CONFIDENTIAL

REPORT OF WORK ON "OHM" AND "MUSKETEER" CLAIM GROUPS, ARCH CREEK, YUKON.

15 Feb. 1956.

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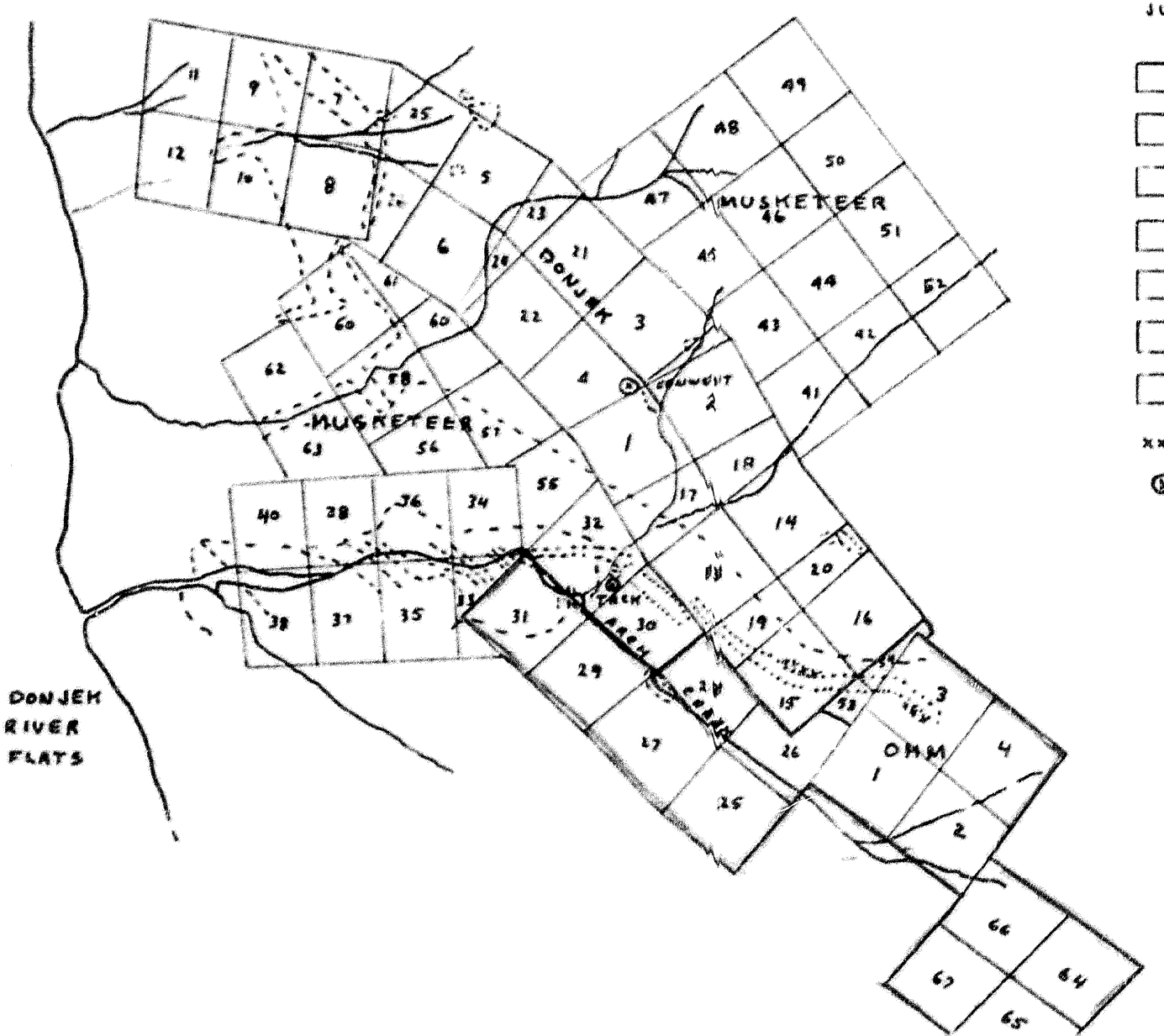
FEB 21 1955



GEOLOGY BY J.R. WOODCOCK
JULY 1953

- GRAVEL - OVERBURDEN
- VOLCANICS
- SEDIMENTS -
- MASSIVE LIMESTONE
- PERIDOTITE
- GABBRO
- RHYOLITE, QUARTZ-MONZONITE
- XXXX ELECTRIC CONDUCTOR
- SHOWING

LOCATIONAL PLAN
DONJEK, MUSKETEER
AND OHM GROUPS

ARCH CREEK AREA
YUKON TERRITORY
SCALE 1" = 2500' NOV 1953

REPORT OF WORK ON "OHM" AND "MUSKETEER" CLAIMS, ARCH CREEK, YUKON.

