

41109NW0046 0035A1 DAVIS

010

REPORT ON GEOMAGNETIC SURVEY

OF

BONNIE GOLD MINES LTD.

PROPERTY IN DAVIS TWP. SUDBURY DISTRICT, ONT.

W. R. Bergey
Geologist & Geophysicist
Toronto.

**DUPLICATE COPY
POOR QUALITY ORIGINAL
TO FOLLOW**

REPORT ON GEOMAGNETIC SURVEY OF
BONNIE GOLD MINES LTD.
PROPERTY IN DAVIS TWP., SUDBURY DISTRICT, ONT.

INTRODUCTION

A magnetic survey of the water-covered portion of the Bonnie Gold Mines Ltd. property was made during the first week in April 1954. This survey is covered in a report to the Company dated April 23, 1954. The remainder of the property was covered by magnetometer during Sep. 1954.

The property comprises nine claims numbered S-65844-52 inclusive.

LOCATION AND ACCESS

The property is located on Murray and Washagami Lakes about two miles north of Washagami, a station on the C.N.R. between North Bay and Capreol. It is accessible in summer by road from North Bay via Field and River Valley. The claims may also be reached by float or ski-equipped aircraft.

PREVIOUS WORK

A preliminary examination of the property was made by Dr. R.G. Hoiles (Report to Bonnie Gold Mines Ltd., December 29, 1953). His report contains a brief description of the geology and mineral occurrences.

GEOLOGY

Rock exposures are abundant in those parts of the property, not covered by water, except in the southeast corner where there is extensive sand cover. The bedrock consists of Huronian sedimentary rocks cut by several dikes or sills of gabbro.

The sedimentary rocks are predominantly impure quartzites and greywacke with some interbedded argillite. They probably belong to the Gowoganda Formation of the Cobalt series. The attitude of the beds is variable with dips generally greater than 45°.

The gabbro is a fresh-looking, greenish-gray rock with an ophitic texture. It is typical of the "Nipissing diabase" type which occurs as a relatively flat-lying sheet or sheets over a wide area to the north. The contact of the gabbro with the sediments was observed only at one place-in the southwest corner of the property. There the contact dips steeply to the south.

MINERAL DEPOSITS

A copper-nickel showing occurs along the south shore of Murray Lake near the east end of No. 1 baseline. This consists of impregnations of chalcopyrite and pyrrhotite along and adjacent to a shear zone in gabbro. Hoiles states that a selected sample of heavy sulphide material contained 1.03% nickel. The shear zone strike east-west and dips very steeply to the north.

A second showing, on which a 35 foot shaft or test-pit has been sunk, occurs along the north contact of a gabbro dike with sedimentary rocks along the south boundary of the property west of the road. Chalcopyrite mineralization is present as irregular stringers in a vein of quartz. The vein has a maximum width of 5 feet in the vicinity of the shaft. It dips steeply to the south.

GEOPHYSICAL SURVEY

Traverse lines were turned off at intervals of 200 feet from a number of east-west baselines. Measurements of the vertical component of the Earth's magnetic field were taken along the traverse line using an Askania magnetometer. The station interval was 100 feet on the lake and 50 feet on the land claims.

At the conclusion of the Magnetometer Survey a few self-potential readings were taken in the vicinity of the Murray Lake showing. In addition a self-potential traverse was made across a magnetic anomaly a few hundred feet to the west of the showing.

It was not possible to survey the parts of the lakes in the vicinity of the outlet of Washagami Lake since the rapidly moving water prevented the formation of ice.

DISCUSSION OF GEOPHYSICAL SURVEY

The showing on the south shore of Murray Lake is marked by a fairly strong magnetic anomaly due to the presence of abundant pyrrhotite. A similar anomaly occurs 600 feet to the west. In both cases there is a strong negative anomaly associated with the positive anomaly and lying to the north. This is probably caused by a north dip of the pyrrhotite zone. The west anomaly, which occurs in an over-burden-covered area, lies along the projected strike of the shear zone with which the Murray Lake showing is associated.

