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THE NEWSLETTER OF THE GEOLOGICAL SOCIETY OF MAINE

COMBINED ANNUAL MEETING - FIELD TRIP PROGRAM

SATURDAY AND SUNDAY, AUGUST 1-2, 1981

DETAILS

The program for this year will feature excursions along the Norumbega Fault, separated by the Annual Meeting at rustic lodgings in Wavus Camps on Damariscotta Lake, Jefferson. On Saturday, Don Newberg will show us 9 bedrock stops in the Gardiner and Wiscasset quadrangles. On Sunday morning, Don will make 2 bedrock stops in the Liberty quadrangle and Jeff Smith will make 3 or 4 surficial stops at the Waldoboro moraine and related glaciomarine deposits in the Waldoboro West, Waldoboro East and Union quadrangles, en route to a 6-7 stop bedrock program conducted by Dave Westerman in the Brooks and Bucksport quads.

SCHEDULE

8:00 AM, Saturday: Meet at the Richmond interchange off Interstate 95.

7:30 PM, Saturday: Annual Meeting at Wavus Camps off Route 213 on the northwest shore of Damariscotta Lake. To get there, turn east off Route 213 at 1.45 miles SW of the junction of Routes 32 and 126; or, 0.95 miles SW of the junction of Routes 126 and 213; OR, 11.5 miles up the west side of Damariscotta Lake from Route 1 at Newcastle. The Wavus Camps turn is between a big yellow barn and a "white" riding ring.

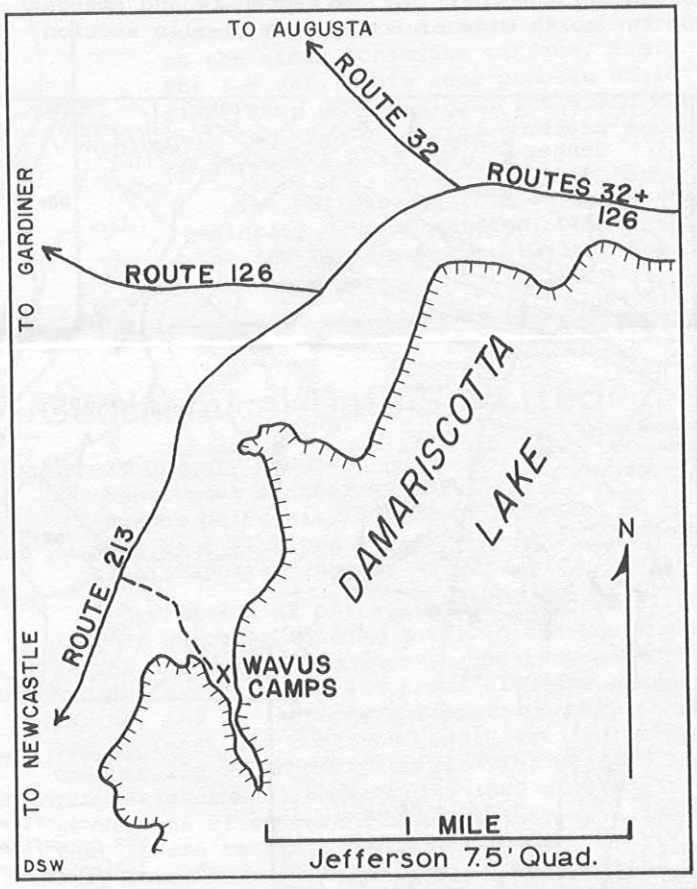
8:00 AM, Sunday: Meet at the Jefferson Town Hall, at the junction of Routes 213 and 126.

MEALS AND LODGING

Bring your own food (etc.) for a cook-out Saturday night at Wavus Camps, and for your breakfast and lunch on Sunday. Wavus Camps, owned by Dave Westerman's family, has camp buildings for overnight shelter for which he says there is no charge. The camps now have beds, but to quote him:

"By the time this trip occurs, there may have been an auction and all the beds may be gone. There will still be cabins, but if folks would rather sleep outdoors then they should bring their own tents. They should bring sleeping bags at a minimum. (Note: I really doubt that the auction will have occurred, in which case there will be something on the order of 300 beds available.)"

Annual Meeting Locus



NOMINATIONS for 1981-82 SOCIETY YEAR

The GSM Nominating Committee, consisting of Donaldson Koons, Archie Berry, and Irwin Novak, proposes the following nominations for next year's officers:

President--Robert Gerber
Vice President--Florence Hoar
Treasurer--Fred Beck
Secretary--Archie Berry
Newsletter Editor--Dave Westerman
Director--John Tewhey