INTRODUCTION:

During the first part of the 1955 summer exploration season, magnetic and electromagnetic work was done over the Musketeer and Donjek claims. Nothing we considered of economic importance was located. As there was some doubt as to the reliability of the electromagnetic equipment's performance on the steep mountain slopes, it was decided to check our results with another geophysical method before dropping these claims.

Dr. A.R.Clark, Professor of Physics, University of British Columbia, was engaged to carry out this extra work. After some preliminary tests were carried out at the Quill Creek property of Hudson Bay Mining & Smelting, a resistivity survey was decided on for the Arch Creek claims.

Some interesting results were obtained with the resistivity survey. Four additional claims (OHM Group) were staked as a result of the survey, and magnetic and resistivity work was done over this new ground as well. Fieldwork was done between August 10th. and September 10th. 1955.

LOCATION:

These Donjek, Musketeer and Ohm claims, as previously described in report of November 1955, are located at Arch Creek, east of the Donjek River, and may be reached from the Alaska Highway by using the Hudson Bay Quill Creek road or the Donjek River flats.

TOPOGRAPHY:

Arch Creek traverses the southern part of the group. About 200' to 300' above the creek a bench about 1,500 feet wide, (original valley floor), lies to the north of Arch Creek. The mountains then rise steeply north of this bench with slopes of 30° to 45°.

GEOLOGY:

(See reports of J.R.Woodcock of Conwest, 1953, and Dr. M.H.Frohberg for Teck Exploration Co Ltd., 1953, for geological work carried out that year.

As previously described by other writers, the claims are located in an area of Permian sediments and volcanics, trending north westerly, and have been intruded by diorites, gabbros, and peridotites, the latter being related to several nickel-copper showings in these ranges, including the Hudson Bay at Quill Creek.

Although no actual geological work was carried out this season, the purpose of the magnetic work was to trace a peridotite dike in heavy overburden.

LINECUTTING:

On the western portion of the claims surveyed by resistivity we used the lines previously established for the magnetic and electromagnetic survey. On the eastern section, (newly staked claims), we cut 3,100 feet of new base line and did 2.5 miles (approx.) of section lines, using compass and chain only for the new magnetic and resistivity surveys.

Crew: A.J.Walker T.English.
F.Mills. Walter Jack.

GROUPING:

For representation work the following 16 claims have been grouped:

Musketeer #	25 - 66166	Musketeer #	64 - 66194
	26 - 66167		65 - 66195
	27 - 66168		66 - 66196
	28 - 66169		67 - 66197
	29 - 66170	Ohm. #	1 - 71070
	31 - 66172		2 - 71071
	53 - 66479		3 - 71072
	54 - 66480		4 - 71073

A James Walker

AJW/HSB

A.James Walker.

15th. Feb. 1956.

APPROVED

[illegible]
Gold Commissioner

APPENDIX "A"

REPORT ON THE RESISTIVITY SURVEY ON THE ARCH CREEK GROUP, OF TECK EXPLORATION CO LTD.

BY DR. A.H. CLARK.

INTRODUCTION:

During the summer of 1955 a large area adjoining Arch Creek in the Yukon Territory was geophysically investigated by Teck Exploration Co Ltd. using a vertical loop electromagnetic method. The rugged terrain and areas of very deep overburden threw some doubt on the reliability of the instrument and it became desireable to check the results by another geophysical method.

In order to choose a suitable method Dr. H.Frohberg gained permission from the Hudson Bay Mining and Smelting Co Ltd. to try test profiles over their known ore body. The earth resistivity method which was the first one tried appeared to be quite suitable and was used for all the other properties. The electromagnetic method was also tested and indicated the presence of the body.

DESCRIPTION OF THE METHOD:

Two current electrodes are placed in the earth a large distance apart and connected by insulated wire to the terminals of a 60 cycle generator. The direction of current flow in the ground is parallel to the line joining the electrodes and the current density along one of these lines is constant as long as the electrodes are not too closely approached. Thus by Ohms law the voltage difference between points on surface on one of the lines will be proportional to the electrical resistance of the rock below the line. Conductors such as sulphide zones then are marked by low values.