Self-potential anomalies of roughly the same order of magnitude were obtained over the Murray Lake showing and the magnetic zone to the west. There is a very strong probability that the anomaly on

on Line 8 + 00 W (Baseline 1) is caused by a pyrrhotite and chalcopyrite zone similar to that observed in the trenches along the shore of Murray Lake

There is a possibility that a magnetic anomaly on Line 2+00W (Baseline 1) which also occurs close to projected strike of the shear zone, is caused by pyrrhotite.

The chalcopyrite-bearing quartz vein does not cause a noticeable magnetic effect. This is to be expected since no magnetic minerals are present.

The gabbro dikes on the property are outlined by areas of low magnetic intensity relative to that over the sedimentary rocks which they intrude. This is in direct contrast to the usual high magnetic intensity over basic intrusives, which often contain a considerable amount of magnetite.

A number of linear magnetic highs occur in the area underlain by sedimentary rocks. These anomalies are probably caused by minor quantities of magnetite in the quartzite and greywacke.

A cross-fault is suggested in the eastern part of the property by the rather abrupt termination of several magnetic trends. The direction of displacement is not obvious from the magnetic data. It is probable that the movement is predominantly vertical.

CONCLUSIONS

The most favourable host-rock for the base-metal sulphide deposits on the property appears to be the gabbro. Both of the known showings are associated with the rock-type. The most promising area for future work is along the shear zone in the gabbro dike south of Murray Lake. While both of the pyrrhotite deposits indicated by the magnetic survey are small, there is a possibility that copper mineralization may be present along the shear zone and not in association with massive pyrrhotite. In such case, they would not be outlined by the magnetometer.

RECOMMENDATIONS

I would recommend diamond drilling to test the two magnetic anomalies lying along the projected strike of the shear zone west of the Murray Lake showing. The drill holes necessary to test these anomalies are shown on the accompanying map.

Respectfully submitted,

W. R. Bergey
Geologist and Geophysicist.

Toronto, Ontario
October 15, 1954.

REPORT ON GEOMAGNETIC SURVEY

OF

BONNIE GOLD MINES LTD.

PROPERTY IN DAVIS TWP., SUDBURY DISTRICT, ONT.

INTRODUCTION

A magnetic survey of the water-covered portion of the Bonnie Gold Mines Ltd. property was made during the first week in April 1954. This survey is covered in a report to the Company dated April 23, 1954. The remainder of the property was covered by magnetometer during September 1954.

The property comprises nine claims numbered S-65844-52 inclusive.

LOCATION AND ACCESS

The property is located on Murray and Washagami Lakes about two miles north of Washagami, a station on the C.N.R. between North Bay and Capreol. It is accessible in summer by road from North Bay via Field and River Valley. The claims may also be reached by float or ski-equipped aircraft.

PREVIOUS WORK

A preliminary examination of the property was made by Dr. R. G. Hoiles (Report to Bonnie Gold Mines Ltd., December 29, 1953). His report contains a brief description of the geology and mineral occurrences.

GEOLOGY

Rock exposures are abundant in those parts of the property, not covered by water, except in the southeast corner where there is extensive sand cover. The bedrock consists of Huronian sedimentary rocks cut by several dikes or sills of gabbro.

The sedimentary rocks are predominantly impure quartzites and greywacke with some interbedded argillite. They probably belong to the Gopoganda Formation of the Cobalt Series. The attitude of the beds is variable with dips generally greater than 45°.

The gabbro is a fresh-looking, greenish-gray rock with an ophitic texture. It is typical of the "Hippissing diabase" type which occurs as a relatively flat-lying sheet or sheets over a wide area to the north. The contact of the gabbro with the sediments was observed only at one place - in the southwest corner of the property. There the contact dips steeply to the south.