NORUMBEGA *(August 2nd Trip)*

DEFORMATION ASSOCIATED WITH THE NORUMBEGA FAULT ZONE: BROOKS, STETSON & BANGOR 15' QUADRANGLES

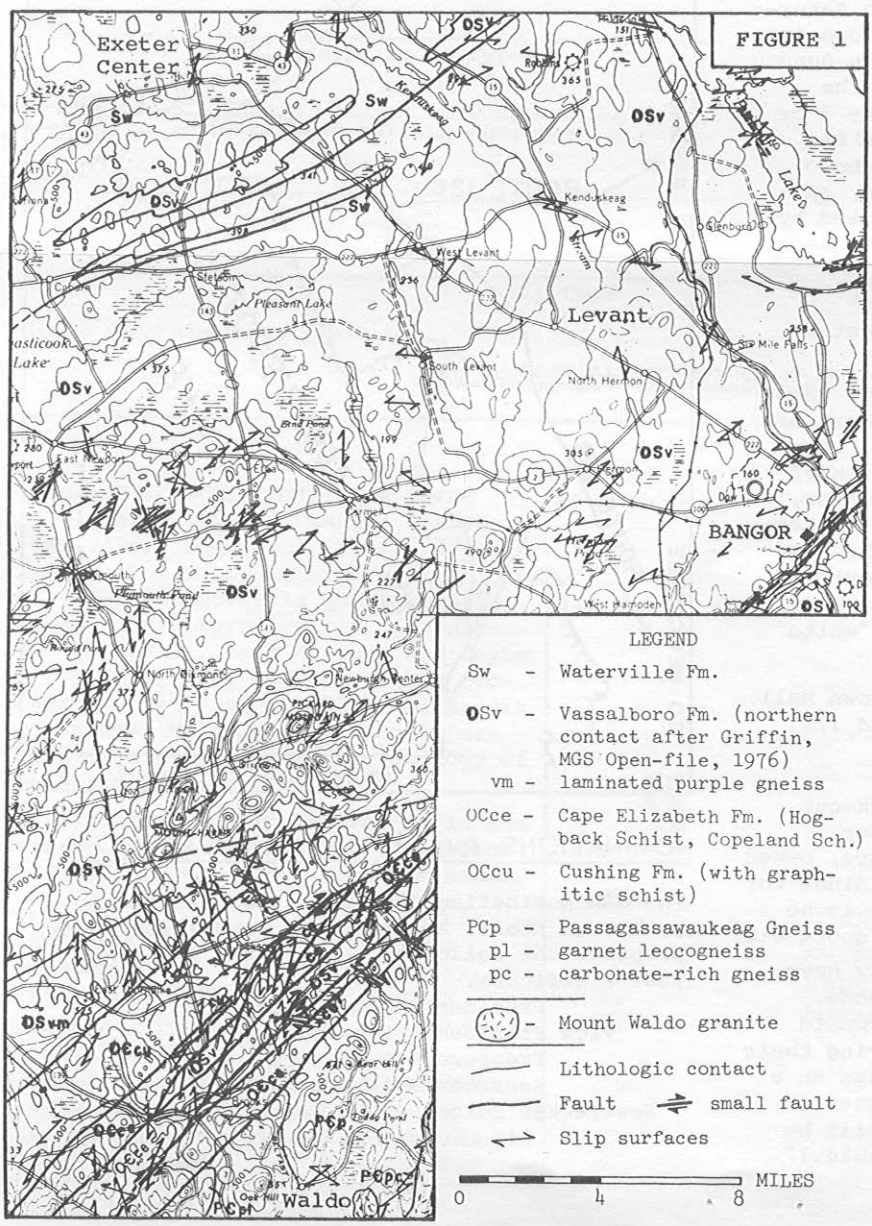
By David S. Westerman
Department of Geology
Colby College
Waterville, Maine 04901

This note reports some findings and interpretations which resulted from mapping during the summer of 1980 in the Brooks, Stetson and Bangor 15' quadrangles, a project funded by the Nuclear Regulatory Commission and the Maine Geological Survey. A full report on this study will be available at the Survey office in Augusta.

The Norumbega Fault Zone (NFZ) is a seismically active zone which extends from New Brunswick, Canada, southwest across Washington County to the north end of Penobscot Bay, where it continues on to Casco Bay. It most likely continues under the ocean off the coast of New Hampshire and emerges on the north side of Boston. A 15-mile section of the zone was mapped in the Brooks quadrangle where it separates the well-bedded Vassalboro Formation (NW side) from the strongly metamorphosed Precambrian Passagassawaukeag Gneiss (SE side). Within the fault zone, there are schistose and gneissic rocks along with younger, well-bedded rocks, but unravelling the detailed stratigraphy of this piece of real estate is complicated by the faulting and by an increase in metamorphic grade going southwest (see Figure 1).

The trend of the NFZ through the Brooks quadrangle is N50E, and the sense of motion on the fault surfaces is right lateral. This is demonstrated by slickensides, drag folds, offset beds and mylonite fabrics, and is consistent with the findings of other workers. Within the zone, particularly in the central portion of the quadrangle, there is a well-developed concentration of right-lateral Z-folds whose nearly vertical axial plane fractures trend N5E (Figure 2), often offsetting the hinges of the folds. This set of fractures appears to be related to a prominent N20-25E set of major faults within the NFZ which have offset distinctive lithologic units by right-lateral movement.

FIGURE 1



LEGEND

- Sw - Waterville Fm.
- OSv - Vassalboro Fm. (northern contact after Griffin, MGS Open-file, 1976)
- vm - laminated purple gneiss
- OCce - Cape Elizabeth Fm. (Hogback Schist, Copeland Sch.)
- OCcu - Cushing Fm. (with graphitic schist)
- PCp - Passagassawaukeag Gneiss
- pl - garnet leocogneiss
- pc - carbonate-rich gneiss
- Mount Waldo granite
- Lithologic contact
- Fault — small fault
- Slip surfaces

