

CROSS-HATCHING DENOTES AREAS OF NUMEROUS OUTCROPS

PRELIMINARY BEDROCK MAP OF THE WARE AREA, CENTRAL MASSACHUSETTS

1:24,000 Scale



Ware Hill Diorite
wh: Medium- and coarse-grained unfoliated biotite-hornblende clinopyroxene diorite and biotite-orthopyroxene-clinopyroxene norite. A coarse variety of norite has 2 mm biotite crystals.

Gneiss of Ragged Hill
rh: Light-colored, massive, strongly foliated quartz-plagioclase-potassium feldspar-biotite-garnet gneiss.

Hardwick Quartz Diorite
h: Strongly foliated porphyritic biotite quartz diorite with biotite granite, biotite quartz monzonite, biotite granodiorite, biotite-hornblende granodiorite, biotite-hornblende quartz diorite and biotite-hornblende diorite. Microcline crystals 1/2 to 1 cm across are found in the northern part of the map area. Sphene and allanite are distinctive minor constituents.

Cove Hill Granite
ch: Massive, strongly foliated porphyritic granite, quartz monzonite and quartz diorite. Microcline and orthoclase phenocrysts are commonly 2-4 cm long, range up to 20 cm, in a matrix of quartz, oligoclase-andesine and biotite. A few per cent of 1/2-1 cm garnet are conspicuous.

Littleton Formation
Dl: Gray-weathering biotite-garnet orthoclase-sillimanite (-cordierite) schist, generally in beds 2-10 cm thick. Locally rich in garnet and sillimanite.
Dlf: Feldspar Gneiss Member: Light colored quartz-feldspar gneiss with a few per cent of biotite and garnet. Biotite pegmatite is commonly associated with this unit.
Dlo: Orthopyroxene Gneiss Member: Dark brown, coarse-grained, weakly foliated orthopyroxene-cummingtonite-labradorite-biotite gneiss.

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This report is preliminary and has not been edited or reviewed for conformity with Geological Survey standards or nomenclature.

Paxton Schist
Sp: Medium to dark gray slabby quartz-biotite-labradorite granular schist with minor garnet and rare beds of calc-silicate granulite and amphibolite. In Ware quadrangle, includes some beds of sulfidic sillimanite schist.
Spw: Light colored sulfidic quartz-potassium feldspar-cordierite-phlogopite schist.

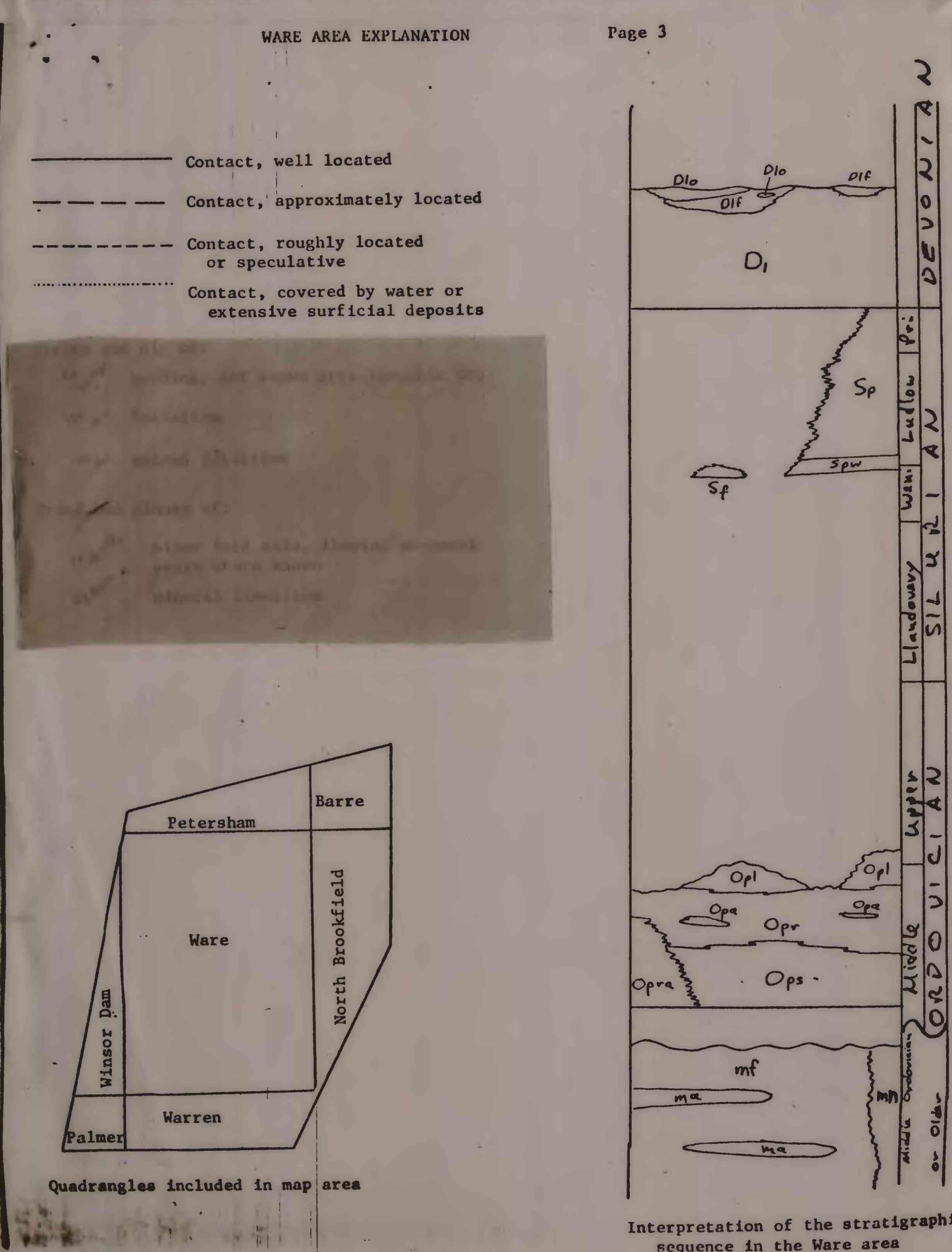
Fitch Formation
Sf: Sulfidic graphitic quartz-labradorite/bytownite-diopside granulite with sphene.

Partridge Formation
Opl: Gray- to red-weathering biotite-garnet-orthoclase-sillimanite (-cordierite) schist.
Opr: Red- to rusty-weathering biotite-garnet-orthoclase-sillimanite schist.
Ops: Sulfidic biotite-garnet-orthoclase-sillimanite (-cordierite) schist.
Opra: Rusty-weathering biotite-garnet orthoclase-sillimanite schist with amphibolite.
Opa: Labradorite-cummingtonite-hornblende, labradorite-hornblende-orthopyroxene, and labradorite-cummingtonite-hornblende-orthopyroxene gneisses, generally coarse-grained and poorly foliated.

Monson Gneiss
mf: Layered and unlayered quartz-feldspar gneiss with some interbedded amphibolite.
ma: Hornblende amphibolite with some quartz-feldspar gneiss.
mb: North Orange band; quartz-feldspar gneiss and hornblende amphibolite regularly interbedded at 2-5 cm intervals.

New Braintree Gabbro
nbg: Medium to coarse-grained unfoliated labradorite-hornblende-cummingtonite-biotite, labradorite-hornblende-orthopyroxene, and labradorite-hornblende-orthopyroxene-olivine gabbros.
a: Fine-grained strongly foliated andesine-hornblende amphibolite.

Ultramafic
um: Massive coarse-grained unfoliated phlogopite-olivine hornblende.



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