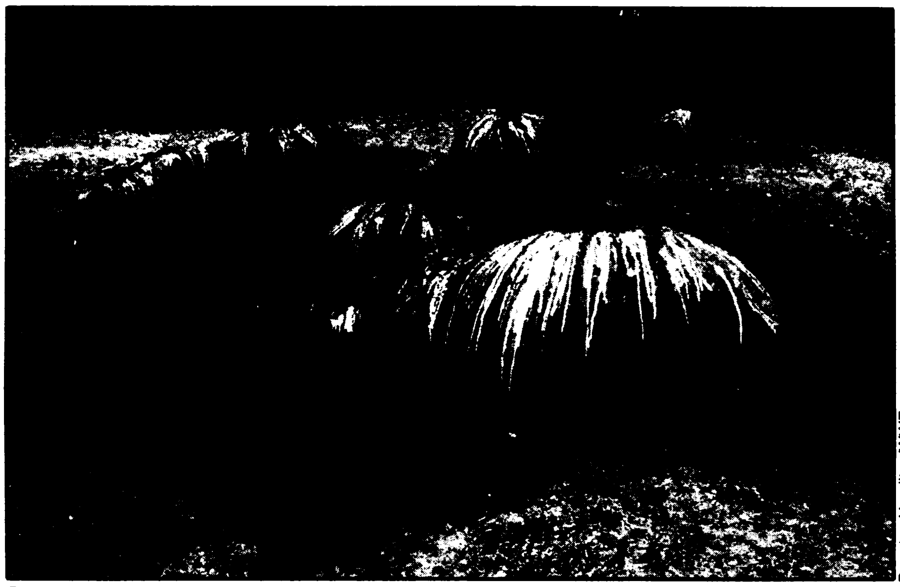
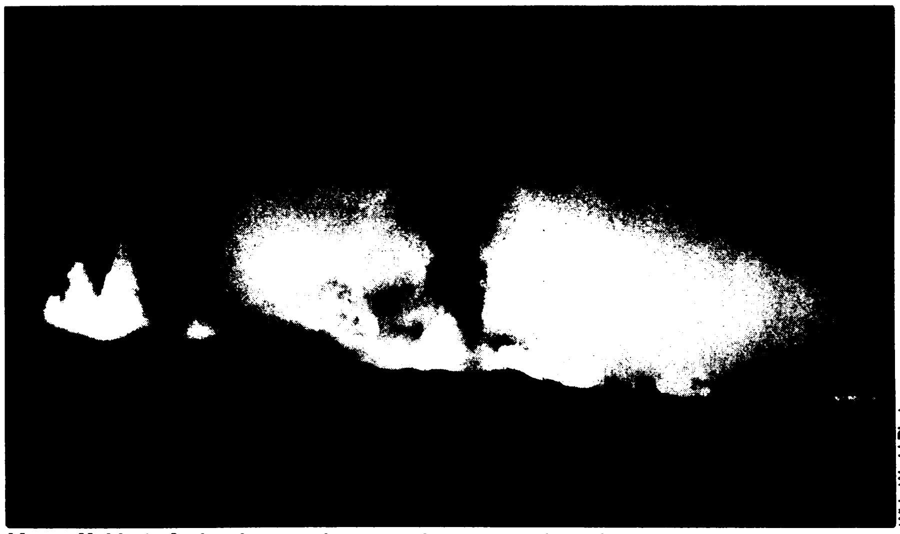
Ivory fever decimating African elephant



Douglas-Hamilton/WWF

Poached for its tusks—upper incisors that have evolved into the longest, heaviest teeth of any animal alive — the African elephant is being decimated by a virulent outbreak of ivory fever. Ten years ago a pound of ivory went for $2.30, today it draws $34 on the world market. The family of five (above) were found earlier this year in Uganda's Rwenzori Park. A three-year study recently completed by I. Douglas-Hamilton for the World Wildlife Fund, Ugandan government and New York Zoological Society warns that the Ugandan elephant population faces "extinction in a year or two" if poaching isn't stopped. WWF *pegs the cost of mounting an action plan to discourage the 50,000 to 150,000 poachings annually at $1.1 million. It is estimated only 1.3 million African elephants remain.*

Volcanoes reveal Iceland's tectonics



Wide World Photos

Mount Hekla in Iceland erupts lava, smoke and ash from five-kilometer-long fissure.

During what seems to be the year of the volcano, Iceland appears to be going after the grand prize: With the intermittent outbursts of Krafla volcano that began in March and the eruption Aug. 17 of Mount Hekla, Iceland is now in the unique position of having two volcanoes simultaneously in an active state.

The two volcanoes, however, represent extremes in Iceland's volcanic nature. While lava from Krafla has a composition and nature similar to that found at the mid-ocean ridges and appears to come from a deep source within the earth, the lava from Hekla contains much more silica — like that of Mt. St. Helens — and probably comes from a much shallower source.

The reason for the difference may lie in Iceland's unique tectonics. Almost entirely formed by lava flows, Iceland is actually the surface extension of the Mid-Atlantic Ridge, where basalt oozes from the earth's interior to form new ocean crust. On the island, the ridge continues as a central volcanic zone that bisects Iceland from the northeast to the southwest. The southwest portion of this zone splits in two, one branch lying to the north of the other. It is apparently the tectonic mechanism behind this splitting of the volcanic zone that gives rise to the contrast between Hekla and Krafla. The type of lava produced by Hekla, its pronounced elongation and its position in the southernmost branch of the volcanic zone have led scientists to suggest that the volcano originates from the intersection of a postulated shear zone that runs from the east to the west and the main volcanic belt. This theory would explain how the Mid-Atlantic Ridge connects to Iceland's volcanic zone. Measurements of the strain along Hekla's newly created fissure may lend support to the theory. □

Yet *another* Jovian moon

As researchers wait for Voyager spacecraft photos to bring some order out of the proliferating earth-based sightings of satellites of Saturn, a look back at Voyager images of Jupiter has now revealed another moon circling *that* planet — its sixteenth. Officially designated 1979 J3, the object appears to be about 40 kilometers in diameter and circles Jupiter every 7 hours 4 minutes 30 $\pm$ 3 seconds, according to Stephen P. Synnott of Jet Propulsion Laboratory in Pasadena, where Synnott is on the Voyager navigation team. Hurtling around the planet at more than 113,600 kilometers per hour, 1979 J3 is the fastest-moving known moon in the solar system, orbiting at a mean distance of 56,549 km above the Jovian cloud tops (127,949 km from Jupiter's center). This means it is also virtually at (or perhaps even inside) the outer edge of Jupiter's ring system, discovered by Voyager 1.

Three Jovian moons (1979 J1, J2 and J3) have now been discovered from Voyager photos. It was while looking for additional photos of the first one that Synnott discovered the second, along with what he thought were indeed extra images of the first. It is those "extras" that have turned out to be the third. This also means that 1979 J1 is known only from its two original "discovery photos," which suggest to Synnott that it may be significantly smaller than its previously estimated diameter of about 40 km. Its period is still estimated to be 7 hours 9 $\pm$ 1 minutes, but with only two photos to go on, the calculation now depends on the assumption that 1979 J1's orbit is a circular one. If so (and it's not unreasonable, Synnott says), 1979 J1 and J3 may move in paths so similar that they pass less than 1,300 km apart.

The period of 1979 J2 (largest of the three objects, about 80 km across) has meanwhile been refined to 16 hours 11 minutes 21.3 $\pm$ 0.5 seconds. □