In order to compare values on successive lines a quantity called the resistivity is calculated. The calculation takes into account the decrease in current as the readings are obtained farther from the electrodes. These resistivity values plotted on a map and contoured enable one to trace out conducting zones which may contain massive sulphides.

METHOD OF SURVEY:

For the western section of the Arch Creek property the current electrodes were placed 6,500 feet apart on line 36W. The potential between points 100 feet apart was measured on lines selected to cover anomalies obtained by the electromagnetic method, and the corresponding resistivity values were calculated and plotted.

DISCUSSION OF RESULTS - WEST SECTION:

None of the resistivity anomalies coincided with the electromagnetic anomalies previously outlined. The electromagnetic values were probably due to the very rugged terrain.

One resistivity anomaly occurred north of the Conwest showing. It is in all probability due to a zone of disseminated sulphides of which the showing on the southern edge is a sample. The overburden was obviously shallow and the resistivity values are much higher than over the H.B.M.& S. ore body. There is little probability of a body of massive ore in the vicinity. A second anomaly starting at 11OON on line 72W extended across the map. The western part, which was surveyed in detail, was situated on a small bench. The overburden did not appear to be deep.

The values are not low enough to indicate anything better than disseminated mineralization and the whole anomaly probably represents a very sparsely mineralized zone at least as far east as its junction with the peridotite dike on lines 16E and 12E, the contacts of which were deduced from the shape of the magnetic profiles.

South of the base line, in the western part, the resistivity values were generally small. All this area was on a shelf and the permanently frozen overburden was obviously deep. In addition there was evidence in the canyon of Arch Creek of very black graphitic argillites and a band of these good conductors may be marked by the low values anomaly which almost paralleled the base line at about 300 feet south.

It is of interest to note that the peridotite did not cause a low anomaly and no anomaly was associated with the rock showing south of the dike.

INTERPRETATION OF RESULTS - EAST SECTION:

The even numbered lines were surveyed from the electrodes used for the west section and the odd numbered lines from current electrodes on line 17E.

An anomaly coincided with the high magnetic values on lines 6W to 0. The conducting body was evidently in the dike. The lowest value of the anomaly was higher than the value obtained over Hudson Bay ore body. (Fig. 2)

A special test of the overburden depth indicated the frozen sand and gravel was 115 feet deep. (Fig. 3) The behaviour of the curve beyond 115 feet showed that the conductor extended to more than 400 feet below surface.

An estimated depth to the top of the body causing the magnetic anomaly, made from the magnetic profile on line 4W showed the top to be 120 feet below surface which was in excellent agreement with the electrical tests.

The electromagnetic method using a four foot square loop and a fifteen foot triangle loop in turn, both failed to indicate a conductor.

The anomaly on lines 11E and 15E lay across the south contact of the peridotite and was evidently caused by a narrow conductor at or close to the south contact. The lowest values were of the same order as that on line 2W. An estimate of overburden depth from the magnetic profile indicated a value of 50 feet.

LINES 30 and 34: (Fig. 4)

A separate set up was made to test an electromagnetic anomaly near the south end of these lines. The values were not markedly small and were erratic, being due to erratic pyrite mineralization which outcropped in the canyon wall.

SUMMARY:

The whole western section does not appear to contain an ore body of sufficient size or grade to warrant drilling.

The anomalies in the eastern section have three factors in their favor.

1. They occur near an apparent flexture in the peridotite dike.

2. The overburden is deep and may account for the values being higher than over the Hudson Bay ore body.

3. The conductor extends in depth to more than 400 feet.

The factors not in their favor are:

1. The anomaly on 2W occurs in the dike and not at the contact.

2. The anomaly at 15E occurs on the south contact.

3. The resistivity values are not as low as over the Hudson Bay Ore body.

4. The electromagnetic tests were negative. It seems likely that a massive body, even if it were covered by 100 feet of overburden should have produced some reaction from the electromagnetic method.

CONCLUSIONS:

The results indicate that the bodies causing the anomalies are not likely to be as massive in character as those on the Hudson Bay property, but are of sufficient interest to warrant diamond drilling.

Respectfully submitted,

(Signed) A.R.CLARK.

