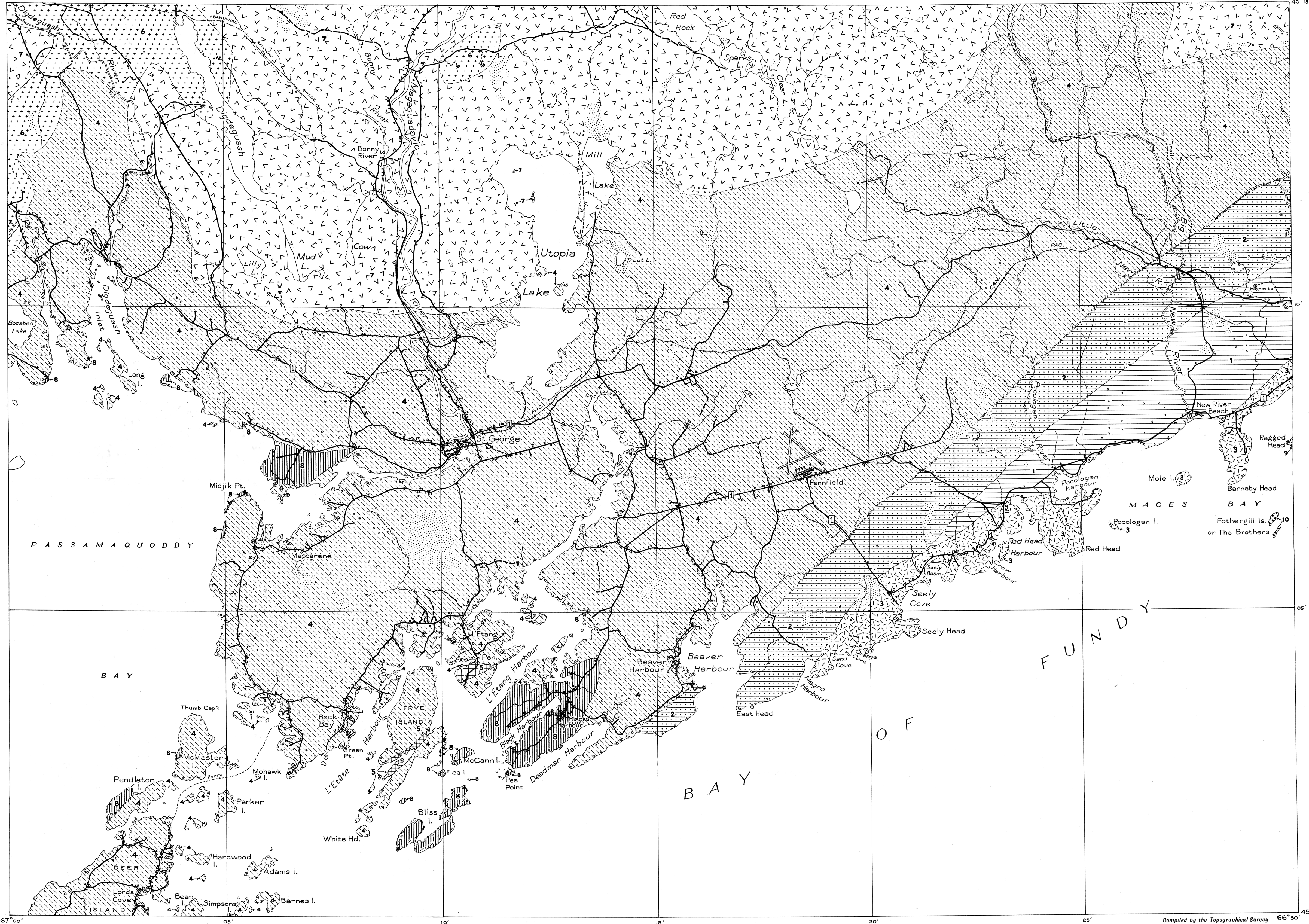
