CANADA
DEPARTMENT OF MINES AND RESOURCES
MINES, FORESTS AND SCIENTIFIC SERVICES BRANCH
GEOLOGICAL SURVEY OF CANADA

LEGEND

MESOZOIC
TRIASSIC
7 — Basalt

PALÆOZOIC
DEVONIAN
UPPER DEVONIAN
6 — PERRY FORMATION: conglomerate, sandstone

SILURIAN
5 — Diabase, gabbro

4 — Rhyolite, andesite, basalt, diabase; tuffs and breccias; minor shales, slates, and cherty argillites

3 — Shales, slates, cherty argillites; minor rhyolite, andesite, basalt, and diabase

PROTEROZOIC (?)
COLDBROOK GROUP (?)
2 — Rhyolite, andesite, basalt

ARCHÆAN
GREEN HEAD GROUP
1 — Quartzite, argillite, schist, conglomerate

A — Granite, Precambrian

Drift-covered area (chiefly swamps and tidal flats)
Observed rock outcrop (undifferentiated, volcanic)
Bedding (horizontal, inclined, vertical)
Fault
Glacial striæ
Mineral occurrence

SYMBOLS FOR METALS

Copper ..... Cu
Lead ..... Pb
Zinc ..... Zn

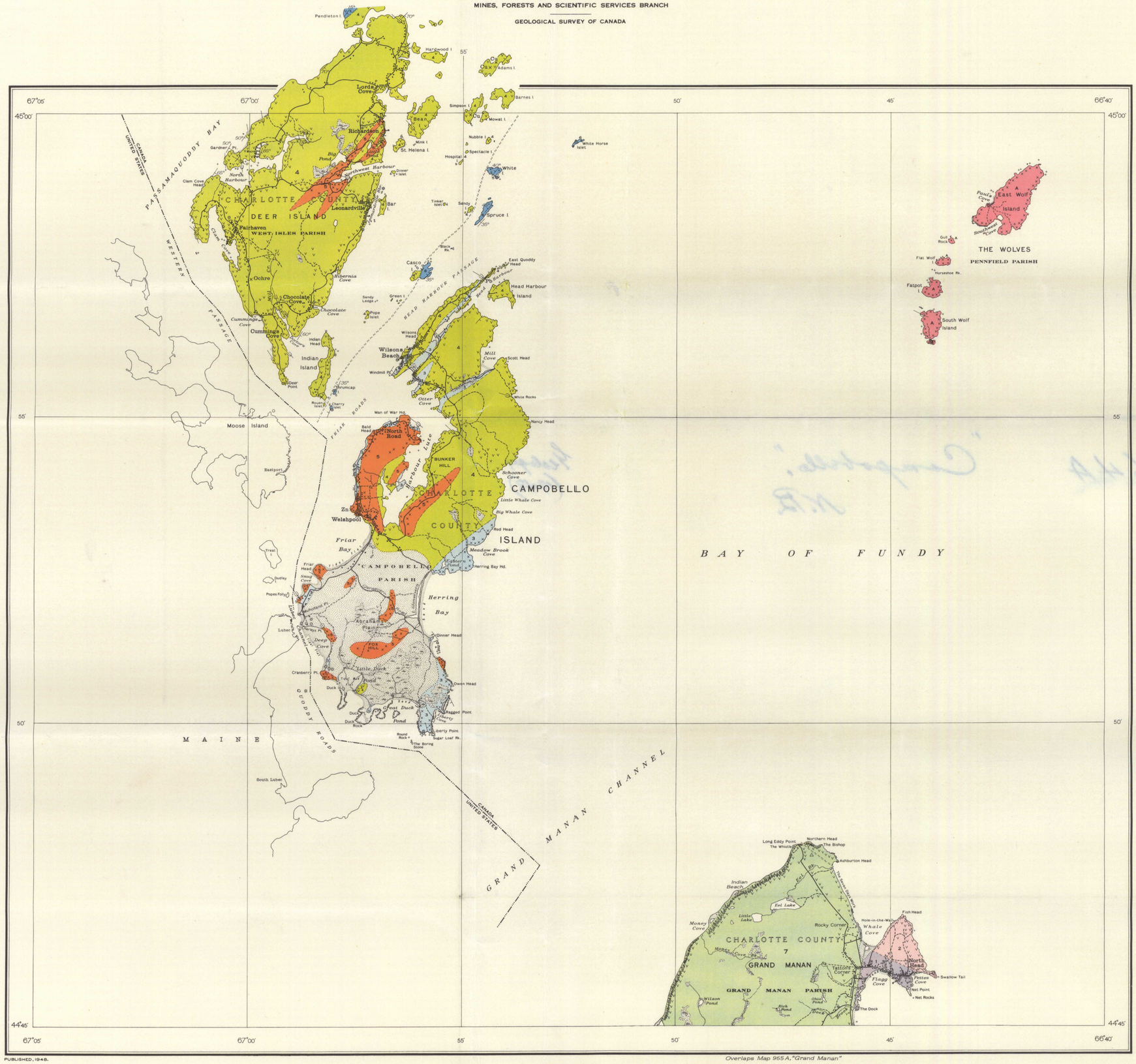
Road and buildings
Trail or wagon road
Church with spire
Church with tower
Church without spire or tower
School
Post Office
Cemetery
Wharf
Lighthouse
Triangulation station
International boundary range monument
International boundary
Stream (position approximate)
Marsh
Tidal flats or sand
Reef
Cliff
Rock or small island

