ANOSMA OR "SQUEEZE-UPS"

THE Sunset Crater Lava flow lies fifteen miles northeast of Flagstaff, Arizona, and presents the most recent evidences of volcanic action in the San Francisco Mountain area. The surface of the flow bears curious fissures. These fissures are filled with basaltic masses which have been given the name of anosma[1] or "squeeze-ups."[2]

The Sunset Lava flow, called by Robinson, 1913, the Bonito flow,[3] seems to arise from a fissure at the northwest base of Sunset Crater. From the point of origin now marked by a line of fumeroles, the basalt flowed west and north spreading fanlike over an intercone basin, a basin in which the natural drainage has been blocked by cinder cones. That the flow had two phases is very evident. During the primary phase the flow extended about a mile from the vent. Following this flow an ash fall covered the surface. From the fringes of the primary flow a series of secondary flows poured out into the basin. These flows were probably contemporaneous, as they have coalesced to form an apron in some places a few hundred feet wide and in others almost a mile. The scoriaceous surfaces of the secondary flows are free from volcanic ash. We can, therefore, conclude that an ash fall occurred in the interval of time between the primary and the secondary flows.

The primary lava flow is cut by a fissure. This fissure extends from near the base of Sunset Crater a mile and a quarter northwest to the edge of the primary flow and varies in width from a few feet to seventy-five feet. Through this fissure basalt in a plastic condition has been squeezed. The sides of this basalt tongue are grooved, conforming to the walls of the fissure, and slickenside[4] surfaces are usually present. In the wider parts of this fissure, the more plastic inner layers of the mass seem to have slid over the outer less plastic plates so that we find a series of vertical layers pushed into the air.

That the mass was plastic, like stiff clay, is evident from the rough surface of the sides of the plates that have been in contact with the walls. Small lunar-shaped sharp ridges something less than a quarter of an inch high in parallel series, with an axis perpendicular to the direction of the up-thrust, are observed on the surface of the plates, a condition often seen in the molding of bricks. Again, the thin plates of basalt by the effect of gravity have arched over as they were pressed up into the air. All these facts testify to the plastic nature of the basalt.

Besides the long squeeze-up, mentioned above, others are known, many of them less than two hundred feet long, and one is over one hundred and twenty feet wide. All these squeeze-ups are located on or near the edge of the primary lava flow and form points of origin of secondary flows. One fissure but two feet wide contains a squeeze-up the top of which does not reach the surface.

If we trace the big squeeze-up to its northwest end we are led to a tumbled mass of lava where squeeze-ups radiate in all directions. This wild weird place, which we have called the "Mother of Squeeze-Ups," forms the source of one of the larger peripheral secondary lava flows. Here, the scoriaceous lava can be seen to have oozed out of the crack between the squeeze-up and the primary flow.

The remains of numerous fumeroles dot the surface of the primary flow but are absent on the surface of the secondary flows. Silicious deposits and the oxidation of the iron in the basalt on the surface of the primary flow tell of the action of hot gases. These observations indicate that the lava beneath the primary flow was long in cooling. The squeeze-ups, therefore, seem to have some relation to a deep mass of basalt slowly cooling but still connected with the active vent.

Dr. T. A. Jaggar, of the Hawaiian Volcano Observatory, in a letter, suggests that this condition may be similar to "Schollendomes" in Hawaii. He states that often a lava flat is swollen up at the front of a flow. Lifting the shell is easier than pushing it out. The paste inside breaks through the roof of the dome so formed. The inside is much like a laccolith. In Hawaii, however, the lava is never stiff enough to stand up in arches.

Except at the edge of the primary Sunset lava flow the lava seems to be in hydrostatic equilibrium. In other words the average height of the squeeze-up plates are lower than the surface of the primary flow, although individual thin plates may extend ten feet or more into the air over the level of the flow.

Anosma or squeeze-ups seem to be unique. Good examples are abundant on the primary lava flow from the northwest base of Sunset Crater.

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[1] Name suggested by Dr. H. Lamar Crosby, of the University of Pennsylvania. A brand new name derived from the Greek, meaning something pushed up.

[2] Suggested by W. M. Davis, Harvard University.

[3] H. H. Robinson, "San Francisco Mountain Volcanic Field," U. S. G. S. Prof. Paper No. 79, 1913.

[4] It may not be literally correct to refer to "slickensides" in a plastic medium but the writers know no other word.

