SEISMOLOGICAL "AUTOPSY" BEING PERFORMED ON CALIFORNIA EARTHQUAKE

Attached map shows site of Monday's (August 6, 1979) earthquake and major faults in the central California region. Triangles show seismographs deployed in the region by the U.S. Geological Survey. Many other instruments in operation in the region are not shown on the map.

Monday's tremor, which registered about 5.7 on the Richter Scale and centered near the Morgan Hill-Gilroy areas about 70 miles southeast of San Francisco, is of special interest to scientists of the U.S. Geological Survey, who are performing a seismological "autopsy" of the earthquake in attempts to spot any unusual seismic activity that might have occurred before the earthquake.

Dr. Robert L. Wesson, chief of the USGS Office of Earthquake Studies at the Survey's National Center, Reston, Va., said that Monday's earthquake occurred in one of the most heavily instrumented areas of the world. "Specialists from our Menlo Park, Calif. facility have, for the past decade," Wesson said, "literally laced the region with sensitive instruments such as tiltmeters, creepmeters, magnetometers, strainmeters, and seismographs. These instruments have been collecting records of small seismic activity and fault movement in this geologically sensitive and important area. It's a key observational test area for studies aimed at earthquake prediction."

Wesson said that along a branch of the San Andreas fault system called the Calaveras fault, on which Monday's earthquake occurred, "we have been observing a slow fault movement — called 'creep' — at the rate of about 1.2 centimeters (about a half inch) per year. Small earthquakes in this region are common, with one or two as large as magnitude 4 occurring every year. But there have been very few that have occurred reaching into the moderate or strong range since the installation of the extensive network of scientific instrumentation. That is why this earthquake is important."

Wesson said that Monday's earthquake provides a rare opportunity to assess ideas and theories about earthquake prediction in a region where precise measurements are being made of a wide variety of physical phenomena.

"There are certain precursor signs to some earthquakes," Wesson explained, "such as ground swelling, or the occurrence of swarms of microearthquakes that are beginning to be identified. By studying the data obtained from the instruments in the epicentral area of Monday's earthquake, we might be able to spot a precursor pattern, and while this would not mean that we would have the capability for pinpoint earthquake prediction, it would help in separating some of the 'wheat from chaff' of prediction research."

Wesson said that about 600 instruments of various types are deployed in the central California region.
U.S. Geological Survey central California seismic network