make corrections

EXPLANATION

Rocks with ophitic texture contain 46-60 percent plagioclase ranging from sodic labradorite to oligoclase, 10-25 percent clinopyroxene, or 4-15 percent olivine pseudomorphs, and 4-20 percent opaque minerals. Matrix includes chlorite and epidote forms 10-20 percent of the rock. Nonophitic rocks contain 50-66 percent oligoclase or andesine, 1-15 percent clinopyroxene, 10-30 percent opaques, and 10-20 percent matrix. A few non-ophitic flows contain as much as 8 percent pseudomorphs of olivine. Feldspars are predominantly 0.1-0.3 mm. Plagioclase phenocrysts, generally 4-16 mm long, comprise 1-2 percent of porphyritic rocks. One basalt flow that crops out at Algonquin Falls and north of Sand Island Creek contains huge phenocrysts, as large as 7.5 cm. Feldspars cloudy, contain epidote and some small patches of clear albite; feldspar crystals are commonly bent, broken, and rehealed, and some have patchy twinning. Pyroxenes also broken and have patchy twinning. Olivine now represented by opaque material containing small areas of iddingsite. Prehnite occurs in a few rocks.

Felsite, probably recrystallized quartz dacite, about 300 ft thick, flow banded, and brecciated in most places. In thin section contains about 3 percent cloudy, subangular to rounded and slightly embayed, feldspar phenocrysts 0.5-1.8 mm long, and less than 0.1 percent rounded quartz phenocrysts 0.15-0.3 mm in a devitrified matrix. Small, short secondary quartz-filled veins are common. Felsite south of Algonquin Falls is poorly exposed. The rock contains about 10 percent poikilitic feldspar phenocrysts up to 4.5 mm long in a devitrified groundmass.

Lithic volcaniclastic rocks probably comprise much of formation, but comprise less than 5 percent of the total thickness of exposed rock.

Sandstones composed mostly of fragments of volcanic rocks, but also contain some feldspar and quartz. Sediments well sorted, grains rounded to subangular. Conglomerates composed of aphanitic and very fine grained blue-gray, red-purple, purple-gray, and reddish-brown volcanic rocks, a few of which are porphyritic. The average pebble size is about 4 in. The largest clast noted about 14 in. across. The pebbles and sand grains include fine-grained volcanic rocks like those of Powdermill Group and do not include ophitic or volcanic rocks as coarse grained as the Portage Lake flows. This suggests that the source of the volcanic detritus was the Powdermill Group. Thickness 8,000 ft in east, wedges out westward

[Ypl] PORTAGE LAKE VOLCANICS (PRECAMBRIAN Y)--Subaerially deposited mafic lava flows containing interbeds of lithic sandstone and conglomerate. Few exposures extensive enough to identify a flow as thick as 40 ft; thickest measured flow 90 ft, and less than 20 ft of most flows exposed. Basalt and olivine basalt fine grained. Most flows medium-dark gray or dark gray, but some flows olive gray, or brownish gray; flow tops commonly grayish red to grayish-red purple. A few flows and flow tops in sections 3 and 4 of T. 48 N., R. 46 W. are moderate-yellow green to pale green because of abundant epidote. Flows generally nonporphyritic, but a few flows contain somewhat rounded plagioclase phenocrysts, generally less than 10 mm but some 30 mm long.

Nearly all flows olivine basalt or basalt by microscopic classification. The one chemically analyzed rock trachyandesite, but it is finer grained and less crystalline than most rocks. Basalts generally holocrystalline and have either intergranular or ophitic texture, but a few have intersertal texture. Lath-shaped plagioclase, An_{55}-An_{20}, predominantly 0.2-0.6 mm, forms half to two-thirds of basalt. Feldspars contain epidote, in some flows plagioclase almost completely altered to epidote. Augite forms less than 3 percent or 14-25 percent; a few flows contain pigeonite. Magnetite, ilmenite, and hematite form 2-38 percent and generally 10-15 percent. Pseudomorphs of olivine present in nearly all flows; generally less than 10 percent but 1-26 percent. Less than 1 percent apatite. Vesicle fillings include epidote, chlorite, prehnite, numpellyite, quartz, and albite. The plagioclase crystals commonly fractured, have offset twin planes, are bent, and some contain clear albite. The pyroxene crystals are generally broken, and parts of a crystal differ in extinction angles.

Felsite, probably quartz dacite, with quartz and plagioclase phenocrysts occur at the mouth of Montombo Creek and in sec. 16, T. 48 N., R. 46 W.

