On the Singing Sand of Koto-ga-Hama, Iwami.

By

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The sand of Koto-ga-Hama between Maji (馬路) and Kangôji (神子路), Nima-gôri, Iwami (石見國邇摩郡琴ヶ濱) is said to utter a sweet sound when one treads on it. A preliminary examination of the singing sand was carried out, under Prof. Kotô's suggestion, with the object of determining its mineralogical composition and of furnishing some materials to those who would investigate on the cause of the peculiar sound.

The sizes of the grains are all of the "sand" grade, measuring from 0.28 mm. to 0.95 mm. across. About two thirds of the total amount have the diameters between 0.3 mm. and 0.4 mm.

The sand consists almost wholly of plagioclase with only subordinate amounts of orthoclase, hornblende, hypersthene, magnetite, quartz and shelly matter. To determine their relative amounts, the separation of them was made as follows:—

Magnetite was separated from other components by means of an ordinary horse-shoe magnet, and shelly matter was removed by dissolving it in dilute hydrochloric acid. The separation of the component minerals of the residual part was then carried out according to the difference of their specific gravity by means of the Thoulet solutions using the Brögger's apparatus. Each portion thus sorted was, after washed and dried, weighed and examined under the microscope with the following result:—

	The part magnetically isolated.	The part soluble in HCl.	Specific gravity >2.672	Specific gravity <2.672 >2.558	Specific gravity <2.558	Total
	magnetite	shelly matter	hornblende, hypersthene	plagioclase quartz (very few)	orthoclase	
Weight (in grams)	0.015	—	0.054	1.451	0.050	1.570
Weight %	1.0	—	3.4	92.4	3.2	100.0

The feldspar with the specific gravity greater than 2.558 was identified as oligoclase-andesine ($Ab_{77} An_{23}$ — $Ab_{70} An_{30}$), and that with the specific gravity less than 2.558 as orthoclase, their refractive indices being $\alpha < 1.544 < \beta < 1.548 < \gamma$ and $\beta < \gamma' < 1.534$ respectively.

The sand grains are subangular and generally irregular in shape, but some show their own characteristic forms, hornblende and hypersthene being often prismatic and feldspars being somewhat flat parallel to the cleavage planes. The minerals are fresh except feldspars which are mostly clouded with alteration products.