MINERAL DEPOSITS

A copper-nickel showing occurs along the south shore of Murray Lake near the east end of No. 1 Baseline. This consists of impregnations of chalcopyrite and pyrrholite along and adjacent to a shear zone in gabbro. Hoiles states that a selected sample of heavy sulphide material contained 1.03% nickel. The shear zone strikes east-west and dips very steeply to the north.

A second showing, on which a 35 foot shaft or test-pit has been sunk, occurs along the north contact of a gabbro dike with sedimentary rocks along the south boundary of the property west of the road. Chalcopyrite mineralization is present as irregular stringers in a vein of ~~the~~ quartz. The vein has a maximum width of 5 feet in the vicinity of the shaft. It dips steeply to the south.

GEOPHYSICAL SURVEY

Traverse lines were turned off at intervals of 200 feet from a number of east-west baselines. Measurements of the vertical component of the Earth's Magnetic field were taken along the traverse line using an Aappasia Magnetometer. The station interval was 100 feet on the lake and 50 feet on the land claims.

At the conclusion of the Magnetometer Survey a few self-potential readings were taken in the vicinity of the Murray Lake showing. In addition a self-potential traverse was made across a magnetic anomaly a few hundred feet to the west of the showing.

It was not possible to survey the parts of the lakes in the vicinity of the outlet of Washagami Lake since the rapidly moving water prevented the formation of ice.

DISCUSSION OF GEOPHYSICAL SURVEY

The showing on the south shore of Murray Lake is marked by a fairly strong magnetic anomaly due to the presence of abundant pyrrhotite. A similar anomaly occurs 600 feet to the west. In both cases there is a strong negative anomaly associated with the positive anomaly and lying to the north. This is probably caused by a north dip of the pyrrhotite zone. The western anomaly, which occurs in an overburden-covered area, lies along the projected strike of the shear zone with which the Murray Lake showing is associated.

Self-potential anomalies of roughly the same order of magnitude were obtained over the Murray Lake showing and the magnetic zone to the west. There is a very strong probability that the anomaly on line 8 + 00 W (Baseline 1) is caused by a pyrrhotite and chalcopyrite zone similar to that observed in the trenches along the shore of Murray Lake.

There is a possibility that a magnetic anomaly on Line 2 + 00 W (Baseline 1), which also occurs close to projected strike of the shear zone, is caused by pyrrhotite.

The chalcopyrite-bearing quartz vein does not cause a noticeable magnetic effect. This is to be expected since no magnetic minerals are present.

The gabbro dikes on the property are outlined by areas of low magnetic intensity relative to that over the sedimentary rocks which they intrude. This is in direct contrast to the usual high magnetic intensity over basic intrusives, which often contain a considerable amount of magnetite.

A number of linear magnetic highs occur in the areas underlain by sedimentary rocks. These anomalies are probably caused by minor quantities of magnetite in the quartzite and greywacke.

A cross-fault is suggested in the eastern part of the property by the rather abrupt termination of several magnetic trends. The direction of displacement is not obvious from the magnetic data. It is probable that the movement is predominantly vertical.

CONCLUSIONS

The most favourable host-rock for base-metal sulphide deposits on the property appears to be the gabbro. Both of the known showings are associated with this rock-type. The most promising area for future work is along the shear zone in the gabbro dike south of Murray Lake. While both of the pyrrhotite deposits indicated by the magnetic survey are small, there is a possibility that copper mineralization may be present along the shear zone and not in association with massive pyrrhotite. In such case, they would not be outlined by the magnetometer.

RECOMMENDATIONS

I would recommend diamond drillings to test the two magnetic anomalies lying along the projected strike of the shear zone west of the Murray Lake showing. The drill holes necessary to test these anomalies are shown on the accompanying map.

Respectfully submitted,

W. R. Bergey
W. R. Bergey,
Geologist & Geophysicist.

Toronto, Ontario.
October 15, 1954.

