disasters."

"This is driving us to the brink," said Nancy Shearer, a waitress at a local restaurant. "My husband is a deputy sheriff and he's working a 24-hour day, while I've been sleeping with one eye closed and the other open wondering if the next one will be too large.

Shearer said her two children are out of school and sent them to stay with their grandparents at June Lake.

"It's scary and it's irritating," Janet Fourn said at a local liquor store. "Some scientists say these little ones are adding up to a big one - and others tell us not to worry. Who do you believe?"

"My husband and I go from a mutual fear to individual irritation with each other. I wish the ground would stop shaking. It lets get over with and let the big one strike. This waiting for the unknown is ridiculous, and hell on a marriage."

A quarter-mile south of the school, off Highway 366, workers at the state's Hot Springs Fish Hatchery were transferring fish to tank cars from ponds made muddy by the quaking earth.

The chocolate-brown mud has suffocated an unknown number of the 500,000 rainbow trout, which the state has developed for fall breeders to provide year-round fishing. The plan is to move the fish to Black Rock 30 miles to the south.

"If we lose the fish we have here," said hatchery official Neil Nyberg, "we won't be able to breed fall trout for 18 years.

The Convict Lake Road, like many others in the area, was closed because of unsafe conditions caused by the quake.

The elementary school may around Mammoth Lakes were closed yesterday by federal, state and local officials, who fear that the continuing quakes may jar more earth loose from the slopes.

On the western slope of the Sierra 30 miles to the southwest, hikers and trail leaders leading groups of Yosemite Valley were closed because of rock slides but yesterday's quakes were barely noticeable.

"It's calm in Yosemite and we're just trying to assess the damage," from previous jolts, park spokesman Herb Sansom said.

About 80 percent of the park's 125-mile long trail system had been closed because of snow when the big quake struck and should sustain little damage, he said.

Slightly more than half of the trails that had been open were put off limits because of actual or potential slides, Sansom said.

There were between 10,000 and 12,000 persons in the area when the quakes began Sunday night, he said, and only 600 remained yesterday but the exodus, he said, had been as much to do with increasing dry cold weather and the end of the Memorial Day weekend as the quakes.

"It still looks pretty crowded in the valley," he said. "People didn't leave like a buffalo herd."

The most obvious quake damage yesterday occurred outside Visalia in Tulare County, more than 100 miles to the southwest in the San Joaquin Valley, where a famous statue crumpled in Mooney Grove Park.

The statue of a mountain man, "The Hunter," by Solon Borglum, was created for the Panama-Pacific Exposition in San Francisco in 1915, and then given to Tulare County.

"It was plaster-of-paris over chicken wire, wood and metal," said county General Surveyor Director Sheridan Shute. "One of the legs of the horse nearly went, and it just toppled to pieces."

Thurs., May 29, 1980

Fewer Quakes Now, But So Shaky

The earth began to shake in the Mono County district last evening, light tremblers the day before yesterday, and by yesterday many were sick of being jolted awake by small quakes.

School district assistant Joyce L. Price of Mammoth, a welding student at the C.S. Ingalls Technical School, said: "I told the class, 'We just had an earthquake. I didn't have a chance to make up a report, but I'll have one now."

But the district, Assistant Superintendent Robert R. Richmond said, "We're told the earthquakes will stop, but we'll have to watch them very closely and see how it goes."
Long holiday weekend in Mammoth Lakes area is marred by earthquakes on Sunday, Monday

Naval Weapons Center personnel who were enjoying their 3-day weekend camping, fishing, or skiing in the Mammoth Lakes-Crowley area had an unexpected thrill Sunday when two earthquakes registering more than 8 on the Richter scale hit the region.

While NWC and CalTech seismographs in the Earth and Planetary Sciences building at China Lake indicated that the earth shook for between 9 and 10 minutes during the first quake at 8:24 a.m., Centerites who were at Mammoth estimated that they felt the shock for about 18 seconds. C. E. Ems, who was on Crowley at the time, said that the lake felt like a giant fishbowl sloshing. (And, he added, the fish promptly stopped biting.)

UTILITY LINES DAMAGED

No Center personnel were among those reported injured by falling roofs, landslides or mudslides. Buildings in that area withstood the quakes relatively well because they are built to stringent code due to heavy snowloads, but stores suffered losses when items on shelves tumbled to the floor. Power lines were downed, and some water mains broke.

Extensive landslides and rock slides were readily visible from the air when Glen Roquehore, LGDr. Jack Paschal, and PH2 Tony Garcia flew over the area Sunday afternoon in an NWC U-4 aircraft piloted by LGDr. Paschal.

