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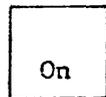
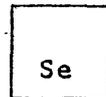
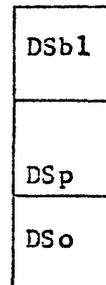
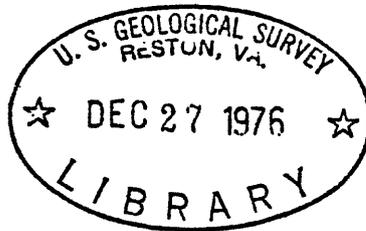
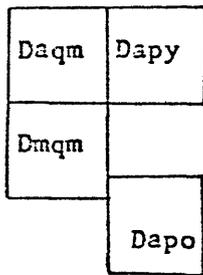
RECONNAISSANCE BEDROCK GEOLOGIC MAP OF THE LEICESTER QUADRANGLE, MASSACHUSETTS

by Patrick J. Barosh and Carl K. Johnson 1976

TENTATIVE CORRELATION CHART

Intrusive Igneous Rocks

Metasedimentary Rocks



Devonian (?)

Silurian

Pre-Silurian

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standards or nomenclature.

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2 by Patrick J. Barosh and Carl K. Johnson

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4 EXPLANATION

5 Intrusive Igneous Rocks

6 Ayer Granitic Complex

7 Daqm Biotite Quartz Monzonite--Light to medium gray, medium
8 grained biotite quartz monzonite, slightly to moderately
9 well foliated, strongly foliated adjacent to fault zones.
10 Biotite common accessory mica, biotite replaced by
11 muscovite in sheared zones.

12 Dapy Younger Porphyritic Quartz Monzonite--Light gray, coarse
13 grained porphyritic biotite quartz monzonite, slightly to
14 moderately well foliated. Constitutes a local porphyritic
15 phase of the biotite quartz monzonite.

16 Dapo Older Porphyritic Quartz Monzonite--Light to medium gray,
17 coarse grained porphyritic biotite quartz monzonite,
18 moderately to well foliated. The phenocrysts are generally
19 well fractured and the quartz granulated. Locally has
20 compositional variations that probably reflect flow
21 banding.

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1 Dmqa Muscovite Quartz Monzonite--Light gray, fine to medium
2 grained muscovite quartz monzonite, slightly to well
3 foliated. Biotite locally present. May be related to
4 muscovite quartz monzonite that is part of the Ayer
5 granitic complex to the south.

6 Metasedimentary Rocks

7 DSb1 Bigelow Brook Formation, Lower Gneiss member--The
8 Bigelow Brook Formation forms the basal formation of the
9 Brimfield Group (Peper, Pease and Seiders, 1975). Its
10 lower gneiss member forms the westernmost and highest
11 part of the stratigraphy discussed here. The lower gneiss
12 member consists of light to medium gray, weathering
13 lighter to rusty, medium- to coarse-grained quartz-biotite-
14 feldspar gneiss interbedded with schist. Some gneiss is
15 calc-silicate-bearing and sillimanite is common in the
16 member. The Bigelow Brook Formation is considered to
17 stratigraphically overlie the Southbridge Formation
18 (Peper, Pease and Seiders, 1975).

19
20 Units at the top of the Brimfield Group are
21 considered Devonian? by correlation with units to the
22 north in New Hampshire and the Brimfield and Paxton Groups
23 were designated Devonian to Ordovician? by Peper, Pease
24 and Seiders (1975). The correlation of Eliot with
25 Silurian rocks probably restricts the age to Devonian to
26 Silurian?.

DSp

Paxton Group--The Paxton Formation of Emerson (1917) has been divided into two formations which consist of medium gray, thin- to medium-bedded fine- to coarse-grained metagraywacke that weathers the same color or slightly darker with a brownish cast. The beds have between a schistose and granulose structure and are composed mainly of quartz, biotite and feldspar, which gives them a salt and pepper appearance. Calc-silicate-bearing beds occur at many horizons throughout the section. The upper part of the Paxton has been designated the Southbridge Formation (Pease, 1972) and the lower part is equivalent to the Hebron Formation as mapped in the Eastford quadrangle (Pease, 1972). The lower part of the Paxton is fine-grained and has generally thinner and more uniform beds than the Southbridge, which is medium to coarse-grained with lesser amounts of fine-grained beds. The contact between the two is gradational. The top of the Southbridge is bounded by the Black Pond fault.

1 DSo Oakdale Formation--The Oakdale Formation, originally the
2 Oakdale Quartzite of Emerson (1917), consists of medium
3 to dark gray or greenish gray, thin bedded metasiltstone
4 to phyllite which weathers light to medium gray or
5- greenish or brownish gray. It is well laminated locally
6 with some graded beds near the exposed base. At least
7 one unit within the formation contains partings and thin
8 interbeds of muscovite schist. The contact with the
9 overlying basal beds of the Paxton Group appears faulted
10- in the Webster area, but in the southwest part of the
11 Worcester North quadrangle and adjacent part of the
12 Worcester South quadrangle it appears conformable. The
13 Oakdale Formation is probably Silurian(?) or Devonian(?)
14 in age as it probably stratigraphically overlies the
15- Silurian Eliot Formation as does the equivalent basal
16 Berwick Formation in Maine.

1 Se Eliot Formation(?)--The Eliot Formation is equivalent
2 to the slate and phyllite, Unit 3, of Peck, (1975 and
3 in press). It is a relatively uniform dark gray
4 sericitic to muscovite phyllite to schist that is
5- generally well bedded, thin-bedded unit with graded
6 bedding; it weathers to a lighter gray. It is commonly
7 folded and is the only formation in the area to have a
8 secondary foliation, not parallel to bedding, at several
9 localities. The Eliot is tentatively correlated with the
10- upper part of Silurian Eliot Formation of southern Maine
11 (Hussey, 1962) on the basis of lithology and equivalent
12 position in the stratigraphic sequence. Its upper contact
13 is formed by a major fault in this area, but similar beds
14 in the lowest known Oakdale Formation to the west
15- suggests the Oakdale overlies it.

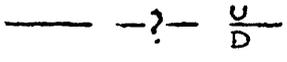
1 On Nashoba Formation--The Nashoba Formation of Hansen
2 (1956), was redescribed by Bell and Alvord (in press).
3 Briefly, this very thick unit is characterized by light
4 to medium gray medium- to coarse-grained, medium-bedded
5- quartzose-feldspathic gneiss, with interbeds of
6 amphibolite, various types of schist and marble common
7 at certain horizons. It is overlain by the Tadmuck
8 Brook Schist, which is not exposed in this quadrangle,
9 at a slight angular discordance that probably
10- represents an unconformity, but could be due to
11 faulting. The Nashoba correlates with the Tatnic Hill
12 Formation (Dixon, 1964) of Connecticut.
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SYMBOLS

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contact, dashed where approximately located.



fault, approximately located, queried where doubtful; U, upthrown side; D, downthrown side



thrust fault, dashed where approximately located, dotted where concealed, queried where doubtful; sawteeth on upper plate



topographic lineament, indicative of joint, fault, or stratigraphic zone



strike and dip of foliation



strike and dip of irregular foliation



strike and dip of foliation and parallel bedding



strike and dip of joints



strike of vertical joints



bearing and plunge of lineation

References

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