0 4 8 MILES

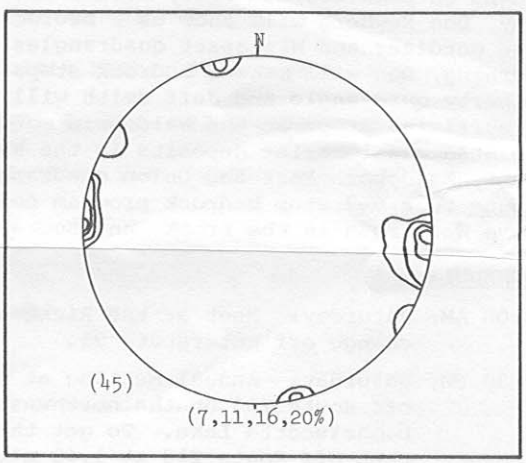


Figure 2. Right-lateral movement in the Norumbega Fault Zone

In addition to the deformation within the NFZ, of particular interest in this study was the brittle fracture history of the Vassalboro Formation on the NW side of the zone. Much of this portion of the study area occurs within a "wedge" of rocks having a history of low, but persistent, seismic activity (see The Maine Geologist, April 1980 and March 1977). Figure 3 illustrates the orientations of fracture surfaces which show evidence of lateral motion. The concentrations of NE- and ENE-trending, right-lateral slip surfaces and faults are associated with the primary axial plane cleavage of tight isoclinal folds. These surfaces generally parallel the trend of lithologic units across the study area, and are presumed to be the result of the same stresses which have caused movement in the NFZ.

A secondary set of slip surfaces trends approximately N23E and is gen-

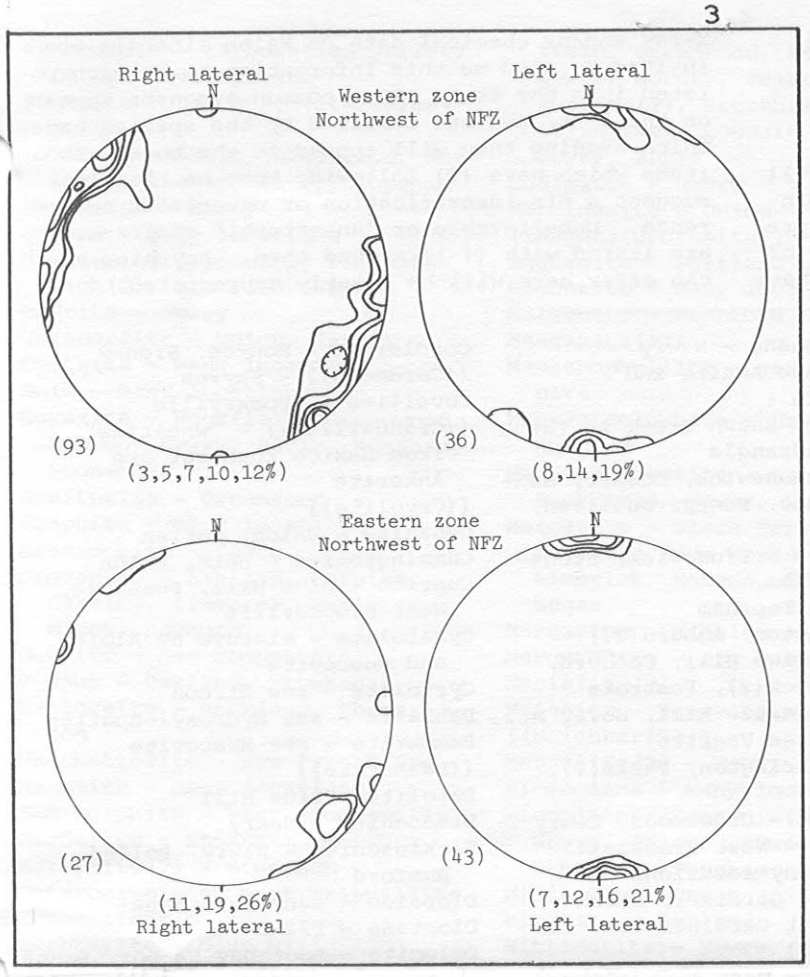


Figure 3. Orientations of fracture surfaces showing evidence of lateral motion

erally seen as the axial plane fracture cleavage of steeply-plunging Z-folds. These surfaces consistently show right-lateral motion as evidenced by detachment in the hinges of the small Z-folds. A third set of brittle fractures is oriented E-W and indicates movement with a left-lateral sense. These fractures are most often present as the steeply-dipping axial planes of S-type kink folds, and they commonly exhibit offset in the hinges of the kinks whose axes plunge at high angles.

The orientations of these sets of brittle fractures produce a relatively simple geometric pattern, and an interpretation of this pattern is presented below (see also Figure 4). The principal stress on a regional scale causes right-lateral movement both on individual fault surfaces within the NFZ and within rocks of the Vassalboro Formation. Within the Vassalboro Formation, the shear couple of the primary stress field produces a secondary field of compressive stress with maximum compression parallel to the regional trend (N55E). As the compressive stress builds up, conjugate shears associated with the secondary field produce the small-scale slip motions seen in the Z- and S-folds. At individual outcrops where both Z- and S-folds are present, the S-folds (left-lateral) can generally be seen to have developed last, but this need not be interpreted to indicate more than one episode of deformation.

The compressive stress of the secondary field, in combination with the regional primary shear couple, would promote initial failure on the con-

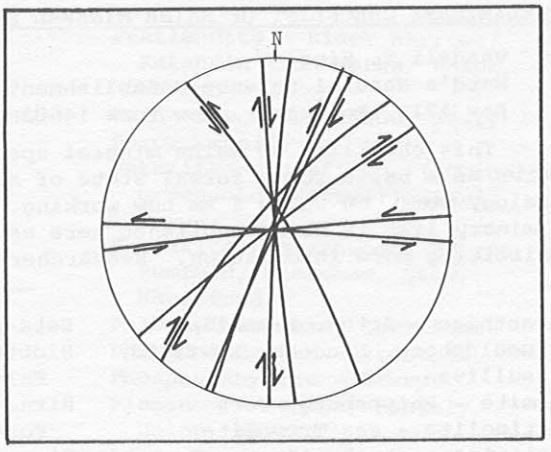


Figure 4. Summary of motion on brittle fractures northwest of the NFZ

jugate slip surfaces which have right-lateral motion, i.e., the N23E set. Such failure would release that component of the stress, but would simultaneously increase the relative magnitude of stress on the other conjugate surface, i.e., the E-W set. This same process would take place on a regional scale, so that only one type of motion would be recorded in some areas.