APPENDIX

Property

Bonnie Gold Mines Ltd., situated in the Township of Davis, District of Sudbury, comprising 9 claims numbered S-6584 to S-65852 inclusive.

Instrument used

Askania magnetometer sensitivity: 24.0 gammas per scale division.

Location of Mainbase

0 + 00 on Baseline 1

Miles of line

10

Total Stations

701

Personnel and date of Survey

John Clark, 156 Stanley Ave., Mimico, Ont.	Feb. 8 - Feb. 17/54	21 man-days
	May 19 - May 27/54	
	Apr. 2 - Apr. 6/54	
A. R. Lee, Toronto, Ont.	Feb. 8 - Feb. 17/54	8 man-days
D. Hart, Washagami, Ont.	Feb. 8 - Feb. 17/54	11 man-days
	and May 19 - May 21/54	
W. Friesen, Algoma, Ont.	May 19 - May 26/54	8 man-days
E. Brouseau, River Valley, Ont.	May 19 - May 27/54	9 man-days
L. Pilon, North Bay, Ont.	Sept. 4 - Sept. 10/54	7 man-days
W. R. Bergey, 11 Jordan St., Toronto. and intermittently October, 1954	Apr. 2 - Apr. 6/54	4 man-days
	Sept. 1 - Sept. 7/54	7 man-days
		8 man-days
R. B. Evis, 202 St. Clair Ave.W. Toronto.	Apr. 20 - 21, 1954	2 man-days
	Oct. 10 - 18, 1954 (intermittently)	3 man-days
M. Frantz, 3198 St. Clair Ave.E. Toronto.	Apr. 20, 1954	1 man-day
	Oct. 15, 1954	<u>1 man-day</u>
		90 man-days

Addition to Report on Bonnie Gold Mines Ltd, Davis Twp.
Property, by W. R. Bergey, Oct. 15, 1964.

PERSONNEL

Line-cutting, chaining etc.

John Clarke, A. R. Leo, D. Hart, W. Friesen,
E. Brousseau.

Geophysical Survey

W. R. Bergey, L. Pilon

Drafting

R. B. Evis

Interpretation

W. R. Bergey

Typing

K. Vranas

MURRAY
LAKE

NOTE: OPEN WATER
AT TIME OF SURVEY.

