

Recent activity on Mount Etna

(Activity during the period 12 June 1971 to 10 October 1972)

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Since the 1971 eruption of Mount Etna and its subsequent report in this journal (*AJ* 77 66), there have been some interesting developments.

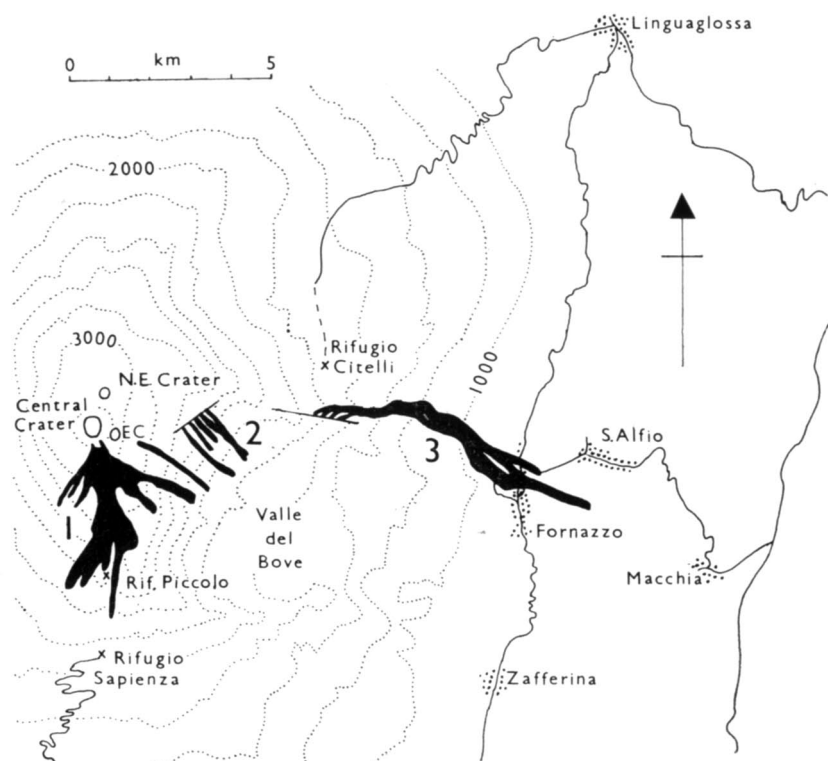
Prior to the last eruption during early April 1971, Etna had been in a state of intermittent to continuous activity. Gas pressures generated within the magma chamber had been continually relieved by degassing, which took place from three major conduits: the Chasm, the NE Crater and the Bocca Nuova. Irregular activity took place in the Chasm, with occasional explosions throwing out clouds of dark brown ash, while milder activity characterised the Bocca Nuova, which released high-temperature gases and steam; occasionally these would form 'smoke rings' above the vent. The NE Crater, on the other hand, was far more active at this time, hurling globs of molten rock, and giving spectacular pyroclastic displays. No lava flows accompanied these manifestations.

This evidence indicates a steady generation of gas in the magma chamber beneath the volcano, and the 1971 eruption points to an increase in the level of this activity. During the vigorous degassing from the 200-m explosion crater between 18 May and 28 May, the internal gas pressures were reduced, and a short lull in activity followed while pressures built up to a level sufficient to produce further activity.

Soon after the eruption concluded on 12 June 1971, Professor Tazieff's team plumbed the depth of the Chasm on the summit of Etna, using a 1400-m line, and failed to reach the bottom. Assuming that the mean diameter of this void is 60 m, this gives a volume of 0.0034 km^3 . Activity started again around the end of September, and continued intermittently until December. Two explosive boccas were located some 200 m below the rim of the Chasm, just above the core of plastic lava which had risen to that level. Lava was released on to the surface of the core, which later subsided to approximately 500 m below the rim.

It therefore appears that the hydrostatic pressure had been relieved by a reduction of pressure, or that the magma was finding an alternative outlet. At this time one or two explosive vents were located on the surface of the core, they were giving mildly explosive pyroclastic activity, and throwing out showers of black ash and molten lava. These reached about 400 m in elevation and fell within a surrounding area of 300 m radius. On one occasion a thick fall occurred and ash accumulated at the NE foot of the main cone to a depth of 1 m, and on the rim of the Chasm to a depth of 2 m or more.

It has been the consensus of opinion among several volcanologists that after the 1971 eruption the NE Crater would resume its former activity. Recent examination of this crater has shown that the vent is blocked by debris, and



Map 6 Mount Etna showing lava flows

that the fumarolic activity in its crater has declined somewhat over the past twelve months. During the year ending 10 October a fissure which partially splits a small cinder cone to the NE of the NE Crater widened from about 0.75 to 1.95 m and the temperature of the issuing hot gases rose from 55 to 110°C. There is now the possibility that any new activity may well be located near the widening fissure, and that its expansion and the increase in the temperature may be due to magma finding its way into its lower confines.

A tentative prognosis of the situation would be that the foregoing activity will continue, and that within the next twelve months some more permanent form of pyroclastic activity may be expected to develop.