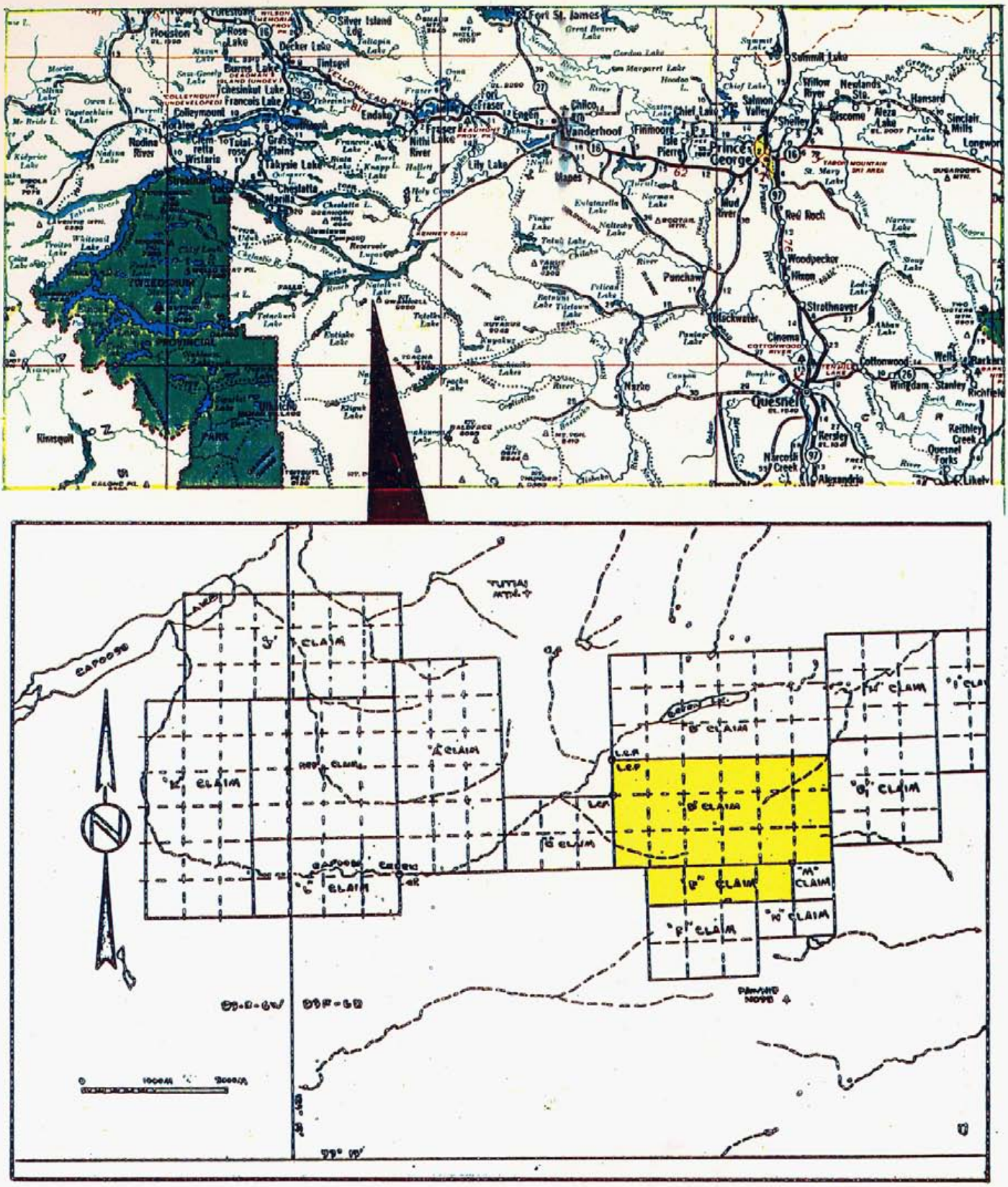
GEOPHYSICAL REPORT
On A
PULSE ELECTROMAGNETOMETER SURVEY
GRANGES EXPLORATION AB

D and E mineral claims, Natalkuz Lake
area, Omineca Mining Division, B. C.
Lat. 53°17'N Long. 125°10'W N.T.S. 93 F/6

AUTHOR: Glen E. White, B.Sc., P. Eng.,
Geophysicist
DATE OF WORK: August 10 - 25, 1978
DATE OF REPORT: October 2, 1978

'78-#401-#6988



CLAIM & LOCATION MAP

GRANGES EXPLORATION AKTIEBOLAG

CAPOOSE LAKE AREA B.C.

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Plate 1

C O N T E N T S

Illustrations

INTRODUCTION

Horizontal loop and vector pulse electromagnetometer surveys were conducted on the D and E claims in the Natalkuz Lake area, Omenica Mining Division, to try and delineate any conductors possibly indicative of massive sulphide mineralization.

The surveys were conducted by Glen E. White Geophysical Consulting & Services Ltd. on behalf of Granges Exploration AB during the period August 10 - 25, 1978.

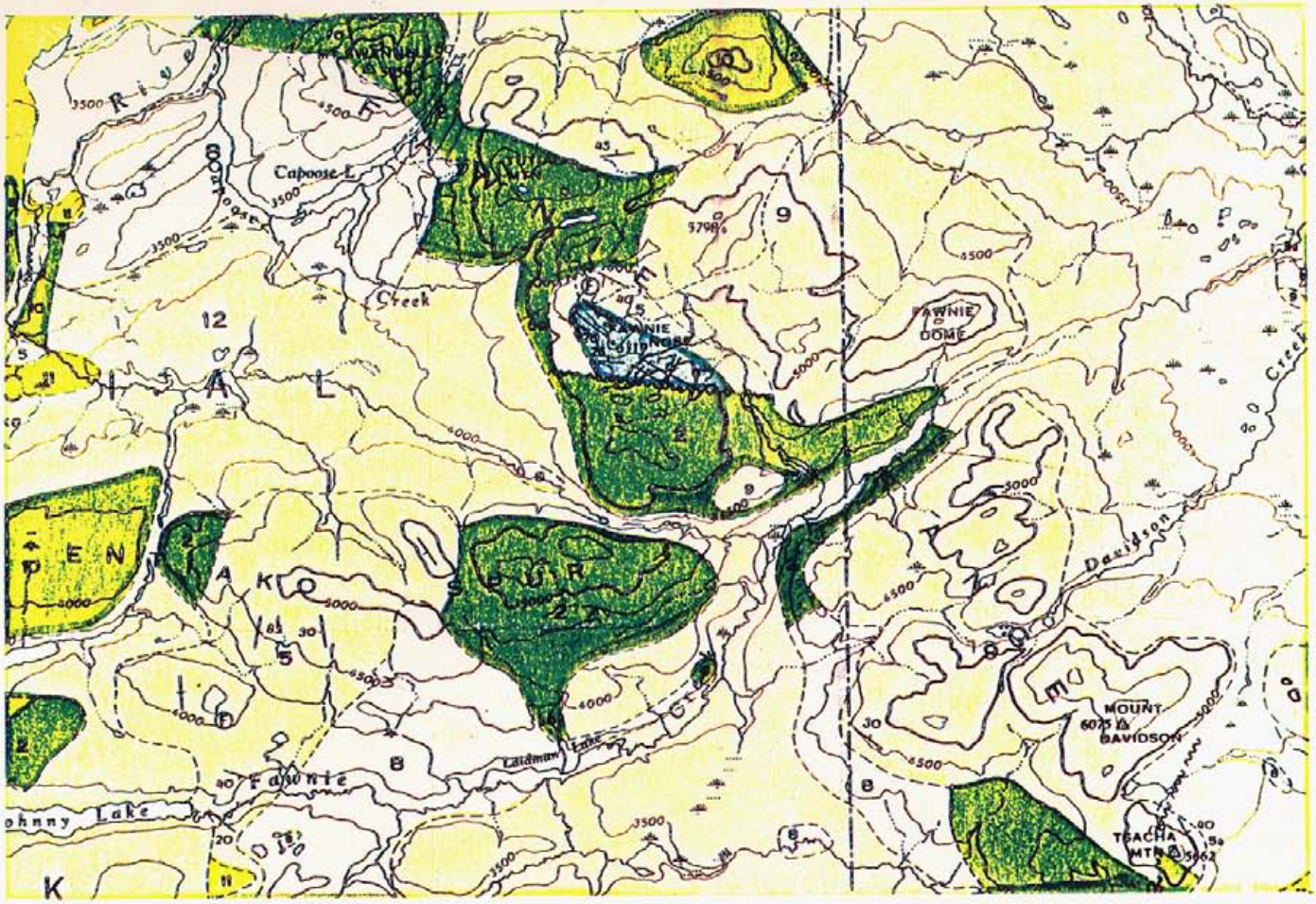
PROPERTY

The D and E mineral claims, which are part of a larger block of claims as illustrated in Plate 1, were surveyed by the pulse electromagnetometer method.

LOCATION AND ACCESS

The mineral claims are located some eight miles south of the junction of Intata reach and Euchu Reach of Natalkuz Lake, Latitude 53°17'N, Longitude 125°10'W, N.T.S. 93 F/6.

Facile access is by float aircraft to Capoose Lake and then by helicopter. An unimproved drill road has also been constructed to the main claims area for 4x4 transportation from Vanderhoof and then rendezvous with a helicopter.



TRIASSIC AND JURASSIC
UPPER TRIASSIC AND LOWER JURASSIC

2 — *Andesitic and basaltic flows, tuffs, and breccias; interbedded argillite and minor limestone*

MIDDLE AND (?) LOWER JURASSIC
HAZELTON GROUP (In Part)

5 — *Andesite, related tuffs and breccias, chert pebble conglomerate, shale, and sandstone; 5a, mainly volcanic rocks; 5b, mainly sedimentary rocks*

MIDDLE JURASSIC
HAZELTON GROUP (In Part)

6 — *Greywacke, argillite, conglomerate, tuff, breccia, andesite, and arkose; minor rhyolite*

JURASSIC AND/OR CRETACEOUS
UPPER JURASSIC AND/OR CRETACEOUS

8 — *Granite, quartz diorite, granodiorite, and diorite*

CRETACEOUS AND (?) TERTIARY
UPPER CRETACEOUS AND (?) PALEOCENE
OOTSA LAKE GROUP (In Part)

9 — *Basalt, andesite, and related tuffs and breccias; minor rhyolite and dacite; 9a, conglomerate and greywacke*

PALEOCENE (?), EOCENE, AND OLIGOCENE
OOTSA LAKE GROUP (In Part)

10 — *Rhyolite, dacite, and associated tuffs and breccias; minor andesite, basalt, and conglomerate; 10a, rhyolitic and dacitic dykes, necks, and stocks*

TERTIARY
MIOCENE AND (?) LATER
ENDAKO GROUP

11 — *Vesicular and amygdaloidal andesite and basalt; flow breccia, tuff, conglomerate, greywacke, and lignite; 11a, necks, plugs and dykes*

QUATERNARY
PLEISTOCENE AND RECENT

12 — *Till, gravel, sand, clay, and silt*

GEOLOGY

NECHAKO RIVER

BRITISH COLUMBIA

Scale: One Inch to Four Miles = $\frac{1}{253,440}$

Miles

4 2 0 4 8 12

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Plate 2

AEROMAGNETIC

NATALKUZ LAKE

BRITISH COLUMBIA

SHEET 93 F/6

Miles

1 1/2 0 1 2 3

Glen E. White geophysical consulting services ltd.

Plate 3

GENERAL GEOLOGY

The general geology of the area is shown on Plate 2, a reproduction from Map 1131A, Geology - Nechako River. The mineral claims are shown as being underlain by a series of Mesozoic volcanic and sedimentary rocks. These include the Takla group of Triassic andesitic and basalt flows, tuffs, breccias, interbedded argillite and limestone in contact with similar rocks of the Hazelton series of middle to lower Jurasic age. Plate 3 illustrates the aeromagnetic data from Map 5288G. Several small magnetic dipole anomalies are shown in the survey area which correlate with the geological occurances of Takla volcanic rocks.

SURVEY SPECIFICATIONS

Survey Grid

The survey grid was constructed previous to the geophysical survey for the purposes of geochemical soil sampling and geological mapping. The grid lines are orientated N-S every 100 m from a centrally positioned E-W baseline. Some 26 km of pulse electromagnetometer surveying were conducted; 22 in the vector mode and 4 in the horizontal loop mode.

Pulse Electromagnetometer Survey

The pulse electromagnetometer system is a time domain E.M. system which can be used in the standard horizontal loop mode or deep penetrating vector mode.

The primary field for the horizontal loop survey is obtained from a transmit loop 6 meters in diameter laid out horizontally on the ground and energized by a pulse of 20 amps at 24 volts with an on-off time of 10.8 ms. The receive coil is generally spaced 25 - 100 meters from the transmit loop. Both are moved simultaneously from station to station. The secondary field signal on the receive coil is sampled and averaged for 10 seconds and then stored for read-out. Eight samples of the secondary field are obtained with increasing window widths during the primary field off time. Time synchronization is by radio link or cable.

The eight channels of secondary field information are equivalent to a wide spectrum of frequencies from approximately $2KH_z$ to $16H_z$ which allows for determination of overburden effects and penetration of conductive overburden. Since the secondary field is measured directly during the primary field off time, the pulse method is relatively free of geometrical restrictions between the transmit and receive coil positions, such as topography interference and coil alignment.

The primary field for the vector EM technique is obtained from a small turam type loop of 132 m (500 ft.) per side which is energized with a current of some 25 amps at 24 volts. A scalar vector is obtained by determining the horizontal and vertical components of the secondary field. A right angle to this resultant vector points to the eddy current position. See Appendix for diagrams.

DISCUSSION OF RESULTS

The horizontal loop data is illustrated on Figures 2 - 12. The responses in all channels were very low, indicating the area surveyed contained rocks of medium to high apparent resistivities. No anomalies were detected by this portion of the survey.

The vector pulse electromagnetometer data is depicted on Figures 13 - 49. The transmitter loop positions and anomalous vector angle conditions are shown on Figure 1. Figure 14, line 15W, indicates a possible small Channel 1 conductor at 3 + 50S. Lines 16W and 14W do not show this feature. Subsequent Figures, 16 - 20, show a divergence of the vector angles which trends south-easterly across the survey area towards the small pond between lines 8W and 9W. Figures 18 - 23 clearly reveal a converging vector angle pattern at

0 ∠ 50S which trends E-W from lines 11W to at least 6W. This vector pattern shows its strongest tendency to converge on line 9W where there could possibly be an increase in conductivity associated with a geological contact. Line 11W surveyed from loop D, gives a small Channel 1 focus on this trend at the baseline. Figures 25 - 28 also show a converging vector angle trend just south of the baseline from lines 15W - 12W as illustrated on Figure 1. A true Channel 1 vector foci was detected on lines 14W - 12W as evidenced on Figures 26 - 28. This conductor would appear to be at a depth of some 70 m, just beneath the detection level for a poor conductor, utilizing the horizontal loop mode with a separation of 75 m. The remaining Figures, 31 - 49, show weak divergent and convergent vector trends in the northeast section of the survey area as illustrated on Figure 1. Previous experience with the vector mode of pulse electromagnetometer surveying indicates that the convergent and divergent vector angles usually reflect weak conductivity changes as can be obtained from traversing geological contacts.

CONCLUSION AND RECOMMENDATIONS

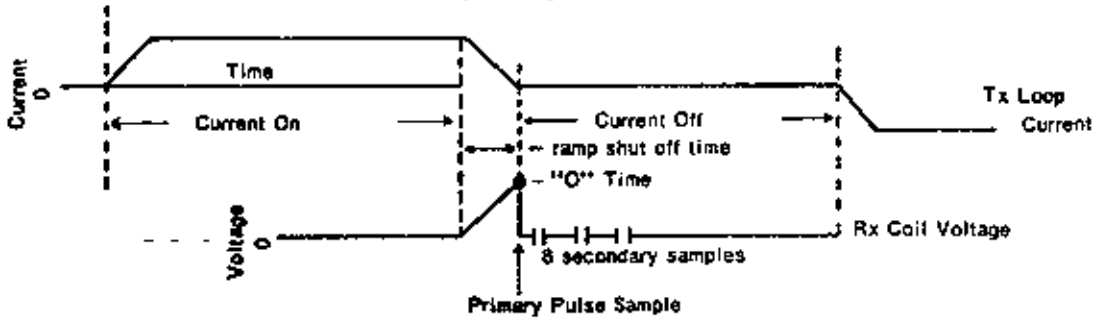
During the month of August 1978 a program of pulse electromagnetometer surveying was conducted over the D and E mineral claims, Natalkuz Lake area, on behalf of Granges Exploration AB.

The vector pulse electromagnetometer survey mode detected a weak Channel 1 vector focus on lines 12W - 14W at 2 ± 50N at an apparent depth of some 70 m. Several convergent and divergent vector angle trends were also delineated which may possibly relate to geological contacts. Thus, though a vector foci trend was detected, it is not considered to be of sufficient magnitude, considering the remoteness of the mineral claims, to be examined on its own merrit. Consequently, it should be investigated only in conjunction with any on-going exploration work in the area.

Respectfully submitted,
GLEN E. WHITE GEOPHYSICAL
CONSULTING & SERVICES LTD.

Glen E. White, P. Eng.
Consulting Geophysicist

PEM SPECIFICATIONS



Current Off time: 9.4 ms
Current on time: 10.8 ms
Current shut off (ramp) time: 1.4 ms
Sample times (zero to centre of sample): .15ms, .45ms, .85ms, 1.45ms, 2.45ms, 3.75ms, 5.85ms, 8.85ms.

Sample width: 100 µs
Zero time set at drop off point of primary pulse

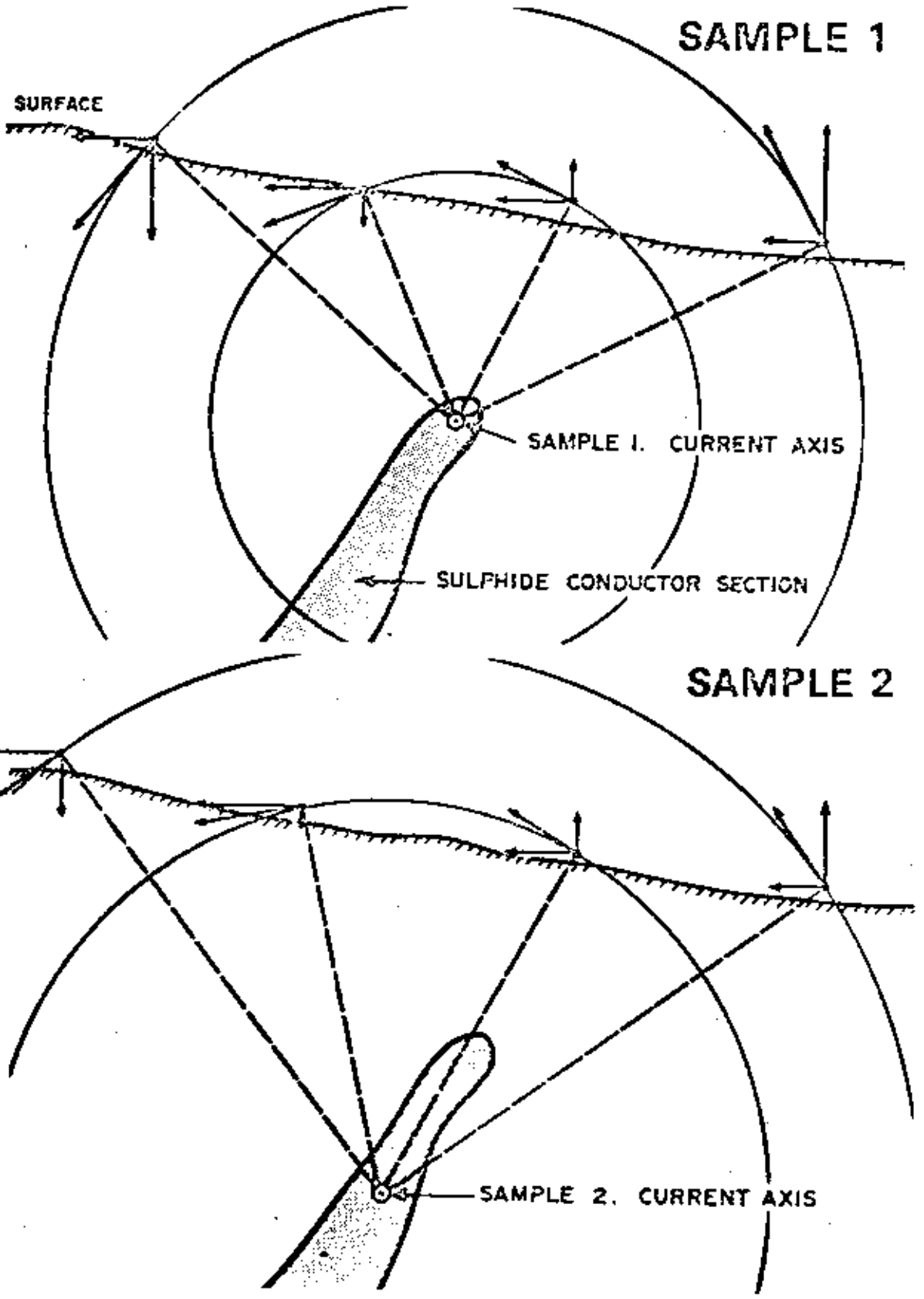
TRANSMITTER — Transmitter power and loop size may be increased to obtain increased penetration. Weight, portability and power capabilities of the control instrument are the limiting factors. The standard transmitter is designed to be carried by two men.

Loop diameter	— minimum 4 meters (13 feet)
Loop current	— 15 to 20 amps
Loop applied voltage	— 24 volts
Loop output	— minimum 4500 amps x meter ^{2}
Loop weight	— 11.8 kilos (26 lb)
Control unit weight	— 10 kilos (22 lb)
Control unit dimensions	— 20.5cm x 25.5cm x 36.5cm (8" x 10" x 14.5")
Battery supply weight	— 18.1 kilos (40 lb)
Battery supply	— 2 of 12 volt, 14 to 20 ampere hour

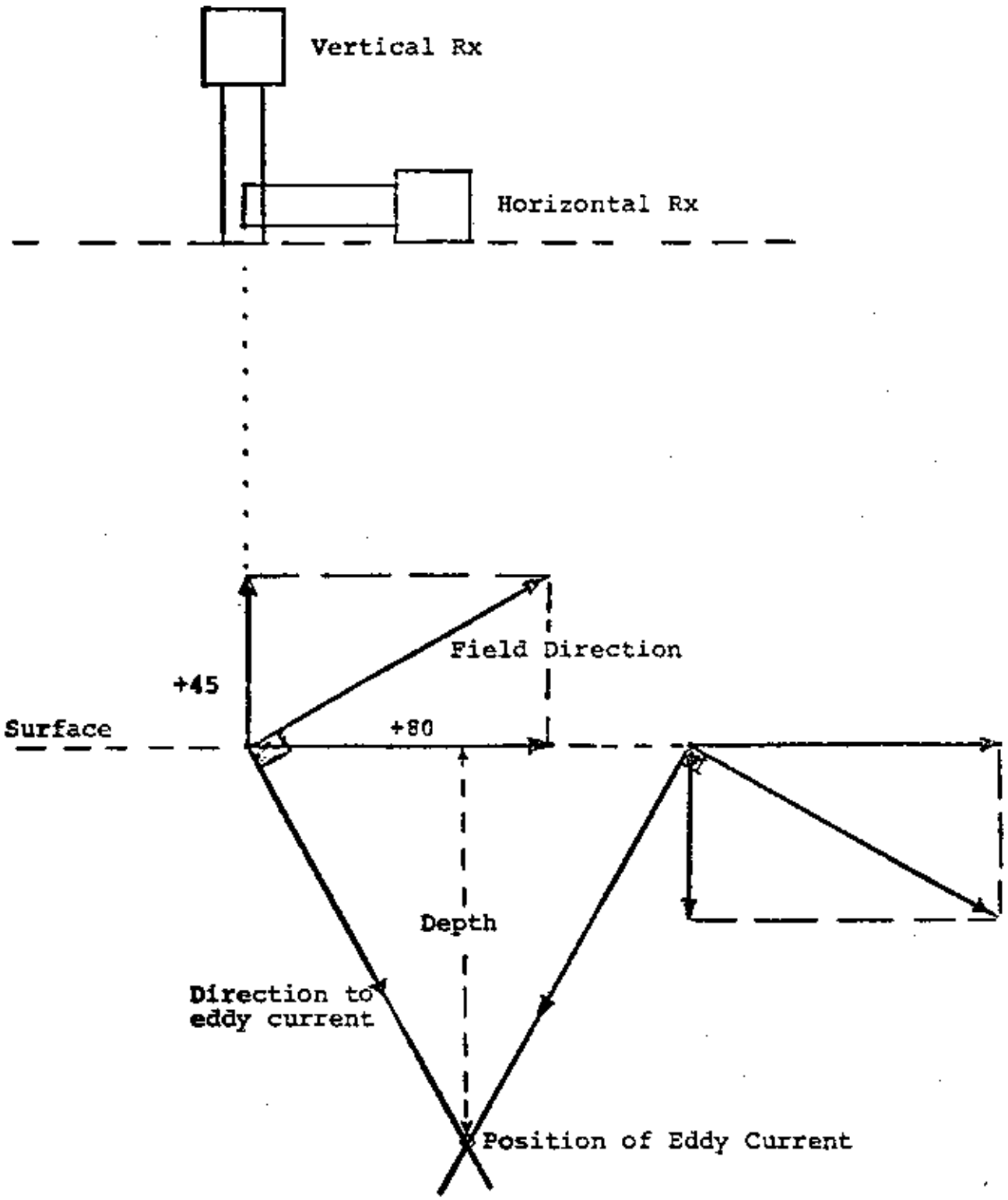
Timing control by radio synchronization

RECEIVER

- **Receive coil dimensions:** 55cm x 15cm (22" x 6")
- **Receive coil weight:** 4.5 kilos (10 lb)
- **Preamplifier** in coil
- **Preamplifier batteries:** 2 of 9 volt
- **Receive coil** tripod mounted
- **Receiver measuring instrument dimensions:** 28cm x 18cm x 21.5cm (11" x 7" x 9")
- **Receiver measuring instrument weight:** 6.3 kilos (14 lb)
- **Timing control** by radio synchronization
- **Primary sample width:** 100 µs
- **Primary sample** can be swept through primary pulse by means of a time calibrated pot
- **Zero time** set at primary pulse drop-off
- **Secondary samples** (eight of them) width: 100 µs
- **Secondary samples time** (zero to middle of sample): (1) .15ms (2) .45ms (3) .85ms (4) 1.45ms (5) 2.45ms (6) 3.75ms (7) 5.85ms (8) 8.85ms
- **Automatic sampling** for 5 seconds then all samples automatically stored
- **Sample read out** by means of meter
- **Continuous sampling** possible by switching function switch to "Continuous"
- **Noise can** be monitored by switching function switch to "Noise"
- **Battery supply:** 24 volt rechargeable, 2 of 12 volt Gel GC 12-15



Location of the Current Path in the Conductor


Vertical Rx
Horizontal Rx
Field Direction
+45
Surface
+80
Depth
Direction to
eddy current
Position of Eddy Current

STATEMENT OF QUALIFICATIONS

Name: WHITE, Glen E.

Profession: Geophysicist

Education: B.Sc. Geophysics - Geology
University of British Columbia

Professional Associations: Associate member of Society of Exploration Geophysicists.

President of B. C. Society of Mining Geophysicists

Experience: Pre-Graduate experience in Geology - Geochemistry - Geophysics with Anaconda American Brass.

Two years Mining Geophysicist with Sulmac Explorations Ltd. and Airborne Geophysics with Spartan Air Services Ltd.

One year Mining Geophysicist and Technical Sales Manager in the Pacific north-west for W. P. McGill and Associates.

Two years Mining Geophysicist and supervisor Airborne and Ground Geophysical Divisions with Geo-X Surveys Ltd.

Two years Chief Geophysicist Tri-Con Exploration Surveys Ltd.

Seven years Consulting Geophysicist.