Roquehore, a geologist in the Earth and Planetary Sciences Division of the Research Department, was looking to see if any basins had opened in the earth. (None were visible from the air. He will join Malcolm Clark from the U.S. Geological Survey's Mono Park facility in a ground study of the shaken area this week.) Information gathered from these quakes will be helpful in seismological studies of the local area.

Preliminary studies of the earthquakes Sunday indicate that the epicenters were about 4 miles west of Lake Crowley. They are taking place on the Sierra Nevada frontal fault, a broad zone comprising hundreds of smaller segmented faults.

(The 1972 Owens Valley earthquake centered on a straight line fault between Lone Pine and Big Pine; this fault is also part of the same frontal system.)

Despite the magnitude and amplitude of the earthquakes taking place less than 200 miles north of China Lake, relatively few local people felt the shocks because the soil in the Indian Wells Valley is alluvial and the shock waves are retracted by a change in earth structure. The shocks were felt from Sacramento to San Diego, however, where the granitic Sierra structure carried them.

MILES OF TRAILS CLOSED

Hikers and campers are being advised to stay clear of areas where rock, mud or landslides could be triggered by aftershocks, and miles of trails have been closed temporarily by the Forest and Park Services until they can be inspected.

Some seismologists, notably Professor Alan Ryall, a geophysicist at the University of Nevada at Reno, have pointed out that the pattern of earthquakes in the Mammoth area indicates the possibility of a much larger temblor occurring shortly. The region has been shaken by a series of small quakes of increasing intensity for more than a year following a period of relative quiescence, with several shocks escalating to intensities above 5.

The sequence of earthquakes in the Mammoth area began about a year ago with a number of small earthquakes just to the north and west of Bishop, apparently on a branch of the Hilton Creek Fault. The number and frequency of aftershocks did not fit the usual pattern of California earthquakes. Usually, earthquake occurrence in California is marked by a period of relative calm in a given area, broken only by a very few small shocks.

When an earthquake happens, the big one usually comes first. It is followed by a series of aftershocks that gradually decrease in strength and in frequency of occurrence. Sometimes some of the aftershocks are large, and may, in fact, be as large as the original quake.

The probability, in southern California, that a given main shock will be followed by an aftershock of the same magnitude or larger is almost exactly one half. This is called Bath's law, after a seismologist who spent several years at CalTech's Seismological Laboratory.

The sequence of shocks in the Mammoth area has, however, consisted of a large number of shocks of different magnitudes spread over a long time. Some of the shocks have apparently had aftershocks from their own, but the effect is more apparent than real, with, of course, remissions and exacerbations.

Earthquake swarms of this type often occur in South America, Central Asia, Alaska and in Nevada. It indicates that some more complicated process of deformation is taking place than is usual in southern California earthquakes.

This has led Alan Ryall to indicate that more shocks may be coming, and he has based this on his experience in Nevada. It may be that the main shock of the series has not yet occurred.

NEW ACTIVITY NOTED

As of Wednesday morning, increased activity and greater heat release is being noted in the hot springs on Hot Creek. Cracking has been reported on the Hilton Creek Fault zone and numerous landslides are still occurring in the mountains.

Hilton Creek Fault has long been recognized as active and shows some prominent dislocations at the surface on the west side of the valley opposite Lake Crowley. It is capable of producing earthquakes in excess of magnitude 7.

Epicenters are scattered all over the floor of Long Valley, and clearly a major readjustment of strain is taking place over a fairly wide area. According to Dr. Pierre St-Amant, head of the NWC Research Department's Earth and Planetary Sciences Division.

Local residents who own condominiums or cable in the Mammoth area and were not there when the quake occurred are advised to check carefully for gas leaks when they enter their vacation homes. Gas in an unoccupied place—especially one built of wood—should be turned off at the source before the vacation home is left unattended.

They are also advised to check fireplaces for structural damage before lighting fires.
A Week of Jolts Leaves Jangled Nerves in the Eastern Sierra

By JOHN KENDALL
Times Staff Writer

MAMMOTH LAKES—When they talk about earthquakes, thousands of Eastern Sierra residents and visitors will remember this week as "The Week That Was." As the temblor earth gets calm, a bit, seismologists have recorded three magnitude 6 quakes and hundreds of smaller shocks on the experts of nearby "twos" as a reminder that the mountain range and its faults can be very dangerous.

For many, the memory of where they were when the first magnitude 6 quake struck last Sunday will remain as indelible as their memories of the day President Kennedy was assassinated.

Driving in a car and feeling it shudder like four strong men bouncing in their seats, fishing at normally calm Lake Crowley and suddenly realizing the waves are kicking up, ascending Mammoth Mountain and realizing something is very wrong when the ski lift stops and the towers are away, enjoying Sunday morning at home one minute and hearing the house crack and moan and the dish rattle and fall the next.