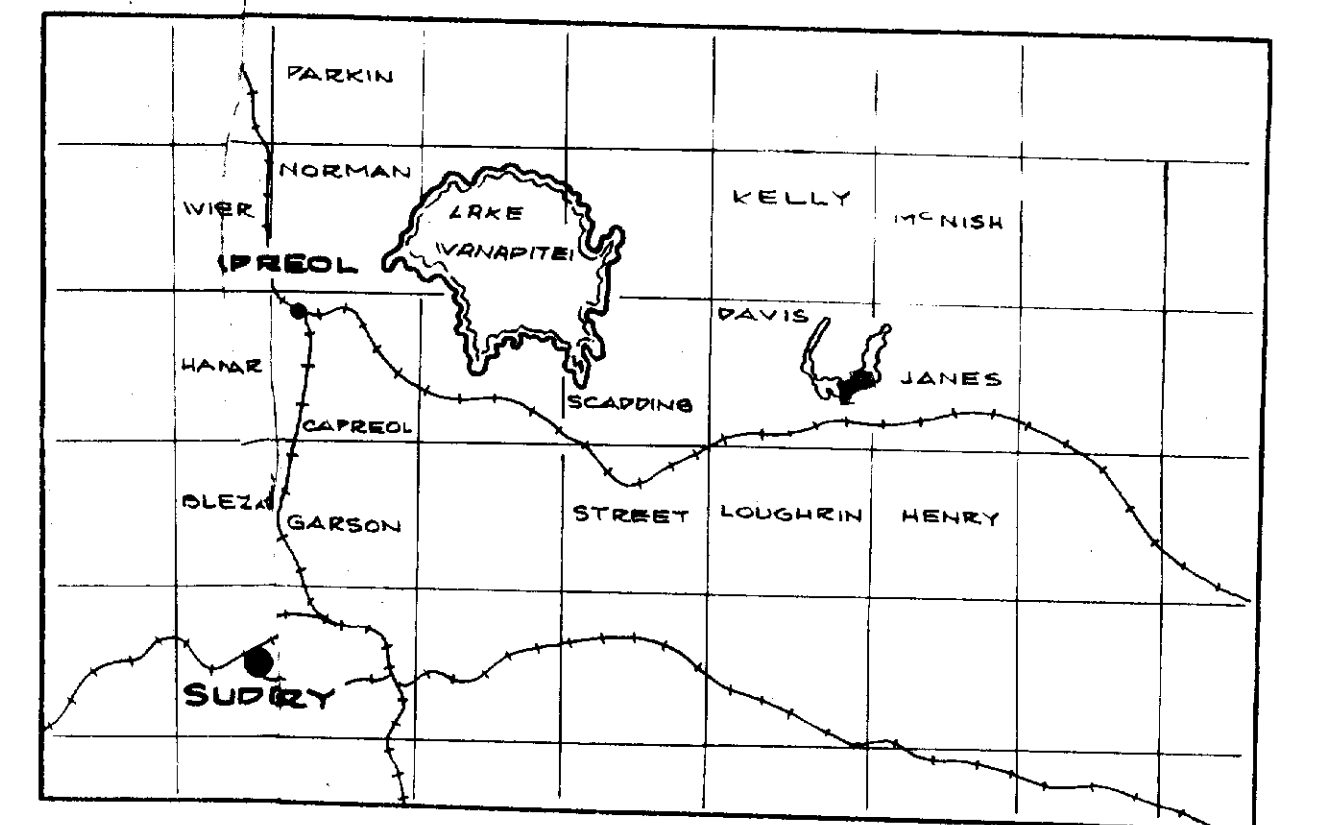