The validity of this interpretation remains to be demonstrated, but it stands as an initial attempt to explain the recent observations.

Geochemical Data Solicited

By J. Gregory McHone
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Indianapolis, Indiana 46202

A compilation of all available geochemical analyses of Mesozoic igneous rocks in the New England states and adjacent Quebec is underway. Included are whole-rock major and trace elements, rare-earths, and Sr isotopes. I estimate that there are at least 250 published analyses, and perhaps another 250 which have not seen the printed page. The analyses will be compiled into sections such as regions of occurrence and rock types. I hope that it can be published sometime next year (probably later than earlier). All contributions will be acknowledged - nothing which has not been formally published will be used without expressed written permission of the data owner.

Localities will be listed on each page, but if requested, they can be kept general (e.g., "syenite from the Cuttingsville complex, Vermont"). No data reductions, interpretations, or analytical judgements will be made - these will be the responsibility of the reader/user. The compilation will be valuable to anyone interested in the region, or in such rocks in general. I would greatly appreciate any contributions of your data, permission to copy data from your thesis, or notification of any especially-obscure published sources. Thank you. (Telephone: (317) 264-8383)

PRELIMINARY CHECKLIST OF MAINE MINERAL SPECIES

By Vandall T. King
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This checklist of Maine mineral species will serve as a basis for a formal State of Maine mineralogy book, on which I am now working. The preliminary list is being published here as a way of soliciting more information. Researchers who have X-ray and/or chemical data on Maine minerals are invited to send me this information to be incorporated into the text. Some common synonyms appear on the list, and are followed by the species under which heading they will appear in the book. Those items which have (?) following them on the list suggest a mis-identification or unverified occurrence. Unbelievable or "un-natural" occurrences are listed with (( )) around them. Anything you can offer here will be greatly appreciated.

Acanthite - Acton, Franklin, Gouldsboro, Hancock, Newfield, sullivan
Acmite - Phippsburg, York
Actinolite - see Tremolite
Aegirine - see Acmite
Aenigmatite - Cashes Ledge
Albite - common
Allanite - Auburn, Brunswick, Hurricane Id., Norway, Stoneham, Topsham
Almandine - common
((Alum))
((Alunogen))
Amblygonite(?) - see Montebrasite
Amphiboles of Leake's nomenclature - unknown
Analcime - ((Greenwood)), Mapleton, Perry, South Berwick
Anatase - Bridgton, Topsham
Andalusite - Madrid, Phippsburg, Roxbury, Standish
Andradite - Arrowsic, Woodstock
Anglesite - Lubec, Pembroke
Ankerite - Mexico, Vassalboro
Annite - many locations
Anorthite - many locations of Labradorite-Anorthite composition
Anthophyllite - Blue Hill
Antigorite - Deer Isle
Antimony(?) - Old Town
Apophyllite - see Fluorapophyllite
Aragonite - Jim Pond, Thomaston
Arfvedsonite - York
((Argentite)) - see Acanthite
Arsenic(?)
Arsenopyrite - many locations
Astrophyllite - Biddeford
Autunite - many locations
Augelite - Newry
Augite - see Diopside