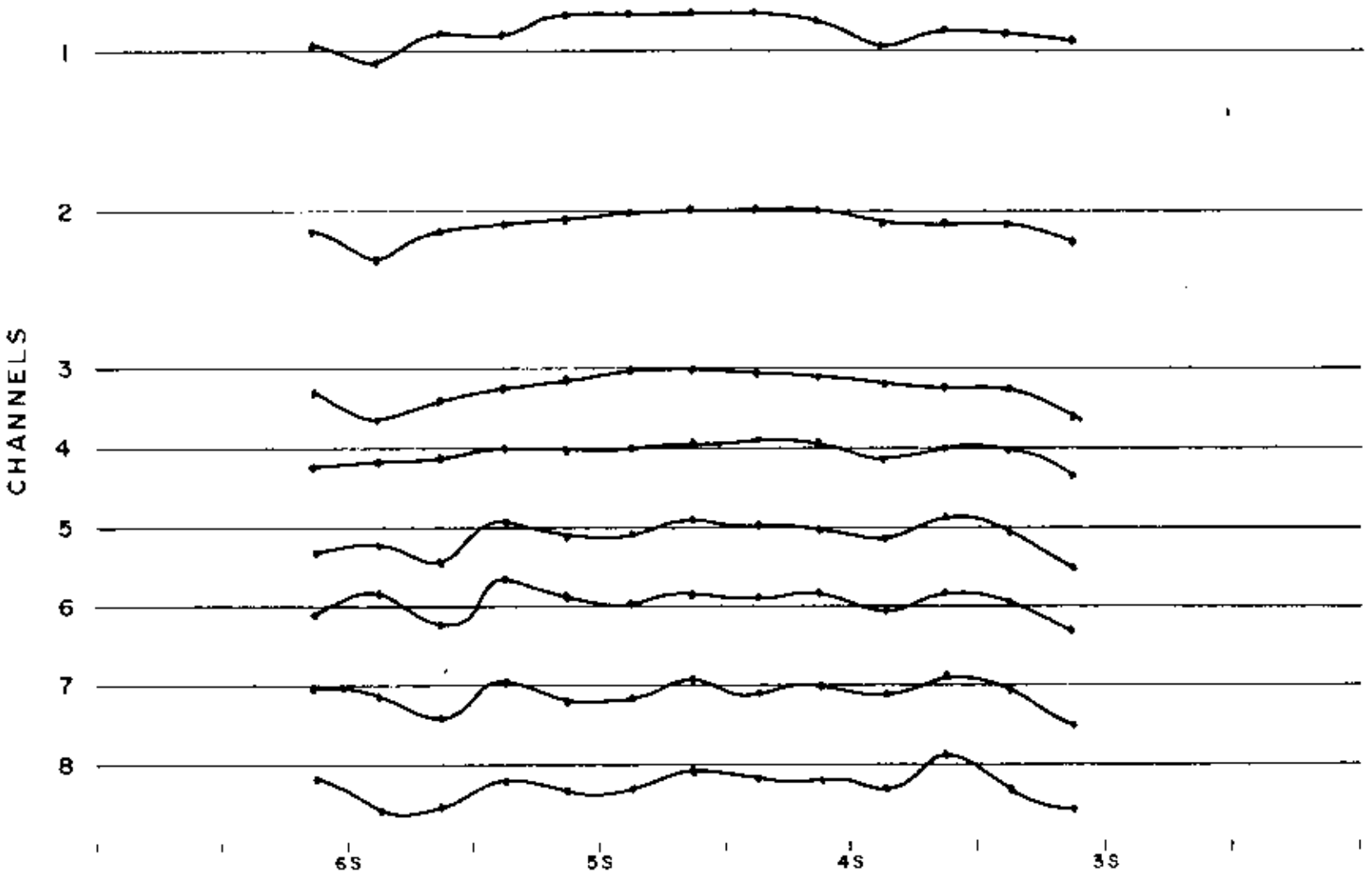
Active experience in all Geologic provinces of Canada.

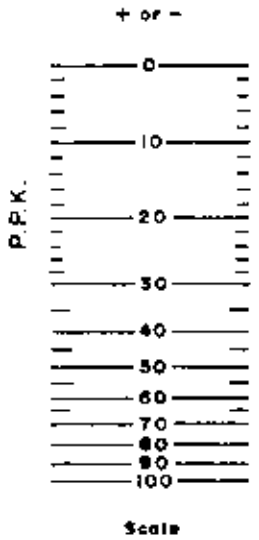
Professional Engineer registered in the Province of British Columbia.

COST BREAKDOWN

Personnel	Date	Wages	Total
T. Pezzot Geoph sicist	Aug. 10-25/78	$132/day	$2112.00
K. Fitzpatrick	"	85/day	1360.00
D. Denis	"	80/day	1280.00
Meals and Accomodations @ $75/day			1200.00
Instrument lease @ $85/day			1360.00
Materials			8.00
Airfare			396.00
Airfreight			146.61
Drafting and Printing			475.00
Interpretation and Report			[illegible]
Total			$8[illegible]N.61

LINE 14+00 W
INSTRUMENT - CRONE P.E.M.



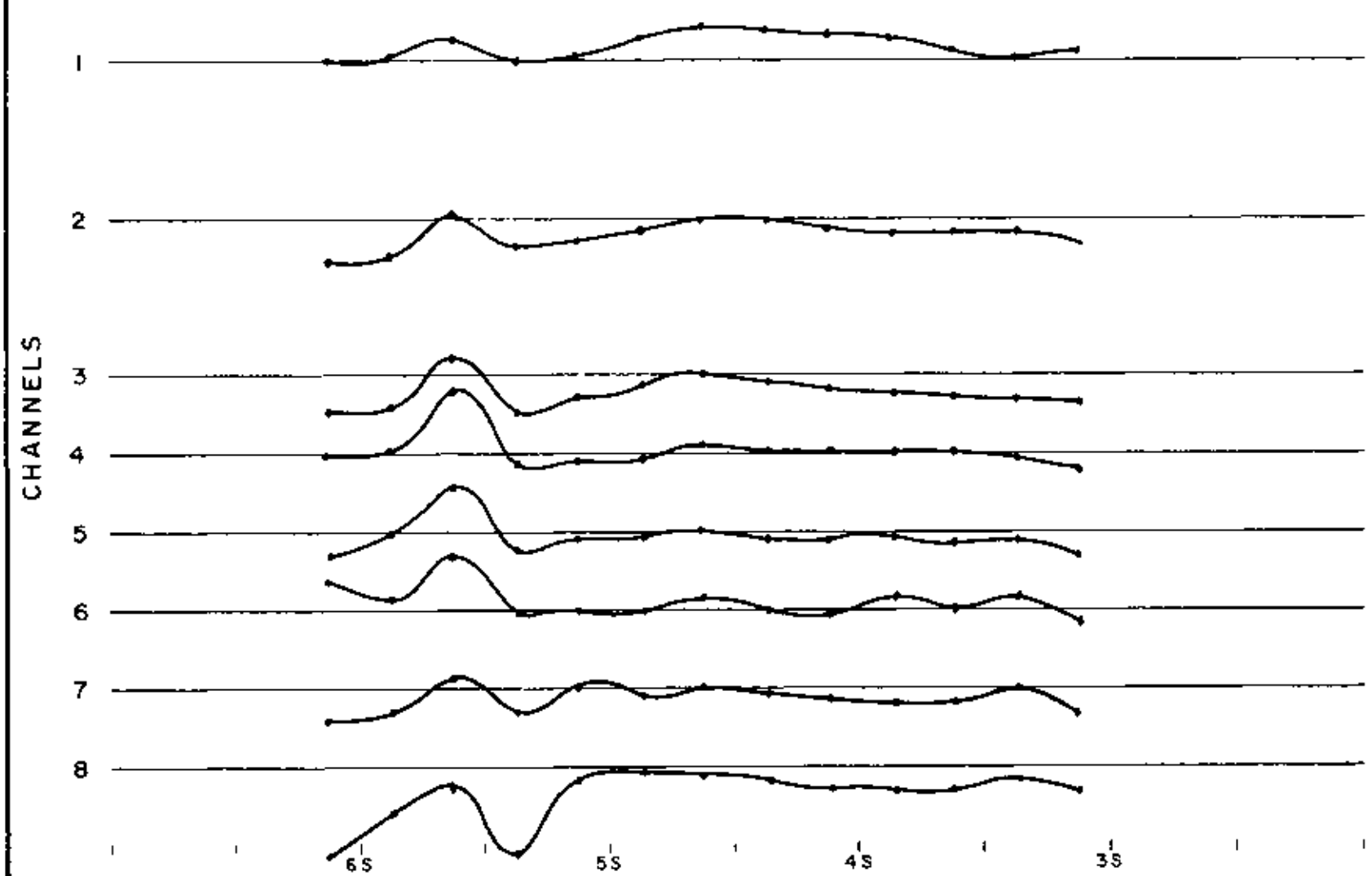


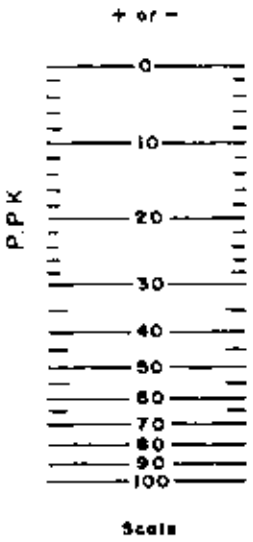
GRÄNGES EXPLORATION AB
D & E CLAIMS
PULSE ELECTROMAGNETOMETER
SEPARATION 75 METRES

1 cm = 25 Metres

SEPT. 1978
FIG. 2

LINE 13+00 W
INSTRUMENT : CRONE P.E.M.





GRÄNGES EXPLORATION AB

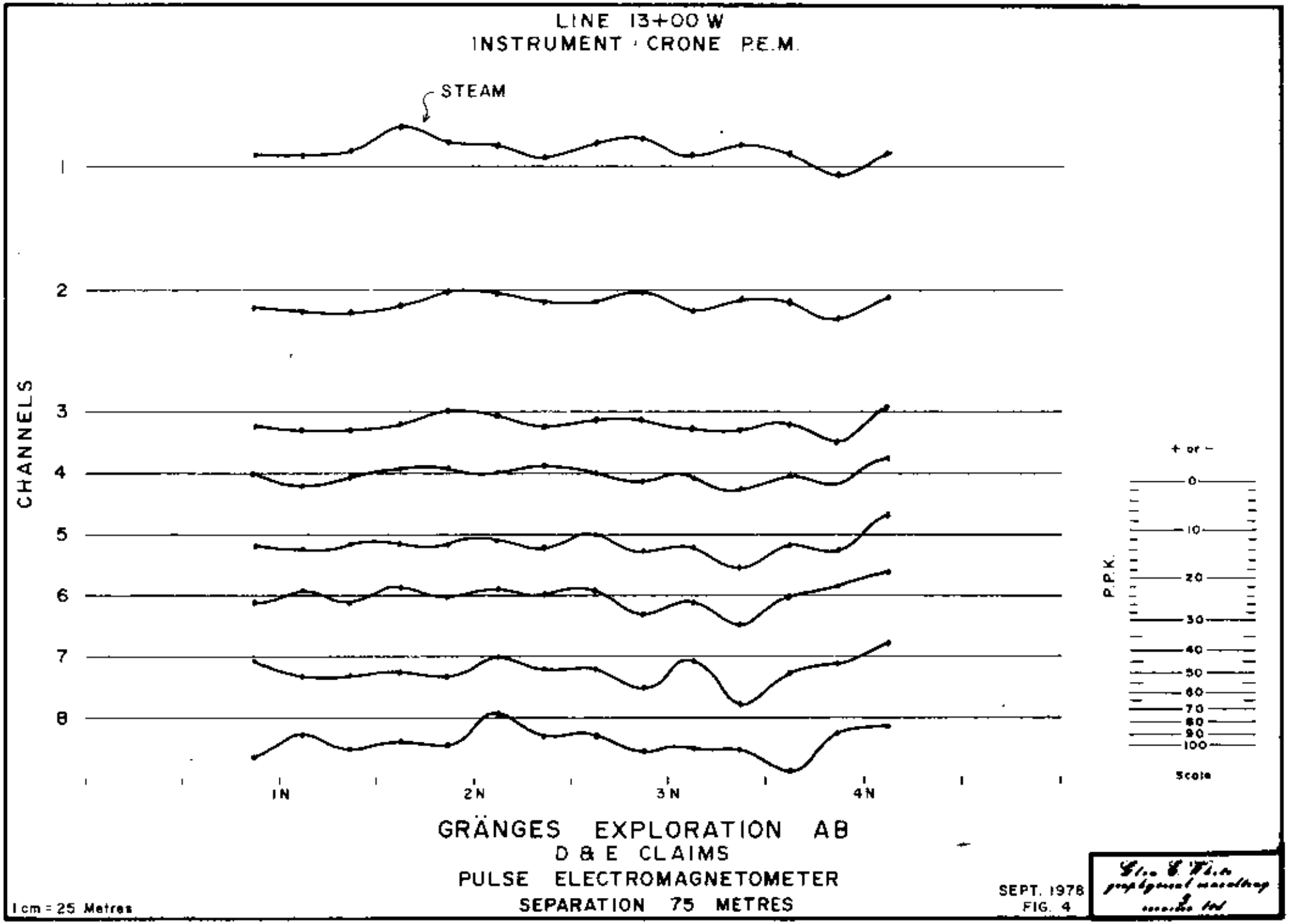
D & E CLAIMS

PULSE ELECTROMAGNETOMETER

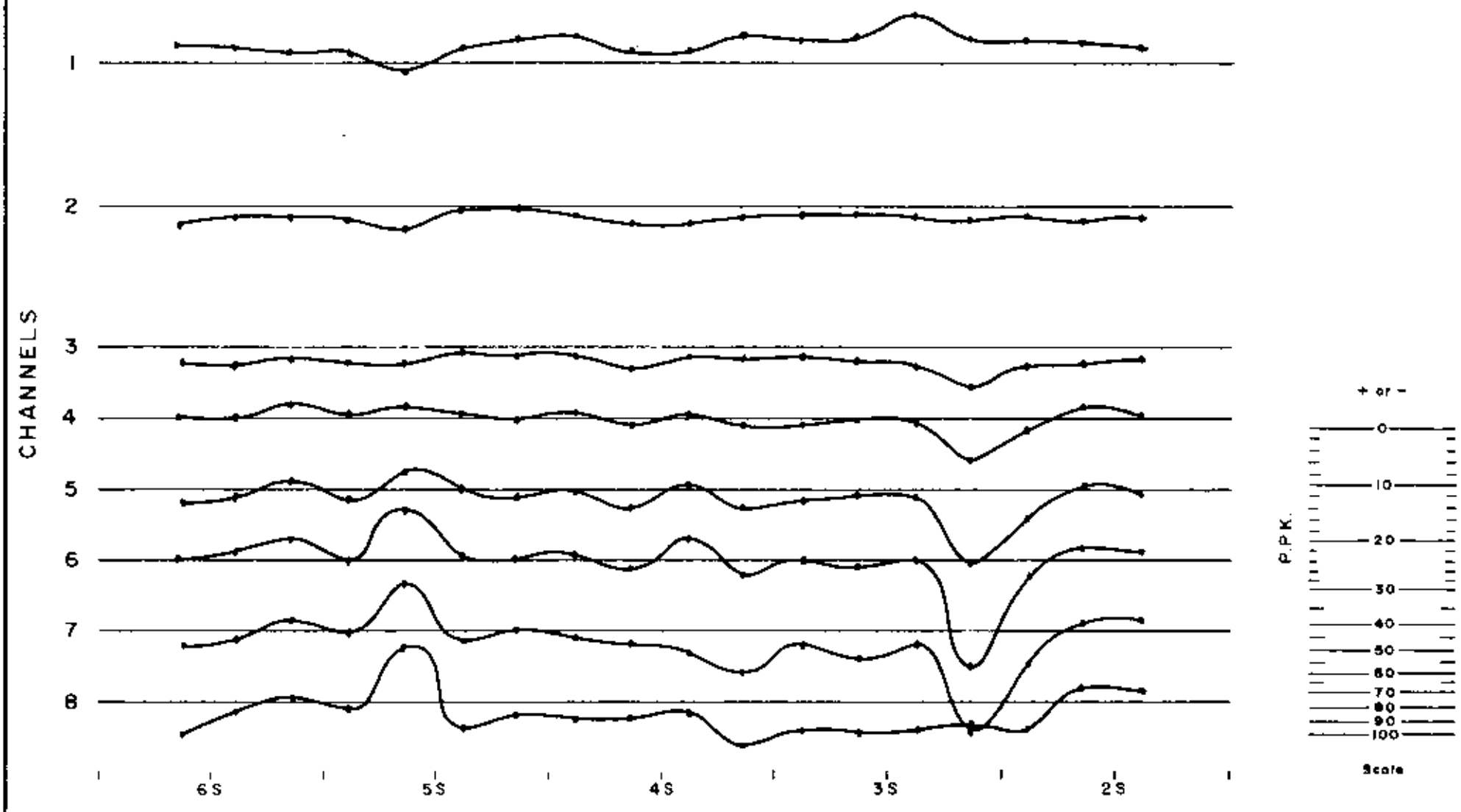
SEPARATION 75 METRES

1 cm = 25 Metres

SEPT. 1978
FIG. 3


LINE 13+00 W
INSTRUMENT - CRONE P.E.M.
STEAM
CHANNELS
1
2
3
4
5
6
7
8
1N
2N
3N
4N
+ or -
P.P.K.
0
10
20
30
40
50
60
70
80
90
100
Scale
GRÄNGES EXPLORATION AB
D & E CLAIMS
PULSE ELECTROMAGNETOMETER
SEPARATION 75 METRES
1 cm = 25 Metres
SEPT. 1978
FIG. 4

LINE 12+00W
INSTRUMENT : CRONE P.E.M.

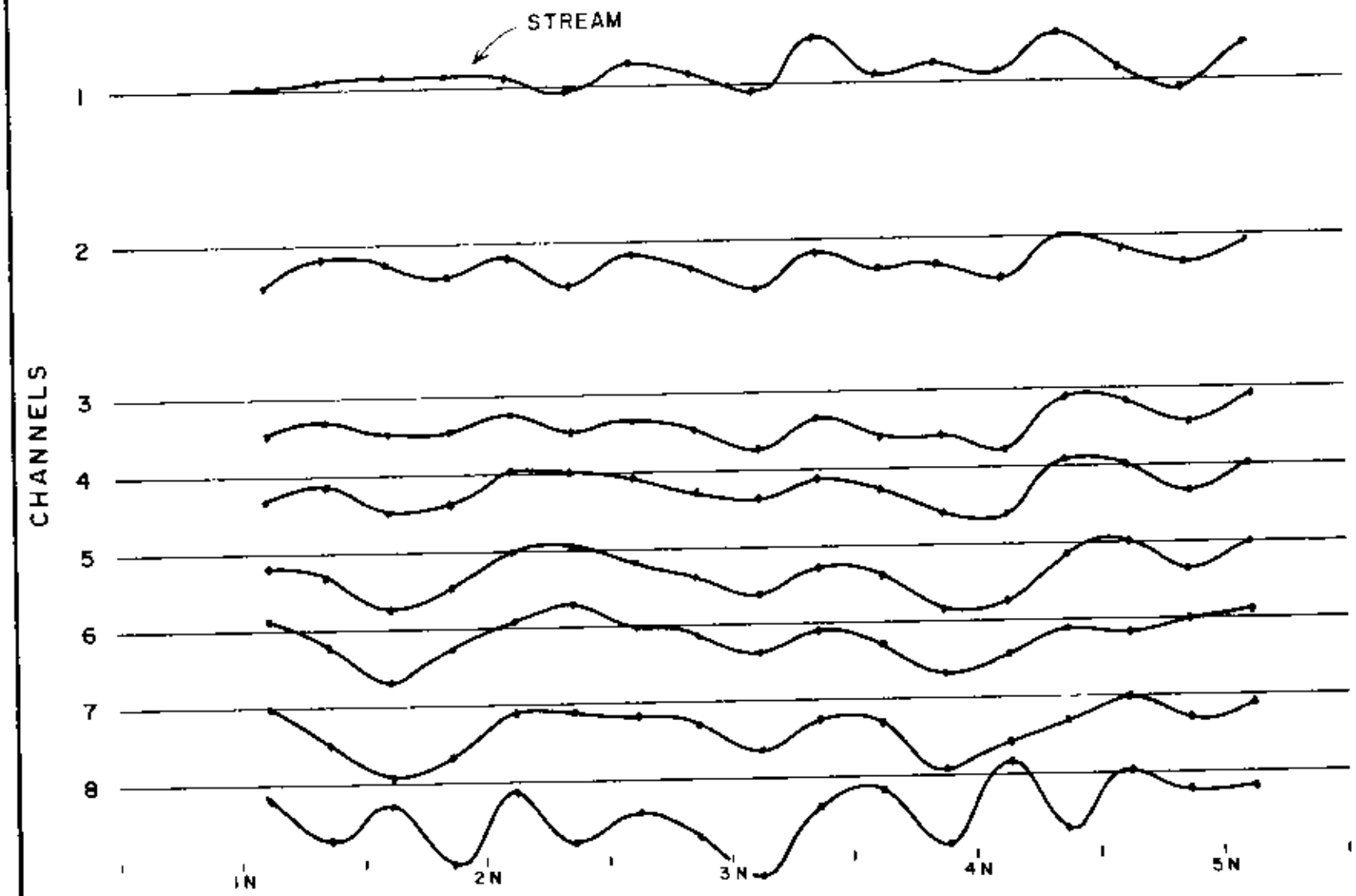


GRÄNGES EXPLORATION AB
D & E CLAIMS
PULSE ELECTROMAGNETOMETER
SEPARATION 75 METRES

1 cm = 25 Metres

SEPT. 1978
FIG. 5

LINE 12+00W
INSTRUMENT : CRONE P.E.M.

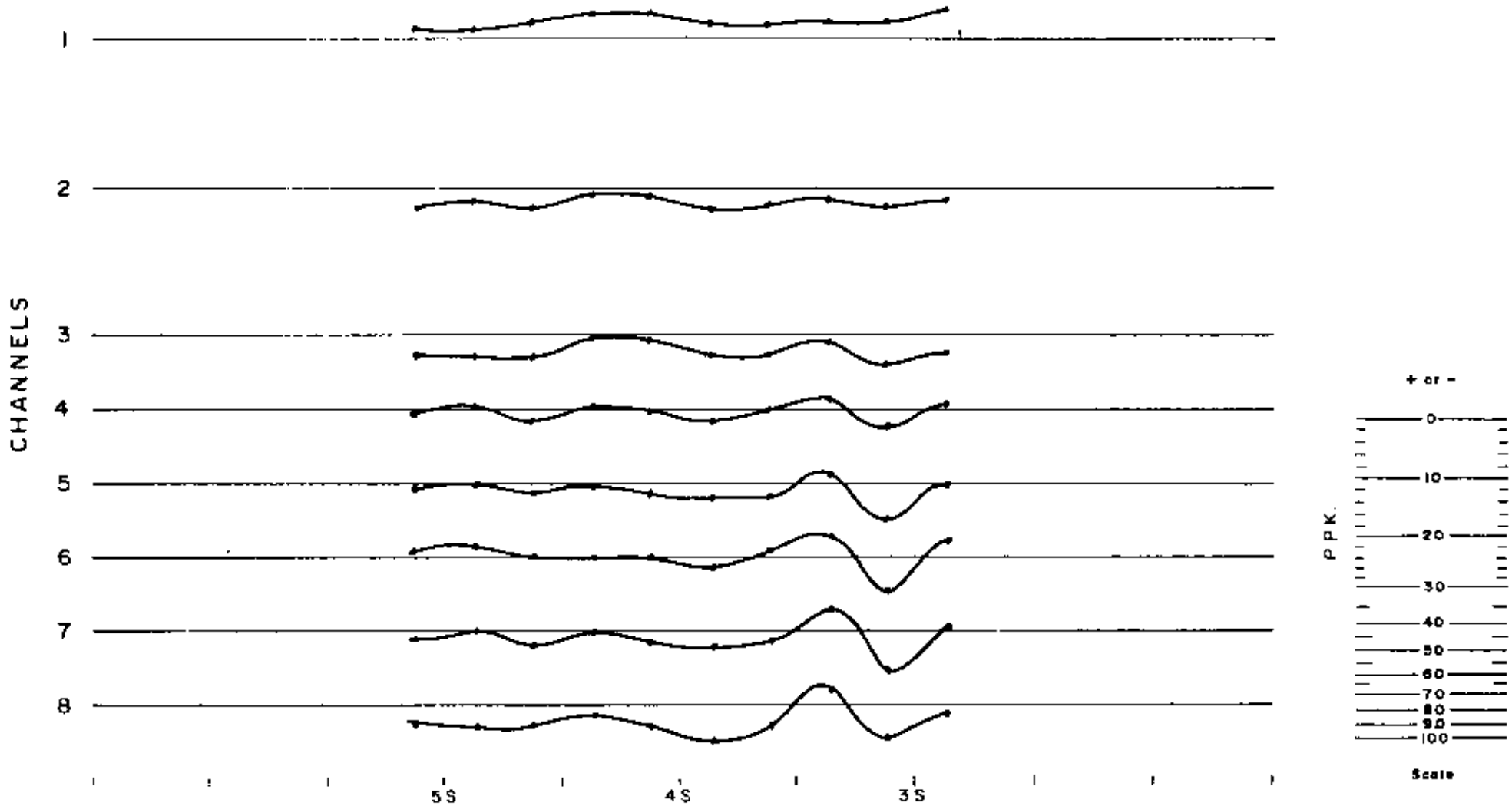


GRÄNGES EXPLORATION AB
D & E CLAIMS
PULSE ELECTROMAGNETOMETER
SEPARATION 75 METRES

SEPT. 1978
FIG. 6

1 cm = 25 Metres

LINE 11+00W
INSTRUMENT - CRONE P.E.M.

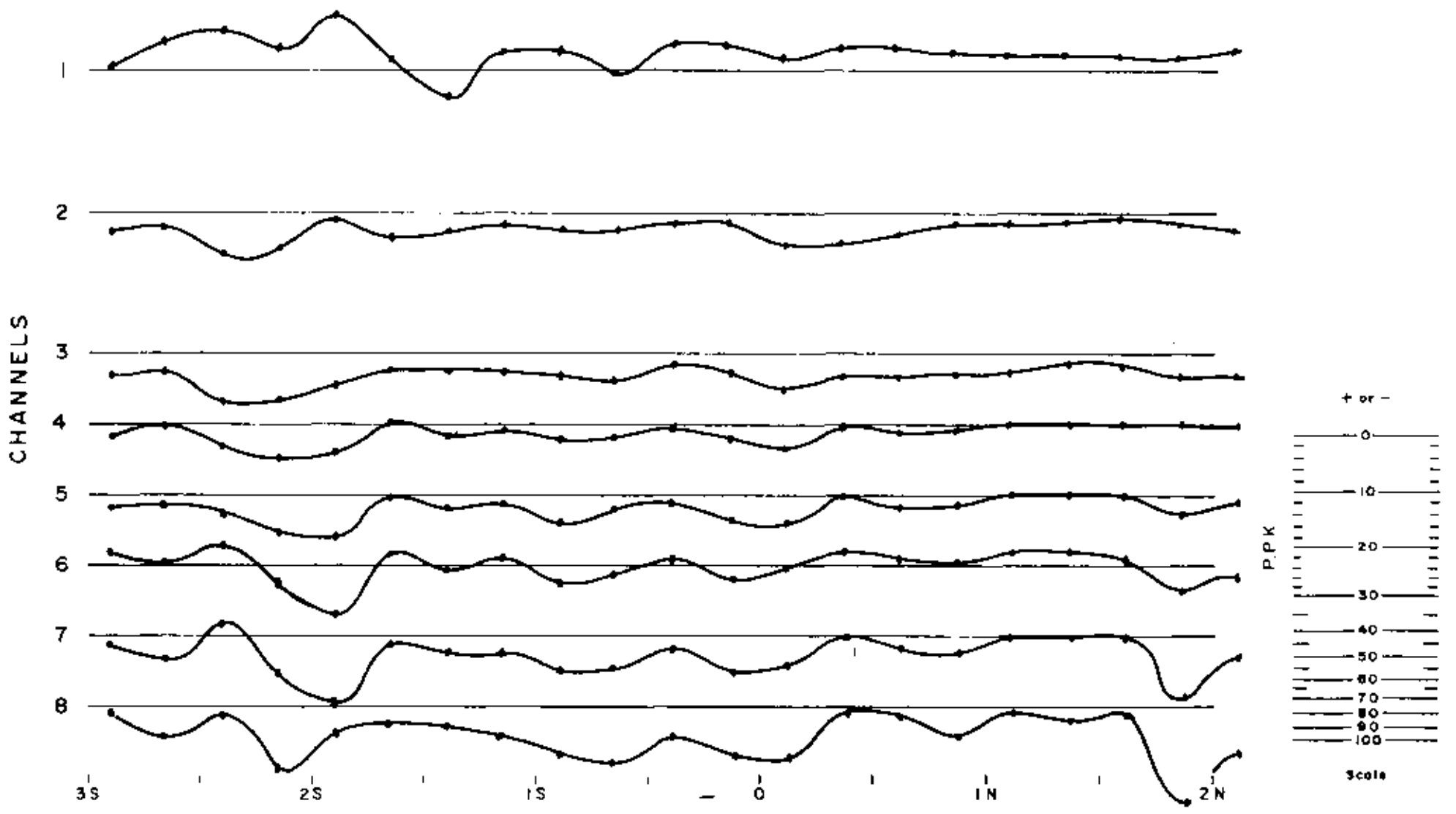


GRÄNGES EXPLORATION AB
D & E CLAIMS
PULSE ELECTROMAGNETOMETER
SEPARATION 75 METRES

1 cm = 25 Metres

SEPT. 1978
FIG. 7

LINE 11+00W
INSTRUMENT - CRONE P.E.M.

