is hopeful in some cases, gloomy in others. It seems that parts of the fault system are undergoing a continual relieving slippage not associated with earthquakes. The rest of the quiet zones must be just accumulating strain. It is generally agreed that the Pacific Plate and the North American Plate, whose boundary is the San Andreas system, are moving in a right-handed sense at 5 cm a year relative to each other. The best evidence is that fault movements during earthquakes are unlikely to exceed a few metres, so catastrophic quakes may be expected to occur every few tens of years in quiet zones where there is no slipping.

Viewed in this simple light, the earthquake north of Los Angeles appears to fit neatly into the framework. There has been no major earthquake near Los Angeles since 1857 when there was a shock comparable with the 1906 quake in San Francisco with a rupture length of at least 200 km. There have been relatively few minor earthquakes in this region in comparison with most other parts of the San Andreas fault. So if the fault was not slipping, all the signs were that something would have to go eventually. And yet the quake does not fit into this scheme of things and there is doubt among seismologists in the region whether it has done anything at all to relieve the accumulated strain.

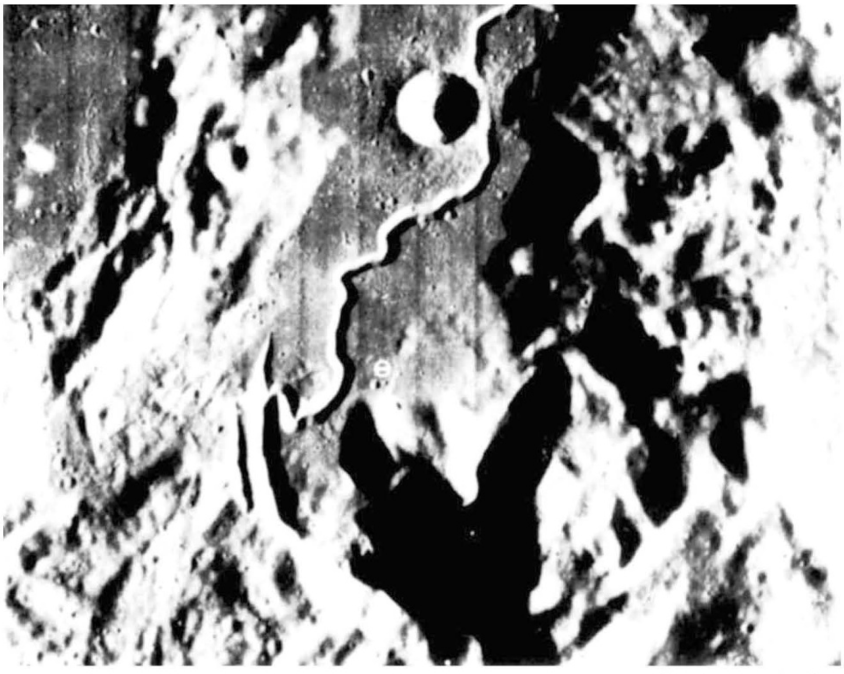
The problem is this. The best estimate so far of the location of the event is that it is 15 km north of San Fernando and 50 km north of downtown Los Angeles. Talking about a location is perhaps unrealistic for an earthquake of a magnitude of 6.5 for which the horizontal dimension of the faulting region is likely to be at least 10 km, probably much more. This whole region is completely intercepted with faults, none of which is dominant, but it can be stated with considerable confidence that the fault which moved was not the San Andreas. Nor indeed does it seem from first reports to have been the San Gabriel—a fault which runs parallel to the San Andreas. Instead it has been suggested that the ground displacements are on the Soledad Canyon Fault—a fault which appears on practically none of the maps of the area and has no known seismic history. Further, the motion does not seem to have been the right-handed strike slip associated with the San Andreas.

Much more will be known shortly when the intensive field work starts to be reported on and it will be foolish to speculate on the basis of incomplete information, but the following general points can be made. The event occurred in a region which had been relatively free of activity and seems to have a mechanism that is not immediately seen to be that of the San Andreas. This emphasizes in a dramatic way the unpredictability of seismic activity. The remarkable successes of plate tectonics are based on observations of the narrowness of most seismic belts and the consistency of earthquake mechanisms, with the idea of these belts being boundaries between moving plates. However, it is worth repeating that plate tectonics appears to be only a guide line in continental regions. Relatively new ocean crust is not intersected with pre-existing faults—continental crusts having been the object of violent forces for the past 4 billion years have much inactive faulting completely unrelated to present activity. Small wonder then that the stresses of present day movement lead to major activity away from the plate boundary as old faults take up the strain and accommodate to the latest forces. A compilation by C. R. Allen *et al.*, in the *Bulletin of the Seismological Society of America* in 1965, shows the contours of strain relief in a 30 year period to have distinctly contradictory relations to the San Andreas, and major fault movements have occurred at all angles to the San Andreas trend and at distances of up to 200 km from the main fault.

This leads to the second point—that earthquake prediction and control in a region like California require more than monitoring the major faults and (maybe) attempting to relieve strain on them. If a relatively unknown fault can suddenly break, then any reasonable effort at monitoring must be on a very broad and comprehensive basis. Fortunately there is growing interest in the work, but it is a long term project with an unclear prospect of success even in 50 years. Funding in science tends to be so oriented towards immediacy that seismologists should perhaps look to new sources—maybe more extensive support from those businesses which suffer the severest financial losses by earthquakes—insurance companies.

Thirdly, it bears repetition that there is no evidence whatsoever to associate earthquakes with unusual lunar coincidences such as the eclipse which occurred 12 hours later. Already some zealous quacks seem to have forgotten that the earthquake came before the eclipse and are claiming the effects of the eclipse were seen immediately afterwards in the quake. The Moon and Sun do indeed raise tides on the solid Earth of 30 cm but no one has yet pinned down any seismic phenomena to high tide on the Earth—and many have tried. Of course, the plane of the Moon's orbit is close to that of the ecliptic, so talk of the eclipse being an unusual strain to the Earth is idle nonsense when eclipse type conditions prevail to first order twice every lunar month.

Target for Apollo 15



With the Apollo 14 astronauts safely home, the portents are better for the next in the series, scheduled for July this year. The aim is to obtain samples from the vicinity of the Hadley Rille, and one of the landing sites which has been under consideration is marked. This time the astronauts will have the use of a roving vehicle to visit the foothills of the nearby Appenine mountains, but they will not be going into the rille itself, which is 600 feet deep. On the Orbiter photograph of the area the large crater adjacent to the rille is Hadley C, about 5.5 km across. The location of the area is at 26° 52′ N, 3° 00′ E.