

GEOLOGICAL SERIES

- LEGEND**
- MESOZOIC**
- 13 ANNAPOLIS FORMATION: red sandstone, conglomerate, shale
 - 12 CUMBERLAND AND/OR PICTOU GROUP: Brown, green, and grey conglomerate, sandstone, shale
 - 11 RIVERSDALE GROUP: Mainly grey, fissile, shale; shaly sandstone
 - 10 MISSISSIPPIAN CANSO GROUP: Red and grey sandstone, shale
 - 9 WINDSOR GROUP (Upper Part): Grey limestone, red and green shale, gypsum (?)
 - 8 WINDSOR GROUP (S-S): Undifferentiated
 - 7 WINDSOR GROUP (Lower Part): Red and green shales, marine limestone, gypsum and anhydrite
 - 6 PEMBROKE FORMATION: red limestone conglomerate, red shale
 - 5 MACUMBER FORMATION: grey, sandy, laminated limestone
 - 4 HORTON GROUP: Red and grey sandstone, gnt, shale, conglomerate
- POST-CARBONIFEROUS**
- 14 Diabase dykes
- PALAEOZOIC**
- 3 Granite rocks; granite, acidic porphyry, apfite. Probably Devonian
 - 2 Undifferentiated contact rocks, which locally assume composition of diorite by assimilation of volcanic material
 - 1 Sedimentary and volcanic rocks; argillite, shale, sandstone, chloritic and graphitic schists; tuff, breccia, acid and basic flows. Probably Silurian

- Rock outcrop:**
- Bedding (horizontal, inclined, vertical, overturned)
 - Schistosity (inclined, vertical)
 - Drag fold (arrow indicates direction of plunge)
 - Fault (defined, approximate, assumed)
 - Fault (solid circle indicates downthrow side)
 - Anticline (defined, approximate)
 - Syncline (defined, approximate)
 - Glacial striae
 - Esker
 - Fossil locality
 - Observed karst topography
 - Quarry (gypsum, gyp limestone, ls)
 - Mineral prospect or mine

- MINERAL PROSPECTS OR MINES**
- | | | | |
|-----------|-------------------------------|----------|------------------------|
| 1. Barite | 9. Brookfield | 10. Iron | 11. Weatherbe Brook |
| 2. Coal | 10. Debert River Mine | 12. Iron | 12. Totten Brook |
| 3. Coal | 11. Staples Brook Prospect | 13. Iron | 13. Clifton Brookfield |
| 4. Coal | 12. Chignas River Prospect | 14. Iron | 14. Upper Kempton |
| 5. Coal | 13. Coal Mine Brook Deposit | 15. Lead | 15. Smithfield |
| 6. Coal | 14. West North River Prospect | | |
| 7. Coal | 15. Kemptown Mine | | |
| 8. Coal | 16. Riverside Prospect | | |
- MANGANESE**
- 16. Black Rock
 - 17. Farnham Brook
 - 18. East Mountain
 - 19. Manganese Mines
 - 20. Borden Property