Aurichalcite - Brooksville
Axinite group - Bath, see ferroaxinite
Azurite - Blue Hill, Pembroke, West Brooksville
Barite - Brunswick, Gouldsboro, Pembroke, Sullivan, Newry
Bavenite - Stoneham
"Beauxite" - Limewood(?)
Bementite - Castle Hill, Hovey Mt.
Beraunite - Newry, Stoneham
Bermanite - Newry, Stoneham
Bertrandite - many locations, 2.5 x 1 cm xtal at Greenwood
Beryl - many locations
Beryllonite - Hebron(?), Newry, Rumford, Stoneham
Beta-uranophane - Newry
Biotite - see Annite and Phlogopite
Birnessite - Shawn Creek in The Forks quadrangle
Bismuth - Brunswick, Cooper, Hancock, Lubec, Newry, Sullivan, Topsham
Bismuthinite - Brunswick, Stoneham, Topsham
Bismutite - Topsham
Bornite - Acton, Auburn(?), Bingham, Blue Hill, Concord, Norridgewock(?), Pembroke
Braunite - Castle Hill, Hovey Mt.
Bravoite - see Vaesite
Brookite - Bridgton, Paris(?), Topsham
Brazilianite - Greenwood, Newry
Brochantite - West Brooksville
Calcite - many locations
Cancrinite - Gardiner, Litchfield, West Gardiner
((Carnotite))
Cassiterite - many pegmatites, Winslow, in drift near Aurora
Cerargyrite - see Chlorargyrite
Cerussite - Rockport, West Brooksville
Chabazite - Phippsburg
Chalcocite - Blue Hill, Brooksville, Warren, Woolwich
Chalcopyrite - many locations
Chiastolite - see Andalusite
Childrenite - no substantiating data; see Eosphorite
((Chlorargyrite)) - Sullivan
Chlorite group - many locations, mostly Clinochlore(?)
Chlorophyllite - Unity
Chromite - Black Narrows, Deer Isle, 2R4, 2R5
Chrysoberyl - many locations
Chrysocolla - Beddington, T22MD
Chrysotile - see Clinochrysotile
Clarkeite - Newry
Clinochlore - Alfred
Clinochrysotile - Addison, Bristol(?), Jim Pond, Union, 1R5, 2R5, 3R5
Clinozoisite - Minot
Columbite - many locations
Cookeite - Albany(?), Auburn, Buckfield, Cape Elizabeth(?), Hebron, Newry, Paris, Poland, Rumford
((Copiapite))
Copper - Acton, Blue Hill, Cherryfield, Penobscot, Sorrento, Sullivan
Cordierite - Monroe, Sidney
((Corundum)) - Smyrna
Covellite - Brooksville
((Crandallite)) - "wheaties" from Mexico road cut are Ankerite
((Cryolite))
Cubanite - Union, Warren
Cummingtonite - Bath, Union
Cuprite - Blue Hill, Pembroke, West Brooksville
Cymatolite - mixture of Albite and Muscovite
Cyrtolite - see Zircon
Dahllite - see Hydroxyl-apatite
Damourite - see Muscovite
((Danburite))
Datolite - Blue Hill
Diadochite - Newry
Dickinsonite - Newry, Poland, Rumford
Diopside - many locations
Dioptase - T22MD
Dolomite - Boothbay Harbor, Brunswick(?), Concord, Lubec, Machiasport, Mt. Vernon, New Limerick, Phippsburg, Thomaston, Union, Vienna, 2R5
Dravite - Blue Hill, Newry(?)
((Dufrenite))
Dumortierite - Greenwood(?), Woolwich
Elbaite - many locations
((Emerald))
((Emery))
Enstatite - many locations
Eosphorite - Buckfield, Greenwood, Hebron, Newry, Paris, Poland, Rumford, Stoneham
Epidote - many locations
((Euclase)) - Albany
((Eucryptite)) - Newry
Fairfieldite - Buckfield, Greenwood, Newry, Poland, Rumford
Fayalite - York
Ferrimolybdite - Buckfield(?), Cooper, Poland(?), Sanford, Tunk Pond
Ferrisicklerite - see Heterosite
Ferristilpnomelane - Deer Isle
Ferroaxinite - Phippsburg
Fluorapatite - many locations
Fluorapophyllite - Perry
Fluorite - Dixfield, Greenwood, Lewiston, Lovell, Newry(?), Stoneham, Stow, Winslow
Forsterite - Addison, Lincolnville, St. George, many others
Fourmarierite - Newry
Francolite - carbonatian variety of hydroxyl-apatite