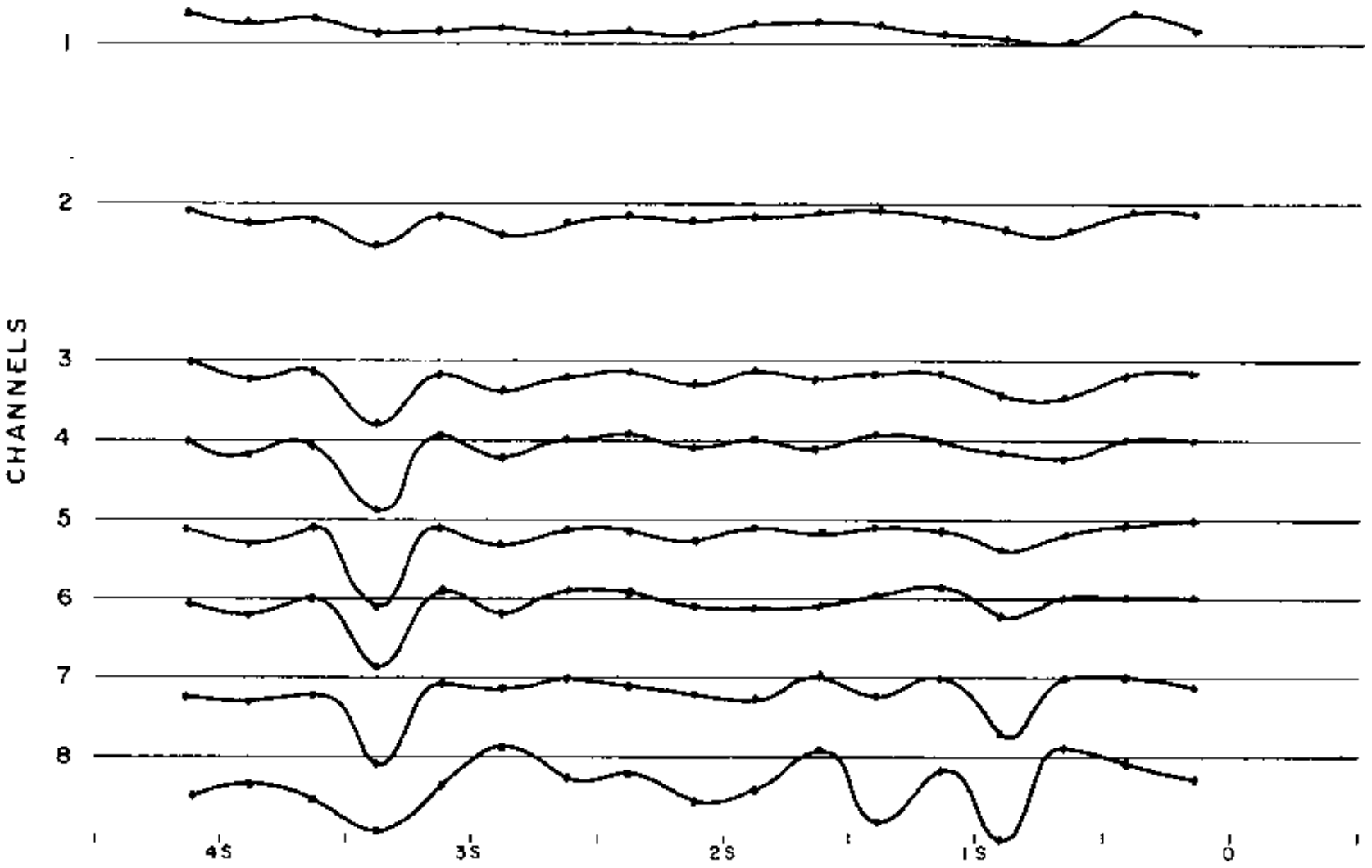


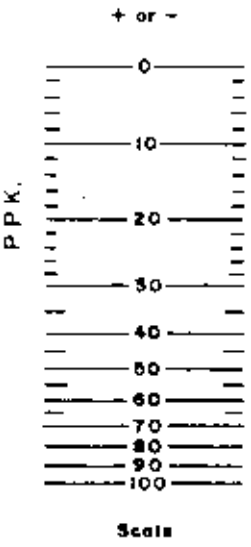
GRÄNGES EXPLORATION AB
D & E CLAIMS
PULSE ELECTROMAGNETOMETER
SEPARATION 75 METRES

1 cm = 25 Metres

SEPT. 1978
FIG. 8

LINE 10+00 W
INSTRUMENT : CRONE P.E.M.





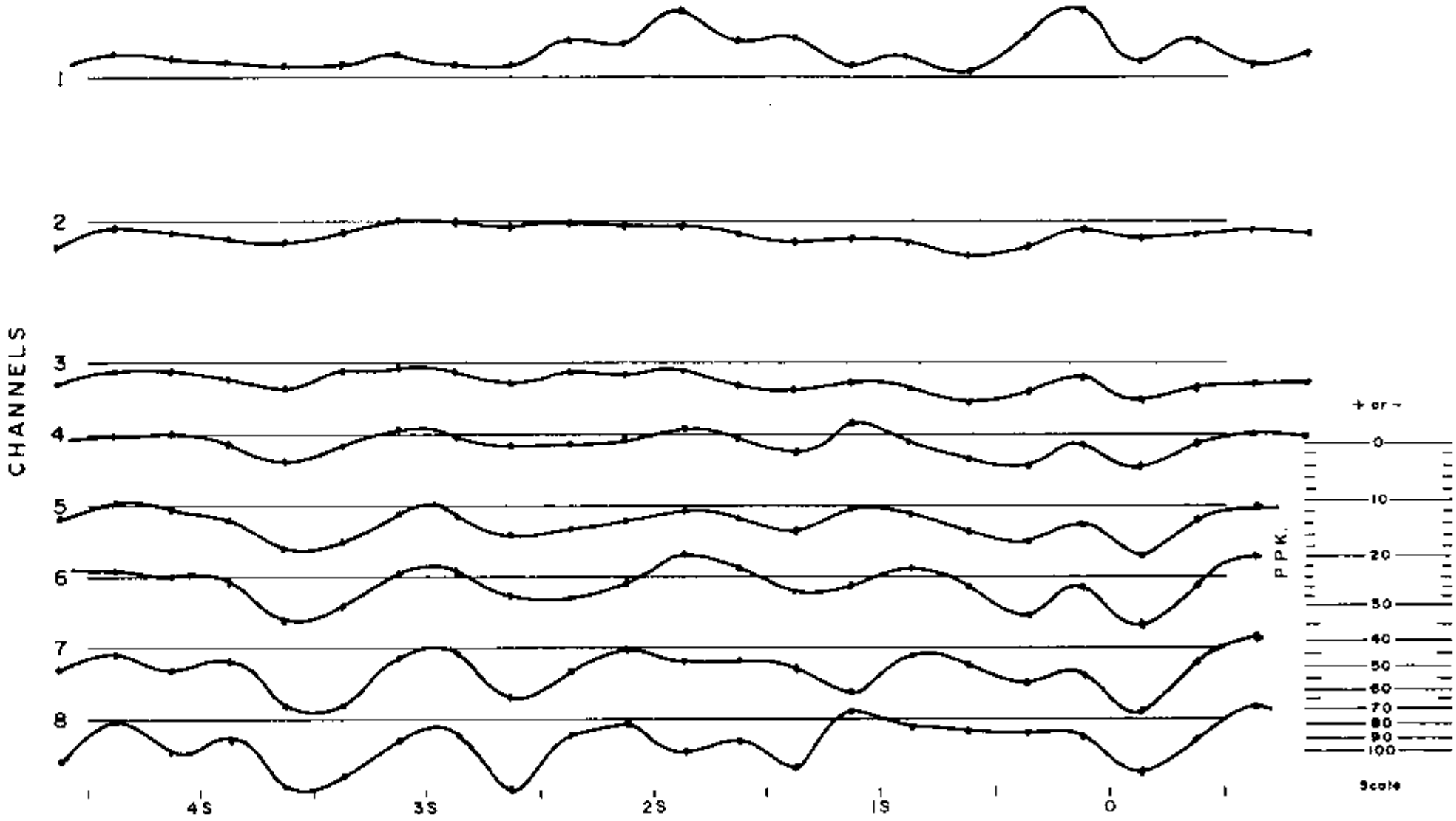
GRÄNGES EXPLORATION AB
D & E CLAIMS
PULSE ELECTROMAGNETOMETER
SEPARATION 75 METRES

1 cm = 25 Metres

SEPT. 1978
FIG. 9

Geo. G. Wilson geophysical surveying ... Ltd

LINE 9+00 W
INSTRUMENT - CRONE P.E.M.



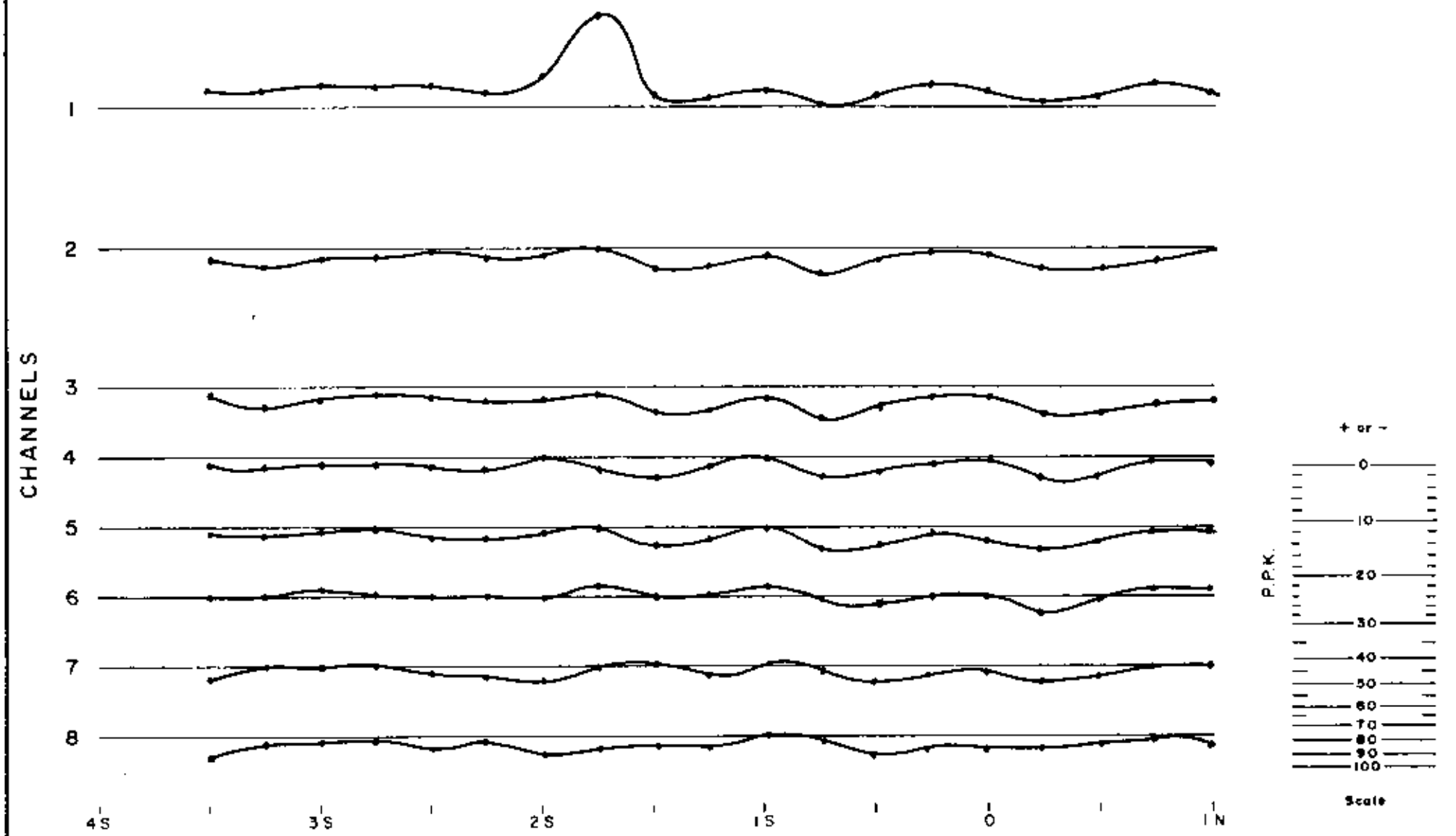
GRÄNGES EXPLORATION AB
D & E CLAIMS
PULSE ELECTROMAGNETOMETER
SEPARATION 75 METRES

1 cm = 25 Metres

SEPT. 1978
FIG. 10

Glen E. Wilson
geophysical consulting
Ltd.

LINE 9+00W
INSTRUMENT - CRONE P.E.M.

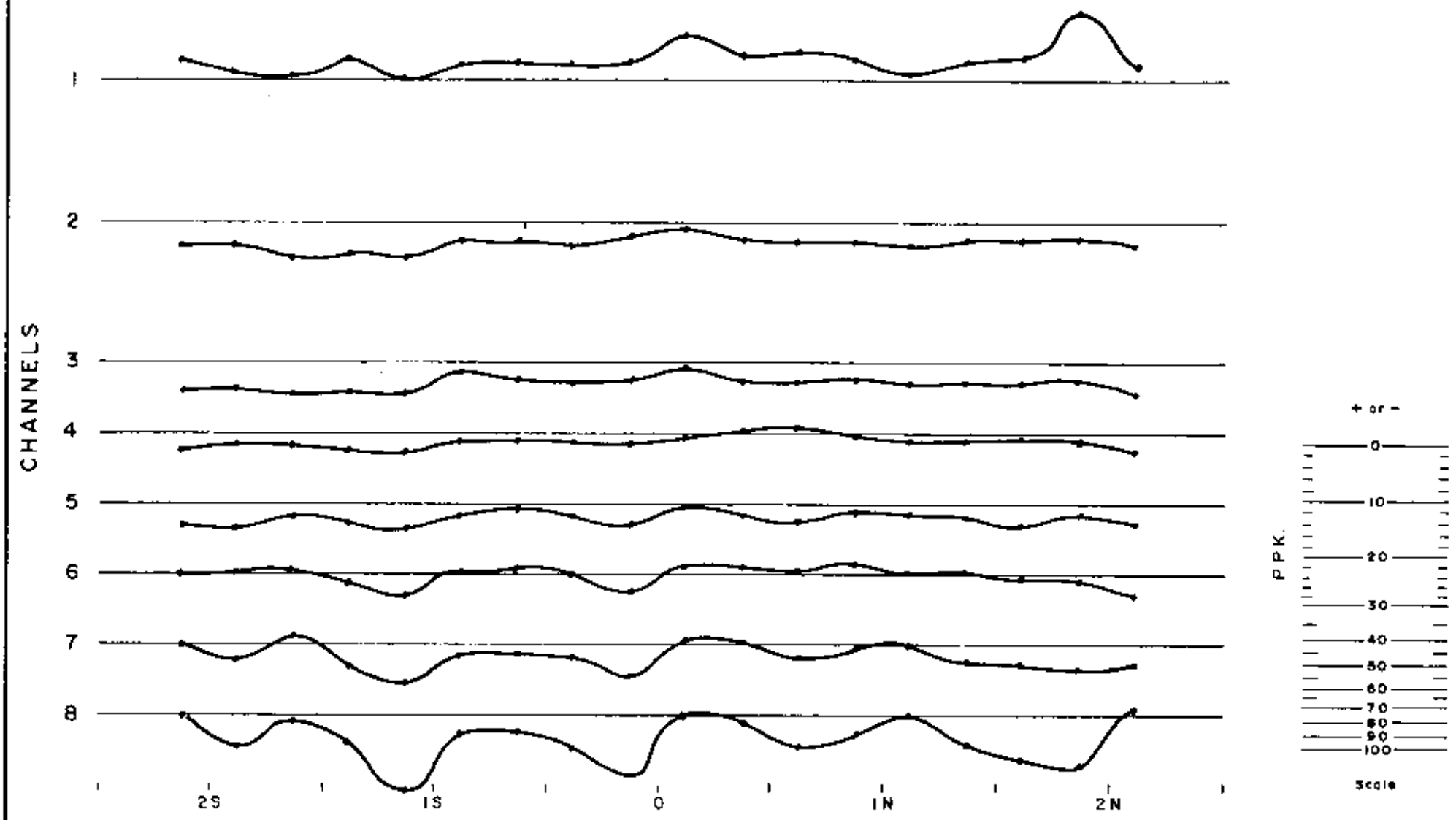


GRÄNGES EXPLORATION AB
D & E CLAIMS
PULSE ELECTROMAGNETOMETER
SEPARATION 50 METRES

1 cm = 25 Metres

SEPT. 1978
FIG. 11

LINE 8+00W
INSTRUMENT - CRONE P.E.M.

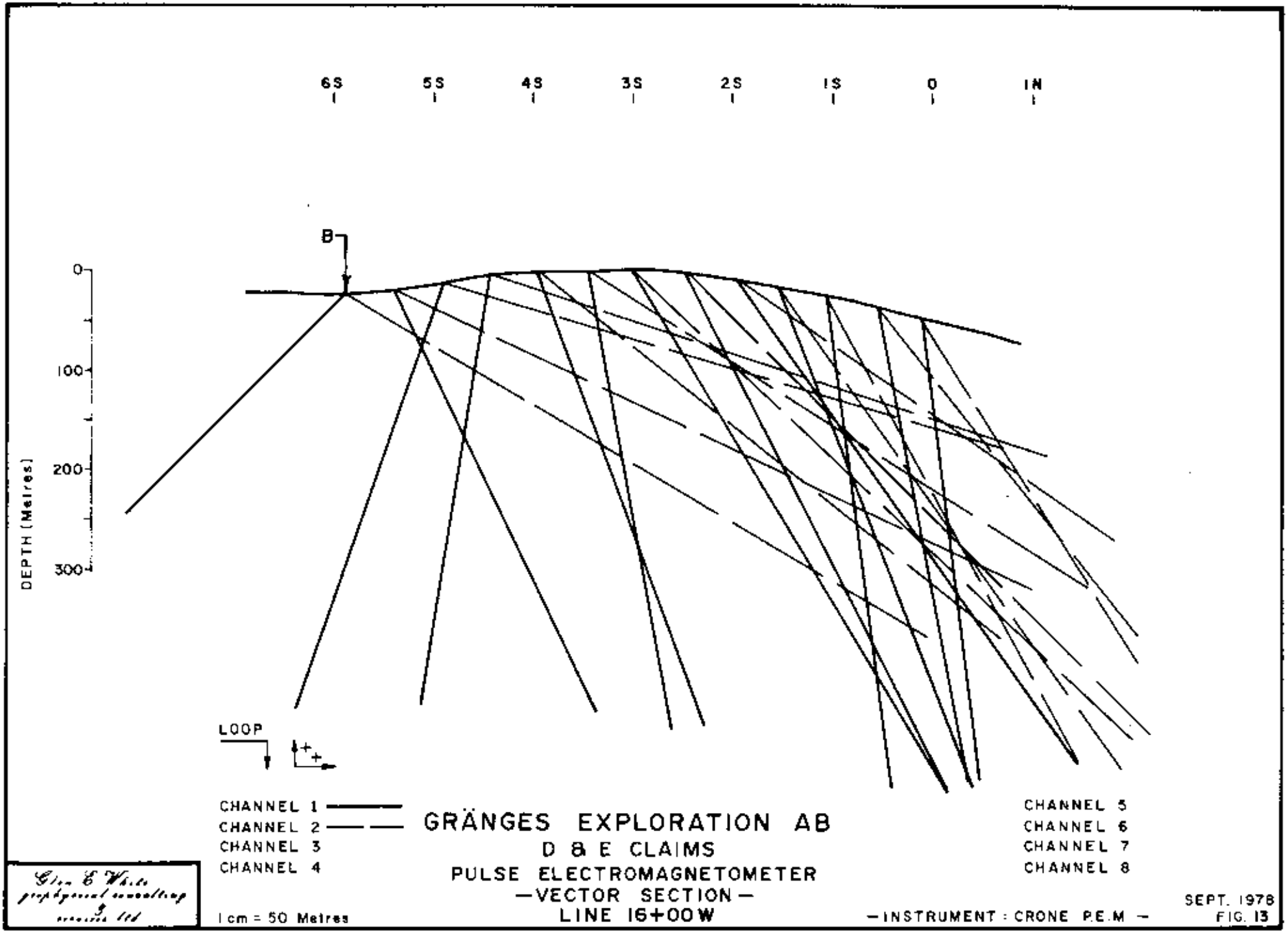


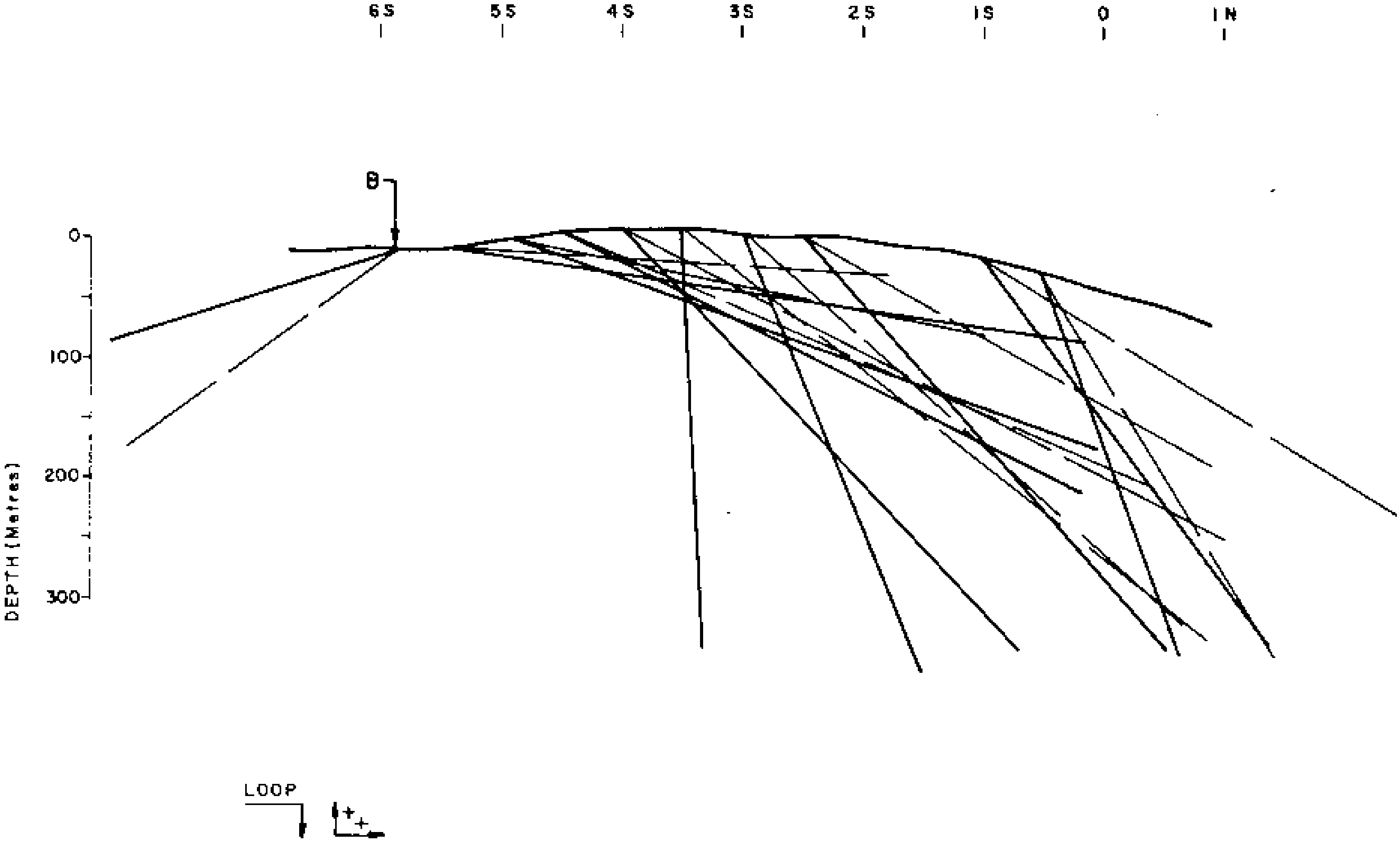
GRÄNGES EXPLORATION AB
D & E CLAIMS
PULSE ELECTROMAGNETOMETER
SEPARATION 75 METRES

1 cm = 25 Metres

SEPT. 1978
FIG. 12

Geo. E. Wilson
professional engineering
limited


6S
5S
4S
3S
2S
1S
0
1N
B
0
100
200
300
DEPTH (Metres)
LOOP
CHANNEL 1
CHANNEL 2
CHANNEL 3
CHANNEL 4
CHANNEL 5
CHANNEL 6
CHANNEL 7
CHANNEL 8
GRÄNGES EXPLORATION AB
D & E CLAIMS
PULSE ELECTROMAGNETOMETER
—VECTOR SECTION—
LINE 16+00W
1 cm = 50 Metres
—INSTRUMENT : CRONE P.E.M —
SEPT. 1978
FIG. 13



