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Federal Harbor
6.41. & 6.42.

Federal Harbor

On the south side of Federal Harbor near the west end along the shore on both sides of the wharf of Mr. Doherty there occurs in northern 6.41.8 and just over the line into 6.41.5 a long series of gray ash tuffs, fine grained & extremely hard, well stratified & resembling the Schooner Cove glasses. The strike along the shore varies from N. 25-27° W. and dips 35-42° N.E. The tuffs are very fossiliferous containing many seams full of bryozoan remains. Seams of Camarotoechia are very common also seams of large Modiolopsis bivalve branches and at those of the "Gastropod tuffs" of Schooner Cove & Young's Cove. The fauna is 6.41.8 A and includes

6.41.8 A

Camarotoechia	abundant
Chonetes denysi	common
Cyrtodonta	abundant
Hetinopterella	rare
Dalmanella	rare
Murchisonia	rare
Platyschisma	rare
Tentaculites	rare
Crinoid jts.	common

The occurrence of the brachiopods & Tentaculites with the bivalves & gastropods which occur in the ash tuffs exposed in Schooner Cove is interesting. About 20 ft of tuffs exposed from wharf west to gabbro a few yards west of Mr. Doherty's wharf. The rhyolite tuffs are cut by a trap dike about 25 ft. broad which appears to be a stringer from a large gabbro mass. This gabbro mass under the shore in a little point east of the wharf.

Just in the little cove east of this gabbro point, in the S.E. corner of the SW quarter of 6.41.5 occur in the west a couple of yards of rhyolite glass tuffs, overlain by gray to blue gray shales striking N 12° W and dipping 35° NE. The shales contain several (two) [illegible] layers of gray color [illegible] about 53 ft wide [illegible] a gabbro mass which forms the 60 foot bluff W of S of the letter F in Federal Harbor.

6.41.5 A

Interbedded in this mass of gabbro occur 36 feet of blue sandy shales striking N 24° W and dipping 48° N.E. The shales occur on the west side of this gabbro point S.W. of the letter F in Federal Harbor and contain (6.41.5 A)

Orbiculoidea sp	rare
Camarotoechia	common
Dalmanella (Schoonerella species)	abundant
Actinopterella	common
Cypricardinia "platyphyllus"	occasional
Murchisonia	rare
Cyclonema	rare

East of the gabbro point begins a rhyolite flow many hundreds of feet thick. Flow lines & flow planes are generally very well developed striking N. 25° ± W. and dipping to the N.E. similarly to the underlying shales & tuffs. So well developed are the flow planes that in places the rock almost resembles baked shale. The rhyolites dark bluish black-gray mottled & glassy at the base becoming gray color higher up. In a few places a few scattered feldspar phenocrysts appear and at a couple of places the lava is rather granulose textured. Occasionally it becomes dark gray & very closely resembles a finely textured trap in color. About 2 thin gabbro dikes cut through and in the cove on the boundary between 6.41 & 6.42 there is a slight (50 ft ±) trap dike trending N. 40° W. East of this dike in the cove there is what appears to be a fault plane trending N. 75° W. Supposed fault plane suggested by vertical shearing & brecciating of rhyolite and occurrence of a new band of rock on the east. This rock which forms the neck extending N.W. on 6.41-6.42 boundary is the so called granitoid gray rhyolite (full of feldspar phenocrysts). This rock grades on all sides into glassy rhyolite flow devoid of feldspar phenocrysts.

Black Head

At the base of Black Head on the west side occur some gray bedded tuffs striking N. 32° W. and dipping N.E. 38° at the top they become fossiliferous and grade up into 8 feet of dark bluish gray splintery shales which lie in turn underlain by a couple of feet of tuffs, then follows the gabbro. The fossiliferous shales & tuffs immediately underlying contain a rich fauna (6.42.4 D)

Camarotoechia (2 spp)	abund.
Spirifer rowleyi	common
Chonetes deangeli	rare
Dalmanella	rare
Leptaena	rare
Cyrtodonta (of Schooner Cove)	abundant.
Favosites	rare
Glyptonome	common
Dalmanites	occasional
Actinopterella	

Just beneath the gabbro the strike is N. 47° W and dip 43° N.E.