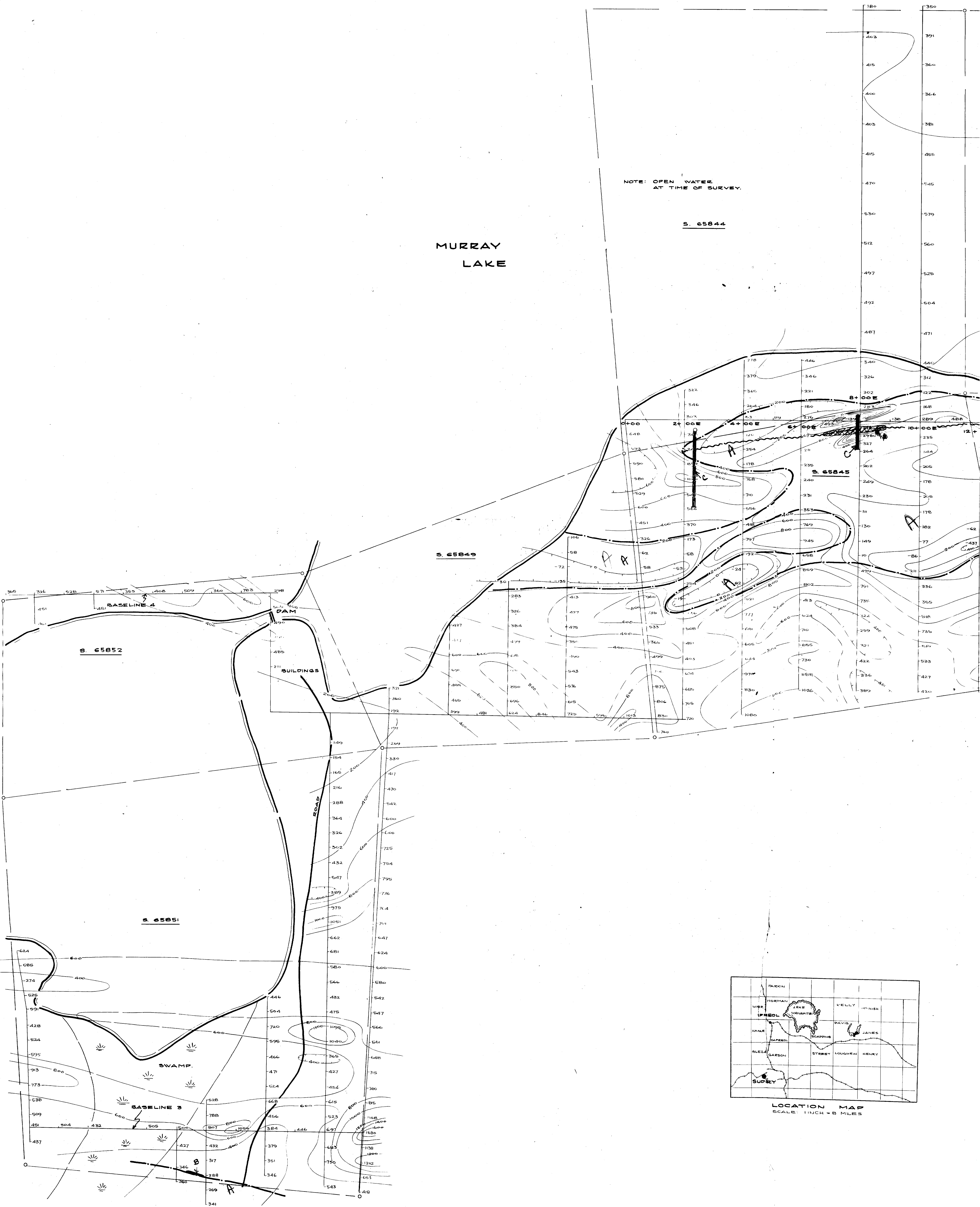
S. 65844