The first magnitude 6 quake was bad enough, but when a second of the same intensity came about three hours later, a Mono County sheriff's lieutenant heard it outside the county jail.

"The students are doing all right, but they're scared," he said.

People who stayed home are getting on the ragged end of this. It's really hard on nerves.

"You have enough stress in your daily life without this. It's kind of hard to measure, though. Everyone reacts differently to stress."

"The kids seem to be taking it really well. There's been a lot of people's lives are turned upside down," the sheriff said.

As the aftershocks continued, they began to feel the way they would if they had been in a war zone.

"People who stayed home are getting on the ragged end of this. It's really hard on nerves.

"I'm a European, and Californians are more calm. I've talked to other business people and they're really frightened. But what can we do?"

The second magnitude 6 quake, many visitors filled their gas tanks and left town immediately. Some permanent residents joined them, while others just sent their wives and children away in California to escape the earthquakes.

"I'm not running away. This is my home," one said.

The temblor ruptured the ground near Mammoth, a hot springs town near Crowley Lake, but Pan Aver, a Mammoth Lakes resident, still was helping operate the swimming pool there late in the week.

"I'm kind of at a loss about the whole thing," she said. "I've had a few things packed up—sleeping bags, water, food—and the car's ready. We went to the Chico Park parking lot the other night."

The mighty Sierra, the largest mountain range in the contiguous United States, is relatively young in geological terms, and it is still building in a violent era.

California's most severe earthquake in recorded history took place out of west of the Sierra about 100 miles south of here. Early on a clear moonlit night in 1872, a great quake thought to be about magnitude 8-plus shattered the community of Lone Pine. As the buildings crumbled on their sleeping occupants, and 27 people died on that March 28. The shock was felt as far south as San Diego.

This week—more than 100 years after the temblor, described by John Muir as a "dreadful earthquake"—74-year-old Firman Wood, a retired Southern Pacific Railroad agent at Lone Pine, was only concerned at prospects of a larger quake catching the current swarm.

"I'm not expecting a bigger quake," he said of his fellow townspeople. "It's been a hundred years since we've had the last big one. But, if it's going to happen, it's going to happen." One Lone Pine resident, Milton James, 73, and Charles Muten, 70, agreed. "I'm too old to worry about it," James said. And Muten says, "I'll just have to take it as it comes."

In Bishop, farther north, Monica Watters, a happy fifth-grader at the Home School, was not so sure. "It's fun. I love it. Because when you're all on edge and sit down it just feels like jelly. I think there's going to be a bigger earthquake because I keep building up. It's supposed to be a 7.5."

She admitted however that the thought of a larger quake does frighten her just a little.

With the lowering of the seismic activity at week's end, there were signs of a return to what passes for normal.

Students went back to school at Mammoth Lakes. The road to Convict Lake was open. The Forest Service had planned to open the lake campground Monday and the earthquake information center was closed.

5.2 TEMPLOR HITS MAMMOTH LAKES

From Times Wire Services

MAMMOTH LAKES—An earthquake registering 5.2 on the Richter scale shook this Sierra Nevada resort town early Saturday, but residents were taking it in stride.

"We had no damage at all, no phone calls or anything," said Deputy Davey Mette at the Mammoth Lakes police station.

The latest jolt occurred at 6:30 a.m.

U.S. Geological Survey investigators said Mammoth Lakes, about 45 miles west of the Nevada border and 200 miles east of San Francisco, is being shaken by activity on the Hinton Creek Fault on the eastern side of the Sierra.

By JOHN KENDALL

More quakes predicted

MENLO PARK (AP) — More earthquakes causing rockslides and avalanches probably will continue in the mountains of Nevada and the state of Nevada, the U.S. Geological Survey says.

More than 200 temblors of magnitude 3.0 or greater have occurred since May 25 in the central Sierra region near the Nevada border, the USGS said in a report. The agency said seismology reports were expected to continue for the area over the next few days with a "strong possibility" of quakes in the Richter magnitude 4 to 5 range.

The shake has caused numerousslides and avalanches in the area during the last two weeks. There was local damage and minor injuries. The first big quake was felt as far north as Menlo Park, 20 miles away.

As the snow melt season continues, the USGS said, "the mountains could become increasingly vulnerable to additional slides and avalanches."

The latest readings showed the swarms of quakes have shifted significantly in size and number, the USGS said.

The USGS also said field studies confirmed movement along the Hinton Creek fault was the likely cause of the earthquakes. -Three

Santa Barbara, Calif., News Press, Saturday, May 31 1980