North of the point some miles west of Black Head the tuffs reappear striking N. 50° W and dipping 40° NE. They are here dark red (1257) and mottled red & gray the latter extremely amygdaloidal or fumaroic (1258).

The splintery dark blue shales of 6.42.4 A (No. 3 p. 37) are exposed on the west side of the cove and are about 20 feet thick but the entire cove is composed of these shales, as appears probable the thick

6.42.4/C

6.42.4/B

The fossils in this series of tuffs include Chonetes arcuata, Camarotoechia, & Dalmanella etc., the same as 6.41.8 A.

North of the creek there begins a trap mass which forms the shore line ~~so far~~ for nearly a couple of hundred yards southward as far as the clay point. Two little patches of shale & one of rhyolite fringe the trap along part of the shore. The contact is a wavy fault trending in general N. 20°W, but whether the fault is due to intrusion of the trap or to subsequent slipping appears indeterminate. The northernmost patch of shale ~~is a~~ is just south of the creek and extends for about 50 feet along the shore. About 10 feet of splintery blue shales crop out in front of the trap in part of a dome. The strike is N. 32°W dip 40° N.E at the southend and the strike curves around to N. 12°E. dip 37°E. at the north end. Only Actinopterella was observed in the shales =6.41.8C, rare.

6.41.8/C

On the north side of the clay point (the conspicuous projection half way down the east side of the west end of Federal Harbor occurs a thick (~~over~~ 25 ft or more) gabbro dike trending N. 20°W. It is the only exposure on the point.

Perhaps 50 or 75 yds. S. of the clay point is a series of exposures beginning on the north with a few feet of massive tuffs of a dark gray color = 1259. These are cut off on the west by a 10 ft. trap dike trending N. 20°W. apparently toward the gabbro on the N. side of Clay point. To the west of the trap dike are some gray rhyolite tuffs, the bedding planes of which have been disturbed so that it is impossible to ascertain the strike & dip. A few fossils were collected here =6.41.8D Orbiculoidea, ? Camarotoechia R, Dalmanella (Schoonover Cove) common, Actinopterella occasional, Orthoceras ludense R.

6.41.8/D

A hundred feet or so to the south are some very coarse grained tuffs, having the appearance of coarsely crystalline acid volcanic. The strike is N. 54°W dip 46° N.E. & Specimen is 1260. This tuff overlies a few feet of fossiliferous tuffs which in less than 50 feet swing around from strike N. 27°W dip 35°N.E to strike N. 54°W dip 46° N.E. The fossils here are 6.41.8 E (not collected) including

6.41.8/E.

Dalmanella (Schoonover Cove)	common
Camarotoechia sp	rare
Cypricardinia "platyphyllus"	occasional
Orthoceras ludense	rare

South of this point for about 100 yds or less the rock is a fragmental massive tuff, the fragments are darkish gray in a similarly colored matrix. Specimen 1261. A couple of feet of more argillaceous tuffs appear to indicate an anticline. These are about 50 yards north of the south end of Federal Harbor and contain Dalmanella = 6.41.8 F.

6.41.8/F.

A few yards north of the south end of Federal Harbor occur a few feet of "granitoid tuffs" gray acid charged with feldspar phenocrysts. At the extreme south end of Federal Harbor the rock tumbles over some distinctly bedded and fine grained tuffs striking N. 30°W and dipping 34° N.E.

In the fields southeast of Mr. Doherty's farmhouse occur some outcrops of acid tuffs with occasional patches of a few inches to a couple of feet of splintery gray shales these cut by gabbro sills. A couple of feet of gray shale occurring east of the road near the mid height of the S.E. quarter of 6.41.8 contain a few Cypricardinia "platyphyllus" = 6.41.8B.