DONJEK 16

MUSKETEER 54

MUSKETEER 53

DONJEK 15

MUSKETEER 26

PERIDOTITE FROM MAGNETICS

3
71072

4
71073

2
71071

1
71070

MAGNETIC ZONE

PROSPECTORS AIRWAYS

N

BASE LINE

3E 1070 | 7E 1067 | 11E 1069 | 15E 572 | 19E 740 | 23E 627 | 27E 728 | 31E 966

775 2367 4661 5175 5725 2480 329 323 296 483 593 675 1250 1224 1128 1103 1055

790 730 600 3568 4496 2250 825 628 519 503 525 577 910 614 796 781 784

717 657 745 1851 778 712 699 683 651 631 631 731 778 861 740

700 689 664 570 2184 505 654 696 713 722 710 653 831 725 562 627

681 640 631 522 1937 487 519 708 584 616 827 880 827 722 728

656 653 683 627 630 707 672 636 666 656 719 772 881 954 966 981

MAGNETIC PROFILE

- 3500

- 2210 READINGS IN GAMMAS

PERIDOTITE FROM MAGNETICS

MAP 5

TECK EXPLORATION CO. LTD

MAGNETOMETER SURVEY

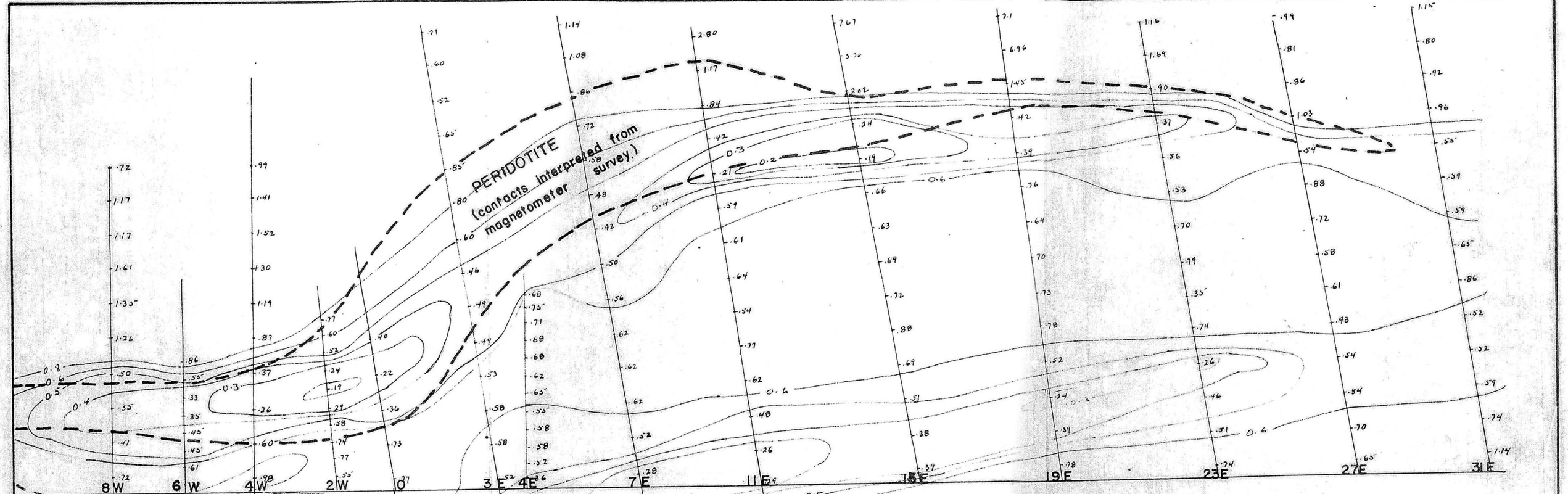
OHM CLAIMS

ARCH CREEK AREA

YUKON TERRITORY

Scale 1" = 200' Nov. 1955

A.J.W



TECK EXPLORATION COMPANY LTD.

RESISTIVITY SURVEY

EAST SECTION — ARCH CREEK

YUKON TERRITORY

LEGEND – same as west section

Scale – 1 inch = 200 feet

TECK EXPLORATION COMPANY LTD.

RESISTIVITY SURVEY.

WEST SECTION ARCH CREEK

YUKON TERRITORY

1.0 — Traverse line and resistivity values in 10^8 ohm cm units.