CHANNEL 1 ————

CHANNEL 2 — — —

CHANNEL 3

CHANNEL 4

CHANNEL 5

CHANNEL 6

CHANNEL 7

CHANNEL 8

GRÄNGES EXPLORATION AB

D & E CLAIMS

PULSE ELECTROMAGNETOMETER

—VECTOR SECTION—

LINE 15+00W

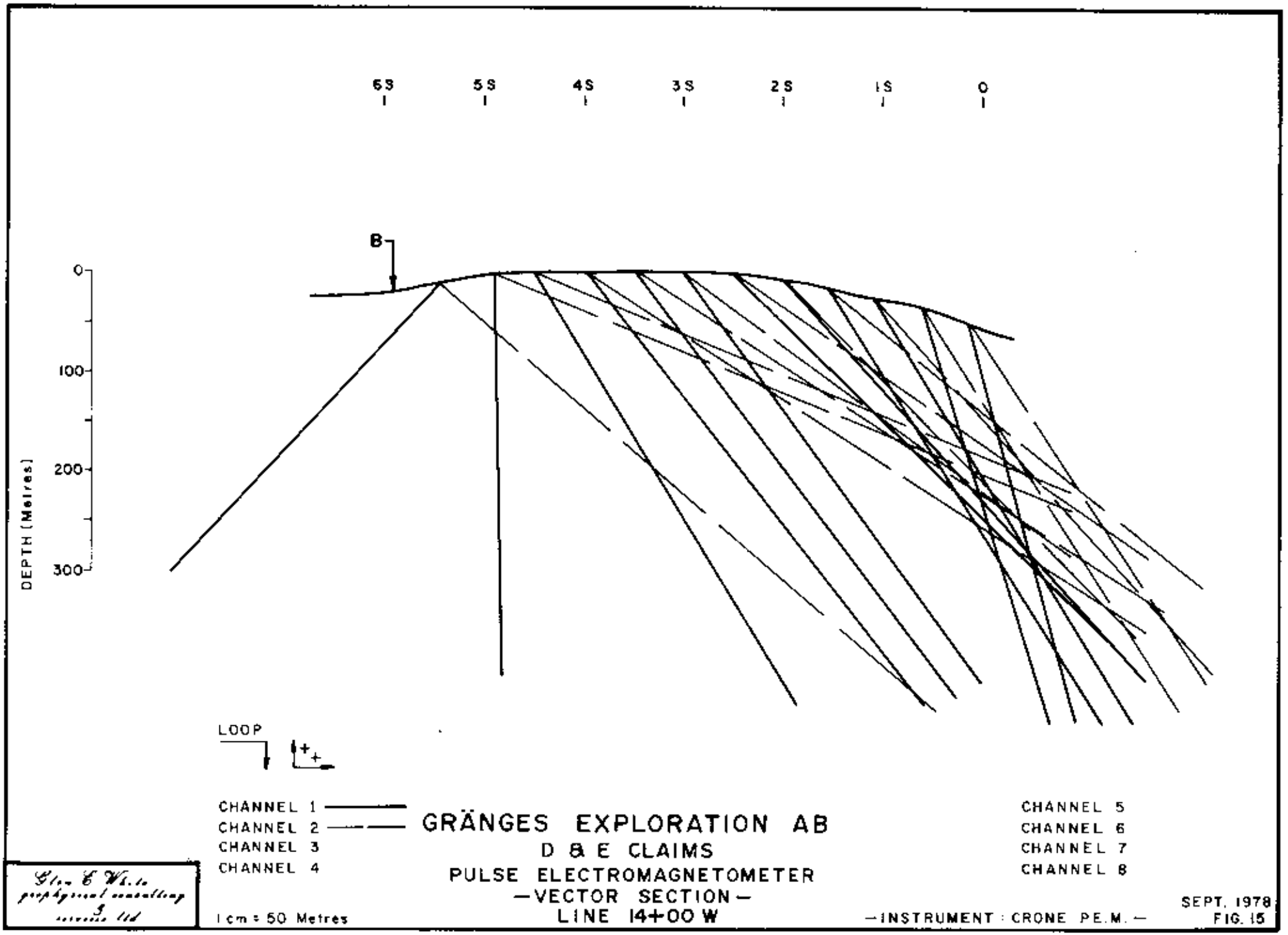
1 cm = 50 Metres

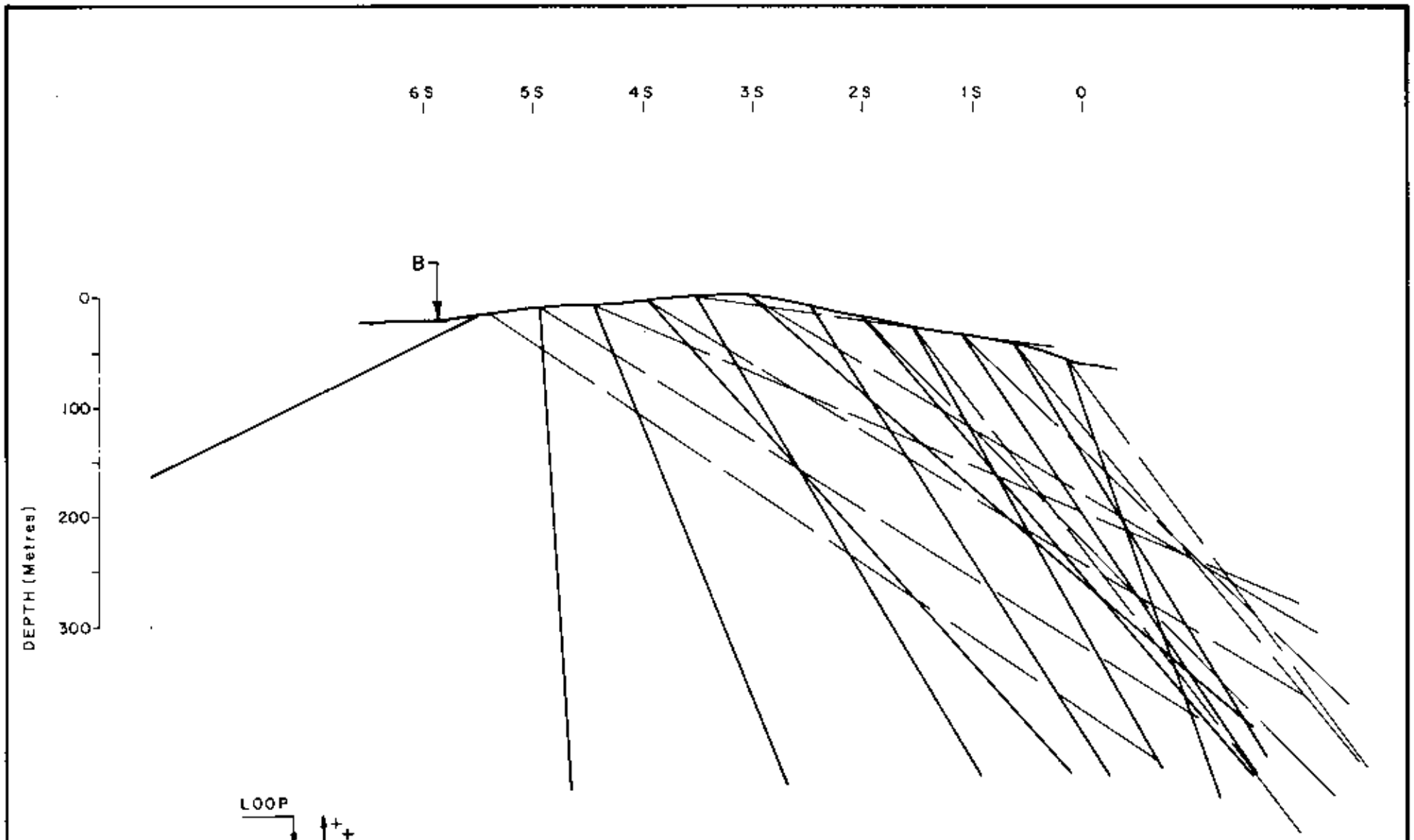
—INSTRUMENT : CRONE P.E.M.—

SEPT. 1978

FIG. 14

Glen E. White geophysical consulting services ltd


6S
5S
4S
3S
2S
1S
0
B
0
100
200
300
DEPTH (Metres)
LOOP
CHANNEL 1
CHANNEL 2
CHANNEL 3
CHANNEL 4
CHANNEL 5
CHANNEL 6
CHANNEL 7
CHANNEL 8
GRÄNGES EXPLORATION AB
D & E CLAIMS
PULSE ELECTROMAGNETOMETER
—VECTOR SECTION—
LINE 14+00 W
1 cm = 50 Metres
—INSTRUMENT : CRONE P.E.M.—
SEPT. 1978
FIG. 15



GRÄNGES EXPLORATION AB

D & E CLAIMS

PULSE ELECTROMAGNETOMETER

—VECTOR SECTION—

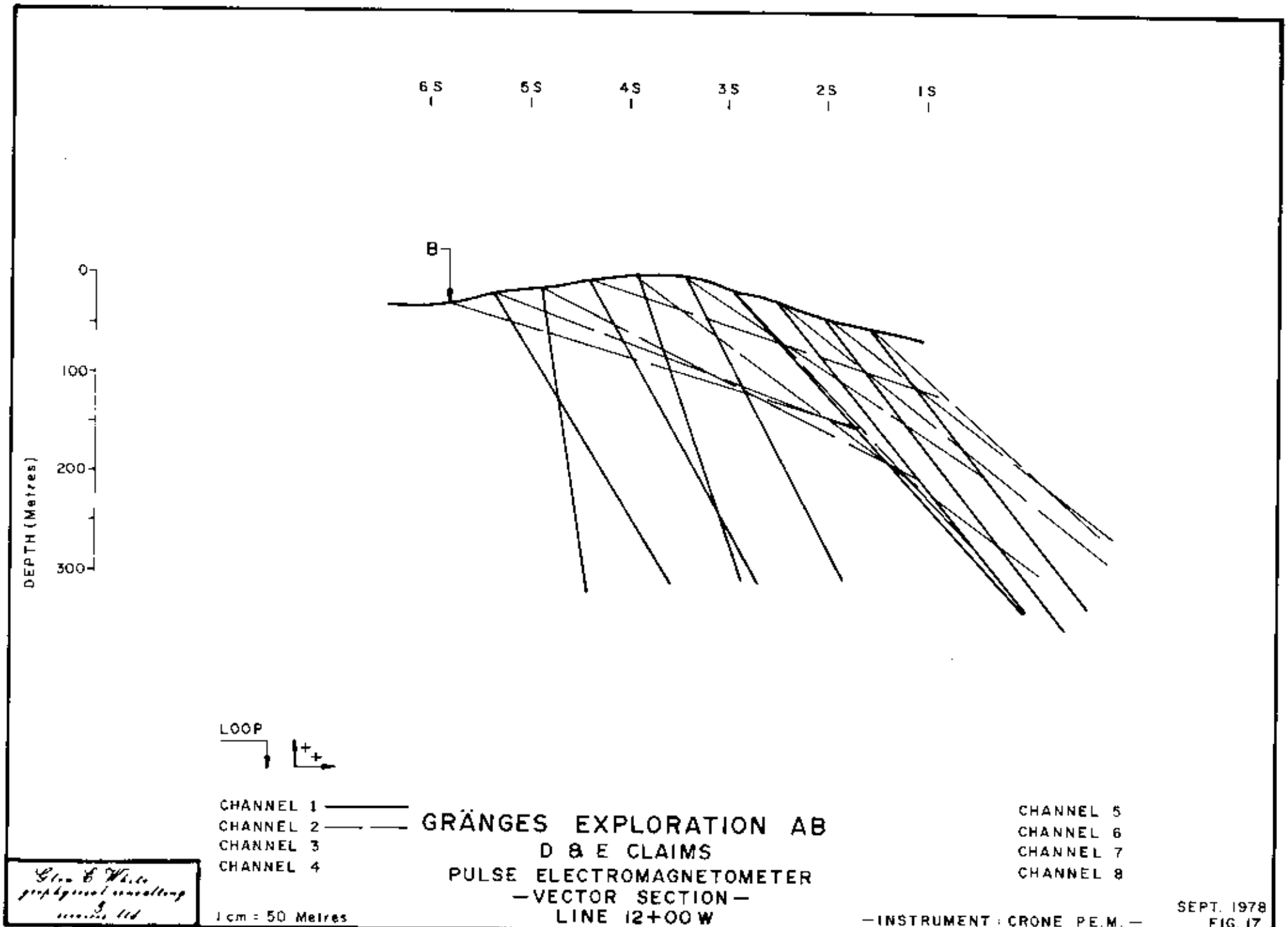
LINE 13+00W

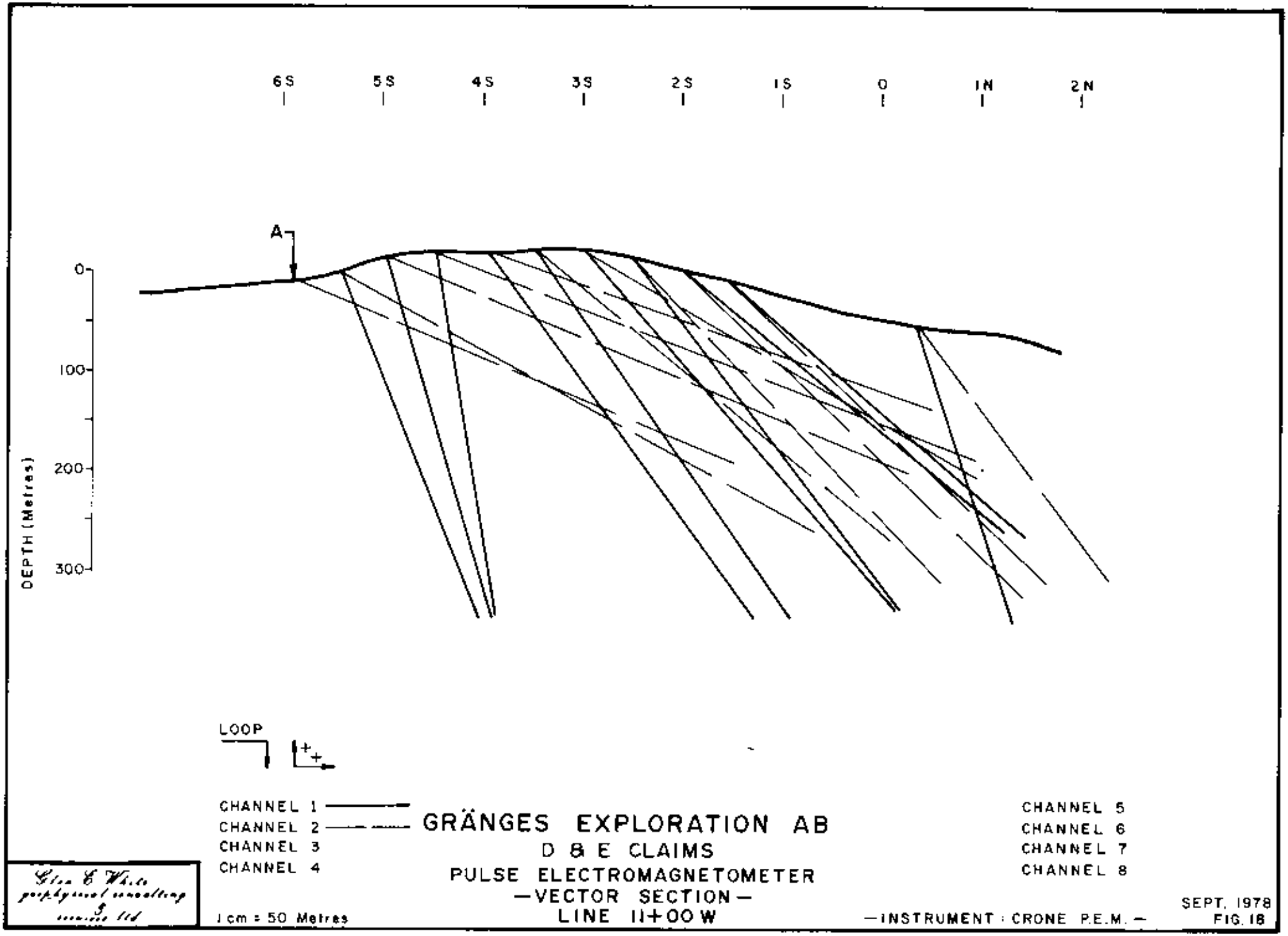
—INSTRUMENT · CRONE P.E.M.—

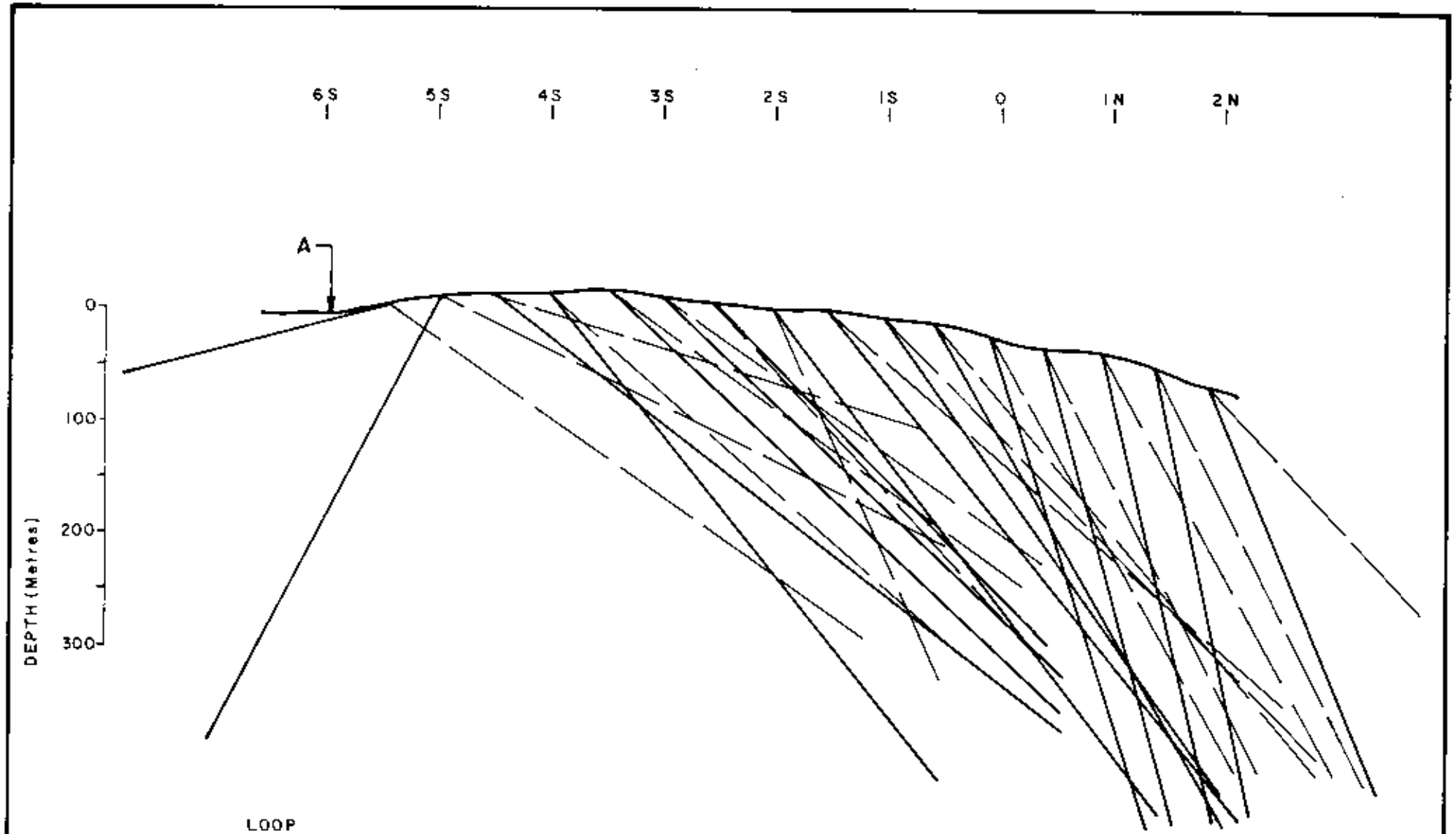
1 cm = 50 Metres

SEPT. 1978

FIG. 16


6S
5S
4S
3S
2S
1S
B
0
100
200
300
DEPTH (Metres)
LOOP
CHANNEL 1
CHANNEL 2
CHANNEL 3
CHANNEL 4
CHANNEL 5
CHANNEL 6
CHANNEL 7
CHANNEL 8
GRÄNGES EXPLORATION AB
D & E CLAIMS
PULSE ELECTROMAGNETOMETER
—VECTOR SECTION—
LINE 12+00 W
1 cm = 50 Metres
—INSTRUMENT : CRONE P.E.M. —
SEPT. 1978
FIG. 17


6S
5S
4S
3S
2S
1S
0
1N
2N
A
0
100
200
300
DEPTH (Metres)
LOOP
CHANNEL 1
CHANNEL 2
CHANNEL 3
CHANNEL 4
CHANNEL 5
CHANNEL 6
CHANNEL 7
CHANNEL 8
GRÄNGES EXPLORATION AB
D & E CLAIMS
PULSE ELECTROMAGNETOMETER
—VECTOR SECTION—
LINE 11+00 W
1 cm = 50 Metres
—INSTRUMENT : CRONE P.E.M. —
SEPT. 1978
FIG. 18



