the plates somewhat resemble those on marcasite; and striations on the ends of the plates resemble those on the rounded faces of a combination of the cube and the pyritohedron. In crystals that do not show apparent distortion, the three axes of symmetry are equal and at right angles to one another. This isometric symmetry is so persistent that it can hardly be accidental.

In order to determine the composition of the pseudomorphs, several of the least altered specimens were crushed and the fragments studied in the Chemical Laboratory of the U. S. Geological Survey. It was found that the residual iron sulfide present in the central core of some of the crystals gave an x-ray diffraction pattern identical with that of pyrite, and the pattern of the reddish-brown iron oxide, the principal part of the pseudomorphs, corresponds to that of goethite.

The author is aware that a goniometric examination of these crystals is certainly in order, and that without such measurements this paper is lacking in its essential requirements, but circumstances do not permit such an examination at this time.

POLYCRASE IN NEW YORK STATE

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Uranium bearing minerals have hitherto been reported from several localities in New York State. E. S. Dana (1892) mentions uranothorite as "From the Champlain iron region, New York, exact locality unknown." Luquer (1896), (1904) and Kerr (1935) have listed and described various uranium bearing minerals from the well known Bedford area. Gratacap (1912) mentions both autunite and torbernite as having been found on "New York Island," presumably Manhattan, and Manchester (1914) states that uraninite was found "years ago" in New York City at Broadway and 155th Street. Pitchblende is reported by Zodac (1939) to have been found in 1924, although not recognized until some years later, associated with molybdenite in thin dikes of grey granite near the east end of the Bear Mountain bridge in Westchester County. Schaub (1940) has identified uraninite in material collected at the McLear pegmatite near Richville Station, St. Lawrence County.

Other than the lost locality "in the Champlain iron region" no radioactive minerals have been reported from the Precambrian complex of the Adirondack Mountains. Hence the purpose of this paper is to announce a new locality for radioactive minerals in New York State, the

first occurrence of such minerals in the Adirondack Precambrian and the first occurrence of a member of the euxenite-polycrase series.

The mineral now identified as polycrase is found scattered sparsely through a moderately coarse granite pegmatite in the southeast corner of the town of Day, Saratoga County, N. Y. The amount of pegmatite exposed is small; it is therefore, difficult to determine whether it occurs as a lens or as a wide dike. The country rock visible on the south side of the mass is a biotite gneiss striking nearly due east and west with south dips of about 35°. Where the contacts are to be seen the pegmatite

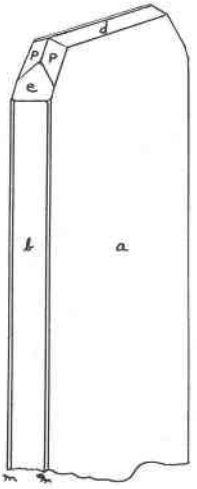

FIG. 1

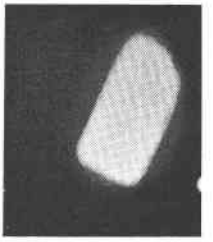

FIG. 2

appears to be concordantly injected. Attempts to remove feldspar for commercial purposes have resulted in the excavation of two pits along the strike. The openings extend about 250 feet, are from 10 to 30 feet wide and of varying depths. For many years they have been filled with water.

The chief minerals making up the pegmatite are: white microcline, white to buff (rarely pink) orthoclase, colorless to white, or grey to dark smoky brown quartz, with occasional masses of pale rose color. The quartz and orthoclase are often found in medium to coarse grained graphic intergrowths. Biotite is relatively abundant, sometimes in laths a yard or more in length, as is also black tourmaline. The latter mineral has been found in large well terminated crystals associated with the rose quartz masses. Minor constituents are plagioclase, slender apatite crystals, clear greyish green to opaque pink in color, greenish sericite and the polycrase.

The polycrase is commonly found as small orthorhombic crystals enclosed by quartz, feldspar or tourmaline. It appears to be most abundant in association with complexly intergrown masses of black tourmaline. The polycrase crystals are tabular in habit (Fig. 1) prominent forms being pinacoids and domes, less often with prism and pyramid faces. Crystals are usually less than a centimeter in length, but several much larger crystals have been found, one of which measured 27 mm.×10 mm.×5 mm., another 22 mm.×10 mm.×4 mm. The crystals when fresh are a dark greenish or brownish black, but, like the polycrase from Henderson County, N. C., they are usually covered with a thin coating of alteration products. The specific gravity of the mineral is about 4.70, the hardness varies from 5.0 to 5.5, cleavage none, fracture small conchoidal, lustre on fresh fracture subviterous to resinous. The color on fresh fracture is black but in thin splinters is reddish brown because of some light transmission. It is highly radioactive. Admittedly rough tests of the activity by means of a Geiger-Mueller counter indicates about one-tenth that of pitchblende from Spruce Pine, N. C. The radiograph of one of the larger crystals, natural size, was obtained on an Eastman dental *x*-ray film after 72 hours exposure (Fig. 2).

Through the kindness of the General Electric Company, spectroscopic tests at the Works Laboratory, Schenectady, N. Y., revealed uranium, columbium, yttrium and titanium present, but thorium, cerium, erbium and tantalum absent. These results would indicate the strong probability that the mineral in question is polycrase. Investigations are being continued.

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