Lithic sandstone, conglomerate, and siltstone may form a large portion of the rocks, but the proportion of sediments in the whole section cannot be estimated reliably. Along the Montreal River, about 40 percent of the rocks are sediments in layers 6 in. to 40 ft thick in a section 400 ft thick. At the base of the Portage Lake, a conglomerate bed seems persistent. The sediments are composed of subangular to subrounded clasts of aphanitic to very fine grained felsic and intermediate volcanic rocks in nearly equal proportion. The sands contain less than 10 percent quartz and feldspar. The volcanic clasts do not include Portage Lake-type basalts and many are Kallander Creek rocks.

Relationship to underlying sediments not certain, may be conformable or disconformable, although most geologists formerly interpreted the contact as a fault. Thickness 13,000 in east and 8,000 in west

[Ynm] NON-MAGNETIC ROCK (PRECAMBRIAN Y)--Probably sandstone and conglomerate, because folded, poorly consolidated sandstone and conglomerate crop out on strike to east. Concealed by glacial deposits in mapped area. Unit forms northward-thickening wedge, which may be about 7,000 ft thick beneath southern edge of Portage Lake Volcanics at Black River, based on studies of magnetics (King, 1975). May be conformable beneath Portage Lake Volcanics; is unconformable on Powdermill Group.

POWDER MILL GROUP (PRECAMBRIAN Y)--Formerly called the South Range Traps (Irving, 1883, p. 201) and correlated with part or all of the overlying middle Keweenawan rocks (see White, 1966, p. E2). Powder Mill volcanic rocks differ from younger volcanic rocks in rock type, regional geographic distribution, structural attitude, magnetic intensity, and orientation and polarization of the residual magnetic field (see table).

[Ykc] KALLANDER CREEK FORMATION (PRECAMBRIAN Y)--Basal 800 ft basalt flows, most less than 15 ft thick, thickest about 40 ft thick; exposed tops fragmental. In thin section, about half oligoclase laths, predominantly 0.1-0.3 mm long, 15 percent clinopyroxene, predominantly 0.2-0.4 mm, 20 percent opaque minerals, and 15-20 percent chlorite; matrix is very fine grained, optically indeterminate material. Feldspars altered, and contain chlorite, generally concentrated along twin planes. Feldspar and pyroxene crystals broken. Next 3,500 ft intermediate volcanic flows, predominantly rhyodacite with subordinate quartz latite and rare basalt. Intermediate rocks aphanitic to very fine grained; predominantly moderate to dark gray or bluish gray, but some purple, dark brown, and reddish brown. Plagioclase phenocrysts, some glomeroporphyritic, form less than 1 to 10 percent of some flows; phenocrysts predominantly between ¼ and 3/4 in. long and light gray to rarely pink. In some flows, phenocrysts pink in one place and white a few feet away. The flows range from about 30 to more than 220 ft, and average about 80 ft. Most flow tops autobrecciated and form about a quarter of the flow thickness; some fragments in tops finely vesicular, but most massive. Fragmental tops difficult to identify on many outcrops because interstices filled with fine-grained rock and surface covered by moss and lichen, but brecciated rock weathers with a rough, somewhat corrugated surface. Some flows, especially porphyritic ones, have smoothly undulating tops with well-rounded, somewhat elongated vesicles less than ¼ in. long and generally less than 1/8 in. across that form less than 10 percent of rock. Vesicles filled with chalcedony, quartz, chlorite, calcite, and epidote.

Two aphanitic quartz latite flows crop out along Powdermill Creek. Upper two-thirds of the flows contain elongate vesicles (length as much as five times the diameter) up to 1½ in. long, filled with quartz or chalcedony. Within massive parts, vesicles sparse, nearly spherical, and filled with epidote and chlorite. Other quartz latites porphyritic with quartz and feldspar phenocrysts. Upper half of a porphyritic flow well exposed on Siemens Creek near the north boundary of sec. 1, T. 47 N., R. 47 W., contains abundant small patches of vesiculated rock; the lower half contains prominent banding; remaining felsites poorly exposed.

Intermediate rocks, andesite, and quartz-bearing felsite on basis of visible minerals, but normative compositions are rhyobasalt, rhyodacite, trachyandesite, and quartz latite. Intermediate rocks, in thin section, have felted to subtrachytic texture; 25-46 % plagioclase laths with poorly defined outlines and frayed ends about An_{20} but ranges to An_{30}; laths range from 0.1 to 1.0 mm long in the finest grained rocks to 0.2-0.4 mm in the coarsest grained rocks. Feldspar partly altered to chlorite, or in a few rocks to chlorite and epidote. Clinopyroxene is absent from most thin sections but forms 5-14 percent of a few sections, opaque minerals form 7-25 percent, and very fine grained indeterminable dark materials with some chlorite and epidote form the remainder.