GRÄNGES EXPLORATION AB

D & E CLAIMS

PULSE ELECTROMAGNETOMETER

—VECTOR SECTION—

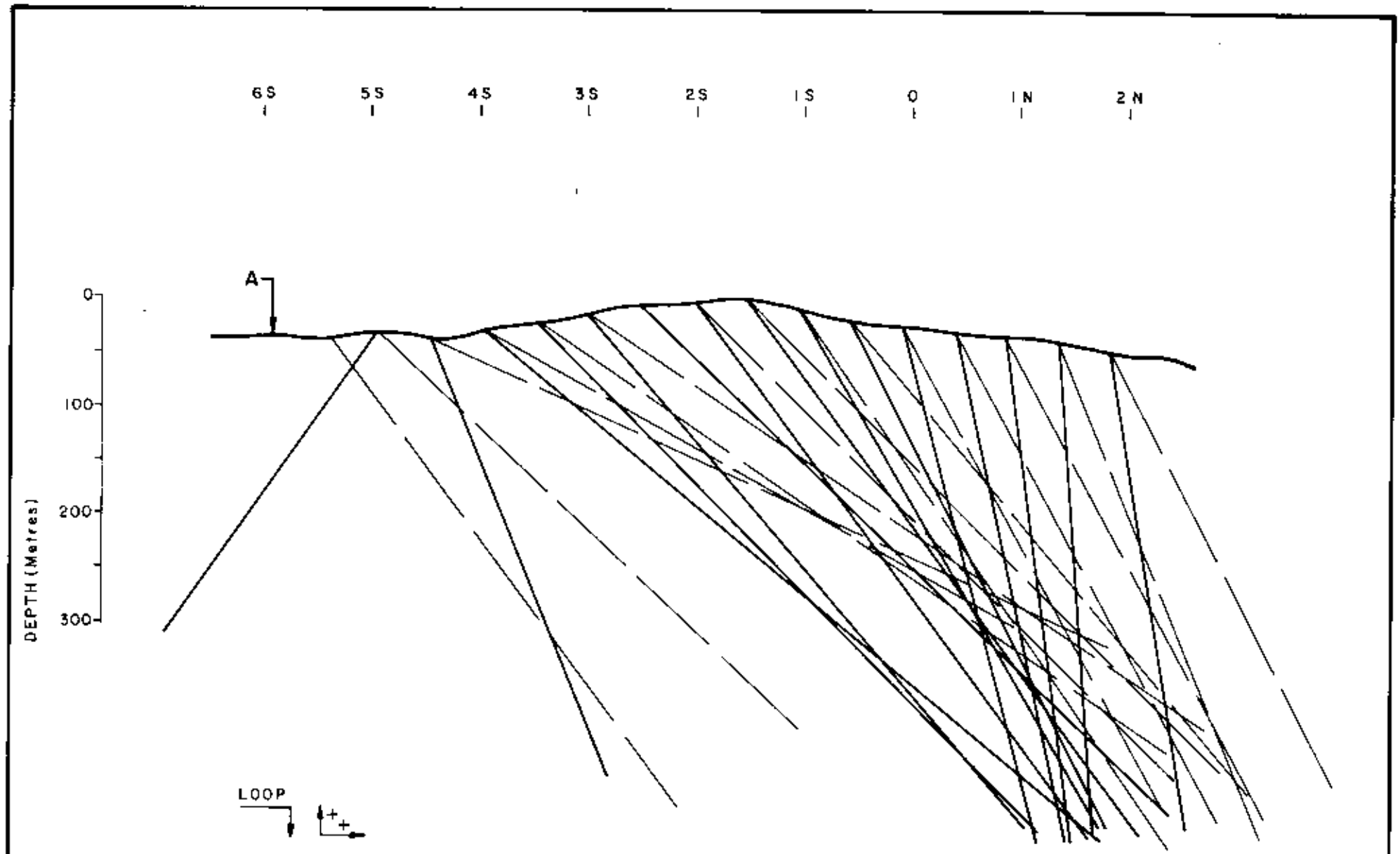
LINE 10+00 W

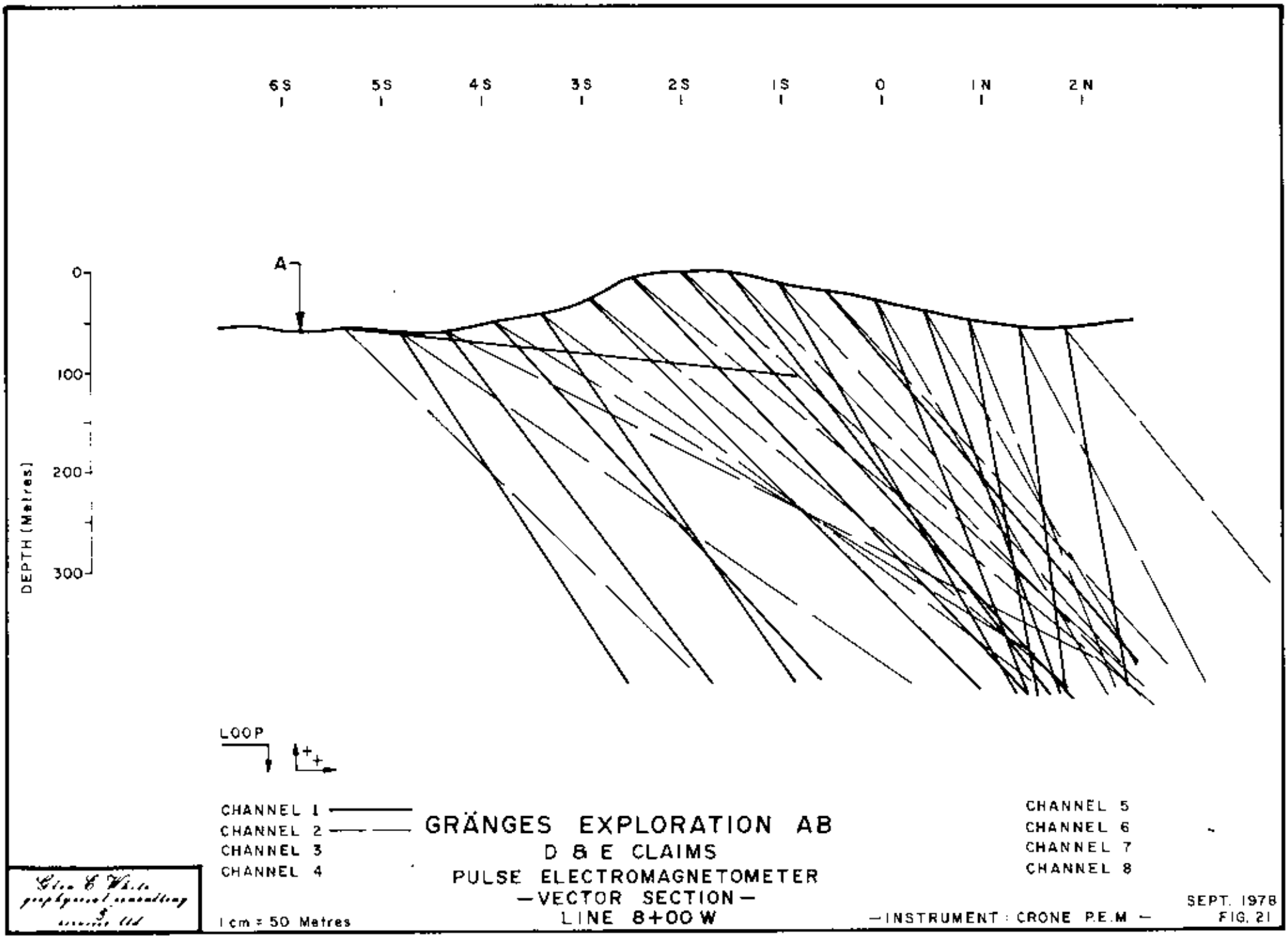
1 cm = 50 Metres

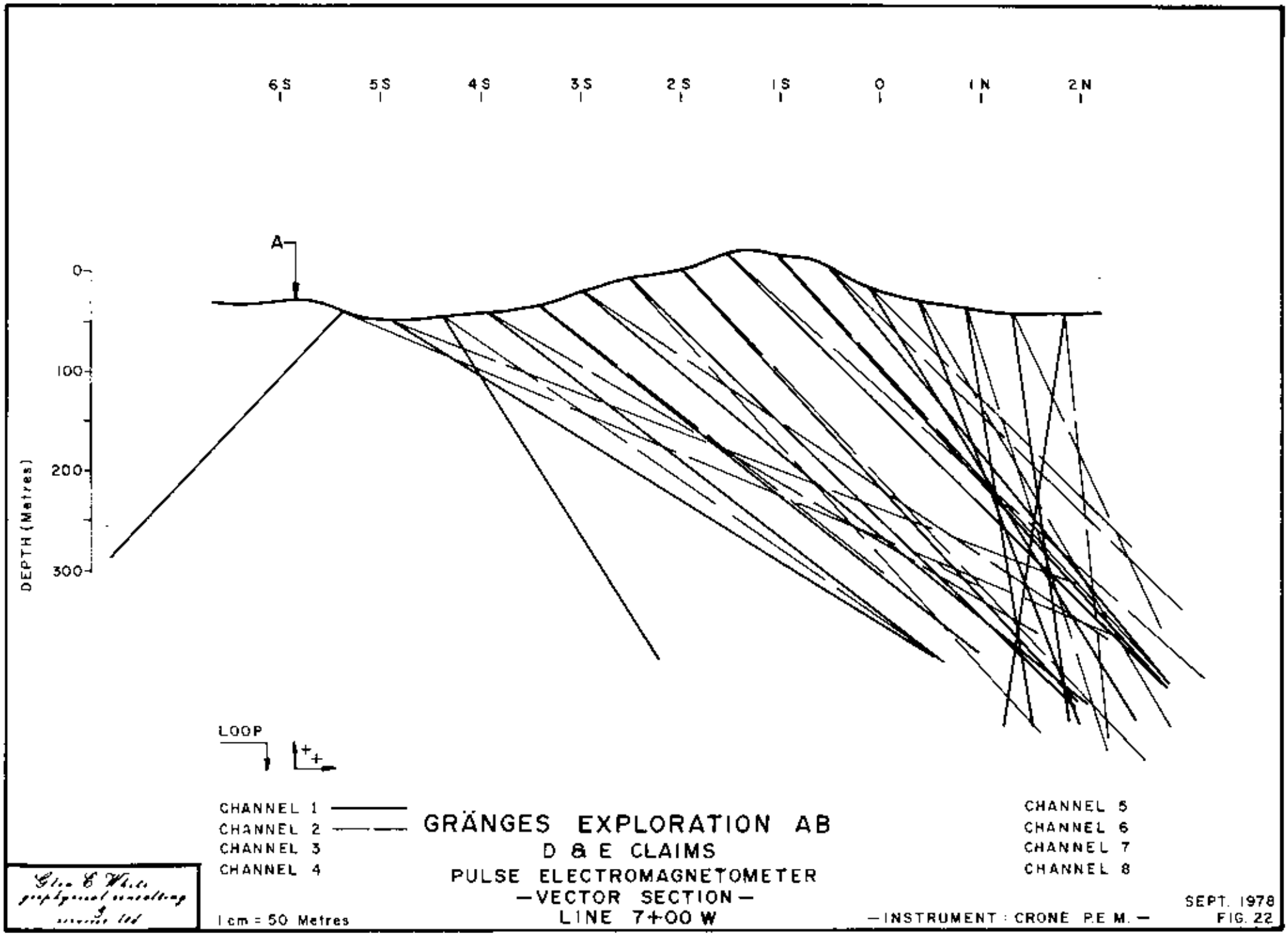
—INSTRUMENT : CRONE P.E.M. —

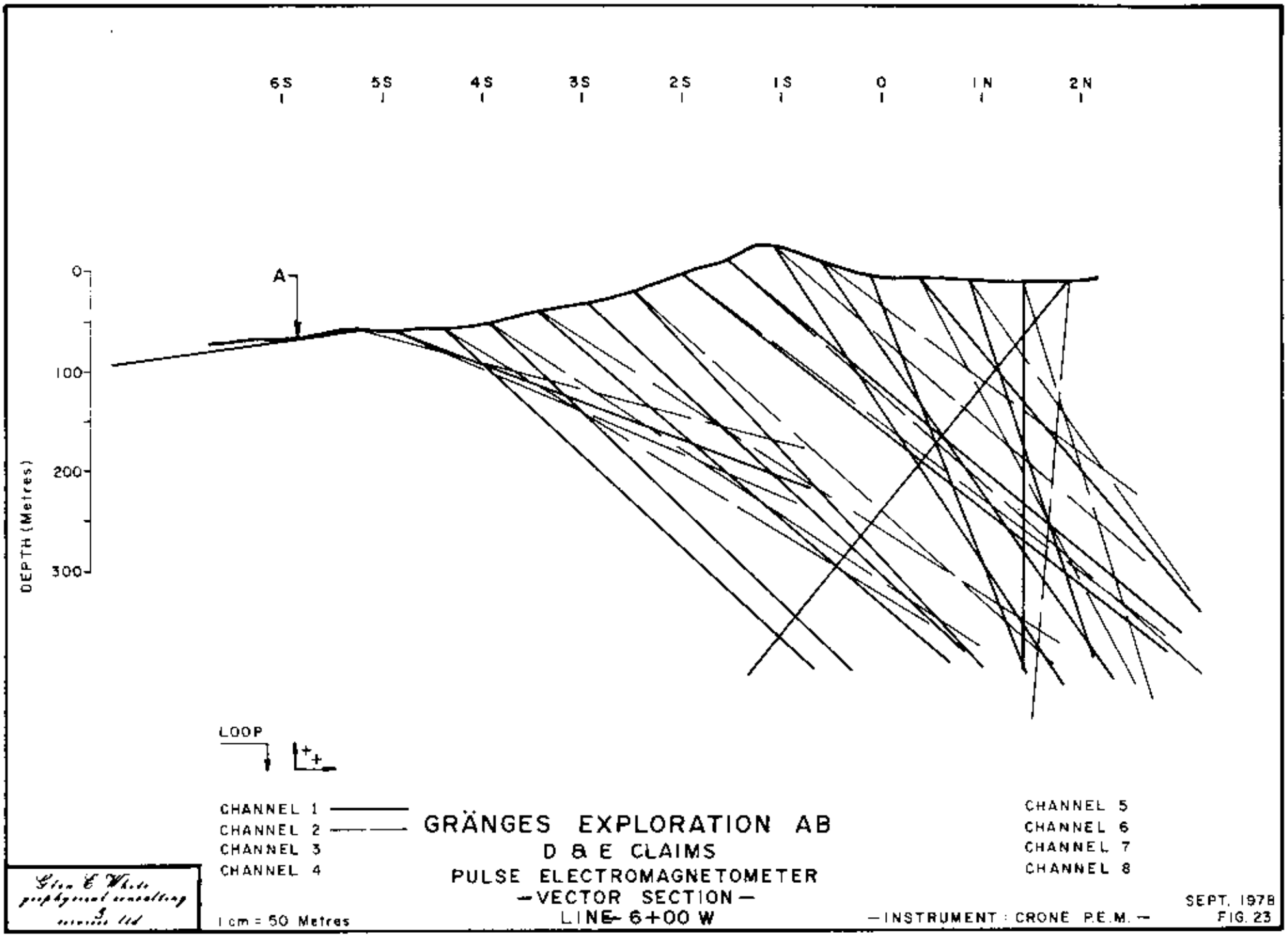
SEPT. 1978

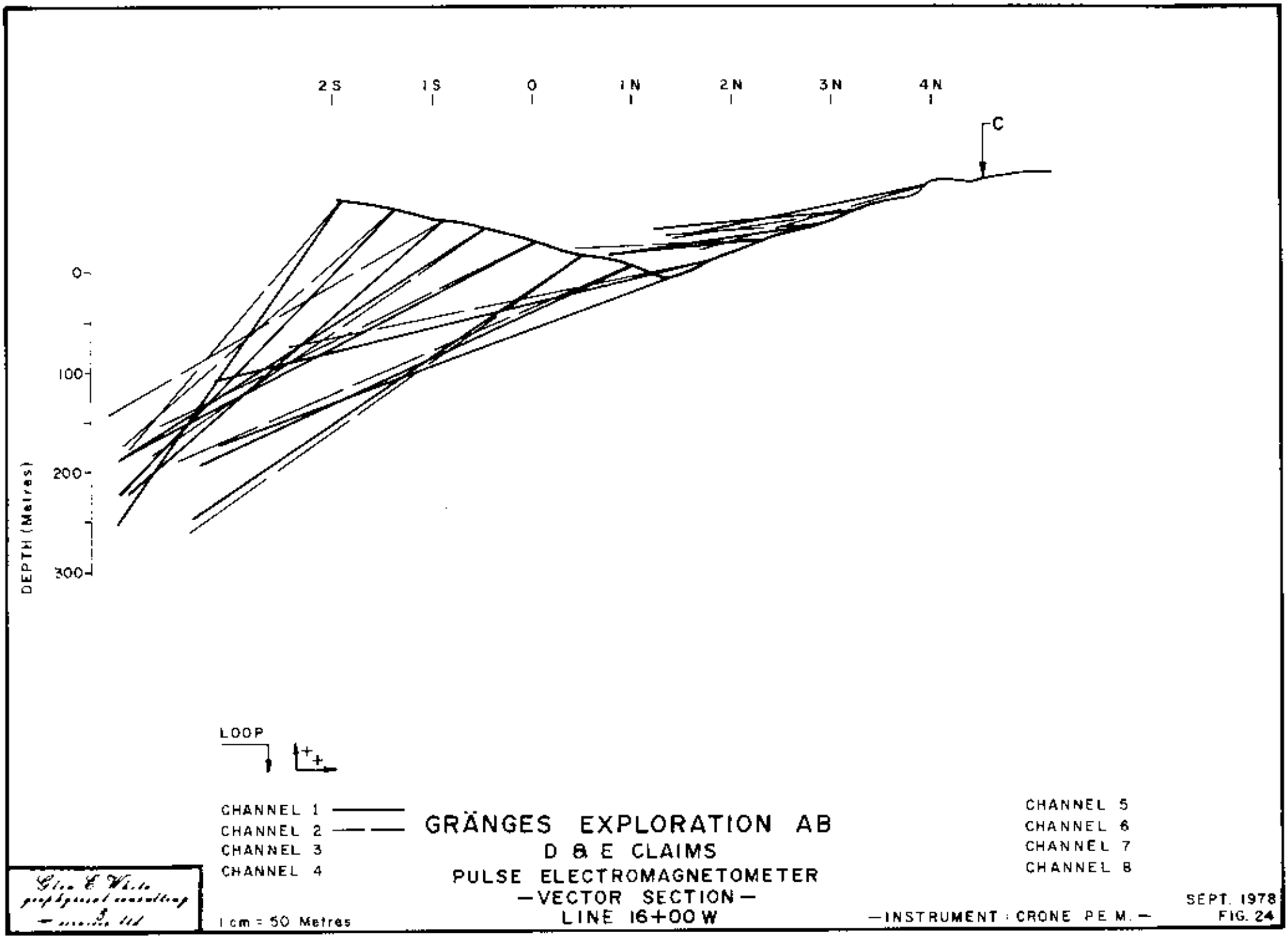
FIG. 19

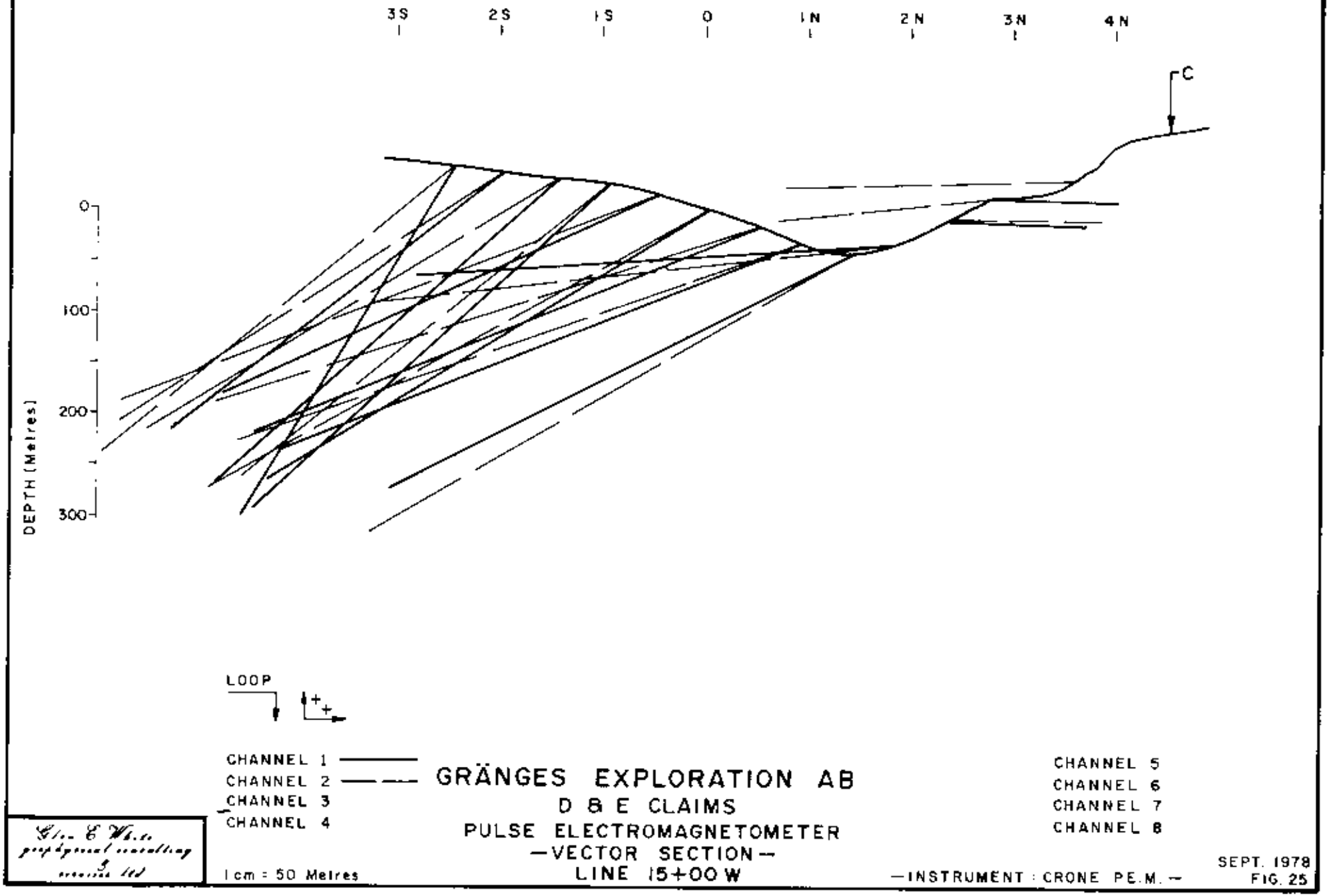

6S
5S
4S
3S
2S
1S
0
1N
2N
A
0
100
200
300
DEPTH (Metres)
LOOP
CHANNEL 1
CHANNEL 2
CHANNEL 3
CHANNEL 4
CHANNEL 5
CHANNEL 6
CHANNEL 7
CHANNEL 8
GRÄNGES EXPLORATION AB
D & E CLAIMS
PULSE ELECTROMAGNETOMETER
—VECTOR SECTION—
LINE 9+00 W
1 cm = 50 Metres
—INSTRUMENT : CRONE P.E.M. —
SEPT. 1978
FIG. 20

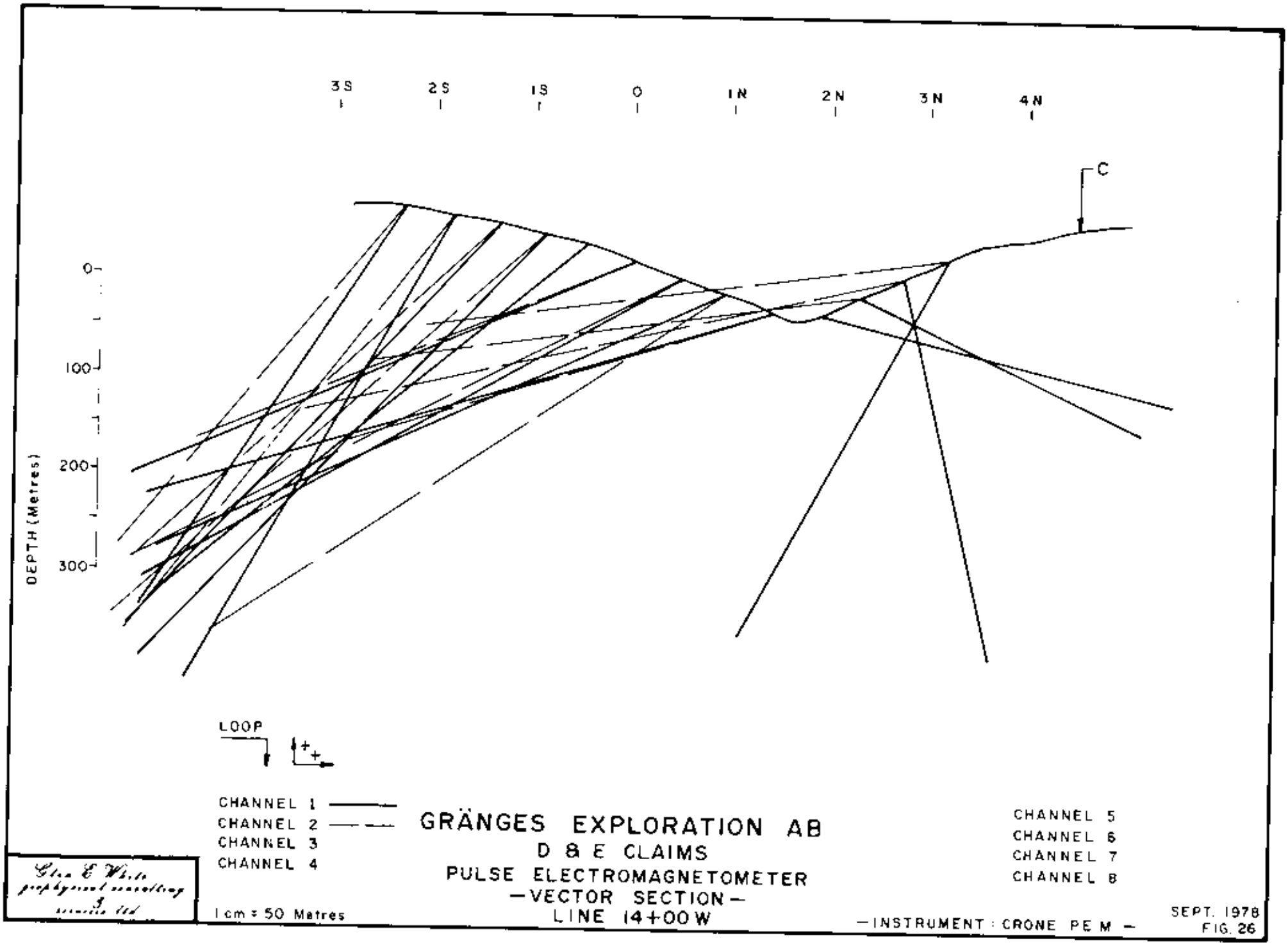

6S
5S
4S
3S
2S
1S
0
1N
2N
A
0
100
200
300
DEPTH (Metres)
LOOP
CHANNEL 1
CHANNEL 2
CHANNEL 3
CHANNEL 4
CHANNEL 5
CHANNEL 6
CHANNEL 7
CHANNEL 8
GRÄNGES EXPLORATION AB
D & E CLAIMS
PULSE ELECTROMAGNETOMETER
—VECTOR SECTION—
LINE 8+00 W
—INSTRUMENT : CRONE P.E.M —
1 cm = 50 Metres
SEPT. 1978
FIG. 21

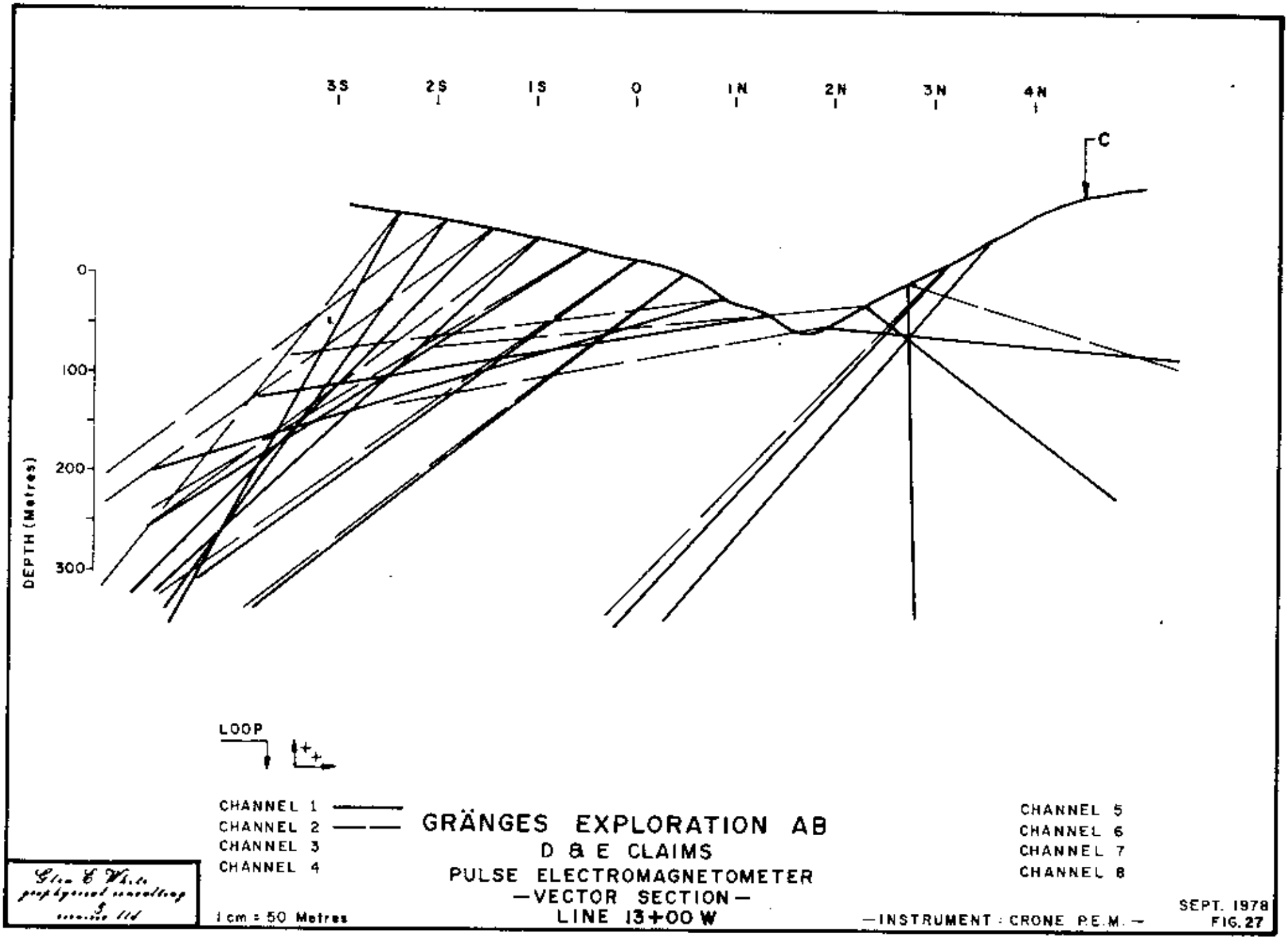

6S
5S
4S
3S
2S
1S
0
1N
2N
A
0
100
200
300
DEPTH (Metres)
LOOP
CHANNEL 1
CHANNEL 2
CHANNEL 3
CHANNEL 4
CHANNEL 5
CHANNEL 6
CHANNEL 7
CHANNEL 8
GRÄNGES EXPLORATION AB
D & E CLAIMS
PULSE ELECTROMAGNETOMETER
—VECTOR SECTION—
LINE 7+00 W
1 cm = 50 Metres
—INSTRUMENT : CRONE P.E.M.—
SEPT. 1978
FIG. 22

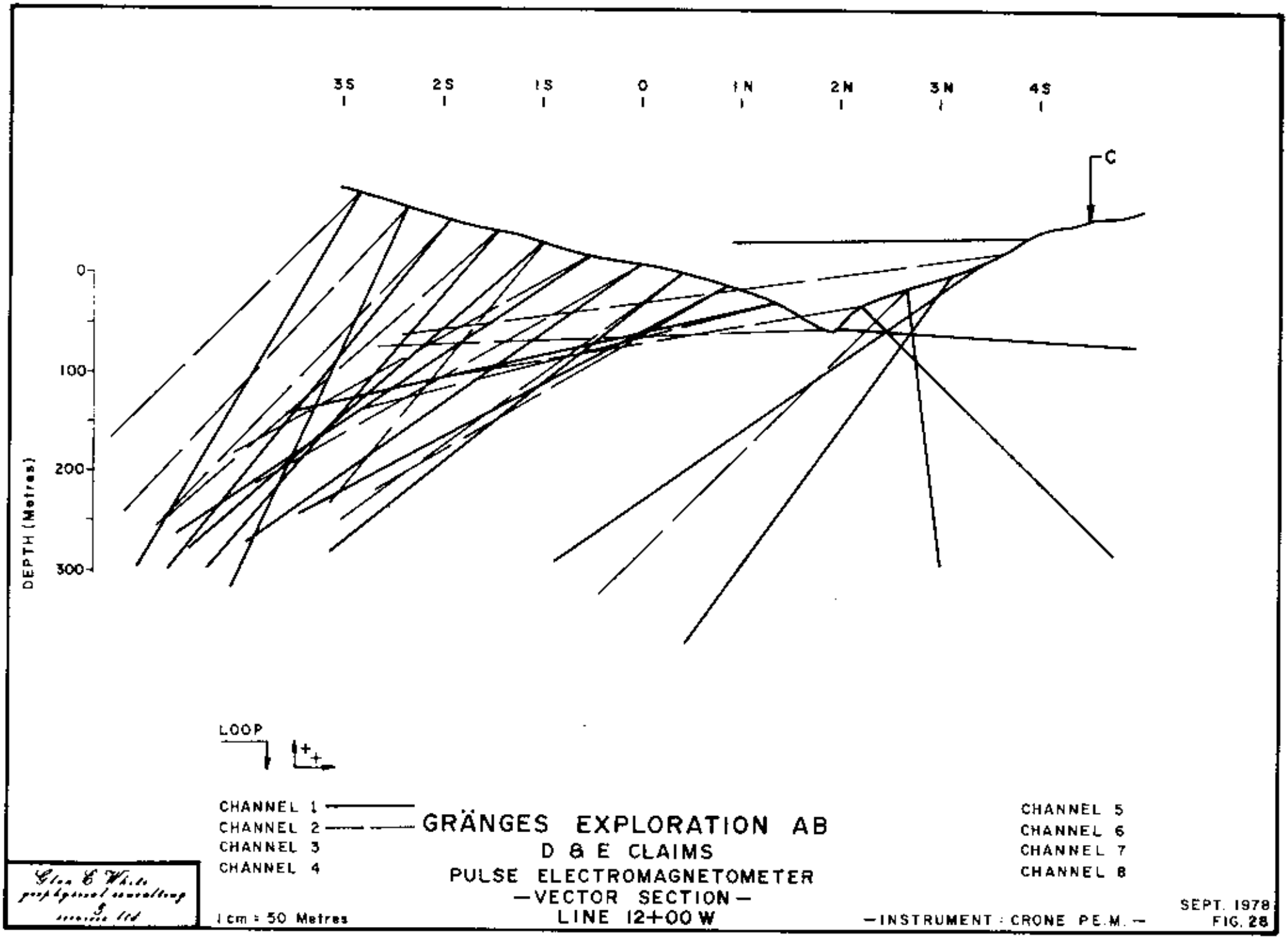

6S
5S
4S
3S
2S
1S
0
1N
2N
A
0
100
200
300
DEPTH (Metres)
LOOP
CHANNEL 1
CHANNEL 2
CHANNEL 3
CHANNEL 4
CHANNEL 5
CHANNEL 6
CHANNEL 7
CHANNEL 8
GRÄNGES EXPLORATION AB
D & E CLAIMS
PULSE ELECTROMAGNETOMETER
—VECTOR SECTION—
LINE 6+00 W
—INSTRUMENT : CRONE P.E.M.—
1 cm = 50 Metres
SEPT. 1978
FIG. 23

