NOTES AND NEWS

ON GRAVITY SEPARATION

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This note describes a detail of technique which has been found very helpful in making gravity separations by means of heavy liquids when the material to be separated is finely powdered. The unsatisfactory nature of gravity separation when dealing with material in a fine state of division is perhaps best accounted for by adhesion, both of grain to grain and of grains to air bubbles. Adhesion of grains to air bubbles is the result merely of the failure of the liquid to wet the grains. Mixed mineral grains, therefore, act as units sufficiently to result in considerable confusion in securing a clean separation.

In working with soil separates, it was found almost impossible to accomplish a satisfactorily clean gravity separation even with the moderately fine sands (.01 mm). Tests were made in which the liquid containing the sample was vigorously evacuated and the results were so improved that this procedure has been followed consistently since, and it has been used with equal success by other laboratories in the department of Geology at the University of Wisconsin.

The procedure is simple. It consists in attaching the vessel used for separation to a vacuum pump and slowly allowing the vacuum to increase. At first the gas evolved causes the liquid to boil and if the vacuum is increased too rapidly some of the liquid is apt to be drawn off with the resulting loss of the sample. After the first ebullition, the liquid becomes quiet, and the vacuum may be increased more rapidly. A few minutes evacuation is sufficient. Allow the liquid to stand, not necessarily under vacuum, and a rapid stratification results. Flocculent material is thus almost entirely avoided, and repeated separations are seldom necessary.

For the production of a vacuum a water aspirator is of considerable value but it does not give the clean separation of a good backing pump. A "Cenco hyvac" has been used with a great deal of satisfaction. It is necessary to have a valve between the pump and the flask for which a glass stop-cock is sufficient. A trap is also desirable to prevent any of the liquid entering the pump.

A NOTE ON THE OCCURRENCE OF MONAZITE IN WESTERN ARIZONA*

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In July, 1930, Mr. A. E. Knowland, a prospector of Yucca, Arizona, sent about 40 grams of rather heavy pebbles, to the Arizona Bureau of Mines for determination. They were found by the writer to be monazite. Knowland states in a letter that the material was found scattered sparingly in stream gravels over an area of about two square miles in the Chemehuevis mining district, which is located some twenty odd miles southeast of Topock in Mohave county, Arizona.

The material was in all stages of wear from good crystals to rounded pebbles, almost all of which, however, showed vestiges of crystal faces. The crystals varied in size from minute grains to half an inch in length. In general the crystals appear

to be elongated parallel to the *b*-axis. One small crystal measuring .2 of an inch along the *b*-axis showed the orthopinacoid, basal pinacoid, a positive orthodome, a prism and a positive pyramid. Accurate measurements were not made, because of the roughness of the faces.

The crystals ranged from yellow brown through red brown to dark brown in color. The specific gravity of eight crystals taken all at once with the Jolly balance was 5.04. Qualitative tests in the wet way showed the mineral to be a phosphate of the cerium group.

This occurrence is interesting inasmuch as it is the first reported monazite from Arizona.

* Published by permission of the Director, Arizona Bureau of Mines.

NEW MINERAL NAMES

Sturtite

T. HODGE-SMITH: Mineralogical Notes. *Record Australian Museum*, **27**, 410–412, 1930.

NAME: In honor of Captain Charles Sturt, explorer and first white man to visit Broken Hill.

CHEMICAL PROPERTIES: A hydrous silicate of iron and manganese with other bases, Fe_2O_3. 6(Mn, Ca, Mg)O. $8SiO_2$. $23H_2O$. Analysis (by H. P. White): SiO_2 (free) 0.79, SiO_2 (combined) 32.35, Fe_2O_3 10.22, Al_2O_3 0.44, MnO 25.18, CaO 2.19, MgO 0.65, H_2O 28.16. Sum 99.98.

Soluble in acids with separation of granular silica. Before the blow-pipe it fuses with difficulty to a black magnetic mass. In a closed tube it gives off abundant water.

PHYSICAL PROPERTIES: Color jet black, streak yellowish brown. Luster vitreous inclining to greasy. Hardness over 3. Sp. Gr. = 2.054. Amorphous, fracture subconchoidal to uneven. Very brittle. In a thin section it is isotropic, transparent and is pale brown in color.

OCCURRENCE: Found associated with quartz, amethystine quartz, spessartite, rhodochrosite, calcite, galena, and sphalerite; also rhodonite and manganhedenbergite at the Zinc Corporation mine, Broken Hill, N. S. W.

W. F. FOSHAG

Elbrussite

I. J. MICKEY: Ueber eine neue Mineralart aus der Gruppe Nontronit-Beidellit (A new mineral variety belonging to the nontronite-beidellite group). *Centr. Min. Geol.*, 1930, Abt. A, No. **7**, p. 293–303, 1930.

NAME: From the mountain Elbruss near which it is found.

CHEMICAL PROPERTIES: A hydrous silicate of aluminum and ferric iron. Analysis (by G. M. Scherschever): SiO_2 39.74; Al_2O_3 14.44; Fe_2O_3 7.44; FeO 6.90; CaO 0.55 MgO 5.11; alkalies (as K_2O) 2.80; H_2O (110°) 17.69.

Fusible at 3 to a white, nonmagnetic bead

PHYSICAL AND OPTICAL PROPERTIES: Color dark chocolate brown, on cut surface streaked white and dark brown. Streak dark lemon yellow. H = 2, Sp. Gr. = 2.281. Adheres to the tongue. Uniaxial. $n = 1.56$. Not pleochroic or very weakly so. In thin section shows a *moire* structure.