Contours of equal resistivity

Scale :- 1 inch = 200 feet

XXX CONWEST HOWING

BASE LINE

72W 68W 64W 60W 56W 52W 48W 44W 40W 36W BASE LINE 32W 28W 24W 20W 16W 12W

outcrop

PERIDOTITE

(contacts interpreted from magnetometer survey)

X TECK SHOWING

PERIDOTITE

SEPT. 1955

A.R. Black

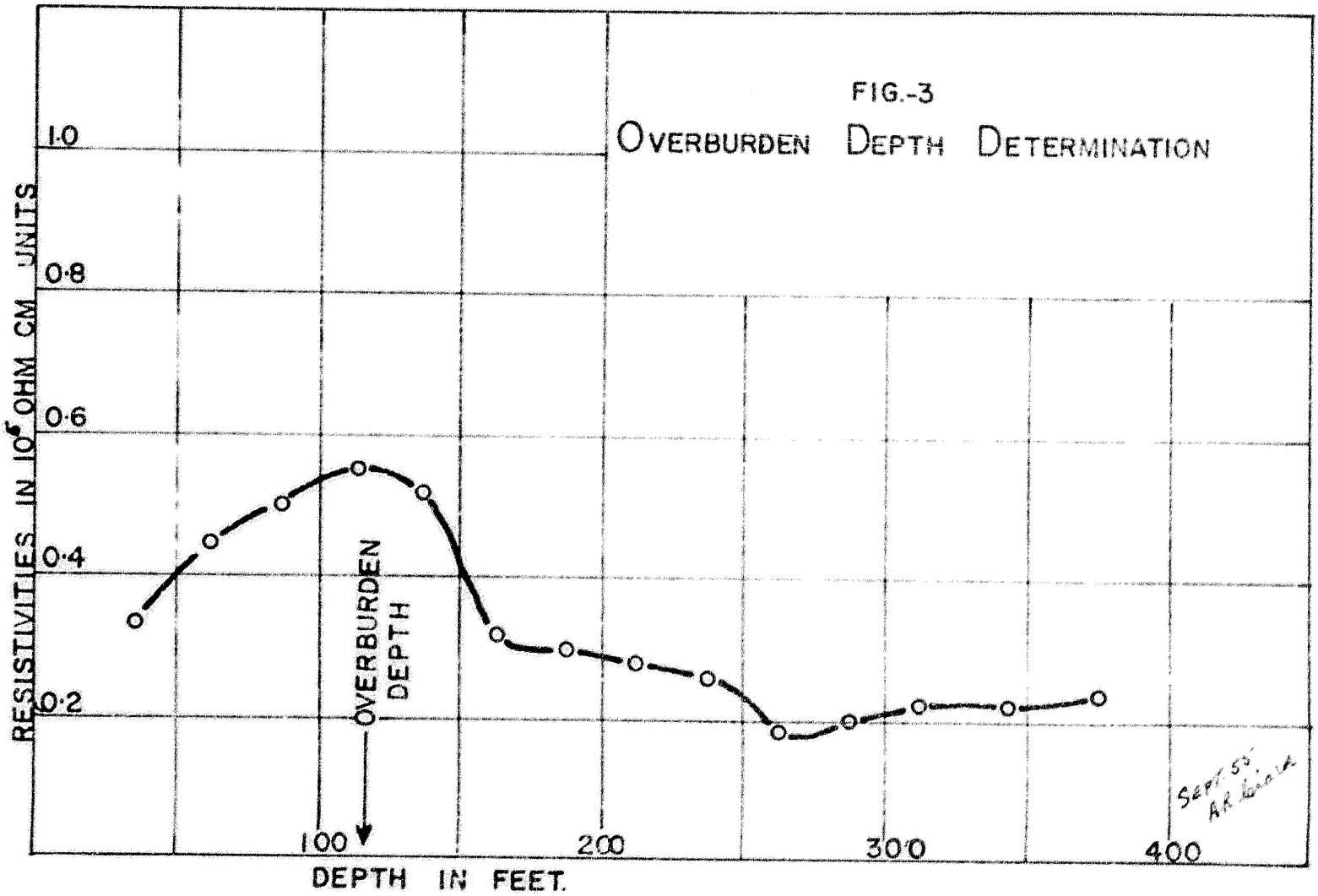


FIG.-3
OVERBURDEN DEPTH DETERMINATION
RESISTIVITIES IN 10^6 OHM CM. UNITS
1.0
0.8
0.6
0.4
0.2
OVERBURDEN DEPTH
100
200
300
400
DEPTH IN FEET.
SEPT. 55
A.R. Lewis