Francolite - carbonatian variety of Hydroxyl-apatite
Fuchsite - see Muscovite; Freeport
Gahnite - Auburn, Greenwood, Norway, Stoneham, Surry, Topsham
Gainesite - Newry
Galena - many locations
Garnierite - possibly Pimelite-rich(?), Jim Pond, Warren
Gedrite - Newry
Gersdorfite - Union, Warren
Goethite - many locations
Gold - many locations
Goyazite - Buckfield, Greenwood, Hebron, Newry, Paris, Rumford, Stoneham
Graftonite - Greenwood
Graphite - many locations
Greenockite - Casco
Grossular - Ashland, Cornish, Cushing, Limerick, Mapleton, Minot, Raymond
Gummite - see components
Gypsum - Oakland, Skowhegan
Halloysite - Rockland, Thomaston
Hatchettolite - see Pyrochlore
Hematite - many locations
Hemimorphite - West Brooksville
Herderite - Stoneham, Topsham
Hercynite(?) - Stoneham
Heterosite - at most Triphyllite locations
Huebnerite - Blue Hill
Heulandite(?) - Greenwood
((Hiddenite))
Holmquistite(?) - Camden
Hornblende - split into Magnesiohornblende and Ferrohornblende
Hureaulite - Greenwood, Newry, Stoneham
Hydrozincite - Blue Hill, Harborside, Pembroke
Hypersthene - see Enstatite
Ice - seasonal
Iddingsite - see Pyroxenes
Idocrase - see Vesuvianite
Iridium - Hermon (exsolution in Platinum?)
Ilmenite - Katahdin Iron Works, Newry, Rockland, Union, Warren
Jahnsite - Newry
Kaolinite - Thomaston, pegmatite pockets, glacial varves
Kyanite - Bowdoinham, Gorham, Litchfield, Paris, Standish, Waldoboro, Windham
Labradorite - see Anorthite, crystals near Appleton
Landesite - Newry, Poland
Laueite - Buckfield, Newry, Rumford
Laumontite - Calais, Machias, Machiasport, Phippsburg
((Lazulite)) - see Scorzalite
Lepidolite - many locations
Lepidomelane - see Annite
Linarite - West Brooksville
Linaeite - Katahdin Iron Works, Union, Warren
Lithiophyllite - Auburn, Buckfield, Greenwood, Hebron, Newry, Norway, Poland, Rumford(?), Stoneham
Loellingite - Bowdoin, Hebron, Newry, Paris
Ludlamite - Newry
Mackinawite - Union
((Magnesiochromite))
Magnesite - Portland
Magnetite - many locations
Malachite - Pembroke
Manganite(??)
Manganophyllite - see Phlogopite
Manganocolumbite - Newry, Rumford
Manganotantalite - Auburn, Buckfield, Newry, Rumford
Marcasite - Black Narrows, Katahdin Iron Works, New Limerick, Monson, Skowhegan
Margarite - Winslow
Margarodite - see Muscovite
Marialite(?)
Meionite - Vassalboro
((Melanterite))
Messelite(?) - Newry
Microcline - many locations
Microlite - Auburn, ((Gorham)), Newry, Poland, Rumford, Stoneham, Topsham
Millerite - Casco
Mimetite - Garland
Mitridatite - Newry, Rumford, Stoneham
Molybdenite - many locations
Molybdite(?) - probably Ferrimolybdite
Monazite - East Blue Hill, Newry, Topsham
Montebrasite - Auburn, Buckfield, Greenwood, Hebron, Newry, Paris, Peru, Poland, Rumforn, Stoneham
Montmorillonite - many locations
Moraesite - Newry
Mossite - mixture of Tapiolite and Tantalite
Muscovite - many locations
Nacrite(?) - Unity
Natrolite - Perry, Windham
Neotocite - Hovey Mt.
Nepheline - Gardiner, Litchfield, Monmouth, West Gardiner
Niccoline - Union, Warren
Niggliite - Union, Warren
Nsutite - Pyrite Creek of the Long Pond quadrangle
Olivine - see Fayalite and Forsterite
Opal - botryoidal sub-crystalline Tridymite and/or Cristobalite; many pegmatites
((Orpiment))
Ottrellite - South Portland
Pargasite(?) - Bethel, Parsonsfield, Phippsburg (analyses?)
Pectolite(?) - Cornish
Penninite - Hovey Mt.
Pentlandite - Black Narrows, Katahdin Iron Works, Union, Warren
Perhamite - Greenwood, Newry
Perovskite(?)
Petalite - Buckfield, ((China)), Greenwood, Newry(?), Paris, Peru
Phenakite - Greenwood, Hebron, Rumford, Stoneham, Stow, Waterford
Phlogopite - many locations
Phosphosiderite - Stoneham
Phosphuranylite - Newry
Platinum - Hermon, Rangely, Union, Warren
Pollucite - Auburn, Brunswick(?), Buckfield, Greenwood, Hebron, Newry, Norway, Paris, Rumford
((Portlandite)) - Portland
Powellite - Newfield, Sanford
Prehnite - Calais, Livermore, Manchester, Perry, Riley, Portland, Rippogenus
Prochlorite(?) - Cutler, Eastport (Clinochlore?)
Proustite - Sullivan
Psilomelane - see Romanechite
Pumpellyite - Aroostook County
Purpurite - Auburn, Greenwood, Hebron, Newry
Pyrargyrite - Franklin, Hancock, Sullivan
Pyrite - many locations
Pyrochlore - Buckfield, Newry, Rumford
Pyrolusite - (never found as dendrites, according to recent data)
Pyromorphite - Pembroke
Pyrophanite - Hovey Mt., Maple Mt.
Pyrophyllite(?) - Thomaston
Pyrrhotite - Drew Hill, Rumford, Standish, Stoneham, Union (hexagonal and monoclinic)
Quartz - many locations
Rammelsbergite - Union, Warren
Reddingite - Newry, Poland, Stoneham, Auburn, Buckfield, Rumford
Rhodochrosite - Auburn, Buckfield, Newry, Poland, Rumford, Deer Isle(?)
Rhodonite - Blue Hill, Deer Isle, Hovey Mt.
Riebeckite - York
Rockbridgeite - Newry
Roscherite - Buckfield, Newry, Paris, Rumford
Rutherfordine - Newry
Rutile - St. George, Topsham, Union, Warren
Saponite - Perry
Scapolite group - many locations
Scheelite - Blue Hill, Cooper, Cornish, Farmington, Franklin, Newfield, Norway(?), Porter, Sanford
Schorl - many localities
((Scorodite)) - Minot (alteration of Loellingite?)
Scorzalite - Newry

