On the Recent Ejecta of Volcano Aso

By **Hiromichi TSUYA**, Earthquake Research Institute

Tôkyô Imperial University

Aso is a volcano, world-wide known for its great depression-caldera, with the encircling ring measuring 16 km. E-W and 24 km. N-S. By the name of Volcano Aso is usually understood the volcanoes, called the "Five Peaks of Aso," within the caldera. Naka-dake, one of these volcanoes, is a composite cone whose central cone is at present the only active one and has continued the normal activity at its summit crater, with the usual emission of whitish vapors. At intervals the activity culminates in eruption of a highly explosive type but without outpouring of lava flows. The explosive activity occurred in December, 1928 was moderate, with frequent seismic disturbance in the region. The thick ash-laden cloud was vomited from the crater and the ash, locally called "Yona," fell in the area around the volcano. The writer visited the active crater on January 1 of this year. His personal observations about the actual state of activity have been recorded elsewhere.¹⁾ Mr. H. Tanakadate,²⁾ who in accompay with the writer, observed the night scene of the crater, wrote also about the recent activity. In the present paper the writer intends to note of the ejecta of Aso, which were thrown out during the eruption of the last December.

Distribution.—On the outer slope of the active central cone and also in the adjacent atrio are found a considerable amount of ejecta, varied in dimensions from blocks of human's head to impalpable ash, which, no doubt, the products ejected during the

1) H. Tsuya, 地震, **I** (1929), 140-143.

2) H. Tanakadate, Jour. Jap. Ass. Mineralogists, Petrologists, etc., **I** (1929), 215-222.

explosion of the last December. When the writer visited the volcano, ash strata on the snow at the eastern atrio were about 10 cm. thick. The sources of the ejecta were various, there being juvenile lava fragments blown directly from the lavic magma in the conduit as well as accessory ejecta come from the old cone material torn at the time of explosion. The juvenile ejecta predominate far over the accessory ones. They are of two kinds, besides ashes and sands: (1) the scoriaceous lapilli; and (2) rather dense fragments and blocks containing occasionally inclusions of pre-existing material. The scoriaceous lapilli are found on the west, south, and east sides of the crater but principally on the east side. The second group of the ejecta are found associated with the first within a small area on the south and west sides. In no case do they show the regular forms of volcanic projectile. The distribution of the accessory ejecta are mainly confined to the southwest side of the crater. All the ejecta ranging from the lapilli grade to the larger blocks are scattered within a distance of about 300 m. from the crater bowl.

Macroscopic Characters.— In color the scoriaceous specimens are brownish-black with vitreous luster inside, though ash-gray on outside. They are glassy and are sometimes hardly more than a foam containing large bubbles, and are easily smashed with fingers. Glistening phenocrysts, 2 mm. across, of plagioclase are visible in the hand-specimens. The dense fragments are dark gray in color and are porphyritic with phenocrysts of plagioclase (3 mm. across) and augite (1 mm. across). In texture, sometimes, they vary from vesicular at the center to dense on the outside, through intermediate less vesicular part, where the vesicles are microscopic in size. The accessory ejecta have often been subjected to decomposition due to the volcanic exhalation.

Microscopic Characters.— Microscopic examination shows the scoriaceous fragments to be very glassy and vesicular. The relative amounts of plagioclase, pyroxene, and olivine occurring as phenocrysts, and glass with vesicles were estimated to be in pro-