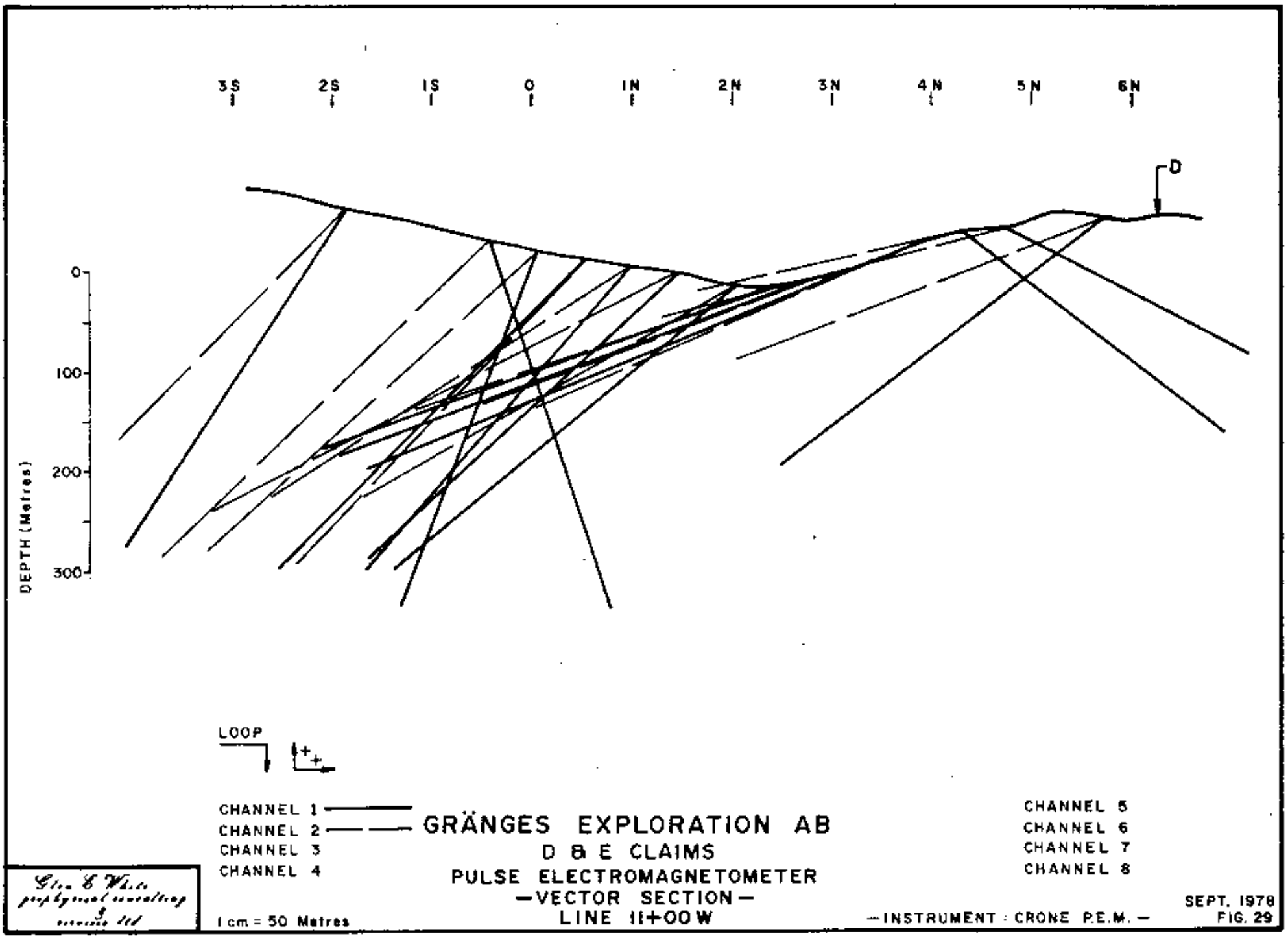

2S
1S
0
1N
2N
3N
4N
C
0
100
200
300
DEPTH (Metres)
LOOP
CHANNEL 1
CHANNEL 2
CHANNEL 3
CHANNEL 4
CHANNEL 5
CHANNEL 6
CHANNEL 7
CHANNEL 8
GRÄNGES EXPLORATION AB
D & E CLAIMS
PULSE ELECTROMAGNETOMETER
—VECTOR SECTION—
LINE 16+00 W
—INSTRUMENT : CRONE P.E.M.—
1 cm = 50 Metres
SEPT. 1978
FIG. 24

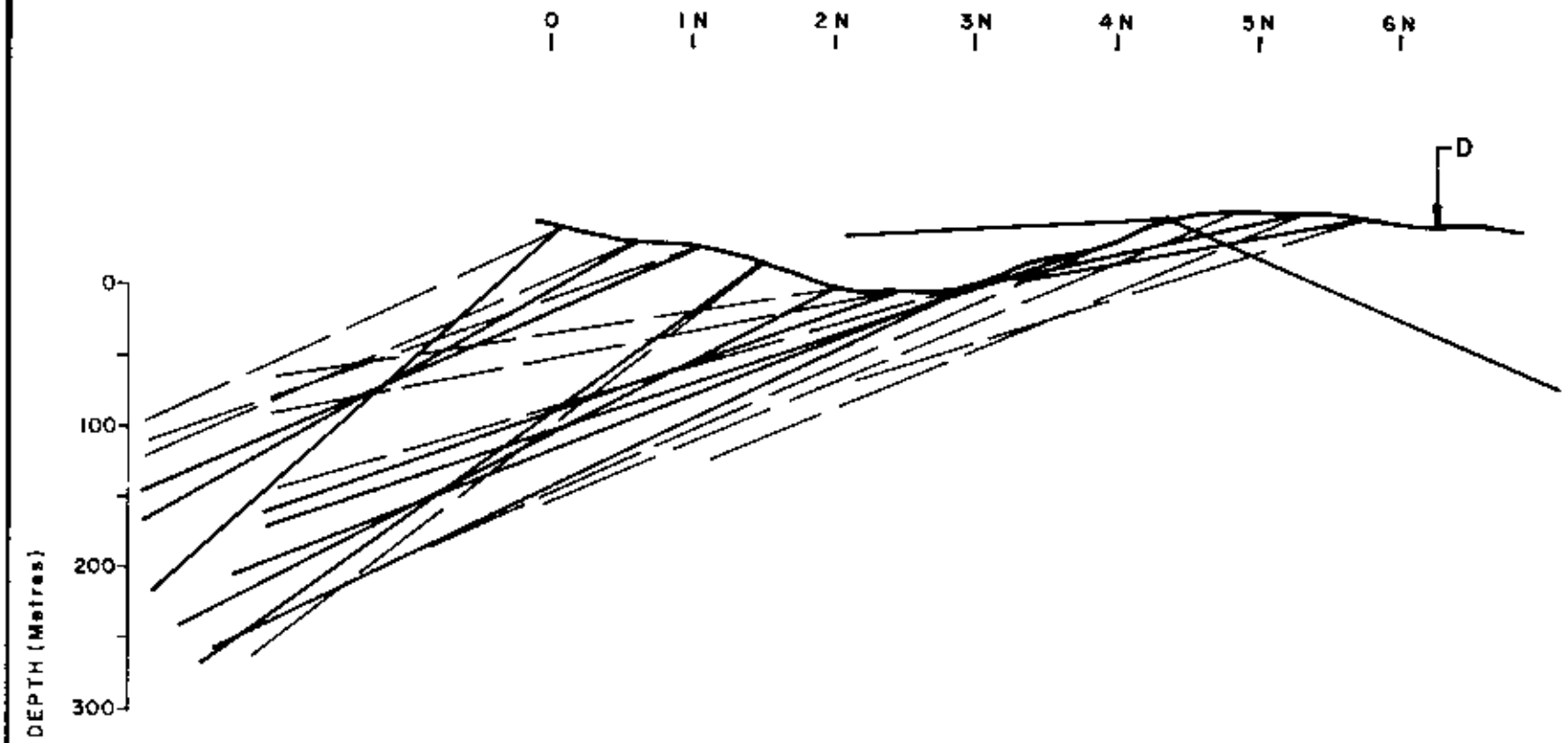

3S
2S
1S
0
1N
2N
3N
4N
C
0
100
200
300
DEPTH (Metres)
LOOP
CHANNEL 1
CHANNEL 2
CHANNEL 3
CHANNEL 4
CHANNEL 5
CHANNEL 6
CHANNEL 7
CHANNEL 8
GRÄNGES EXPLORATION AB
D & E CLAIMS
PULSE ELECTROMAGNETOMETER
—VECTOR SECTION—
LINE 15+00W
1 cm = 50 Metres
—INSTRUMENT : CRONE P.E.M.—
SEPT. 1978
FIG. 25


3S
2S
1S
0
1N
2N
3N
4N
C
0
100
200
300
DEPTH (Metres)
LOOP
CHANNEL 1
CHANNEL 2
CHANNEL 3
CHANNEL 4
CHANNEL 5
CHANNEL 6
CHANNEL 7
CHANNEL 8
GRÄNGES EXPLORATION AB
D & E CLAIMS
PULSE ELECTROMAGNETOMETER
—VECTOR SECTION—
LINE 14+00W
1 cm = 50 Metres
—INSTRUMENT : CRONE PE M —
SEPT. 1978
FIG. 26


3S
2S
1S
0
1N
2N
3N
4N
C
0
100
200
300
DEPTH (Metres)
LOOP
CHANNEL 1
CHANNEL 2
CHANNEL 3
CHANNEL 4
CHANNEL 5
CHANNEL 6
CHANNEL 7
CHANNEL 8
GRÄNGES EXPLORATION AB
D & E CLAIMS
PULSE ELECTROMAGNETOMETER
—VECTOR SECTION—
LINE 13+00 W
1 cm = 50 Metres
—INSTRUMENT : CRONE P.E.M. —
SEPT. 1978
FIG. 27


3S
2S
1S
0
1N
2N
3N
4S
C
0
100
200
300
DEPTH (Metres)
LOOP
CHANNEL 1
CHANNEL 2
CHANNEL 3
CHANNEL 4
CHANNEL 5
CHANNEL 6
CHANNEL 7
CHANNEL 8
GRÄNGES EXPLORATION AB
D & E CLAIMS
PULSE ELECTROMAGNETOMETER
—VECTOR SECTION—
LINE 12+00 W
1 cm = 50 Metres
—INSTRUMENT : CRONE P.E.M. —
SEPT. 1978
FIG. 28


3S
2S
1S
0
1N
2N
3N
4N
5N
6N
D
0
100
200
300
DEPTH (Metres)
LOOP
CHANNEL 1
CHANNEL 2
CHANNEL 3
CHANNEL 4
CHANNEL 5
CHANNEL 6
CHANNEL 7
CHANNEL 8
GRÄNGES EXPLORATION AB
D & E CLAIMS
PULSE ELECTROMAGNETOMETER
—VECTOR SECTION—
LINE 11+00W
1 cm = 50 Metres
—INSTRUMENT : CRONE P.E.M. —
SEPT. 1978
FIG. 29



LOOP

CHANNEL 1
CHANNEL 2
CHANNEL 3
CHANNEL 4

CHANNEL 5
CHANNEL 6
CHANNEL 7
CHANNEL 8

GRÄNGES EXPLORATION AB

D & E CLAIMS

PULSE ELECTROMAGNETOMETER

—VECTOR SECTION—

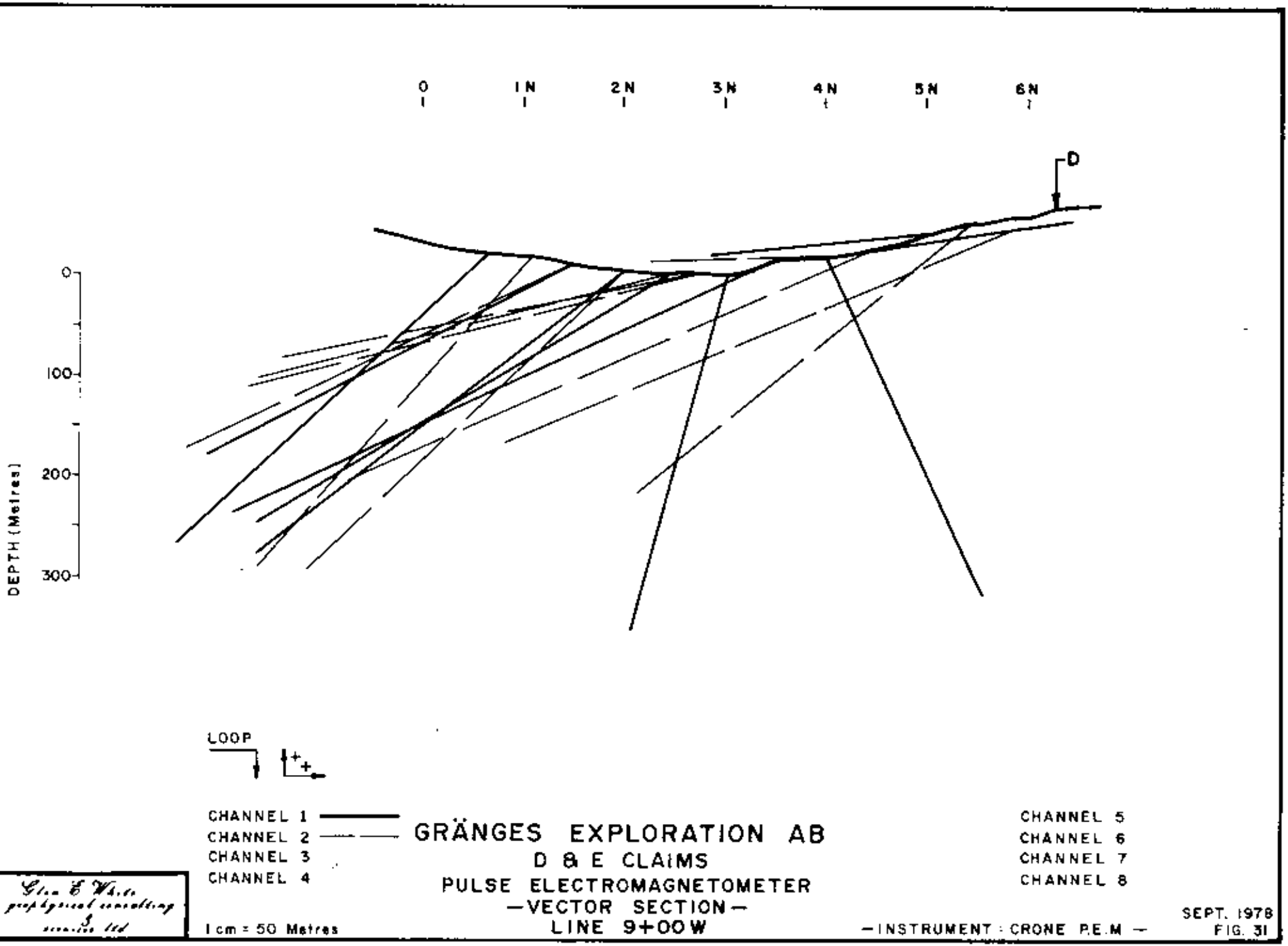
LINE 10+00 W

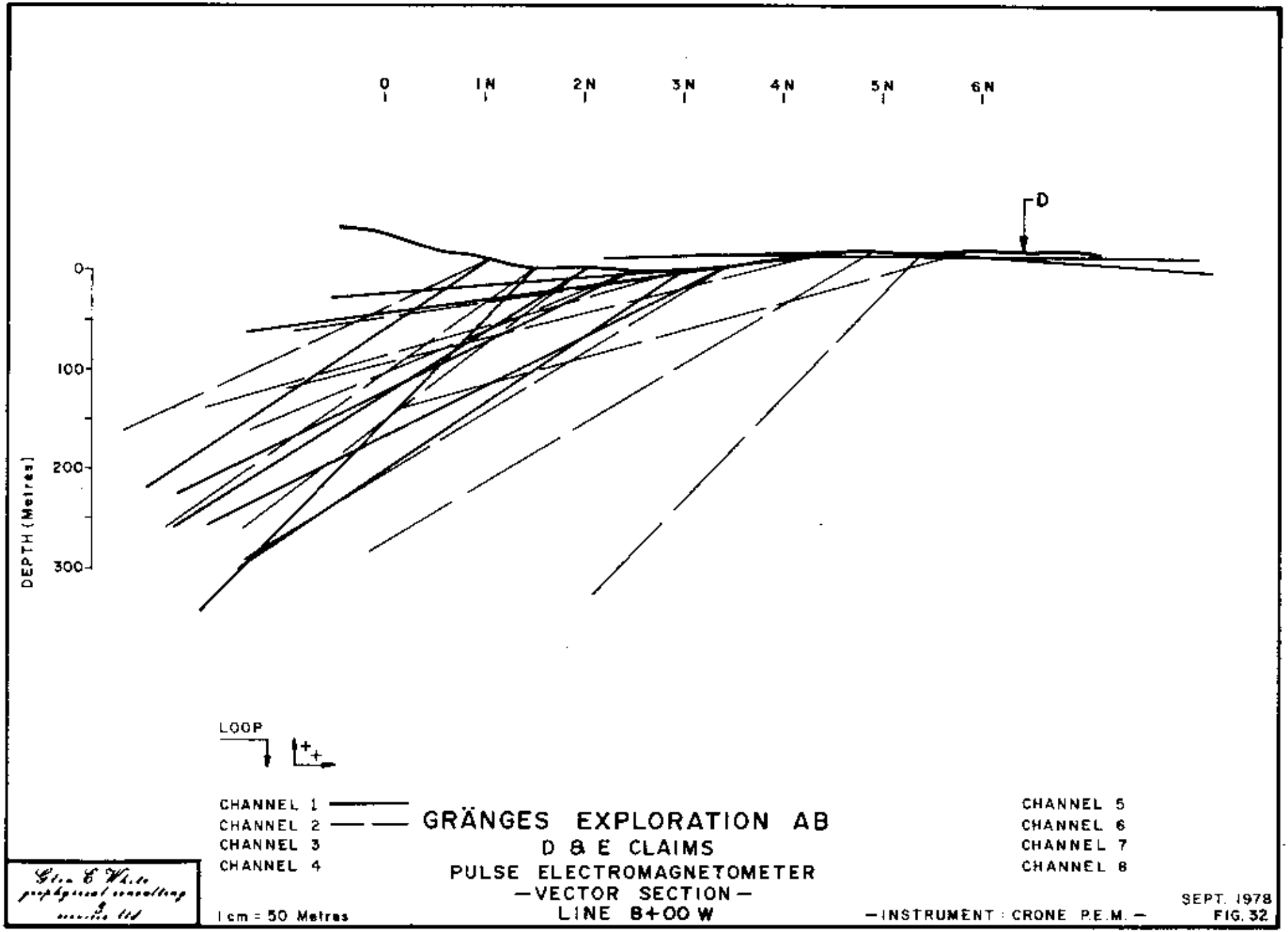
1 cm = 50 Metres

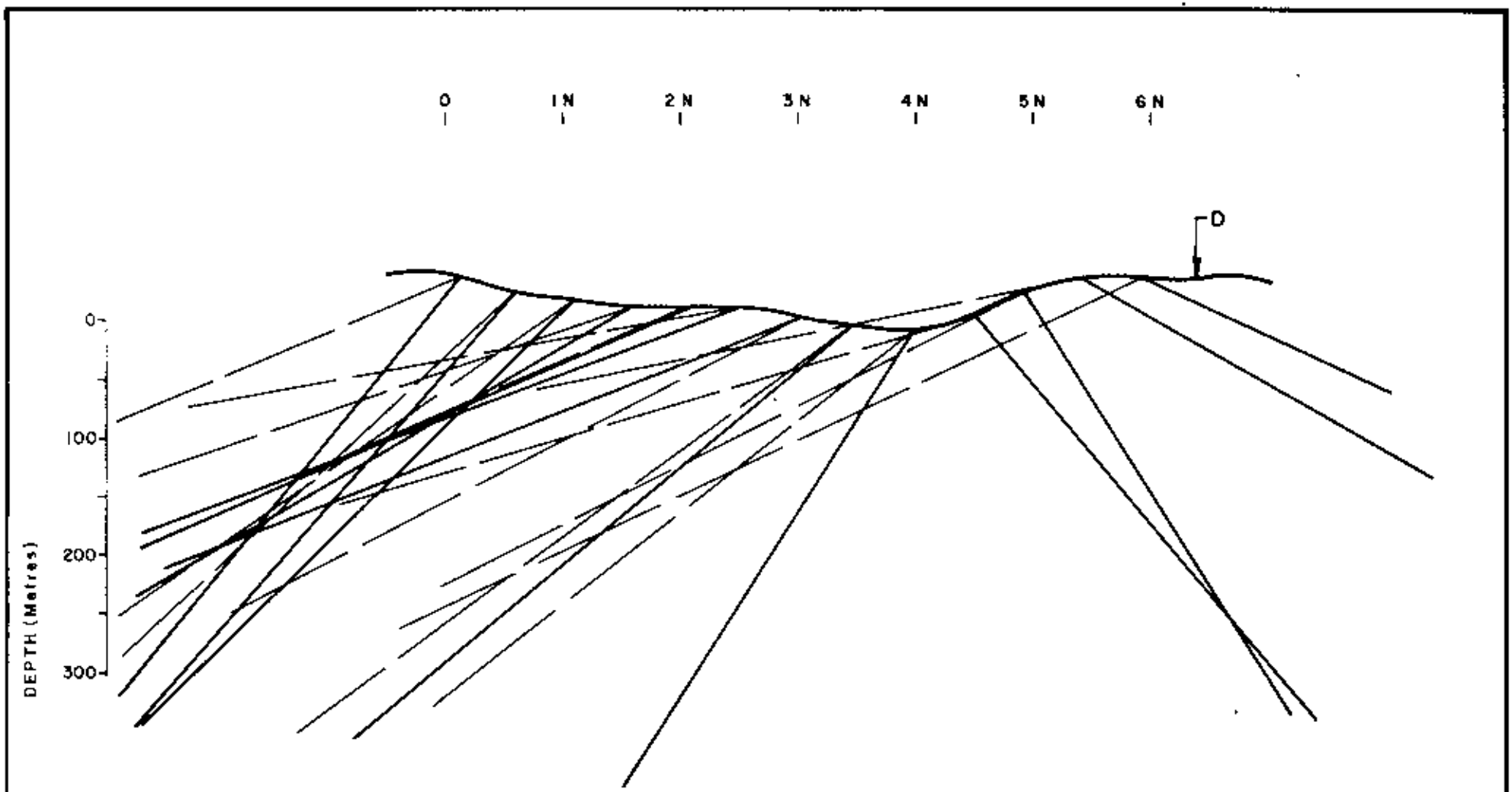
—INSTRUMENT : CRONE P.E.M. —

SEPT. 1978

FIG. 30


0
1N
2N
3N
4N
5N
6N
D
0
100
200
300
DEPTH (Metres)
LOOP
CHANNEL 1
CHANNEL 2
CHANNEL 3
CHANNEL 4
CHANNEL 5
CHANNEL 6
CHANNEL 7
CHANNEL 8
GRÄNGES EXPLORATION AB
D & E CLAIMS
PULSE ELECTROMAGNETOMETER
—VECTOR SECTION—
LINE 9+00W
1 cm = 50 Metres
—INSTRUMENT : CRONE P.E.M —
SEPT. 1978
FIG. 31


0
1N
2N
3N
4N
5N
6N
D
0
100
200
300
DEPTH (Metres)
LOOP
CHANNEL 1
CHANNEL 2
CHANNEL 3
CHANNEL 4
CHANNEL 5
CHANNEL 6
CHANNEL 7
CHANNEL 8
GRÄNGES EXPLORATION AB
D & E CLAIMS
PULSE ELECTROMAGNETOMETER
—VECTOR SECTION—
LINE 8+00 W
1 cm = 50 Metres
—INSTRUMENT : CRONE P.E.M. —
SEPT. 1978
FIG. 32



