

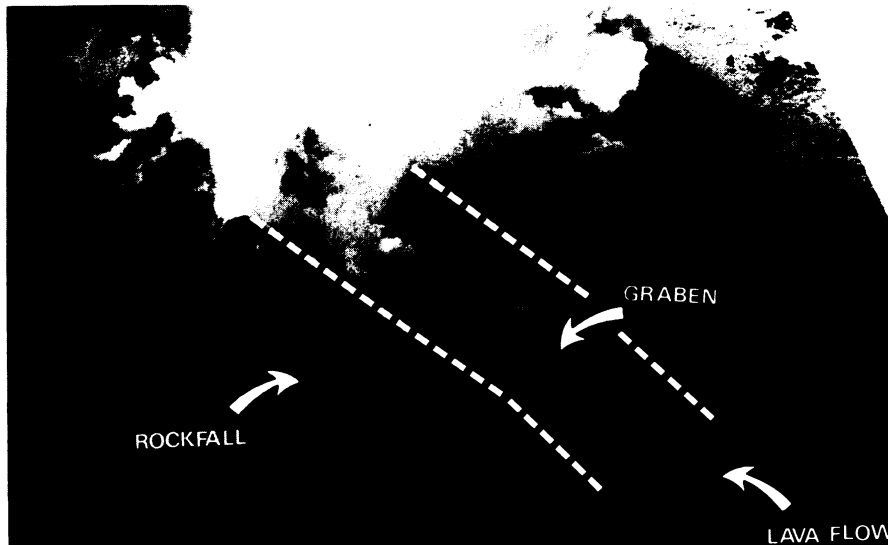
## Birthday booms at Mt. St. Helens

As scientists were commemorating the fifth anniversary of Mt. St. Helens' dramatic May 18, 1980 eruption, the volcano was gearing up for some celebratory rumblings of its own. After eight months of quiet, the mountain was rattled by large earthquakes, and by the end of May lava once again had flowed from its dome amidst an uproar of steam.

Now, it seems, the party is almost over. By the beginning of this week, earthquake activity had subsided to low levels and no new lava flows were seen. But as the volcano regains its composure, scientists are still trying to sort out some of the more puzzling features of the recent eruption, most notably the unusually long period of heightened seismic activity that was observed both before and after the lava flow.

In general, the recent eruption followed the course set by the volcano over the past four years. From May 12 through May 20, both the number of large earthquakes from within the mountain and the swelling of the dome at the top increased — signs that magma (molten rock) was making its way toward the dome. On May 17, scientists reported the first vigorous gas emission from the volcano since September. On May 20, researchers from the U.S. Geological Survey (USGS) and University of Washington in Seattle issued a volcano advisory, warning of a dome-building eruption, in which magma "inflates" the dome and flows out of it, within two weeks. By May 27 extensive ground fractures could be seen on the south side of the dome, as well as a graben, or trenchlike depression, which formed across the dome as the southern section inched away from the dome center. Heavy clouds, fog and rain prevented scientists from further observations until May 30, when a lava flow measuring about 80 meters wide by 110 meters long was discovered on the southeastern flank of the dome. As of this week, the lava flow size was unchanged. Both the south side of the dome and the crater floor are still moving to the south, indicating that the eruptive episode is not yet over. To date, the dome has moved 100 meters.

Not every aspect of the recent eruption has fit the established pattern, however. According to Steve Brantley of the USGS's Cascades Volcano Observatory in Vancouver, Wash., the magma took longer than usual to break the dome surface, possibly because the dome has been getting progressively larger. The eight-month quiescence preceding the recent eruption was also by far the longest inactive period since the 1980 catastrophic eruption. Moreover, unlike the previous dome-building eruptions, the recent episode was not heralded by a small-to-moderate-size explosion. Gas and ash emissions also ap-



Looking northwest from 9,500 feet at a steamy Mt. St. Helens on June 2.

peared to be unusually low, although this may just reflect inaccurate measurements that were hampered by the bad weather.

"The most significant difference about this eruption, and you might say a challenge for scientists," says Brantley, "has been the extremely high-level seismicity that continued for eight to 10 days." Such high seismicity prior to or during the previous 12 dome-building eruptions, he says, has lasted only 24 hours at most and has dropped dramatically once lava penetrated the dome surface. But in the recent eruption, a great number of magnitude 2 to 3 earthquakes were still being recorded four to five days after the appearance of the lava flow.

This phenomenon could be due to the dome expanding on its southern side,

where the crater floor slopes up, says Brantley. Most previous dome-building eruptions involved the downhill movement of the northern side of the dome. Uphill motion would require more energy and hence result in more large earthquakes. Alternatively, the high seismicity might represent a fundamentally different process occurring in the magmatic plumbing system beneath the volcano, he says. One possibility is that the prolonged quiescence before the eruption cooled the magma, making it more brittle and viscous and harder to move.

"We're still trying to determine the significance of the seismicity," says Brantley. "But we may have to wait until the next eruptive episode to see if any changes in activity occur." —S. Weisburd

## Hunger pangs eased for some

A study of impoverished areas of Memphis, Tenn., shows that malnutrition among preschoolers there has lessened somewhat since 1977, though it remains a problem.

Concerned about the effects of recession and government cutbacks on nutrition gains realized in the 1960s, researchers from St. Jude Children's Research Hospital in Memphis compared data from 1977 and 1983 surveys of 1,219 extremely poor families. While 40 percent of the children had deficient blood levels of vitamin A in 1977, that number dropped to 18 percent in 1983. Children receiving supplementary food from the government such as eggs, milk and juice also had higher levels of vitamin C, hemoglobin, hematocrit (red blood cell percentage) and red blood cell volume in 1983 than in 1977, while children not in that particular program were higher only in hemoglobin and vitamins A and C.

"With the qualification that there are still problems, things have gotten better

[in this group]," says Paul Zee, who headed the St. Jude study. "This came as sort of a surprise to us, because of the severe poverty we found at the same time." The median annual income among the surveyed families dropped from \$3,078 in 1977 to \$1,848 in 1983. Considering the lower income and higher unemployment, "federal food assistance programs seem to be the only identifiable factor contributing to the improvement in nutritional status over 1977," the researchers conclude in their report, published in the June 14 *JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*.

While the lot of children in the surveyed group is improving, the number of U.S. children living in poverty is increasing. In 1979, according to U.S. Census Bureau statistics, 18.2 percent of children under 6 were living in families whose income was below the poverty line. In 1983 this statistic had increased to 25 percent. —J. Silberner