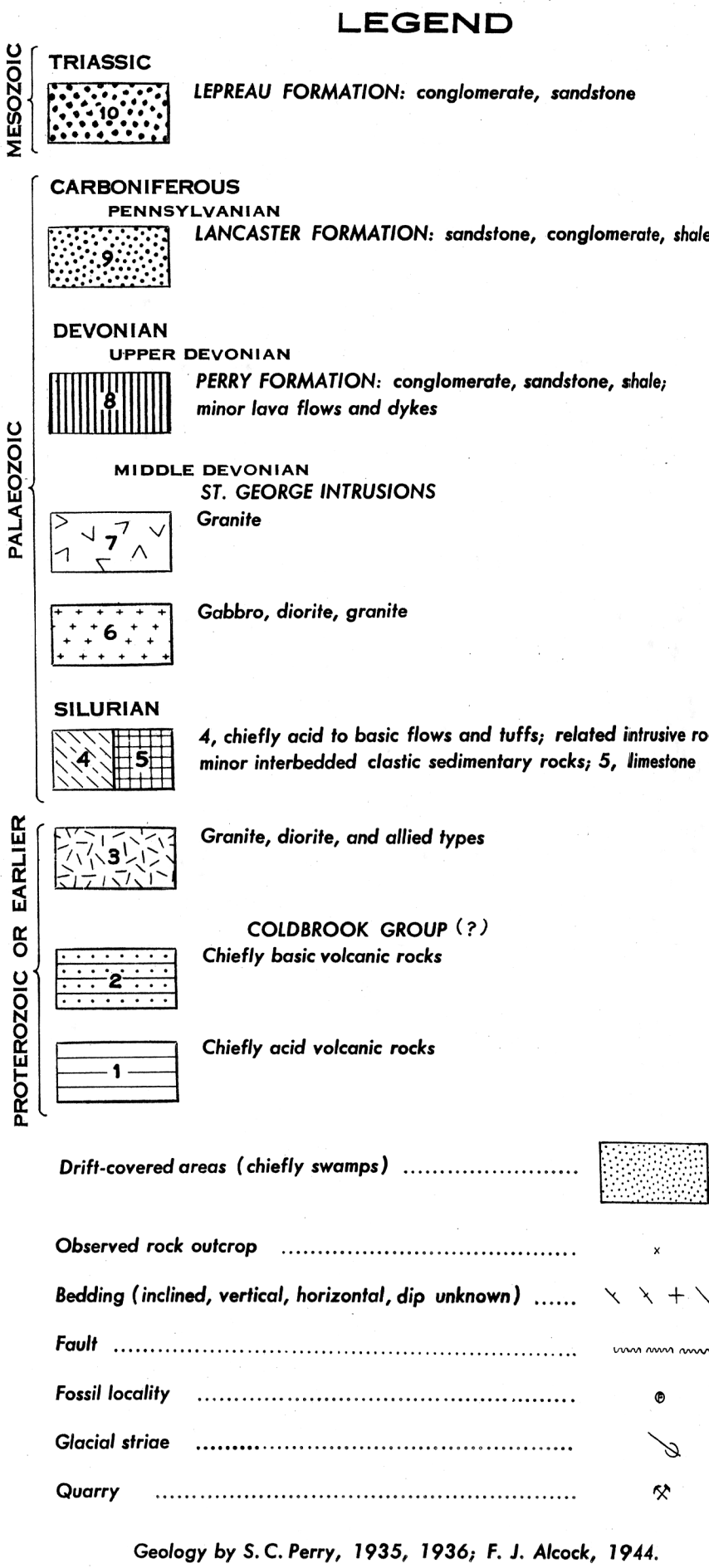


