the bromoform is poured in, followed by the sample material. While dispersing the sample in the inner tube with a thin glass rod, care must be taken not to contaminate the outer tube. The material is then centrifuged for a specified time. High velocity centrifuging will release most of the heavy grains that have adhered to the tapered walls of the inner tube. After centrifuging, the rubber stopper is pressed tightly into the inner tube which is then withdrawn from the outer tube and both fractions filtered and washed.

The inner tubes are easily made from glass tubing. A limit of 3 grams of sample material can be handled with the standard 15 ml. centrifuge tubes; for larger amounts inner tubes to fit 50 ml. centrifuge tubes have proved to be equally satisfactory.

The above is a different technique for the separation of heavy minerals than those described in the following references by Nickel and Haseman.

References

HASEMAN, J. F. & MARSHALL, C. E. (1945): The use of heavy minerals in the studies of the origin and development of soils; *Res. Bull.* No. **387**, *Agricultural Experimental Station.*

NICKEL, E. H. (1955): A new centrifuge tube for mineral separation; *Am. Mineral.*, **40**, 697.

BRANNERITE FROM EASTERN ONTARIO

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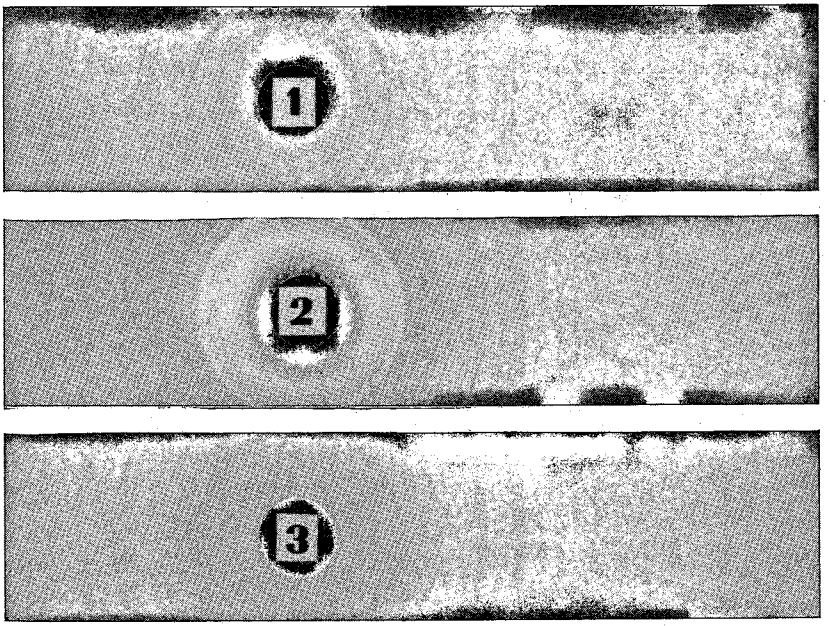
In the summer of 1956 a party of prospectors, known as the Bob Sypal group, found a showing of radioactive mineral. Specimens were submitted to the writer and identified as brannerite. Recently brannerite was described from California (Pabst, *Am. Mineral.* **39**, 109–117, 1954) and from Blind River, Ontario (Nuffield, *Am. Mineral.* **39**, 520–522, 1954) bringing the reported localities to six. A brief description of the new occurrence is warranted because it differs from those best known.

In Lot 18, Con. C, South Sherbrooke Twp., Ontario, the Canadian Pacific Railway traverses a rock cut 500 ft. in length on the north side of Christie Lake. The showing is located near the center of the east side of this cut at track level. Specimens were collected by the writer.

Sedimentary and derived metamorphic rocks of Precambrian age constitute most of the outcrops in the area. Several small lenses of



FIGS. 1 to 3. Brannerite; *x*-ray powder patterns; Cu/Ni radiation; camera diameter 57.3 mm; full size contact prints. 1—Kelly Gulch, Boise Co., Idaho—heated 5 hours at 1000° C.; 2—Pronto Uranium Mines, Blind River, Ont.—heated several minutes at red heat; 3—lot 18, con. 3, South Sherbrooke Twp. Ont.—heated for several minutes at red heat.

magnetite are also exposed. These occur in gabbro which contains small amounts of copper and nickel.

Gneisses of sedimentary origin and large irregular masses of tremolite rock are exposed in the rock cut. The tremolite rock is composed essentially of light gray, radiating tremolite with lesser amounts of sericite, feldspar, quartz, hornblende and pyrite. Radioactivity is not found to be general throughout the rock but is localized in the section where brannerite occurs in one of the tremolite zones. The mineral occurs as inclusions up to $\frac{3}{4}$ of an inch in size and shows no external crystal form.

The brannerite is jet black and occasionally brown in colour. It is very brittle, has subconchoidal fracture and a hardness of 4. A clean fragment, weighing about 100 m.g., gave a specific gravity of 4.85 and was found to be isotropic.

Unheated grains gave no *x*-ray powder pattern. Both black and brown grains, when heated, gave powder patterns of brannerite (Fig. 3).

Clean fragments were selected under the binocular microscope for the following analytical work.

Chemical Analysis—Uranium Oxide (U_3O_8)—42.7%

Complete Qualitative Spectrographic Analysis—(A.R.L. 2 meter grating spectrograph)

Calcium	— 0.5—5.0%	Ytterbium	— 0.05—0.5%	Uranium	— over 10%
Barium	— not detected	Cerium	— trace	Thorium	— 0.1—1.0%
Lead	— 0.1—1.0%	Lanthanum	— none detected	Silicon	— 0.5—5.0%
Iron	— 0.5—5.0%	Niobium	— trace	Titanium	— over 10%
Yttrium	— 0.5—5.0%				