TABLE 1. Percentage of SiO_2 present in amount greater or less than that required to form saturated normative minerals.

MgO in the analyses (percent)	Primitive shield rocks		Declining or decadent stage rocks	
	No. of analyses	Range of SiO_2	No. of analyses	Range of SiO_2
12–14	3	−2.7 to −1.7	3	−15.4 to −10.1
10–12	1	1.0	2	−14.6 to −8.8
8–10	5	−1.4 to 1.3	2	−10.0 to −4.6
7–8	25	0.4 to 10.0	1	−14.2
6–7	7	1.6 to 4.7	3	−6.8 to −3.7
5–6	1	5.1	3	−4.3 to −0.6

the magnesia content (as the magnesia-rich minerals are the greatest variants) from 56 analyses of rocks whose field relationships are known, 42 of the primitive stage, and 14 of the declining and decadent stage (Table 1).

Where lavas of the declining and decadent stage of activity are present, they make up the surface of the volcanoes; hence, they have been more abundantly represented in collections of rocks from which analyses have been made. Consequently, among the published analyses of Hawaiian lavas, the olivine basalts of the declining and decadent stage are represented far out of proportion to their abundance in the total volume of Hawaiian lavas. Upon averages of these analyses has been based the prevalent concept that the Hawaiian basaltic magma is undersaturated in silica. This concept is apparently not soundly based. In fact, the use of "olivine basalt" as the name of the principal magma type is open to question, since the olivine present in most of the magma was not chemically in equilibrium and is an unstable relic mineral preserved in the rocks because quenching stopped the process of resorption before it was completed.

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The Helicopter and the Walkie-Talkie in Field Surveys

THE helicopter and the portable radiotelephone have become familiar working partners in triangulation surveys for mapping projects in mountainous areas of Alaska and the western states. The helicopter provides quick transportation for the triangulators, and the radio makes it possible to coordinate the activities of the large field crews employed.

A typical project, extending over 3000 mi^2 or more of desert mountains, can be triangulated in one season by seven or eight engineers with helicopters and radios. The helicopters operate a shuttle service from a base camp or from roads, thus landing the men with their instruments on mountain peaks and moving them from peak to peak as required. Each triangulation observing party carries a portable radiotelephone (walkie-talkie), and the operation as a whole is directed from a master transmitter mounted at the base camp or in a jeep. The men can talk to one another and to the helicopters over line-of-sight distances through the base radio. If necessary, a group conference can be held with each participant on a separate mountain peak.

Both horizontal positions and elevations are determined by triangulation, using optical-reading theodolites. This kind of surveying frequently requires measuring vertical angles reciprocally and simultaneously between two stations to avoid errors from atmospheric refraction. To carry out this operation, the triangulators use a "skirt" of fluorescent cloth around the instrument tripod as a signal. Radio contacts between observers make it possible for them to relocate stations quickly when the line-of-sight is blocked by trees or visibility is otherwise impaired. By these techniques, elevations have been extended as far as 50 mi across rugged mountainous terrain with an accuracy of about 2 ft.

Helicopters are usually operated in pairs, so that a means of rescue will be close at hand in case of accident, and as insurance against prolonged delays from mechanical failure. Although engineers working with helicopters save the time required for the arduous mountain climbing ordinarily involved in triangulation, helicopters are not as maneuverable at higher altitudes as they are near sea level, and landing on high peaks where cross winds are always blowing is a critical job, even for a skilled pilot. Taking off calls for still greater skill. Pilots prefer a peak with a sheer drop-off where they can dive immediately after taking off to gain flying speed. There have been no serious accidents in 5 yr of operation in topographic surveys, but it is still far from a routine means of transportation.

The value of helicopters and radiotelephone has been effectively demonstrated during 5 yr of use on surveys in Alaska, and the Geological Survey expects that their use will do a great deal to accelerate the mapping of large areas in Alaska and in the western United States.

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Sex Ratio and Fruit Setting in Mango (*Mangifera indica* L.)

SOME varieties of mango set fruit poorly although flowering profusely, whereas others with fewer flowers bear a good crop. To examine the probable cause of this phenomenon, observations were recorded on sex ratio and fruit set in the following varieties of mango: Romani (poor crop); Dashehari (good crop); and Langra (heavy crop).

The data in Table 1 show the number of hermaphro-