(Please continue on Page 6)

Serpentine group - Deer Isle, Rockland
Sicklerite - see Purpurite
Siderite - East Madison, Milton, Newry, Old Orchard, Rumford, Winthrop, 1R5
Sillimanite - many locations; Bucksport, Rumford, Warren, Woolwich
Silver - Acton, Blue Hill, Deer Isle, Gouldsboro, Hancock, Sullivan, York
Skogbolite - = Tapiolite
Samarskite - Topsham
Sodalite - Litchfield, Newfield, West Gardiner
Sperrylite - Union, Warren
Spessartine - Buckfield, Hovey Mt., Newry, Phippsburg(?), Rumford, Stoneham, Topsham(?)
Sphalerite - many locations
Spinel - Union
Spodumene - Andover, Auburn, Buckfield, Fryeburg, Gorham(?) Greenwood, Hebron, ((Litchfield)), Lovell, Newry, Norway, Paris, Peru, Rumford, ((West Gardiner)), ((Windham)), TE
Staurolite - many locations
Stephanite - Sullivan, Franklin, Gouldsboro, Lowell
Stewartite - Newry, Poland
Stibiocolumbite-Stibiotantalite Topsham
Stibnite - Buckfield(?), Carmel, Falmouth, Hallowell
Stilbite - Calais, Franklin, Hallowell(?), Perry, Vinalhaven
Stilpnomelane - Hovey Mt.
Stromeyerite - Sullivan
((Struvite)) - misprint for Strunzite
Strunzite - Newry, Poland, Rumford, Stoneham
Switzerite - Newry
Sylvanite - Sorrento
Talc - Brooksville, Calais, Camden, Deer Isle, Dexter, Ellsworth, Hampden, Hope, Rockland, Sullivan, Thomaston, Warren
Tantalite - Buckfield(?), ((Byron)) Newry(?), Paris, Rumford(?), ((Standish)), Topsham(?), TE(?)
Tapiolite - Auburn, Brunswick, Newry, Topsham
Tennantite - Blue Hill
Tetradymite - Sullivan
Tetrahedrite - Deer Isle(?), Hampden, Steuben
Thomsonite - Rockland, Thomaston
Titanite - many locations
Todorokite - Newry, probably abundant at many locations
Torbernite - Albany, Auburn, Bowdoinham, Greenwood, Newry, Peru, Phippsburg, Rumford, Stoneham, Topsham
Topaz - Albany, Auburn, Brunswick, Buckfield, Greenwood, Stoneham, Stow, Sumner(?), Topsham, Woolwich(?)
Tourmaline group - see individual species
Tremolite - Bethel, Bowdoinham, Raymond, Rockland, Thomaston
Triphylite - Auburn(?), Buckfield, Greenwood(?), Hebron, Newry, Norway, Paris, Peru, Rumford, Stoneham(?), Topsham(?)
Triplite - Auburn, Buckfield, Greenwood, Hebron, Newry(?) Rumford(?), Stoneham
((Tyuyamunite)) - Newfield
Ulvospinel - Union, Warren
((Uraconite))
Uralolite - Newry
Uraninite - Albany, Buckfield, Greenwood, Minot(?), Newry, Paris, Rumford, Topsham
Uranophane - Albany, Lovell, Newry, Norway, Phippsburg(?), Rumford, Stoneham, Topsham
Uranophyllite - misprint for Uranopilite
((Uranopilite)) - Newry, Rumford
Uvarovite - Union
Vaesite - Union, Warren
Vandendriesscheite - Newry
Violarite - Union
Vivianite - Greenwood, Newfield(?), Newry, Peru, Rumford, Stoneham
Wad - Oxford
Wardite - Newry
((Wavellite)) - Newry
Whitlockite - Newry, Poland, Rumford
Whitmoreite - Newry
Wollastonite - Cornish, Cherryfield, Warren
Wolframite - see Ferberite
Wolsendorfite - Newry
Wurtzite - Newry
Wulfenite - Lubec
Xanthoxenite - Newry
((Yttrocerite))
Zircon - many locations
Zoisite - Cornish, Farmington, Jonesboro, Lewiston, North Haven, South Berwick, Vassalboro

Addenda:

Ferberite - Bowdoinham, Cooper, Cornish, Topsham
Hydroxyl-apatite - Buckfield, Hebron(?), Newry, Norway(?), Paris, Poland, Rumford, Stoneham(?)
Phillipsite - Stratford(??)
Romanechite - Oxford, Phillips, Winslow, 3R7, 6R8, 8R7, TC; many pegmatite locations
((Sulphur))

In addition to the above species, there is a good chance of locating many common minerals if they were specifically searched for: Ackermanite, Artinite, Brucite, Bustamite, Caledonite, Celadonite, Celestite, Cervantite, Chondrodite, Clinoenstatite, Clinoferrosilite, Clintonite, Corundum, Cubanite, Dickite, Digenite, Edenite, Enargite, Euxenite, Fergusonite, Gehlenite, Gmelinite, Grunerite, Harmotome, Hastingsite, Hedenberite, Lepidocrocite, Lizardite, Mesolite, Minnesotaite, Palygorskite, Paragonite, Polybasite, Pearceite, Pigeonite, Richterite, Rosasite, Smithsonite, Tenorite, Uvite, Xenotime, Zinnwaldite, etc.
(Editor's Note: all typos are JRR's)

MAINE SURVEY NOTE

A. M. HUSSEY II APPOINTED MAPPING COORDINATOR

By Walter A. Anderson, State Geologist
Maine Geological Survey
State House Station 22
Augusta, Maine 04333

The next couple of years are going to be a particularly busy time for the Maine Geological Survey as we undertake the compilation of new 1:500,000 State bedrock and surficial geologic maps, in addition to our regular program of quadrangle mapping and other projects. This is especially true in the case of bedrock mapping, in which the majority of our seasonal employees are involved. In order to give Woody Thompson some assistance in overseeing the expanded program, I have designated Art Hussey to be Coordinator of Bedrock Mapping for MGS projects.

Art will be working closely with Woody in organizing, reviewing and assigning priorities for our bedrock mapping projects. They will also be visiting geologists in the field during the summer to keep up with mapping progress, and to help insure greater coordination of visits with MGS field parties than has been the case in the past. Woody and I welcome Art's assistance in this capacity, and we're looking forward to a productive field season.

U-Hunters Info

Uranium in Maine

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The National Uranium Resource Evaluation (NURE) program, run by Bendix Field Engineering Corporation under a DOE contract, has been in existence since 1974 and has produced a number of reports. There are three phases to the NURE studies, done and published separately as 1° x 2° quadrangles. The three phases are an airborne radioactivity study, a stream water, stream sediment and ground water survey, and a geological field study and estimate of resources. Some are available for Maine, all in microfiche. The airborne study of the Portland 2° quadrangle and some southern New England quadrangles is available for $20 as report GJO-1666-1 (76). The entire state has now been flown, but the information is still in computers. The water study of the Lewiston 2° quadrangle is available for $3.50 as GJBX-14 (81), and that of Portland for $5.00 as GJBX-28 (79). A preliminary geologic evaluation of the Portland 2° quadrangle is available for $5.50 as PGJ-028. These publications are available from: Technical Library, Bendix Field Engineering Corporation, Box 1569, Grand Junction, CO 85102, phone 303-242-8621, ext. 278. A copy of PGJ-028, GJO-1666-1, and GJBX-28 are available for inspection at the Maine Survey. A geologic study of the Bangor and Eastport quadrangles was done in the summer of 1980. The report has been completed, and a preliminary copy may be available in the summer of 1981.