Geology by F.J. Alcock, 1946.

Base-map from surveys by the International Boundary Commission, 1913, and by the Topographical Survey, 1945. Compiled 1947 from air photographs taken in 1945 by the Royal Canadian Air Force. Cartography by the Geological Mapping Division, 1948.

Approximate magnetic declination, 21°15' West.

SCALE, 1 INCH TO 200 MILES



Overlaps Map 965A, "Grand Manan"

DESCRIPTIVE NOTES

The oldest rocks of the area (1) surround North Head on Grand Manan Island. They consist of black argillites, grey quartzites, and other yellowish, greenish, and purplish varieties of sedimentary rocks, locally conglomeratic. Some of the beds may be of tuffaceous origin. The rocks show bedding and in places cross-bedding. They exhibit a well developed cleavage, and the less competent beds are contorted and drag-folded. Quartz veins and masses cut the series. On the basis of lithology and structure the strata are correlated with the Green Head group of the Saint John area.

The group of islands in the northeast corner of the map-area, known as The Wolves, is underlain largely by reddish granite (A) similar to that occurring on Kent Island of the Grand Manan area, where it intrudes rocks of the Green Head group. In places on The Wolves the granite contains inclusions of greenstone, some of which are partly granitized, and the complex is cut by red, granitic dykes. The relation of the granite to the volcanic rocks (2) at Fish Head on Grand Manan Island is unknown. The latter consist of basalts, andesites, and rhyolites, some of which are fragmental.

Campobello, Deer, and adjacent islands, are underlain by an assemblage of sedimentary and volcanic rocks (3, 4) the latter much the greater in volume. The commonest varieties are dark greenish basalts and andesites, and grey to white, reddish and purplish rhyolites locally showing flow structure. Fragmental varieties, including breccia and banded tuffs, also occur. The sedimentary rocks are interbedded with those of volcanic origin. They are dark shales, locally rusty brown, and slates, argillites, and cherty argillites. No fossils were found in any of the beds, but their similarity to assemblages of the St. George and Eastport areas, whose age is definitely known from fossils, is evidence that they are Silurian. The rocks are intruded by dykes and masses of diabase and gabbro (5), apparently related to the volcanic rocks. The structural trends are in the main northeast, but in the southern part of Campobello Island they are northwest.

Between Campobello and Deer islands are several small islands composed of conglomerate and sandstone (6) that vary in colour from pinkish grey to dark red. The conglomerates are composed of boulders of volcanic rocks, quartzite, quartz, and granite. The beds are tilted at angles varying from 20 to 70 degrees. They are correlated with similar strata of the Perry formation of the Eastport and St. Andrew areas to the northwest.

Basalt of Triassic age (7) forms much of Grand Manan Island. It comprises a series of flows the upper parts of which are amygdaloidal, the amygdules consisting of quartz, calcite, and zeolites. The flows are gently folded, and are broken by faults of probable Jurassic age.

The area was glaciated. The hills are rounded, and *roche moutonnées*, and smoothed, polished, and striated surfaces are abundant along the coasts. Striation directiions vary from south 70 to south 20 degrees east, but are mostly about south 50 degrees east.

On Adams and Simpson islands are occurrences of copper sulphides, chiefly bornite, but efforts to develop the deposits have failed to reveal sufficient ore to be mined profitably. At Welshpool on Campobello Island, small veins of calcite and quartz cutting dark volcanic rock carry small quantities of sphalerite, galena, chalcopyrite, and pyrite. A little galena is also present at the northeast end of the island. Some yellow ochre is associated with Quaternary sands near Fairhaven on Deer Island.

PUBLISHED, 1948.

MAP 964A

CAMPOBELLO

NEW BRUNSWICK

Scale: One Inch to One Mile = 1/63360

Miles

964A