DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY
OPEN FILE REPORT 1968
Rangeley and Phillips quadrangles, Maine
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Sheet 3 of 7

EXPLANATION

Till covers most areas where bedrock geology alone is shown; it may include fluvioglacial deposits, modern colluvium, and swamp and stream deposits

QUATERNARY

Qa

Alluvium
Sand and gravel deposits on flood plains of modern streams

Qf

Fluvioglacial deposits
Stratified sand and gravel in eskers, kames, kame fields, and outwash. Locally includes till and modern swamp and stream deposits

TRIASSIC(?)

62 B | 39 L

Dikes and sills, showing dip
A, andesite — C, granite porphyry
B, basalt — L, lamprophyre
D, dacite porphyry — S, sodic andesite porphyry

Dsg

Protoclastic soda granite dike
Along Barnjum fault, Orbeton Stream

Age relations not completely known

Dp

Pegmatite
Mineralogically simple; locally aplitic and gneissic

Dps

Pegmatite
Spodumene-bearing; Bemis Stream and Four Ponds Mountain

Dpb

Pegmatite
Beryl-bearing; Brimstone Mountain and West Branch Swift River

Dga

Gabbroic rocks

Dgp / Dg

Phillips and Redington plutons and related bodies
Granodiorite dominant
Dg, equigranular
Dgp, porphyritic

Dq

Mooseloomeguntic pluton and related bodies
Quartz monzonite dominant

DEVONIAN(?)

Drc / Dr / Dm / Drb / Dr / Dc / Dr / Dra / Ds

Seboomook(?) Formation and unnamed Devonian rocks
Drc, Drb, Dra, units C, B, A: rusty-weathering sulfide-rich carbonaceous metashale and subordinate metasandstone; unit B also contains thin-bedded calc-silicate rock and marble
Dm, thin-bedded calc-silicate rocks and marble
Dc, gray to brownish-gray commonly calcareous plagioclase-rich metasandstone, subordinate gray metashale, and locally abundant thin-bedded calc-silicate rock and white marble; equivalent to the Hildreths Formation
Dr, similar to Seboomook(?) Formation; contains sparse thin-bedded calc-silicate rocks and marble above unit B (Drb)
Ds, Seboomook(?) Formation; gray metashale; variably massive metashale or faintly graded metashale in 3-inch beds; commonly cyclically interbedded with subordinate graded beds of quartz-rich and plagioclase-rich metasandstone; separated from equivalent and younger units by Blueberry Mountain fault

LOWER SILURIAN

Smb / Sm / Sma

Madrid Formation
Only rocks of Silurian age in this quadrangle
Smb, light- to light-brownish-gray locally calcareous metasandstone interbedded with subordinate gray metashale. Metasandstone beds typically 1-3 feet thick, but as much as 10 feet thick; graded, crossbedded; pods of calc-silicate rock common
Sma, interstratified 1- to 4-inch-bedded light-gray, white, and blue-green calcareous metasandstone and calc-silicate rock, and noncalcareous light-brownish-gray locally sulfidic interlaminated metasiltstone and metashale; local beds of metasandstone and mud-chip metaconglomerate as much as 10 feet thick near base

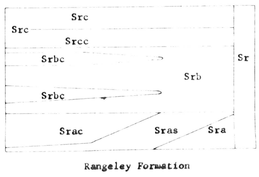
Sss / Ssc / Ss / Sss

Smalls Falls Formation
Ssc, sulfide-rich black to white variably calcareous metasandstone, metasiltstone, calc-silicate rock, and subordinate dark metashale
Ss, black sulfide-rich metashale, subordinate 1- to 3-inch graded and crosslaminated interbeds of metasandstone; north of Madrid, sparse 6-inch to 3-foot beds of quartz granule metaconglomerate
Sss, zones containing 25-75 percent of white commonly calcareous poorly sorted quartz-rich metasandstone and quartz granule metaconglomerate; graded beds as much as 10 feet thick. Best exposed along Saddleback Stream

Sp

Perry Mountain Formation
Cyclically bedded very light gray muscovite-rich metashale and white quartz-rich metasandstone. Metasandstone beds graded, commonly cross laminated, locally with convolute structure; typically 1-4 inches thick, but as much as 10 feet thick; tend to be thinner bedded and less abundant than metashale in lower part, thicker bedded and more abundant than metashale in upper part

Rangeley Lake — Brimstone Mountain anticline — Houghton



Rangeley Formation
Sr, gray locally sulfidic metashale irregularly interbedded with subordinate arkosic metasandstone; metasandstone beds less than 1 inch to 5± feet thick, commonly coarse grained, well graded, some parallel laminated, few cross laminated; load casts, flute casts; abundant irregular inclusions gray metamudstone
Part C:
Src, gray metashale and subordinate metasandstone
Srcc, quartz metaconglomerate, metasandstone, and gray metashale; coarse clastics locally calcareous; metaconglomerate clasts are vein quartz and quartzite, commonly closely packed in thick graded beds
Part B:
Srbc, quartz-rich polymictic metaconglomerate, conglomeratic metamudstone; metasandstone, and gray metashale. Coarse clastics locally calcareous. Most clasts are vein quartz, quartzite, granitic rocks and felsic volcanic rocks, basic igneous rocks, and various sedimentary rocks; quartz clasts more abundant in upper layer. Abundant slump deformation
Srb, gray locally sulfidic metashale and subordinate metasandstone
Part A:
Srac, polymictic and quartz-rich polymictic metaconglomerate and arkosic metasandstone; graded beds as much as 30 feet thick. Largest clasts are 2-foot boulders in north; common clasts are granite, felsic volcanics, basic to intermediate igneous rocks, various sedimentary rocks, limestone, and vein quartz; quartzose fragments more abundant toward top
Sras, arkosic metasandstone; graded beds as much as 30 feet thick
Sra, gray locally sulfidic metashale and subordinate metasandstone

Ogc / Og

Formation at Greenvale Cove
Ogc, laminated and thin-bedded calcareous metasandstone, metasiltstone, and calc-silicate rock
Og, interlaminated light-gray metasandstone, metasiltstone, and metashale; sparse beds of metasandstone as much as 3 feet thick

ORDOVICIAN ?