MOSQUITOES VERSUS CULICIDAE

How many readers of SCIENCE are accustomed to swatting culicids? A very small number of us may delve academically into the habits of the Culicidae;

all of us at one time or another have been acutely concerned in the "control" of mosquitoes. As a member of the latter class, most of whose members must confess to academic delving in some other field, the writer wonders if the value of G. A. Mail's recent note in SCIENCE[1] would not have been increased many fold if *Aedes campestris* had been presented as a mosquito rather than as a culicid.

The writer, who knows and probably overuses a lot of long names in his own branch of study, was able to deduce from the origin of the above-mentioned note in an entomology department the fact that *Aedes campestris* is some species of insect, but a dictionary was essential to further appreciation of an otherwise interesting contribution. The very brevity of the statement suggests that it was addressed to a larger group of readers than those who readily recognize Culicidae as the family name of the mosquitoes. Should not the author, or the editor, have given those of us who scan SCIENCE in search of adult education more initial encouragement by featuring "Mosquito" rather than "Culicidae" in the parenthetic title?

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SPECIAL CORRESPONDENCE

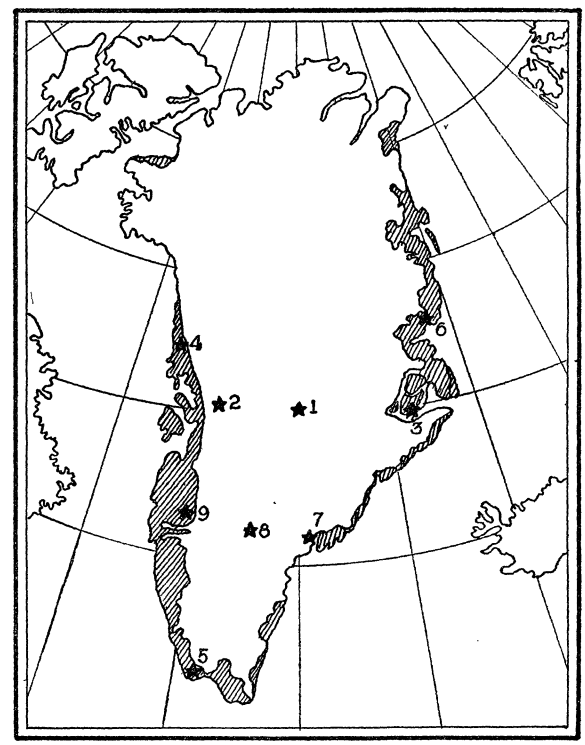
AEROLOGICAL STATIONS IN GREENLAND 1930–1931

FOR the first time a number of aerological stations each set up for the period of a year are now operating in Greenland. The outline map of Fig. 1 shows the approximate positions of the eight stations (1–8). Six of them are now, it is believed, sending up pilot balloons on all fair days.

First in importance are the stations of the German Expedition under Dr. Alfred Wegener (1–3), the veteran Greenland explorer and meteorologist, following upon his important preliminary studies carried out on the west coast in 1929.[1]

Recent radio reports published in the New York *Times* show that his station near the central axis of the inland-ice about 250 miles distant from either coast and about 10,000 feet above the sea (1) has already for a good many weeks been functioning under Dr. J. Georgi. The station on but near the western margin of the ice (2) is also reported to be in operation. Wegener's eastern station under Dr. Kopp was to have left Copenhagen in July and to be located on Scoresby Sound near sea-level and as near as possible to the inland-ice. All these German stations are near latitude 71°.

The University of Michigan stations (4 and 5) are on the west coast about equally distant north and south from the Mount Evans aerological station (9) which was operated from July, 1927, to July, 1929, but is now closed. Letters received from William Carlson in charge of the northern station indicate that he was erecting his observing station on the summit of a small island 400 feet above sea-level in latitude 72° 50′ and only two miles distant from the inland-ice. Balloon ascents were to begin on September 1. Evans S. Schmeling, of the southern station, is at the settlement of Ivigtut in extreme south Greenland (latitude 61°). Letters from him dated in late August indicate that he was to begin regular balloon ascensions on September 1.



The British Arctic Air Route Expedition, according to radio reports from the New York *Times*, has now for a number of weeks been operating its station on the inland-ice near the central axis (8) and thus in a position similar to Wegener's station 1; as well as a station at the expedition's base on the Sermilikfjord near the Danish settlement of Angmagssalik (7) in latitude 66°.

[1] G. A. Mail, "Viability in Eggs of *Aedes campestris* Dyar and Knab (Culicidae)," SCIENCE, 72 (No. 1859): 170, 1930.

[1] A. Wegener, *Zeitsch. d. Gesell. f. Erdkunde z. Berlin*, 1930, nos. 3–4, pp. 81–124.