GEOLOGICAL SURVEY



DESCRIPTIVE NOTES

The oldest rocks of the area are of volcanic origin and consist of both flow and fragmental types. Two belts, one consisting dominantly of acid types (1) and the other largely of basic varieties (2), have been distinguished. The former includes rhyolite and rhyolite tuffs, in places altered to sericitic schist, and the latter is made up mainly of dark, hornblende-bearing varieties. These volcanic rocks are cut by many felsitic and granitic dykes. On both the east and west sides of Beaver Harbour the abrupt change from comparatively fresh, dark, volcanic rocks of Silurian age on the northwest to more altered volcanic rocks cut by an abundance of dykes on the south-east is very striking. This contact can be traced as a uniform line crossing the St. George and Musquash map-areas in a northeast direction, and is believed to be a fault zone. The rocks to the southeast are clearly the older, and have been correlated tentatively with the Coldbrook group of the Saint John region, whose age is known to be Precambrian from the fact that it underlies, unconformably, fossiliferous strata of Lower Cambrian age. These rocks are intruded by granite (3) forming a belt along the coast from Negro Harbour to Macos Bay. The granite varies from grey to reddish, is broken and sheared, contains volcanic inclusions, and is locally gneissose.

The major part of the map-area is underlain by a complex of volcanic, sedimentary, and intrusive rocks of Silurian age (4). The igneous members greatly predominate, and include acid flows and tuffs, basic flows and tuffs, and related intrusive rocks. One prominent belt of rhyolite containing round phenocrysts of quartz and, locally, some of orthoclase and albite, crosses the northern part of Frye Island and L'Etang Peninsula and extends to the east of L'Etang Harbour. In places the rock is sheared into sericitic schist, and in others it passes into a fine-grained granite, apparently the interior parts of thick flows. Other rhyolites are dense and vary from grey to reddish. Many of the tuffs are purplish. The more basic volcanic varieties include dark andesitic types and diabase sills and dykes. The sediments associated with the volcanic rocks comprise shale, sandstone, conglomerate, and limestone. The shales are commonly black, and the sandstones gray, greenish, and brown to reddish. Many of the sandy beds appear to consist largely of volcanic ash, and some show ripple-marks and mud-cracks. The interbedded relations of the sediments with the volcanic rocks can be seen at many places, as, for example, on the west side of Beaver Harbour, on Deer Island, around Mascarene peninsula, and elsewhere. Local conglomeratic bands contain pebbles of volcanic rocks, quartz, quartzite, and granite. Fossils were found at a number of localities, the best at Green Point, near Back Bay, where over thirty species were collected. Locally the beds are much deformed, showing irregular dips and strikes, faults, and drag-folds. On Frye Island and L'Etang Peninsula a band of limestone and limy shale (5) has been mapped separately. Much of this rock is recrystallized to marble, and the beds are highly contorted and dragged. Locally the less altered parts contain Silurian corals.

The Silurian rocks are intruded on the north by the St. George intrusions, plutonic rocks consisting of dark gabbro and diorite (6) and light-coloured, grey to red, biotite granite (7). The basic varieties are apparently the earlier, for nearly everywhere they are cut by light-coloured granite dykes.

The Perry formation (8) consists of red conglomerate and sandstone. It rests unconformably on the Silurian rocks and contains boulders of many varieties of volcanic rocks, fossiliferous Silurian sediments, limestone, quartzite, quartz, and granite of the St. George type. A few fossil plant fragments were found in beds along the north side of Black Harbour. On McCann Island two basic lava flows, each about 20 feet thick and separated by a foot of red conglomerate, are interbedded with the sediments. Both flows are coarsely amygdaloidal, and the upper surface of the lower flow shows ellipsoidal structure. On Flea Island, to the west, similar lava occurs interbedded with red sediments. The formation locally has dips up to 60 degrees, but on the whole the folds are open and the dips are low. On Pendleton and McMaster Islands and on the west side of Mascarene peninsula the strata are in faulted contact with the Silurian rocks.

Ragged Head at the eastern edge of the area is composed of Pennsylvania sandstones of the Lancaster formation, carrying plant remains. Fothergill Island in Macos Bay, is underlain by gently dipping beds of deep red conglomerate belonging to the Lepreau formation of probable Triassic age.

The region has been heavily glaciated. Along the coast the rocks are polished, striated, and grooved, and numerous roches moutonnées with well-marked stoss and lee slopes show the direction of glacial movement. Numerous bearings on glacial striae and, locally, double sets of striae show that there was more than one advance of the ice. An older set trends south 35 degrees east, and a younger averages about south 70 degrees east. Most of the region is covered by a heavy overburden of till and glacial gravels.

The chief mineral product of the area is monumental stone. Of numerous quarries the only one being operated is near the west side of Digdegush Lake where the rock is a dark gabbro. On Adams and Simpsons Islands are showings of copper sulphides, chiefly bornite, but efforts to develop these deposits have failed to show up sufficient ore to be mined profitably. At the eastern edge of the map-area, north of the old New River road, are showings of magnetite on which surface exploration and diamond drilling have been carried out. At the main locality several parallel bands of solid magnetite occur in a banded rhyolitic rock, but the greatest observed width of any band is only 4 inches.