THE DETERMINATION OF THE HELIUM CONTENT OF SOME JAPANESE MINERALS. II.

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On the minerals occurring in Japan, the determination of helium content was undertaken as a continuance of the former work.[1] The apparatus employed and so the method of extracting helium were the same as those described in the previous communication, special cares, however, sometimes having been taken for the sampling of the minerals. The results are given in the following table.

(1) This Bulletin, **1** (1926), 253; *Sci. Pap. Inst. Phys. Chem. Res.*, **5** (1927), 258.

Mineral	Locality	Sample taken gr.	Helium yielded c.c. at N. T. P.	Helium c.c. per gr. of Mineral	Helium %
Conglomerate of Samarskite and Columbite	Ishikawa in Fukushima	12.43	2.44	0.20	0.0035
Naegite	Naegi in Gifu	19.29	0.55	0.028	0.00051
Ilmenite	Korea	62.27	<0.028	0.00044	0.000008
Ilmenite	Chôhakumen in Korea	41.22	No He	—	—
Sphene	Ishikawa in Fukushima	22.34	0.12	0.0054	0.000098
Sphene	Mozumi in Gifu	19.20	No gas evolved	—	—
Rutile(1)	Mayuyama in Kagawa	26.31	<0.00014	0.0000053	0.000000095
Apatite	Kurokura in Kanagawa	46.91	Small quantity of gas evolved	—	—
Apatite	Kuropira in Yamanashi	63.28	Fair quantity of H_2 evolved	—	—
Tourmaline	Ishikawa in Fukushima	52.11	Small quantity of gas evolved	—	—
Axinite	Obira in Ôita	67.16	Small quantity of H_2 evolved	—	—

The rutile of Mayuyama and the ilmenite of Korea showed no radioactivity, while the sphene from Ishikawa was feebly radioactive. As to the conglomerate of samarskite and columbite from Ishikawa the amount of uranium was determined to be 4.0% U_3O_8 by the Brearley's method and that of thorium 0.036% ThO_2 by the hydrogen peroxide method.

The geological age of the above stated mineral resembling ånnerödite and that of naegite were computed by the same way as has been shown in the previous paper. The age of samarskite accompanying columbite in some extent was thus calculated as to be 100 million years from the foregoing results. For the amounts of uranium and thorium in naegite from Naegi, however, the author has used of the analytical results formerly obtained by Prof. Y. Shibata and K. Kimura(2) and has found them to be 2.69% UO_2 and 2.85% ThO_2. The age was found to be 17 million years. It showed a somewhat less value in comparison with the age of the fergusonite from the same district as has been given in the previous paper. This difference might probably be ascribed to the inequality of the amount of radioactive constituents contained in the two samples used by Prof. Y. Shibata and the author.

In conclusion, the author wishes to express his best thanks to Dr. S. Iimori for his kind advice and constant guidance; his thanks are also due to Mr. T. Yoshimura who was kind enough in supplying some of the samples to him.

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(1) The volume was measured under the reduced pressure.
(2) *J. Chem. Soc. Japan*, (in Japanese), **42** (1921), 1.