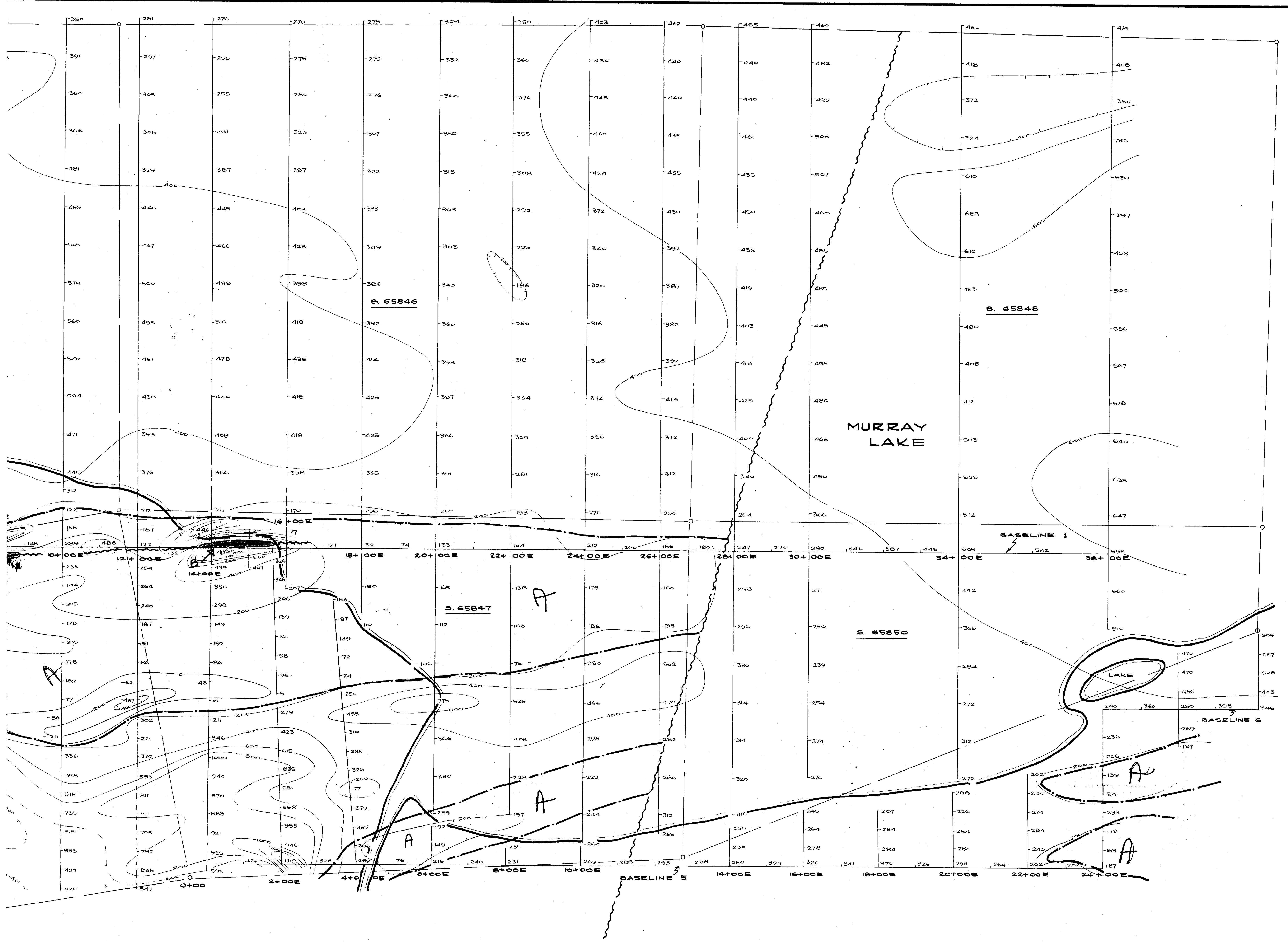
S. 65849

S. 65852

S. 65851

S. 65845

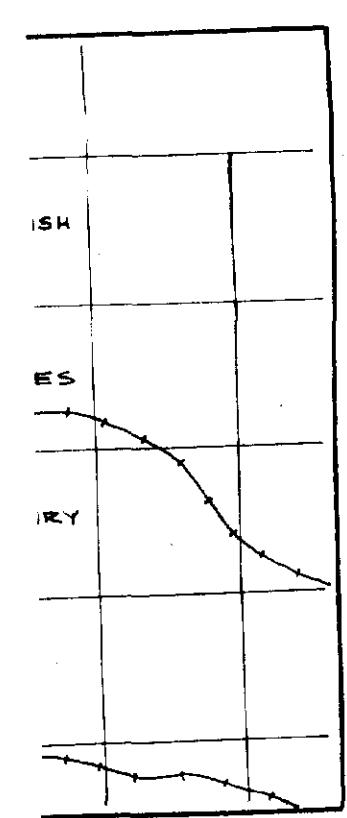




**GEOMAGNETIC SURVEY OF
 BONNIE GOLD MINES LTD.
 PROPERTY IN DAVIS TWP, SUDBURY DIST. ONT.**



- LEGEND**
- A** GABBRO (NIPISSING DIABASE)
 - SEDIMENTARY ROCKS - PROBABLY GOWGANDA FORMATION
 - FAULT, SHEAR ZONE
 - B** SULPHIDE DEPOSIT - KNOWN
 - SULPHIDE DEPOSIT - INTERPRETED
 - INTERPRETED CONTACT
 - RECOMMENDED DRILL HOLE



W. R. BERGEY
 DECEMBER 15, 1954.

DAVIS-0035-A1 #1