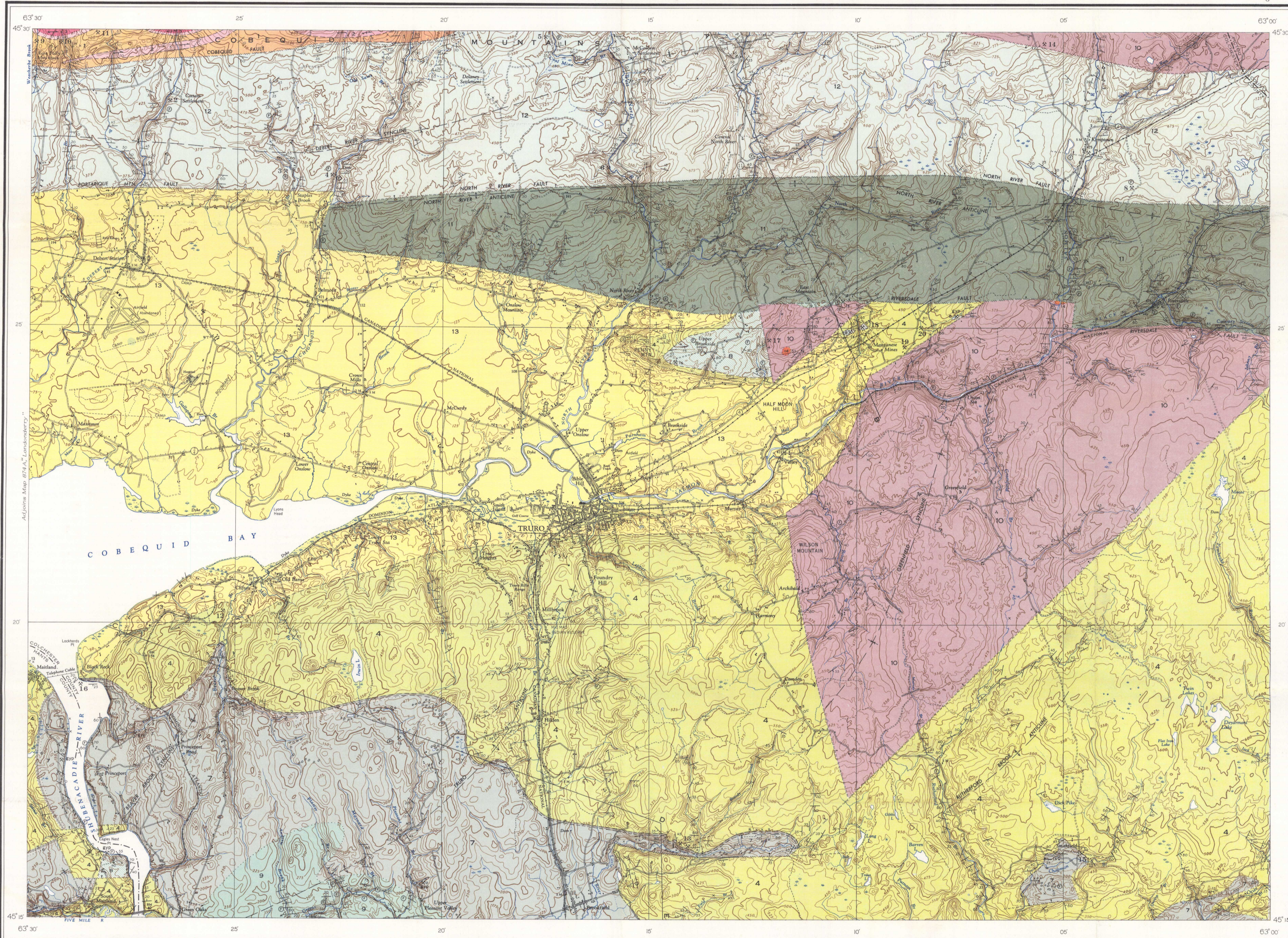
Geology by J.M. Stevenson, 1950, 1951

Cartography by the Geological Cartography Unit, 1958

Base map compiled and drawn by the Army Survey Establishment, R.C.E. Department of National Defence

Air photographs covering this map-area may be obtained through the National Air Photographic Library, Topographic Survey, Ottawa, Ontario

Approximate magnetic declination, 23° 34' West



DESCRIPTIVE NOTES

The oldest formations in the area are an assemblage of volcanic and sedimentary rocks (1) consisting of sandstones, shales, argillites, tuffs, breccias, acid and basic flows, and chloritic and graphitic schists, that occur in a narrow band along the south side of the Cobequid Mountains. These rocks are probably of Silurian or Devonian age. They are separated from younger rocks to the south by a fault.

The older rocks (1) are intruded by syenite and granite (3) containing both biotite and hornblende. The age of these intrusives has not been determined.

Bordering the bodies of granite and syenite are zones of contact rocks (2) which have locally assumed the composition of diorite and gabbro, due to the assimilation of basic volcanic material. All the pre-Carboniferous rocks have been cut by small dykes of apfite and diabase.

Rocks of the Horton group (4), of early Mississippian age, are fossiliferous. They consist of interbedded conglomerates, sandstones, and shales. Structurally, the Horton group is an eastward extension of the Walton anticline.

Horton sediments are overlain, with slight evidence of an erosional disconformity by the Macumber formation (5), consisting of grey, sandy, laminated, unfossiliferous limestone. Because of its lime content, the Macumber formation is included in the Windsor group. Where exposed, the Macumber limestone has a maximum thickness of 30 feet.

The Pembroke formation (6), consisting of red limestone conglomerate and red shale, overlies the Macumber with apparent disconformity. The Pembroke conglomerate contains pebbles of pre-Mississippian rocks as well as fragments of Macumber limestone. The Pembroke formation is about 100 feet thick.

The Pembroke formation is overlain by marine sediments of lower Windsor age (7), consisting of interlayered beds of gypsum, red shale, and fossiliferous limestone. Exposures of gypsum are few, but the extent of the gypsum beds may be mapped with considerable accuracy by tracing the surface expression of karst topography which results from solution of the underlying sulphate beds.

Marine sediments of late Windsor age (9) consisting of grey, fossiliferous limestones, green and red shales, and possibly gypsum, are found mainly in the southwest quarter of the map-area and in the vicinity of Penny Mountain.