Oqs / Oqsg / Oqg

Formation at Quimby Brook
Oqs, metashale member: cyclically bedded grey to black sulfidic metashale and subordinate 1-inch graded, commonly parallel laminated beds of metagraywacke; sparse felsic metavolcanic rocks and sparse thin beds of calc-silicate rock
Oqsg, metagraywacke within metashale member: similar to metagraywacke member
Oqg, metagraywacke member: 1-5 foot beds of metagraywacke and polymictic conglomeratic metagraywacke interbedded with subordinate sulfidic metashale, and sparse felsic metavolcanic rocks. Coarse clasts are various sedimentary rocks, vein quartz, chert, slate chips, and felsic to basic volcanic rocks

MAINE SERIES

CAMBRIAN

Odc / Odb / Oda

Dixville Formation
Odc, black sulfidic metashale, 1- to 3-inch beds of metagraywacke, sparse greenstone, and 5-foot beds of metagraywacke
Odb, dominant black sulfidic metashale; sparse metagraywacke and greenstone
Oda, massive to foliated volcanic greenstone

STRUCTURE SYMBOLS
Shown only on sheet 1

60 — Right side up
80 — Overturned

Contacts
Showing dip where exposed; direction of tops of metasedimentary rocks known from sedimentary structures. Solid where sharp or sharply gradational; dashed where gradational; dotted where concealed; queried where correlation of rock units conjectural. M indicates contact located by aeromagnetics

Purple — Older
Red — Younger
Black — Unclassified

Faults
Showing dip where exposed. Dashed where approximately located or inferred; dotted where concealed; queried where conjectural. Older faults probably pre-date earliest metamorphism above slate grade; surfaces firm, unsheared, commonly crossed by older foliation. Younger faults post-metamorphic; surfaces have gouge breccia, slickensides, and may be thoroughly silicified

30 35 — Upright
45 — Overturned

Anticlines
Showing crestline, direction of dip of limbs, and approximate bearing and plunge or plunge direction of axes. Dashed where approximately located or inferred; dotted where concealed

50 — Upright
5 — Overturned

Synclines
Showing troughlines, direction of dip of limbs, and approximate bearing and plunge or plunge direction of axes. Dashed where approximately located or inferred; dotted where concealed

STRUCTURE SYMBOLS
Shown only on sheet 2

10 — 35 — 10

Small folds
Showing patterns of folding. Arrow indicates bearing and plunge of axis

80 — Inclined
Vertical
Strike and dip of bedding
Direction of tops of beds unknown

80 — Inclined
80 — Overturned
Strike and dip of bedding
Direction of tops of beds known from sedimentary structures

30 — Inclined
Slip cleavage and fracture cleavage
Vertical
Strike and dip of younger foliation
30 — Inclined
Schistosity

60 — Inclined foliation
Vertical foliation
Strike and dip of older foliation
Includes slaty and phyllitic cleavage, schistosity and planar alignment of metaconglomerate fragments

60
Bearing and plunge of lineation
Includes fragment alignments in metaconglomerates; commonly combined with foliation symbols. Other lineations not shown because most are intersections of planar structures

30 — Inclined
Vertical
Strike and dip of flow structure in intrusive rocks

METAMORPHIC SYMBOLS
Shown only on sheet 4

B — Regional metamorphism and local metamorphism unrelated to known plutons
Contact metamorphism

Metamorphic isograds
Based on first appearance of minerals or pseudomorphs of minerals in metashales towards greater metamorphic intensity; combine effects of contact metamorphism and at least two widespread metamorphic events. One or more zones may be missing. Sillimanite and staurolite isograds in west-central, southwest, and south-central one-ninths of Rangeley quadrangle modified according to data of Charles V. Guidotti.
Approximately located; dotted where concealed

C, chlorite
B, biotite
G, garnet
St, staurolite
An, andalusite
Si, sillimanite
An + K, andalusite plus potassium feldspar
Si + K, sillimanite plus potassium feldspar

PITS AND ADIT
Shown only on sheet 2

Large gravel pit

Adit
On Swift River 0.4 mile north of junction with Mott Stream

S — Gr
Prospect pits
S, sulfide minerals, dominantly arsenopyrite; 0.5 mile west of Dodge Pond
Gr, graphite; 0.4 mile south of Madrid

Note: Because the original character of most of the metasedimentary rocks is well preserved, sedimentary terms with the prefix "meta" are used in place of equivalent metamorphic terms. Exceptions are calc-silicate rock, marble, and greenstone. Metashale is aluminous slate, phyllite, schist, gneiss, or hornfels with mineral assemblages appropriate for different metamorphic grades. Typical metasandstones (including metagraywacke and metaquartzite) and metasiltstones are granofels or schistose granofels; noncalcareous types are composed of quartz, sodic plagioclase and biotite; muscovite and chlorite may be present; with increasing calcium content they grade to calc-silicate rocks.