6.41.8/B

South West of the house of Mr. — # there occurs on the west side of Devils Neck and the east shore of Morrison Cove a strip of dark blue thin bedded shales. About 30 feet of shales are here exposed striking N. 40° W. and dipping 44° N.E. ~~a basic intrusion on the east. The shales are~~ the shales are even bedded, thin, dark blue in color and with frequent 1/4-1/2 inch semi-calcareous seams. Fossils are scarce. The fauna 5.35.5 A includes

Orbiculoidea sp. R.
Lingula (complanata type) R
Chonetes denysi R ← {apparently in place but possibly not so. The specimen if not actually in place (which is improbable) indicates a leaning talus of shale}
Camarotoechia sp. R.
"Modiolopsis platyphyllus" occasional
Actinopterella sp. "
Dawsonoceras sp. R.
Orthoceras (of O. myrice "type") R.
?Coleolus (possibly Onchus spine) R.
Phthonia sp. R.

The shales are cut off on the west by a coarse grained gabbro dike and underlie acid tuffs. These tuffs become denuded the shore north of the gabbro dike and show large pink rhyolite fragments, many of them 2-5 inches, incased in a light gray matrix. These fragmental acid tuffs form the shore line for a couple of hundred yards northward, when there appears on the shore due west of Mr. — " house # another patch of thin evenly bedded dark blue shales. About 25 feet of shales which are similar lithologically to 5.35.5 A occur here striking N. 50° W. and dipping 45° N.E. They are again cut off on the west by a thick coarse grained gabbro. Near the contact the shales are deflected striking N. 75° W and dipping N. 32°.

The dark blue shales as here exposed are about 20 feet thick and the gradation into the overlying fragmental tuffs may be observed at the south end of the exposure. Fossils in this strip of shales are extremely rare and include (= 5.35.5 B, on border between 5.35.4-5)

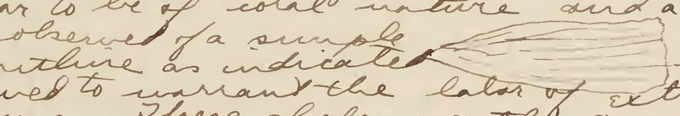
Orbiculoidea occasional
Lingula rare
Camarotoechia rare
?Dalmanella sp. rare.
Murchisonia (round whorled) common in a seam ~~confined~~ 1 ft. below the tuffs. ~~confined to this~~
M " (angular whorled) R
?Holopella sp. R.

Near the southeast end of Morrison Cove there occurs on a little cove on the Devils shore a couple of hundred yards N.W. of the schoolhouse a series of acid glass tuffs & tuffaceous (indurated) blue shales aggregating perhaps 150 ft. thick. They strike N.40°W and dip 45° NE. The faunas 5.45.3 A are varied including Dalmanella (Belvoirer Cove species), Camarotoechia & Chonetes denysi.

The house between the letters S.B. & D. on Devils Neck.

Different seams are composed almost exclusively of ~~the~~ only one of these 3 with occasional rare specimen of the other two. 5.45.3 A' is a seam in a dense rhyolite glass near the base containing Dalmanella abundant. 5.45.3 A² is a seam in a rhyolite glass with a few small fragments in seams & containing ? Hindia fibrosa (cf. Belvoirer Cove) Dalmanella R, Camarotoechia rare. 5.45.3 A³ represents several seams in the overlying shales & glasses containing

Camarotoechia abundant
Chonetes denysi "
Dalmanella "
Actinopterella occasional
Modiolopsis platyphyllus R
" sp. (cf. gastropod beds). abundant in a seam
Cornulites O.
etc, etc.

In the cove on the north side of Horan's Head about a quarter of a mile South of Bradley's fish house & weir there occur on the west side some basic dark purplish red fine grained tuffs imperfectly bedded. These are followed by a grayish trap rock which in the upper part is exceedingly amygdaloidal and pumaceous. The upper surface of this pumaceous extrusion is irregular and exhibits hummocks & basins 5 or 6 feet broad and 1 or 2 feet deep. The rock is immediately overlain by coarse thick bedded blue shales striking N. 53° W. About half way down the cove these shales are offset about 50 or 75 feet to the S.W. by a fault bearing N. 30° E. For 2 to 6 feet above the pumice the shales contain calcareous nodules or concretions. A few of these calcareous masses appear to be of coral nature and a few specimens were observed of a simple  rugose coral with outline as indicated but too poorly preserved to warrant the labor of extracting the specimens. These shales over the pumice are thick bedded for about 20 feet and contain several thin fossiliferous seams. The fauna 6.42.1 m includes.

6.42.1 m.