LOOP

CHANNEL 1
CHANNEL 2
CHANNEL 3
CHANNEL 4
CHANNEL 5
CHANNEL 6
CHANNEL 7
CHANNEL 8

GRÄNGES EXPLORATION AB

D & E CLAIMS

PULSE ELECTROMAGNETOMETER

—VECTOR SECTION—

LINE 7+00W

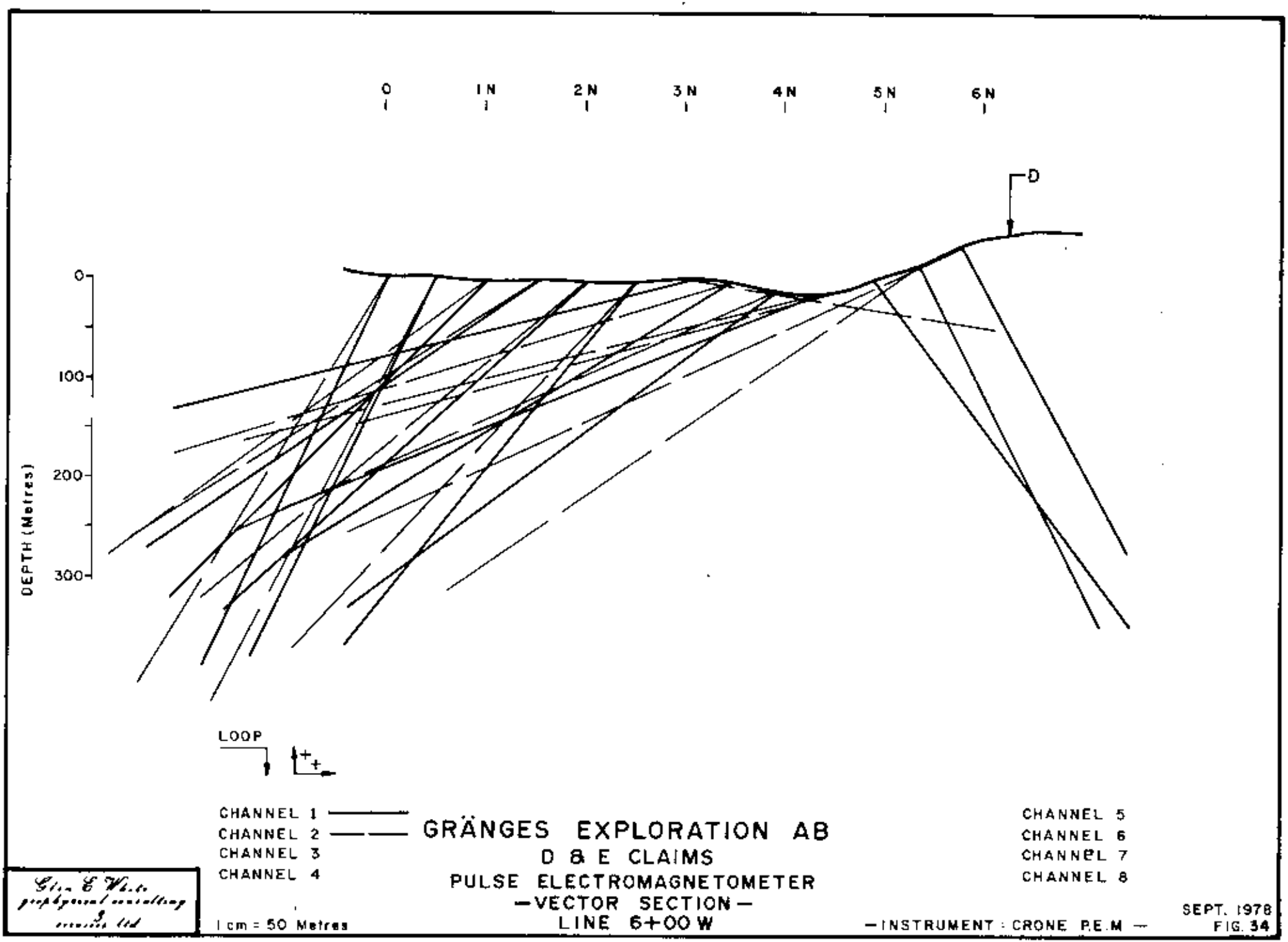
1 cm = 50 Metres

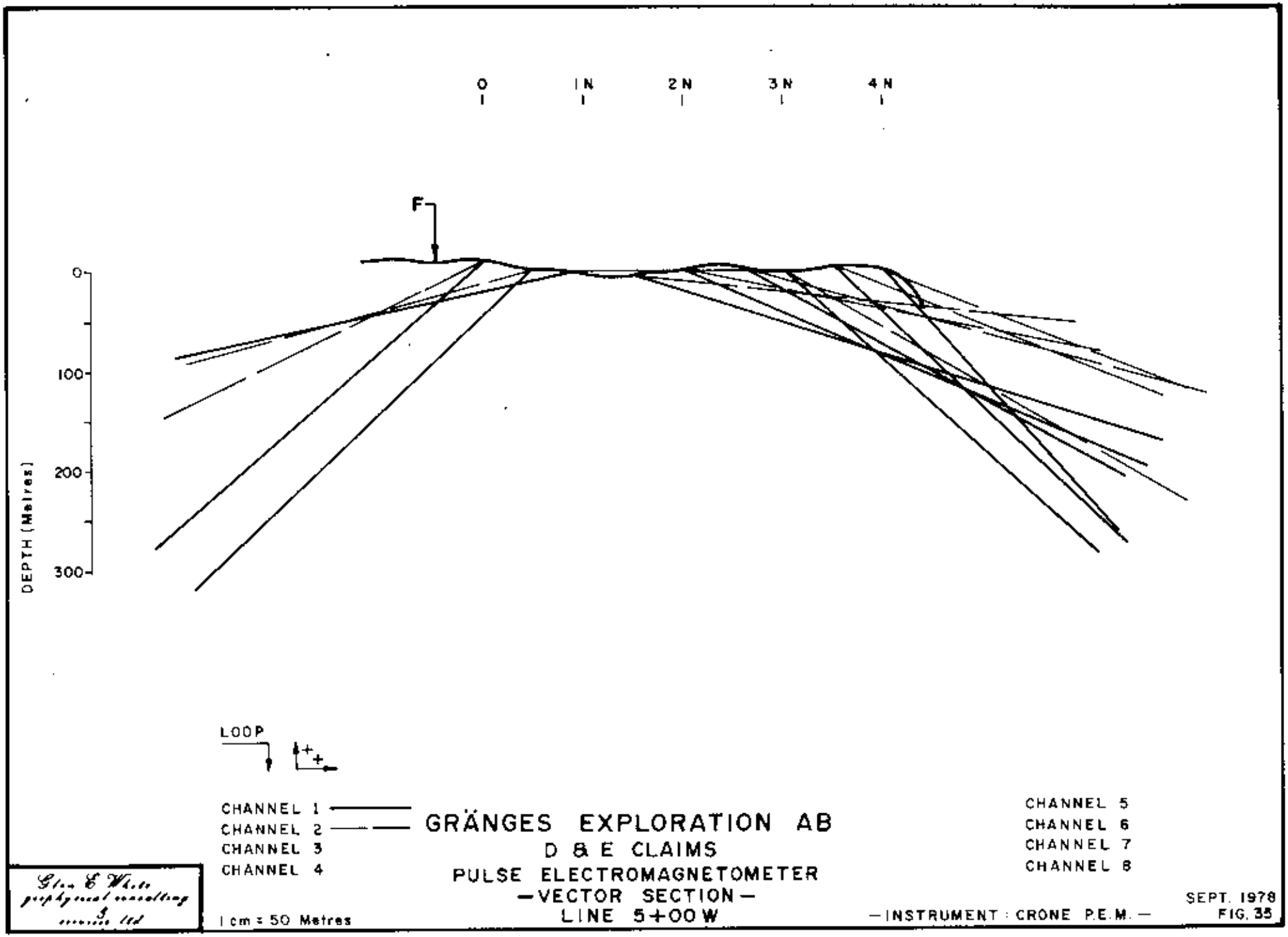
—INSTRUMENT : CRONE P.E.M —

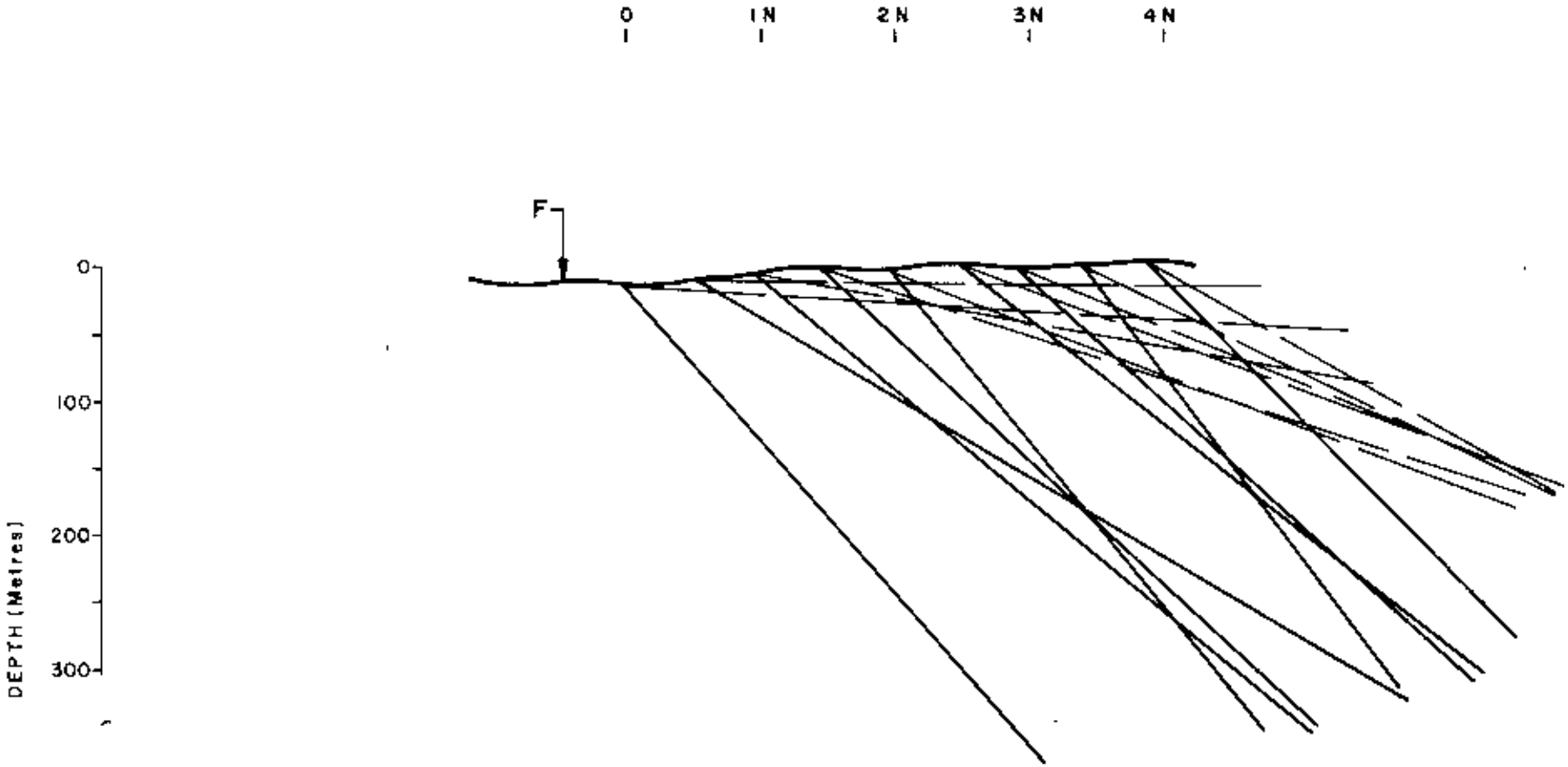
SEPT. 1978

FIG. 33

Glen E Wats
geophysical consulting
services ltd


0
1N
2N
3N
4N
5N
6N
D
0
100
200
300
DEPTH (Metres)
LOOP
CHANNEL 1
CHANNEL 2
CHANNEL 3
CHANNEL 4
CHANNEL 5
CHANNEL 6
CHANNEL 7
CHANNEL 8
GRÄNGES EXPLORATION AB
D & E CLAIMS
PULSE ELECTROMAGNETOMETER
—VECTOR SECTION—
LINE 6+00 W
1 cm = 50 Metres
—INSTRUMENT : CRONE P.E.M —
SEPT. 1978
FIG. 34


0
1N
2N
3N
4N
F
0
100
200
300
DEPTH (Metres)
LOOP
CHANNEL 1
CHANNEL 2
CHANNEL 3
CHANNEL 4
CHANNEL 5
CHANNEL 6
CHANNEL 7
CHANNEL 8
GRÄNGES EXPLORATION AB
D & E CLAIMS
PULSE ELECTROMAGNETOMETER
—VECTOR SECTION—
LINE 5+00W
1 cm = 50 Metres
—INSTRUMENT : CRONE P.E.M.—
SEPT. 1978
FIG. 35
Geo E Watts
geophysical consulting
services ltd



LOOP

CHANNEL 1 ——
CHANNEL 2 — —
CHANNEL 3
CHANNEL 4

CHANNEL 5
CHANNEL 6
CHANNEL 7
CHANNEL 8

GRÄNGES EXPLORATION AB

D & E CLAIMS

PULSE ELECTROMAGNETOMETER

—VECTOR SECTION—

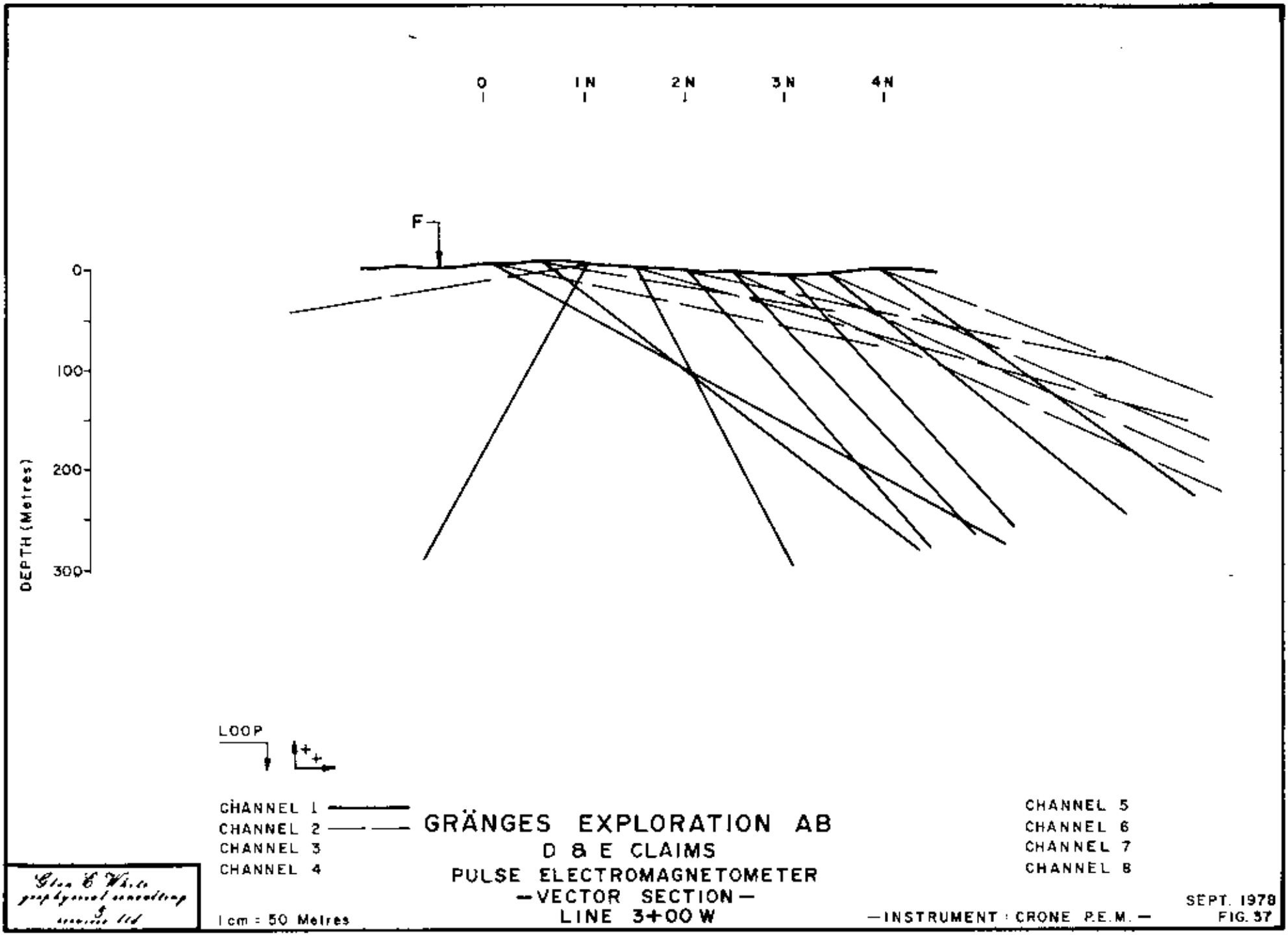
LINE 4+00W

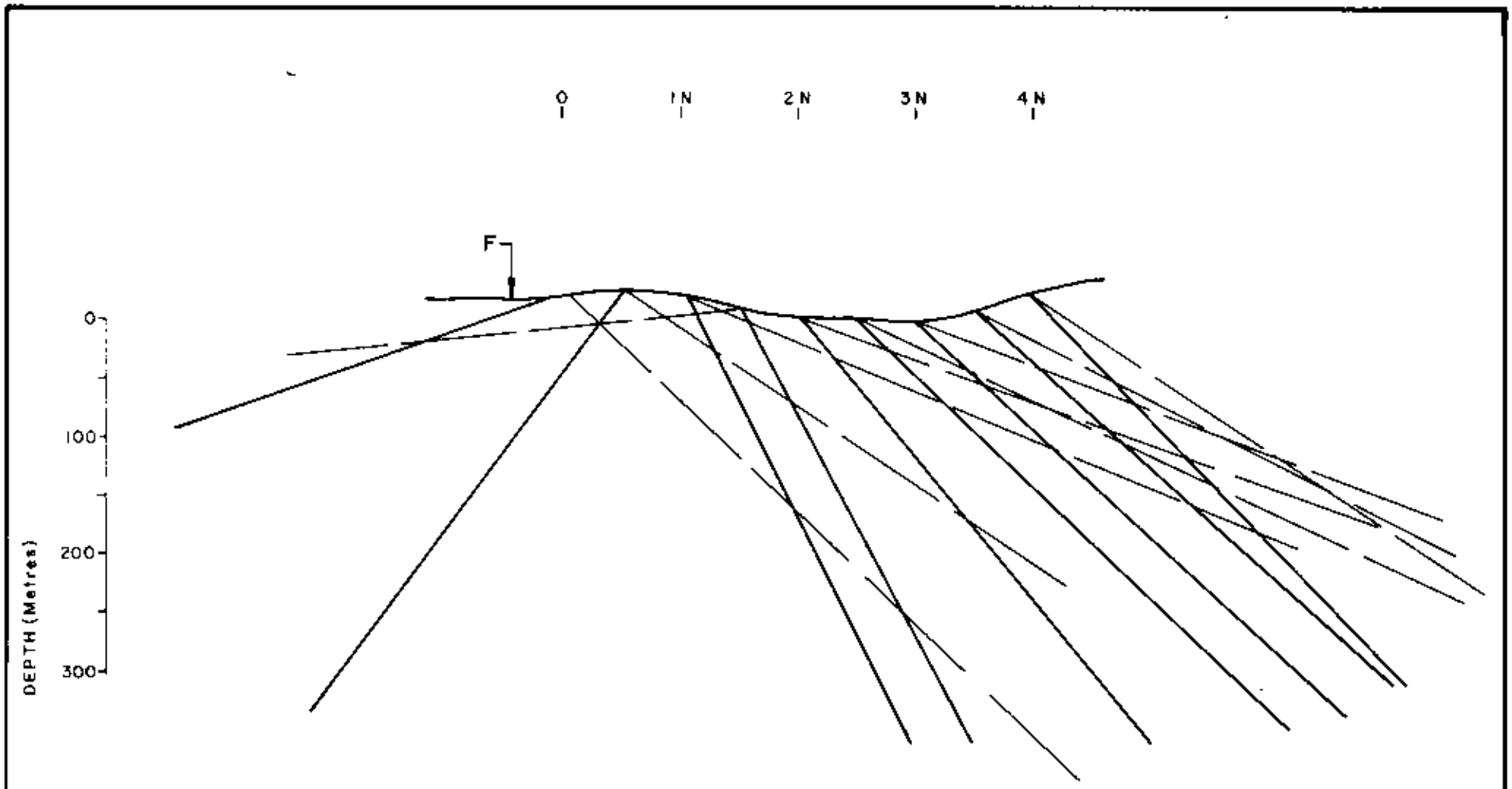
—INSTRUMENT : CRONE P.E.M. —

1 cm = 50 Metres

SEPT. 1978
FIG. 36

Geo-X Surveys
geophysical consulting
services ltd


0
1N
2N
3N
4N
F
0
100
200
300
DEPTH (Metres)
LOOP
CHANNEL 1
CHANNEL 2
CHANNEL 3
CHANNEL 4
CHANNEL 5
CHANNEL 6
CHANNEL 7
CHANNEL 8
GRÄNGES EXPLORATION AB
D & E CLAIMS
PULSE ELECTROMAGNETOMETER
—VECTOR SECTION—
LINE 3+00 W
1 cm = 50 Metres
—INSTRUMENT : CRONE P.E.M.—
SEPT. 1978
FIG. 37



GRÄNGES EXPLORATION AB

D & E CLAIMS

PULSE ELECTROMAGNETOMETER

—VECTOR SECTION—

LINE 2+00 W

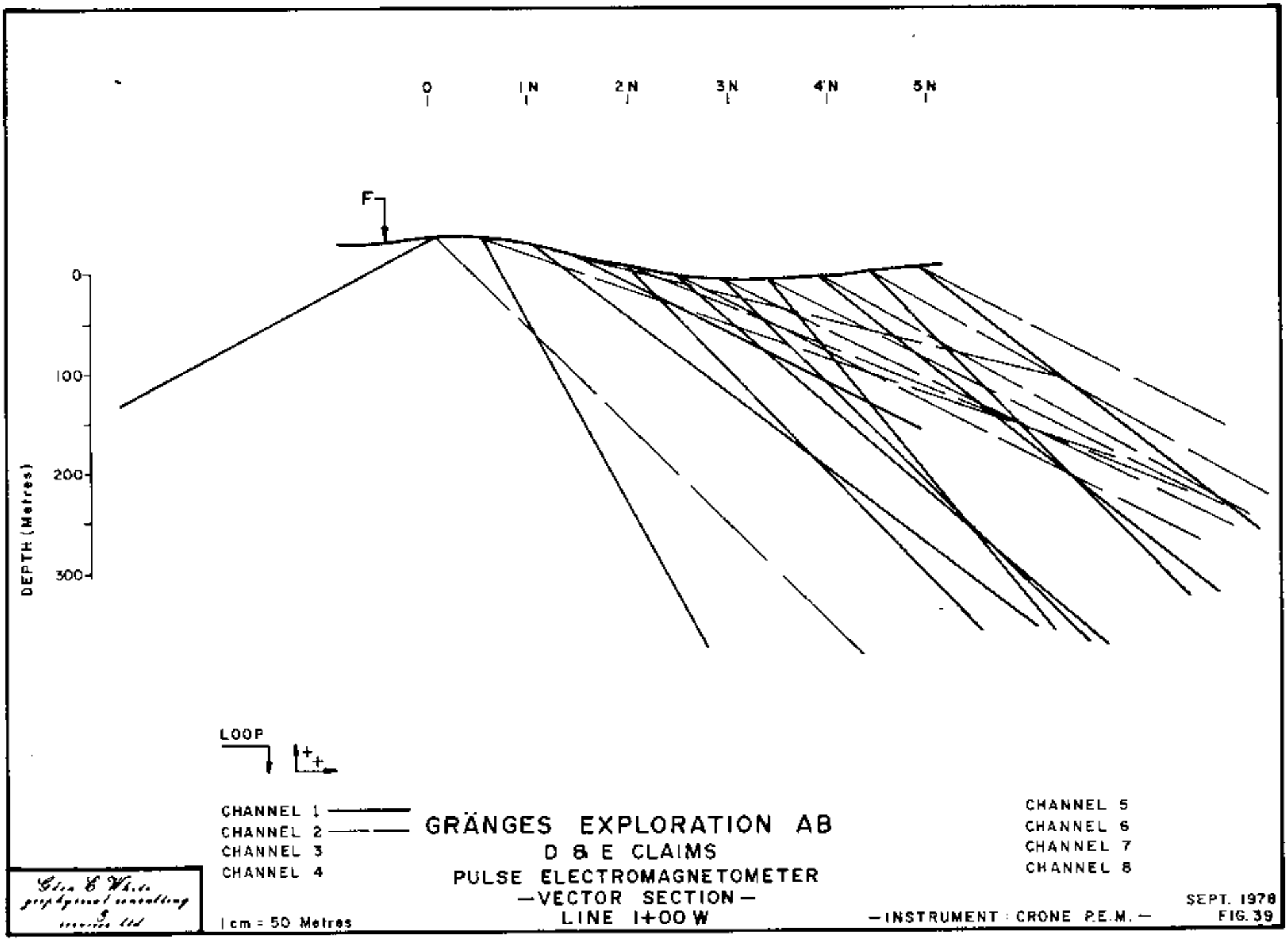
1 cm = 50 Metres

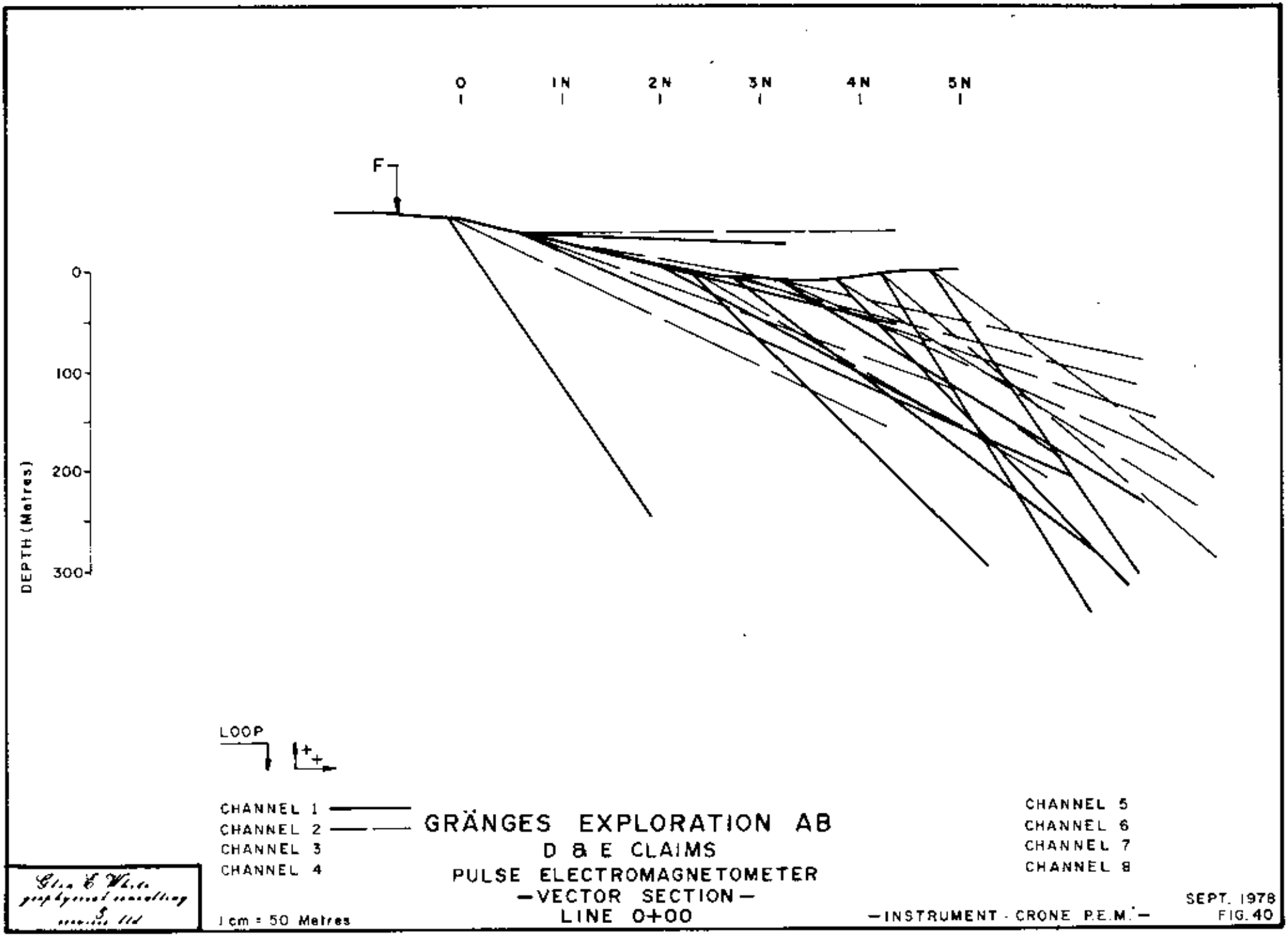
—INSTRUMENT : CRONE P.E.M.—

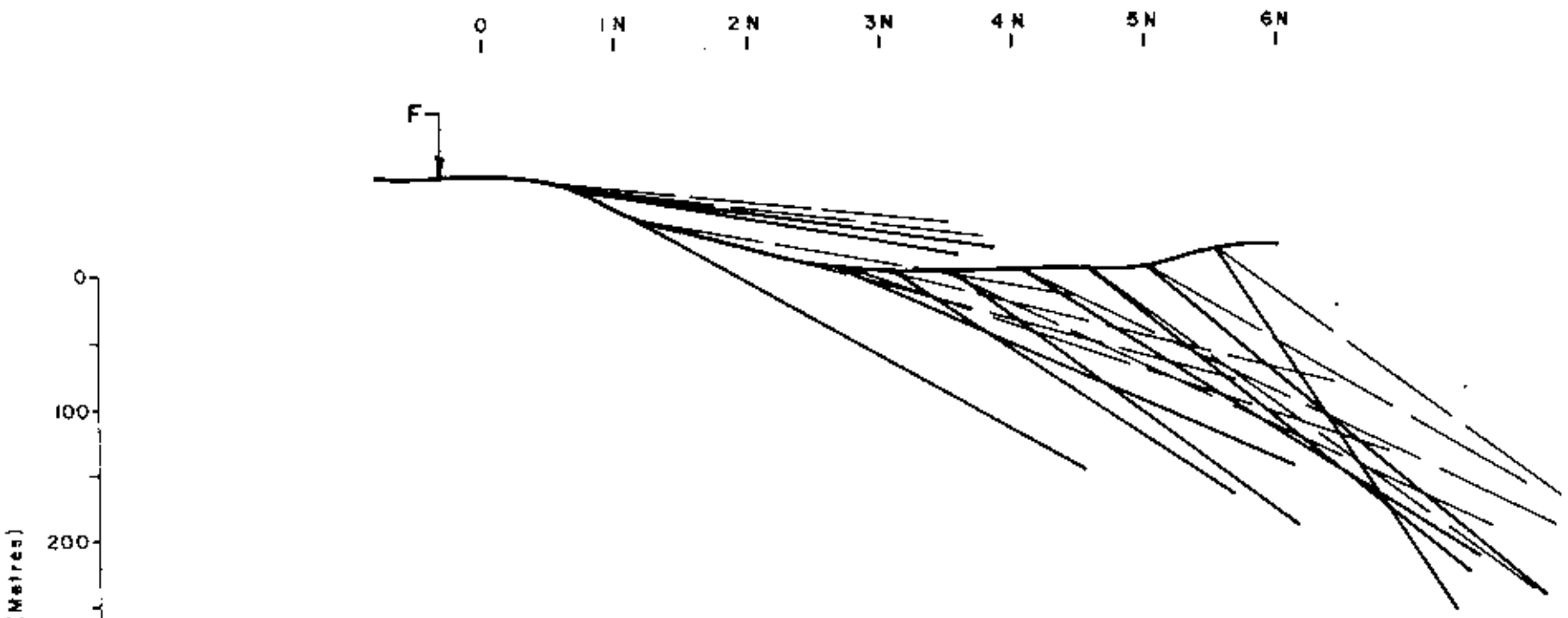
SEPT. 1978

FIG. 38

Geo E Watts
geophysical consulting
services ltd


0
1N
2N
3N
4N
5N
F
0
100
200
300
DEPTH (Metres)
LOOP
CHANNEL 1
CHANNEL 2
CHANNEL 3
CHANNEL 4
CHANNEL 5
CHANNEL 6
CHANNEL 7
CHANNEL 8
GRÄNGES EXPLORATION AB
D & E CLAIMS
PULSE ELECTROMAGNETOMETER
—VECTOR SECTION—
LINE 1+00 W
—INSTRUMENT : CRONE P.E.M.—
1 cm = 50 Metres
Geo-Physical Consulting Services Ltd
SEPT. 1978
FIG. 39


0
1N
2N
3N
4N
5N
F
0
100
200
300
DEPTH (Metres)
LOOP
CHANNEL 1
CHANNEL 2
CHANNEL 3
CHANNEL 4
CHANNEL 5
CHANNEL 6
CHANNEL 7
CHANNEL 8
GRÄNGES EXPLORATION AB
D & E CLAIMS
PULSE ELECTROMAGNETOMETER
—VECTOR SECTION—
LINE 0+00
1 cm = 50 Metres
—INSTRUMENT - CRONE P.E.M.—
SEPT. 1978
FIG. 40