At the present state of knowledge, the probability of uranium deposits in Maine appears low, with the possible exception of small deposits in the Sebago pluton. Uranium deposits are found in a variety of geologic environments, most of which do not exist in Maine. Archean conglomerates and Proterozoic cratonic sandstones are not known at all here, and other favorable environments, such as continental fluvial sandstones, are very scarce. Anyway, Trout Brook Valley is not an ideal spot for mineral development.

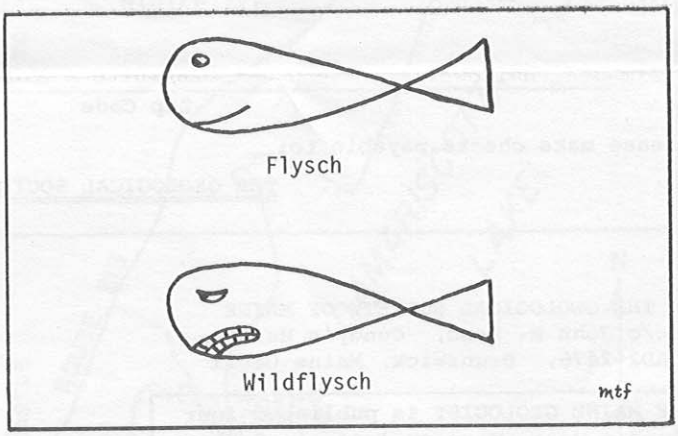
Uranium is also associated with granites, and these Maine has. All granites contain a few ppm of uranium, so it is necessary to look for a granite that has a higher uranium content than average and has some mechanism for concentrating it. Uranium, like many metals, has large ions which do not fit into the structure of common minerals and are concentrated in the last part of the melt to crystallize.

There are two varieties of this last part of the melt. In two-mica granites, with their high water content, the uranium concentrates in the fluid phase and is deposited in veins or pegmatites, the richness depending on the original amount of uranium and the stage of crystallization at which the veins and pegmatites form. In granites intruded in a stable crust, the end result of the slow crystallization and differentiation is usually an alkalic granite with a small body of very alkaline magma enriched in large ions. As crystallization comes to an end, this enriched magma albitizes the quartz and feldspar of any part of the rock with which it comes in contact and deposits the large ions.

Uranium deposits have been found in these alkaline granites only when they have formed in anorogenic crust, and only in portions with abundant sodium metasomatism. Plutons like Mt. Desert and Tunk Lake were intruded after most orogenic activity had ceased, and have an alkalic tendency, but do not have the chemistry of plutons formed and emplaced in an anorogenic crust. The White Mountain Series plutons are anorogenic, and some have high uranium contents, but albitized zones with uranium concentrations have not been found in them,

The only reported uranium occurrences in Maine (in PGJ-028) are in the Sebago two-mica granite, in pegmatites and in fractures within red granite. Uranium is found at Lake Sunapee, New Hampshire, in a two-mica granite of the "Concord type", which probably has an origin similar to that of Sebago. The uranium in the Sunapee pluton is leached from the rock and deposited in joints, where is can be found in relatively recent road cuts. Economic concentrations have not been found.

Uranium has recently been discovered in the South Mountain batholith of Nova Scotia, according to The Northern Miner for February 5. I think this granite has an origin different from those in Maine, but any mineral occurrence so nearby is worth studying to see what about it is applicable.



GEOLOGY TEACHERS CONFERENCE

Alvin L. Barth, 1st Vice President of the New England Section, National Association of Geology Teachers, has notified us that Gould Academy, Bethel, will host a meeting of NE/NAGT, scheduled for April 9-11, 1982. The tentative program calls for presentations on Saturday, and for field trips on Sunday of that weekend. Al will be receptive to ideas and/or programs you may wish to offer, and will appreciate any help toward making it a fine conference.

He also notes that the dealine for notices, articles, etc., for the next NE/NAGT Newsletter is September 1, 1981. You may contact him at Gould Academy, Bethel, Maine 04217.

1981-82 SOCIETY YEAR STARTS AUGUST 1st - PLEASE SEND IN YOUR DUES

MEMBERSHIP DUES STATEMENT

THE GEOLOGICAL SOCIETY OF MAINE, INC. is a non-profit Maine corporation established as an educational Society to advance the professional improvement of its members; to inform its members and others of current and planned geologic programs in Maine; to encourage continuing social contact and dialogue among geologists working in Maine; and to further public awareness and understanding of the geology of the State of Maine, and of the modern geologic processes which affect the Maine landscape and the human environment.

The Society holds three meetings each year, in the late fall, early spring and (with the Annual Meeting and sometimes field trips) in mid-summer. A newsletter, THE MAINE GEOLOGIST, is published for all members four times a year (more or less), approximately on a quarterly basis starting in September. The Society year runs from August 1st to July 31st. Annual dues and gift contributions to the Society are tax deductible. There are three classes of annual memberships:

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THE MAINE GEOLOGIST is published four times a year, more-or-less, in September, late Fall, late Winter, and maybe June or July, for members of the Geological Society of Maine, a non-profit educational Maine corporation interested in all aspects of the geology of the State of Maine.

Correspondence about membership in the Society should be mailed to Frederick M. Beck, 140 Main St., Yarmouth 04096.

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