Dalmanella (small) common
Whittieldella (?) (?Nucleospira) very common
Camarotoechia occasional
?Actinopterella
Lingula sp rare
Orbiculoidea sp rare.

These thick bedded fossiliferous shales are overlain in the cove by about 160 feet of thinly laminated dark blue shales which contain few if any fossils. These shales strike N. 43° W at the south end of the

cove and the strike may be seen to swing around to N. 53° W. in an even curve. These dark blue shales ~~wonderly~~ dip 50° N.E. and underly an exposure of about 20 feet of very light gray shales composed of rhyolitic material and apparently the same as those occurring on the southeast side of Horan's Head. (At south end of the cove there is another fault bringing the basic tuffs eastward about 100 ft. or more).

A trip was made to the east end of Horan Head to determine the nature of the rhyolite on the south side - whether intruded into the gabbro or the gabbro intruded into the rhyolite. The rhyolite is here about 60 feet broad. The gabbro is coarse grained and uniform up to within 2 to 4 inches of the contact. This 2 to 4 inch irregular band is abruptly demarcated from both the rhyolite on the west and the gabbro on the east. A specimen is 1262. It is a dark blue very fine grained rock but not quite so glassy as is usual for rhyolite. The rhyolite 1 foot from the contact is dark blue & glassy - 1263. Ten feet from the contact the rhyolite is lighter blue or bluish gray 1264. Two feet farther in the rhyolite 1265 becomes grayish & coarser, and 10 feet still farther in the rhyolite, 1266 becomes pinkish.

In this one foot band there are included rounded scattered fragments of a much darker apparently basic rock though fine grained. A specimen of the rhyolite with one of these fragments is 1263 B

~~About~~ A quarter of a mile due west of the south end of Federal Harbor there occurs in the fields about 100 feet west of the highway a series of light robin's egg blue acid tuffs and greenish gray sandstone bands the latter resembling those of Flat Long Cove beds. The strata strike N. 14° W. and dip approximately 35° N.E. Several seams 1 inch to two inches thick in the tuffs are full of finely preserved casts which yield a rich fauna = 6.41.7 A (The ~~fauna~~ rocks crop out across the boundary between 6.41.7 and 6.51.1. The fauna is exceedingly rich both in brachiopods & mollusca including

6.41.7/A.

Camarotoechia (cf. Long Cove) abundant
Chonetes denysi abundant
Dalmanella (Schooner Cove species) common
Grammysia cingulata var. occasional
Actinopterella 2 or 3 spp. common
Pteronitella retrotlexa occasional
Goniophora 2 spp. (one of them of G. rhombea type).
Modiolopsis cf. platyphyllis occasional
Ctenodonta 2 spp occasional
various Lamellibranchs common

Murchisonia 2 or 3 spp. common
Cornulites rare
Dalmanites } for R
Calymene }

Perry.

~~24.6 N.~~ - Below the railroad, between the highway crossing the ~~stone~~ culverts over Little River, ~~and~~ and just west of a wire fence there occurs on the north bank of Little River see locality 38.

Record of outcrops about Perry


67°10'
67°5'
67°
45°5'
45°
44°55'
LEGEND
DEVONIAN
PERRY FORMATION
Upper lava member
Upper sandstone member
Lower lava member
Lower conglomerate member
Red Beach
ST. CROIX RIVER
NEW BRUNSWICK
Hilchins Pt.
Brooks Cove
GRANITE
Robbinston
PERRY SANDSTONE
St Andrews
GRANITE
South Robbinston
Mill Cove
PASSAMAQUODDY
BAY
Lewis Cove
North Perry
Gin Cove
BOYDEN LAKE
Frost Cove
DEER
ISLAND
SILURIAN LAVAS WITH SOME SHALE
Little River
Perry
PURPLE SHALE
RHYOLITE
Gleason Cove
Pleasant Pt
Pembroke
PURPLE SHALES
Carlow Id.
Sipp Bay
EAST BAY
SILURIAN STRATA
Bar Hbr
Hersey Pt.
PENNAMAQUAN RIVER
Carryingplace Cove
Birch Pt.
COBSCOOK BAY
Eastport
Broad Cove

Case's Cove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