



EXPLANATION

Glacial drift

Chloritized intrusive rock
Locally oxidized to red or brown

Rabbit Lake formation

pCr, argillite and slate, gray and black, generally ferruginous, and interbedded tuffs and perhaps flows near the base

pCrs, partly oxidized to red, brown, or buff; locally metamorphosed to greenish-gray chlorite schist

pCr, upper iron-formation lenses, siliceous and thin-bedded, partly argillaceous

Trommsdorff formation

Iron-formation consisting essentially of quartz, and iron- and manganese-bearing minerals; each facies occurs by itself in part of the district, and in about one-third of the North Range the thick-bedded overlies the thin-bedded facies and grades downward into it

pCtk thick-bedded facies

pCtn thin-bedded facies

pCta local argillaceous bed ("paint rock layer")

Mahnomen formation

Sericitic shale, argillite, slate, and siltstone, and local phyllite or schist, gray, light green, or light brown; local lenses of quartzite near the upper contact

Contact (map)

Solid where exposed continuously or at short intervals; dashed where exposed at irregular intervals or closely limited by adjacent outcrops; dotted where established by drill holes and projection of mine data; queried where position is not well defined

Contact (sections)

Solid where exposed at the surface or closely limited by adjacent outcrops; dashed where established by drill holes and projection of mine data; queried where position is not well defined

Fault, approximately located

Arrows on sections indicate relative movement

Anticline

Shows trace of axial plane and bearing and plunge of axis. Dashed where approximately located

Syncline

Shows trace of axial plane and bearing and plunge of axis. Dashed where approximately located

Plunge of minor anticline

Dashed where approximately located

Plunge of minor syncline

Dashed where approximately located

Strike and dip of beds

Strike and dip of beds where the upper bed cannot be distinguished

Strike and dip of overturned beds

Strike of vertical beds

Generalized strike of folded beds
Showing plunge of fold axes

Outline of pit bank
Dashed line represents bottom of bank

Vertical drill hole
Shows rock at bedrock surface

Inclined drill hole
Shows rock at bedrock surface

Drill hole
Iron analyses indicate that bedrock is probably iron-formation

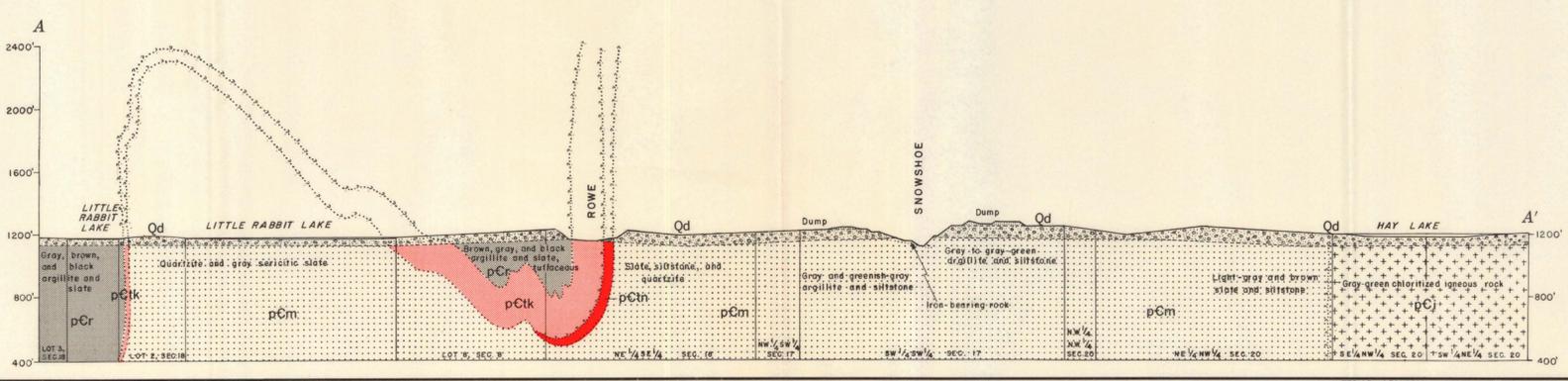
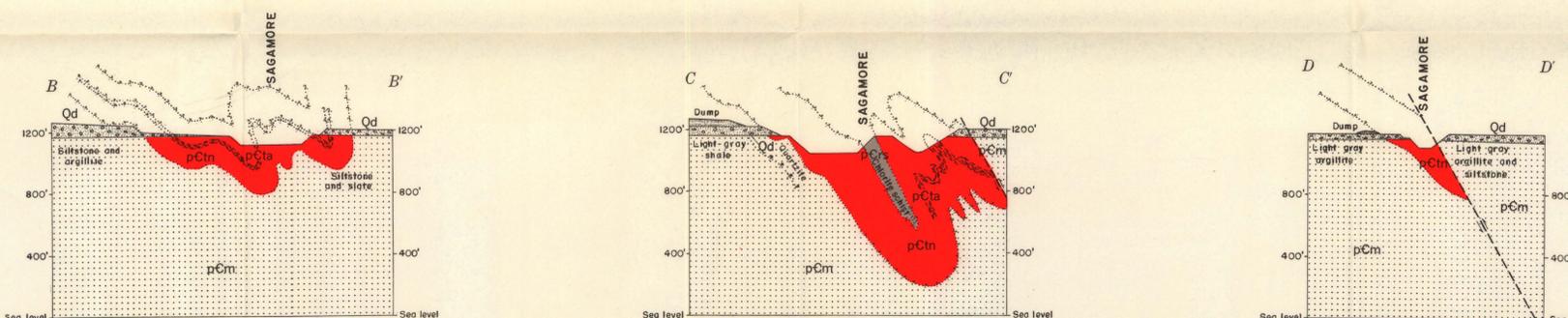
Drill hole
Iron analyses indicate that bedrock is probably wallrock

Mine coordinates are identified by letter as follows:
A: Mallem, Snowshoe
R: Rowe
S: Sagamore

ABBREVIATIONS

arg, argillite
blk, black
br, brown
carb, carbonaceous
ch, chert
cs, coarse
dk, dark
fe, ferruginous
gn, green
gy, gray
if, iron-formation
ig, igneous
lam, laminated
lt, light
ls, limestone
phyl, phyllite
qz, quartz
qt, quartzite
rk, rock
sh, shale
sch, schist
ser, sericite, sericitic
sl, slate
ss, sandstone
sts, siltstone

NOTE: Quotation marks indicate the description of rock type is from mining company records. All other descriptions are the result of studies by the U.S. Geological Survey



DETAILED GEOLOGIC MAP AND SECTIONS OF THE ROWE-SAGAMORE MINE AREA, MINNESOTA

SCALE 1:7200