Sparingly fossiliferous sandstones and shales of the Canso group (10), of late Mississippian age, are exposed along Salmon River and several of its north-flowing tributaries east of Truro. The red, quartzitic sandstones along Steele Run are also of probable Canso age. Normal faults, that have obscured the contact between Canso rocks and underlying Horton group, Windsor age, have brought Canso sediments into contact with lithologically similar sediments of the Horton group.

Sediments of the Riversdale group (11), consisting predominantly of sandstones and grey, fissile shales, are present in a belt several miles south of the Horton-Windsor contact.

Conglomerates, sandstones, and shales of upper Pennsylvanian age occur south of the Cobequid complex and form part of the Cumberland and Pictou groups (12) which, through lack of paleontological evidence, could not everywhere be accurately differentiated.

Cobequid Bay is bordered on either side by red conglomerate and sandstone of Triassic age (13). These sediments were deposited in the eastern end of a synclinal basin that terminates about six miles east of Truro. On the south side of Cobequid Bay, a marked angular unconformity exists between Triassic rocks and sediments of the underlying Horton group. North of the bay, Triassic strata are in probable faulted contact with sediments of Pennsylvanian age.

Poorly exposed diabase dykes (14) are found on Salmon River near its junction with Black River, and in the vicinity of East Mountain. They are of post-Mississippian and probable pre-Triassic age.

All rocks in the area have undergone considerable faulting. Two distinct fault systems can be recognized, the earlier trending east, and the later trending northwest.

Mississippian sediments have been flexed into a series of southwesterly trending folds, and Pennsylvanian sediments into a series of easterly striking folds. Triassic rocks are relatively undisturbed.

The barite deposit at Brookfield contains a minimum of 100,000 tons of high-grade barite above ground-water level. The ore is probably of hypogene origin.

The lead-zinc deposit at Smithfield reportedly contains about 550,000 tons of lead-zinc ore with a combined tenor of 6 per cent. The ore apparently originated by cavity filling and replacement processes in brecciated limestone of lower Windsor age.

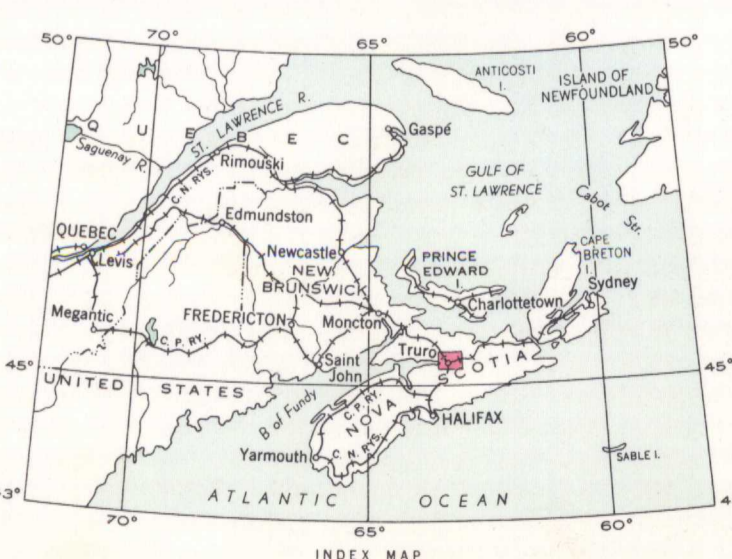
Considerable development work has been carried out on manganese deposits in the vicinity of East Mountain. At the East Mountain mine, the manganese occurs as replacement lenses and fissure fillings in lower Windsor limestone. At Manganese Mines the ore was found along fractures in the Horton sandstone.

Lead-zinc, barite, and manganese mineralization occurs almost entirely along the Horton-Windsor contact.

With the possible exception of the Totten Brook-Weatherbe Brook area, iron ore prospects appear to be of little economic importance.

The area contains numerous coal showings, the chief of which is the Kemptown mine. All deposits investigated are of high ash content and/or low tonnage.

The extensive deposits of limestone and gypsum are of potential economic importance. A large gravel deposit at Debert is at present being exploited.



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MAP 1058A
TRURO
COLCHESTER, HANTS AND PICTOU COUNTIES
NOVA SCOTIA

Scale: One Inch to One Mile = 63,360

1 1/2 0 1 2 3
Miles

- REFERENCE
- Main highway
 - Road and buildings
 - Road not well travelled
 - Trail
 - Cutting, embankment
 - Bridge
 - Power transmission line
 - Telephone line
 - Church
 - School
 - Post Office
 - Cemetery
 - Mill or factory
 - Wharf
 - Bench-mark
 - County boundary
 - Indian Reserve boundary
 - Marsh
 - Sand or gravel
 - Contour (interval 25 feet)
 - Height in feet above mean sea-level