LOOP

CHANNEL 1
CHANNEL 2
CHANNEL 3
CHANNEL 4

CHANNEL 5
CHANNEL 6
CHANNEL 7
CHANNEL 8

GRÄNGES EXPLORATION AB

D & E CLAIMS

PULSE ELECTROMAGNETOMETER

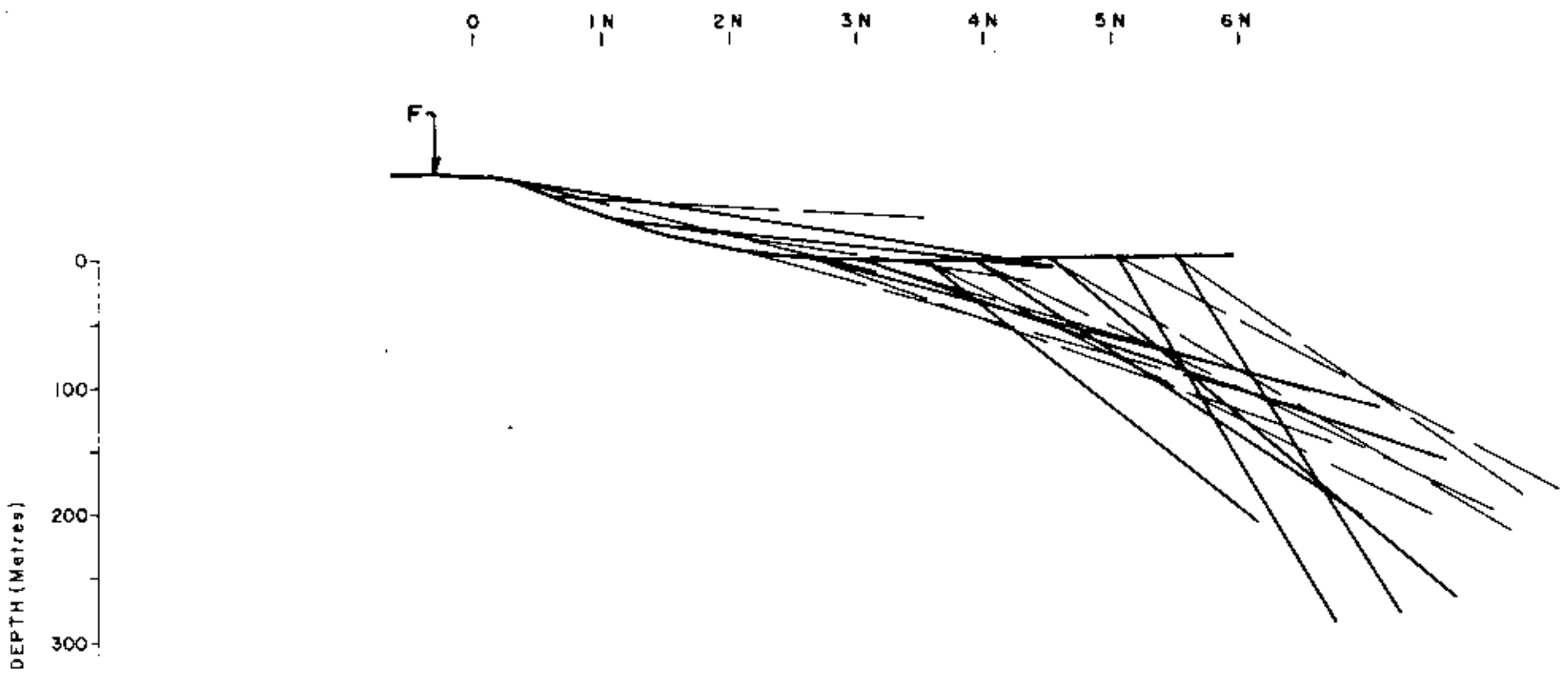
—VECTOR SECTION—

LINE 1+00 E

—INSTRUMENT : CRONE P.E.M —

1 cm = 50 Metres

SEPT. 1978
FIG. 41



LOOP

CHANNEL 1
CHANNEL 2
CHANNEL 3
CHANNEL 4
CHANNEL 5
CHANNEL 6
CHANNEL 7
CHANNEL 8

GRÄNGES EXPLORATION AB

D & E CLAIMS

PULSE ELECTROMAGNETOMETER

—VECTOR SECTION—

LINE 2+00 E

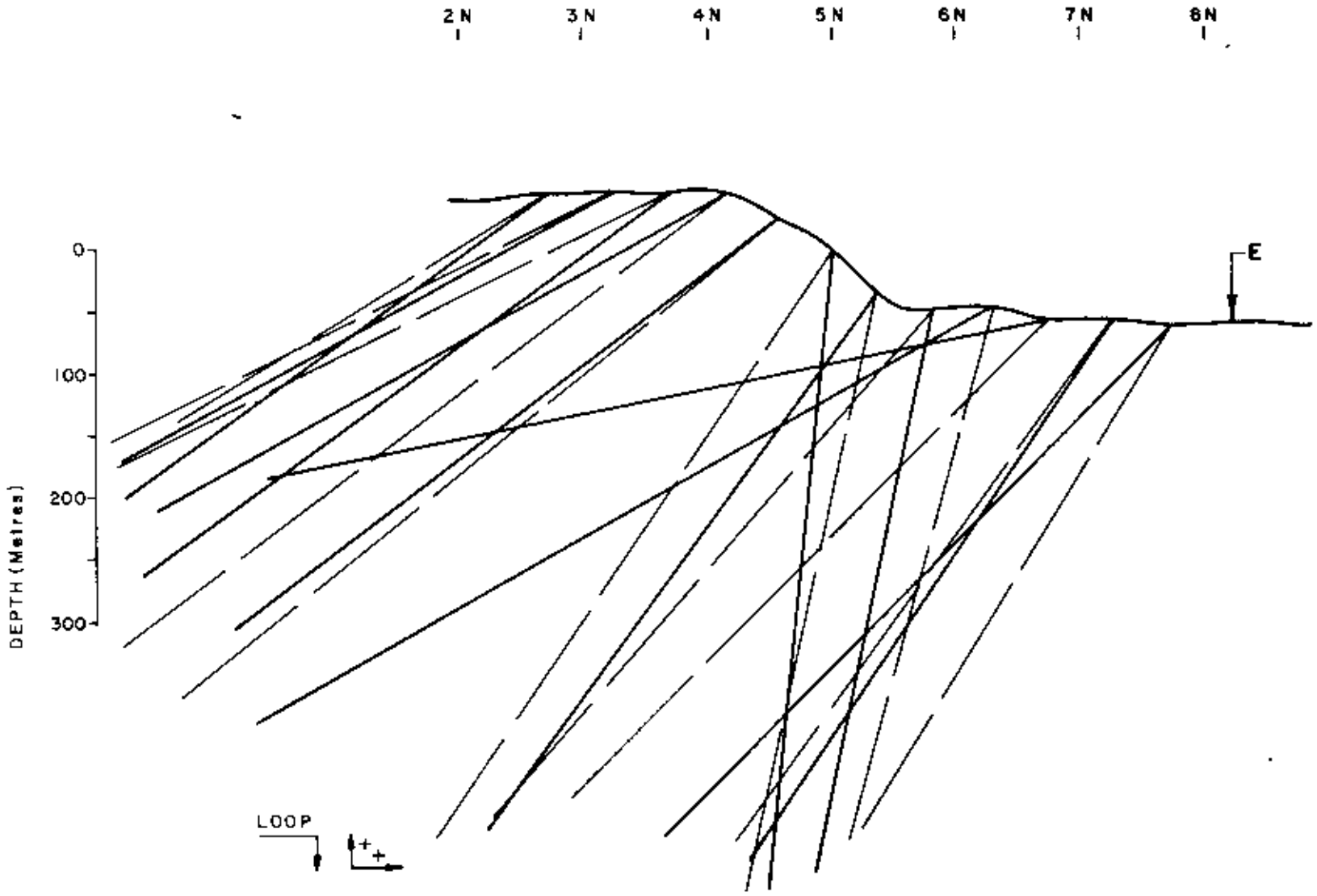
—INSTRUMENT : CRONE P.E.M —

1 cm = 50 Metres

SEPT. 1978

FIG. 42

Glen E. White
professional consulting
geophysicist



GRÄNGES EXPLORATION AB

D & E CLAIMS

PULSE ELECTROMAGNETOMETER

—VECTOR SECTION—

LINE 4+00 W

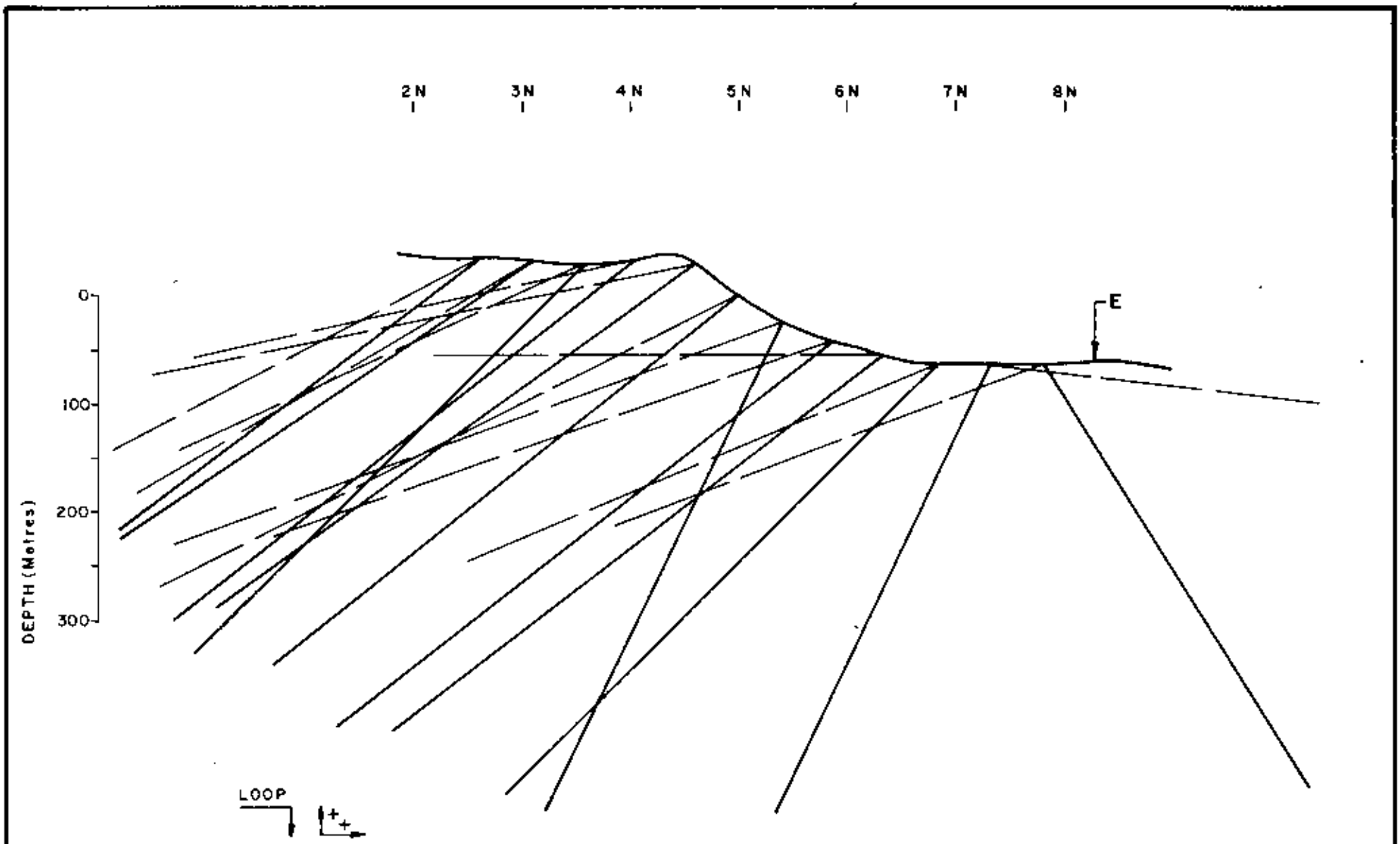
—INSTRUMENT : CRONE P.E.M.—

1 cm = 50 Metres

SEPT. 1978

FIG. 43

Geo-Tech Geophysical Surveying Co. Ltd



GRÄNGES EXPLORATION AB

D & E CLAIMS

PULSE ELECTROMAGNETOMETER

—VECTOR SECTION—

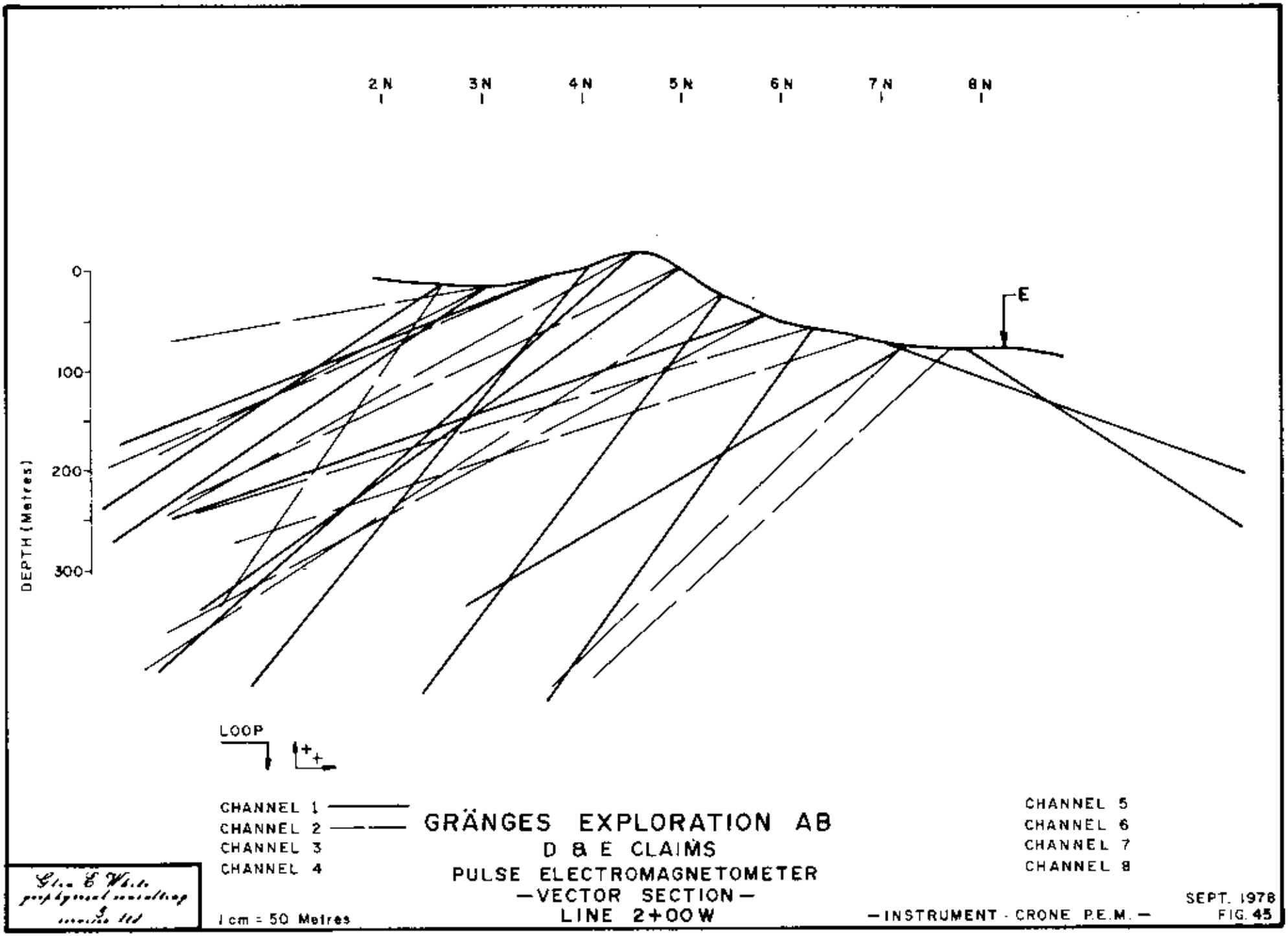
LINE 3+00 W

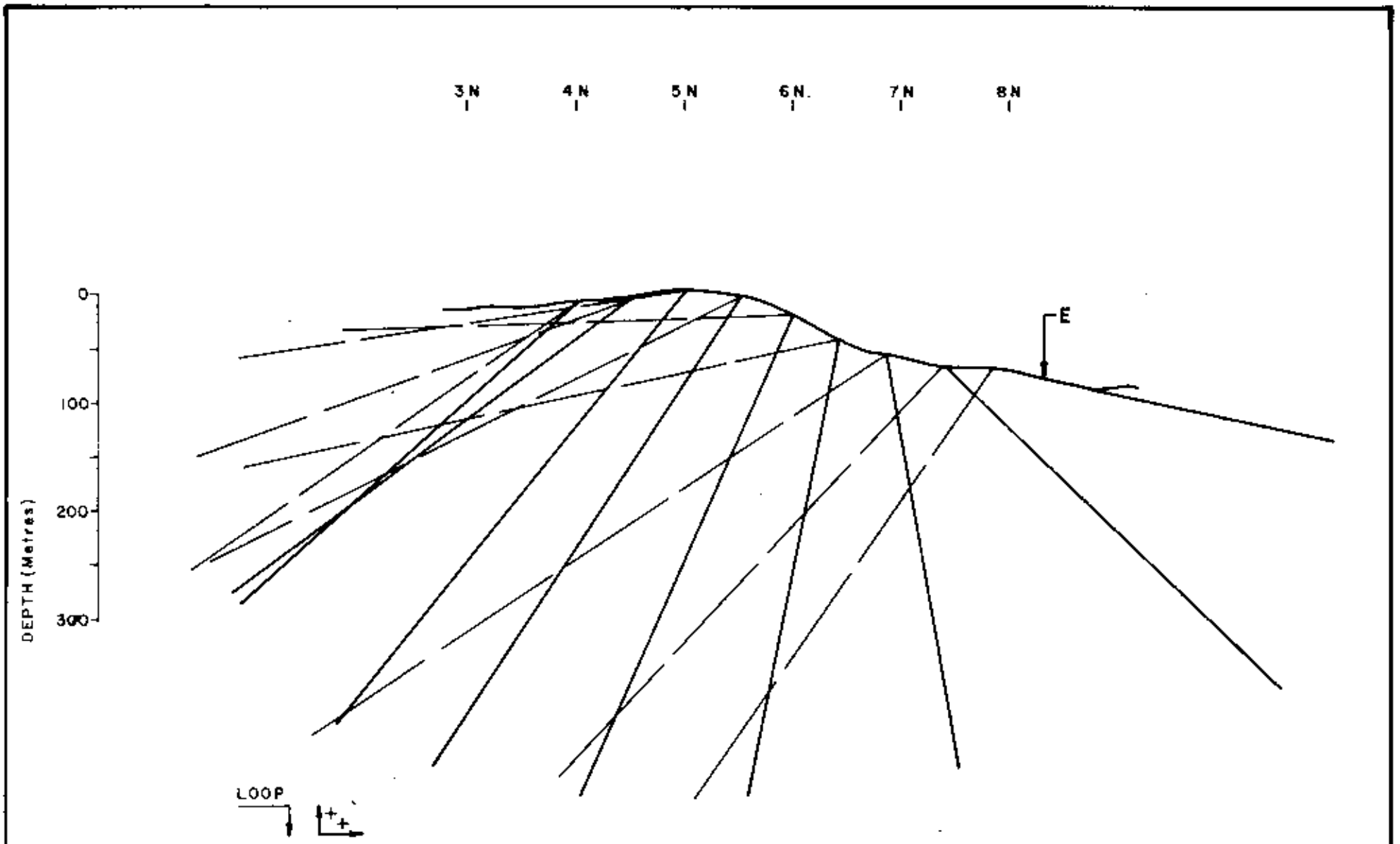
1 cm = 50 Metres

—INSTRUMENT : CRONE P.E.M.—

SEPT. 1978

FIG. 44


2N
3N
4N
5N
6N
7N
8N
0
100
200
300
DEPTH (Metres)
E
LOOP
CHANNEL 1
CHANNEL 2
CHANNEL 3
CHANNEL 4
CHANNEL 5
CHANNEL 6
CHANNEL 7
CHANNEL 8
GRÄNGES EXPLORATION AB
D & E CLAIMS
PULSE ELECTROMAGNETOMETER
—VECTOR SECTION—
LINE 2+00W
1 cm = 50 Metres
—INSTRUMENT - CRONE P.E.M.—
SEPT. 1978
FIG. 45



GRÄNGES EXPLORATION AB

D & E CLAIMS

PULSE ELECTROMAGNETOMETER

—VECTOR SECTION—

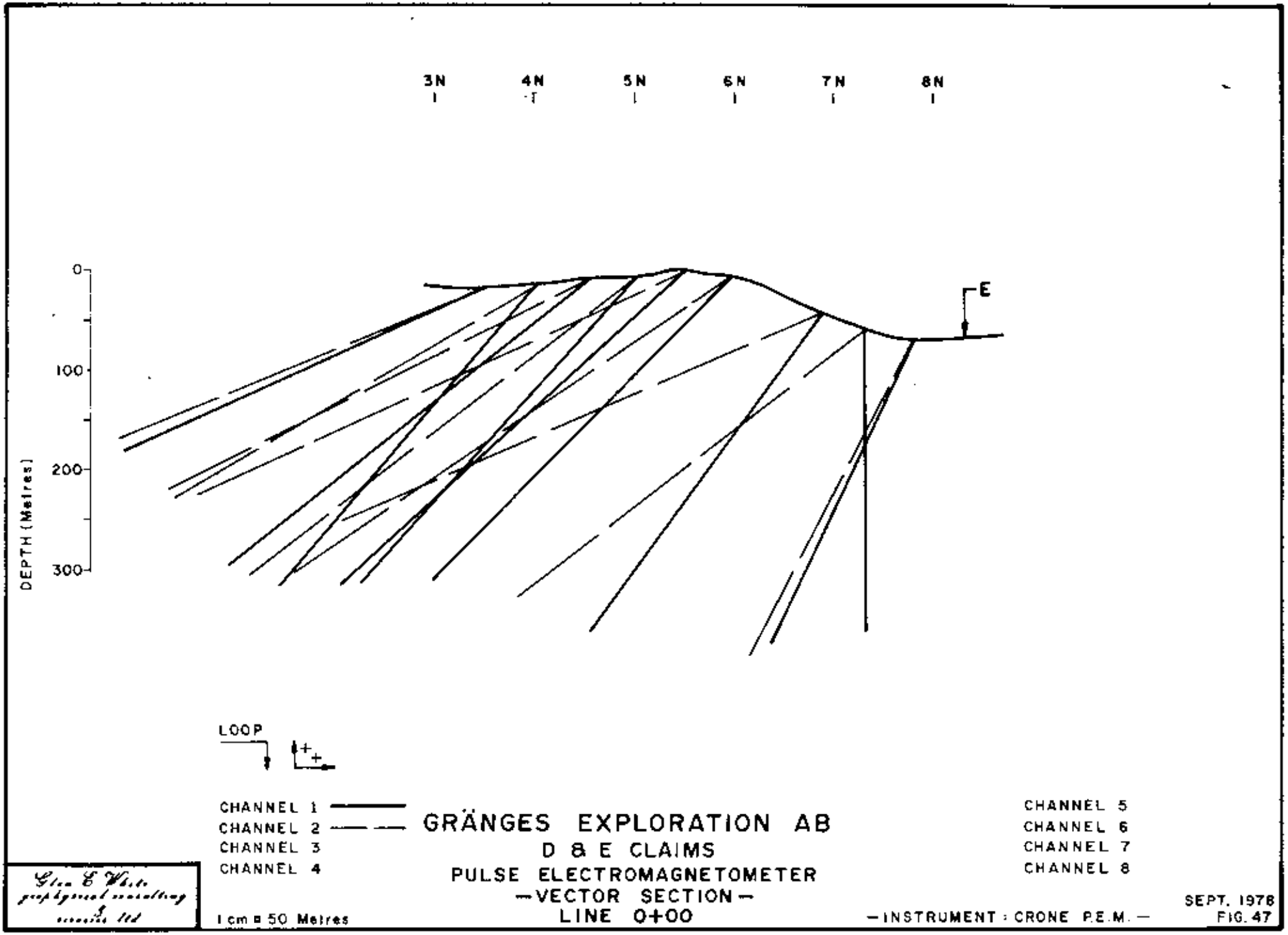
LINE 1+00 W

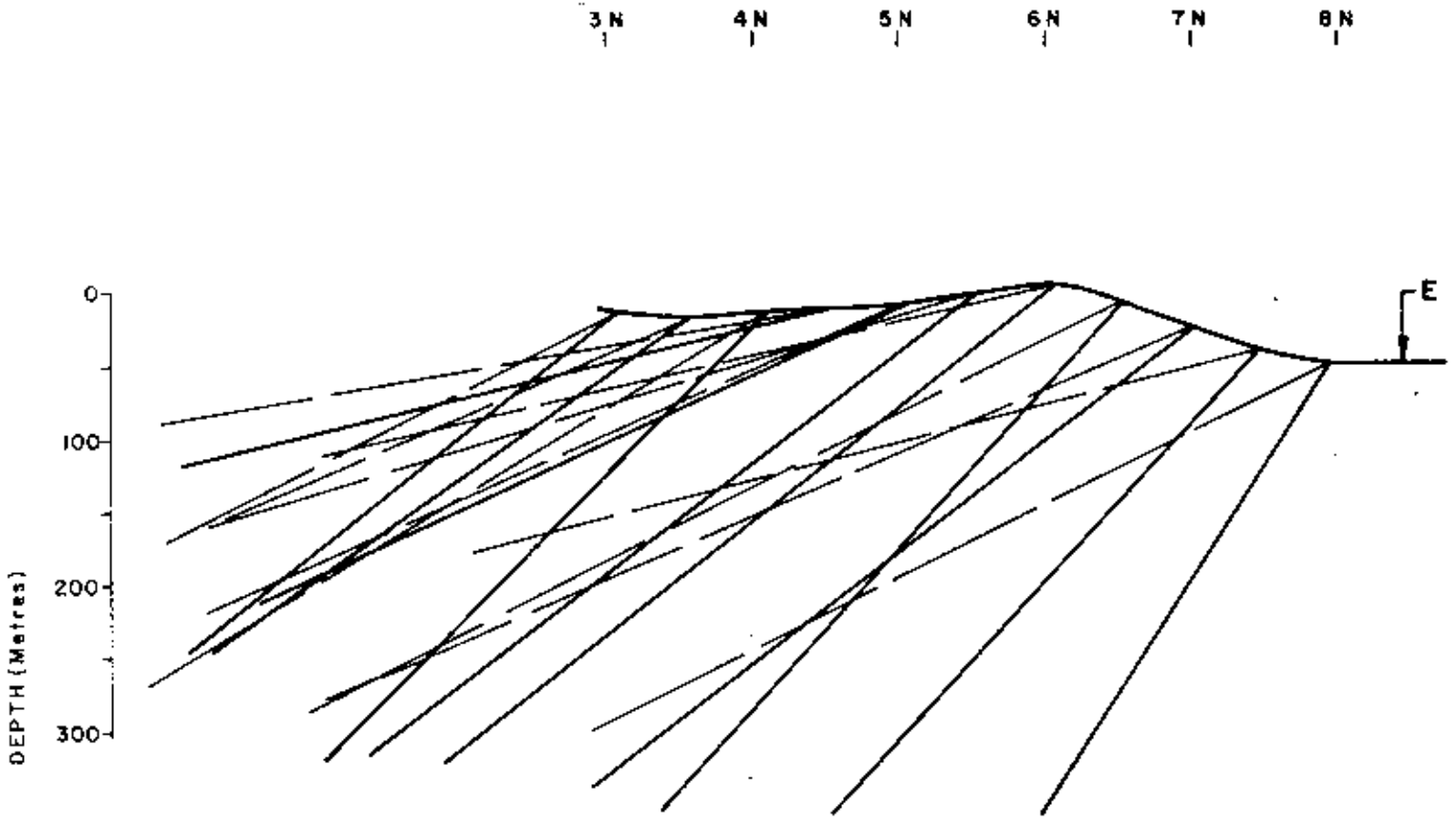
1 cm = 50 Metres

—INSTRUMENT : CRONE P.E.M. —

SEPT. 1978

FIG. 46


3N
4N
5N
6N
7N
8N
0
100
200
300
DEPTH (Metres)
E
LOOP
CHANNEL 1
CHANNEL 2
CHANNEL 3
CHANNEL 4
CHANNEL 5
CHANNEL 6
CHANNEL 7
CHANNEL 8
GRÄNGES EXPLORATION AB
D & E CLAIMS
PULSE ELECTROMAGNETOMETER
—VECTOR SECTION—
LINE 0+00
1 cm = 50 Metres
—INSTRUMENT : CRONE P.E.M.—
SEPT. 1978
FIG. 47



LOOP

CHANNEL 1
CHANNEL 2
CHANNEL 3
CHANNEL 4
CHANNEL 5
CHANNEL 6
CHANNEL 7
CHANNEL 8

GRÄNGES EXPLORATION AB

D & E CLAIMS

PULSE ELECTROMAGNETOMETER

—VECTOR SECTION—

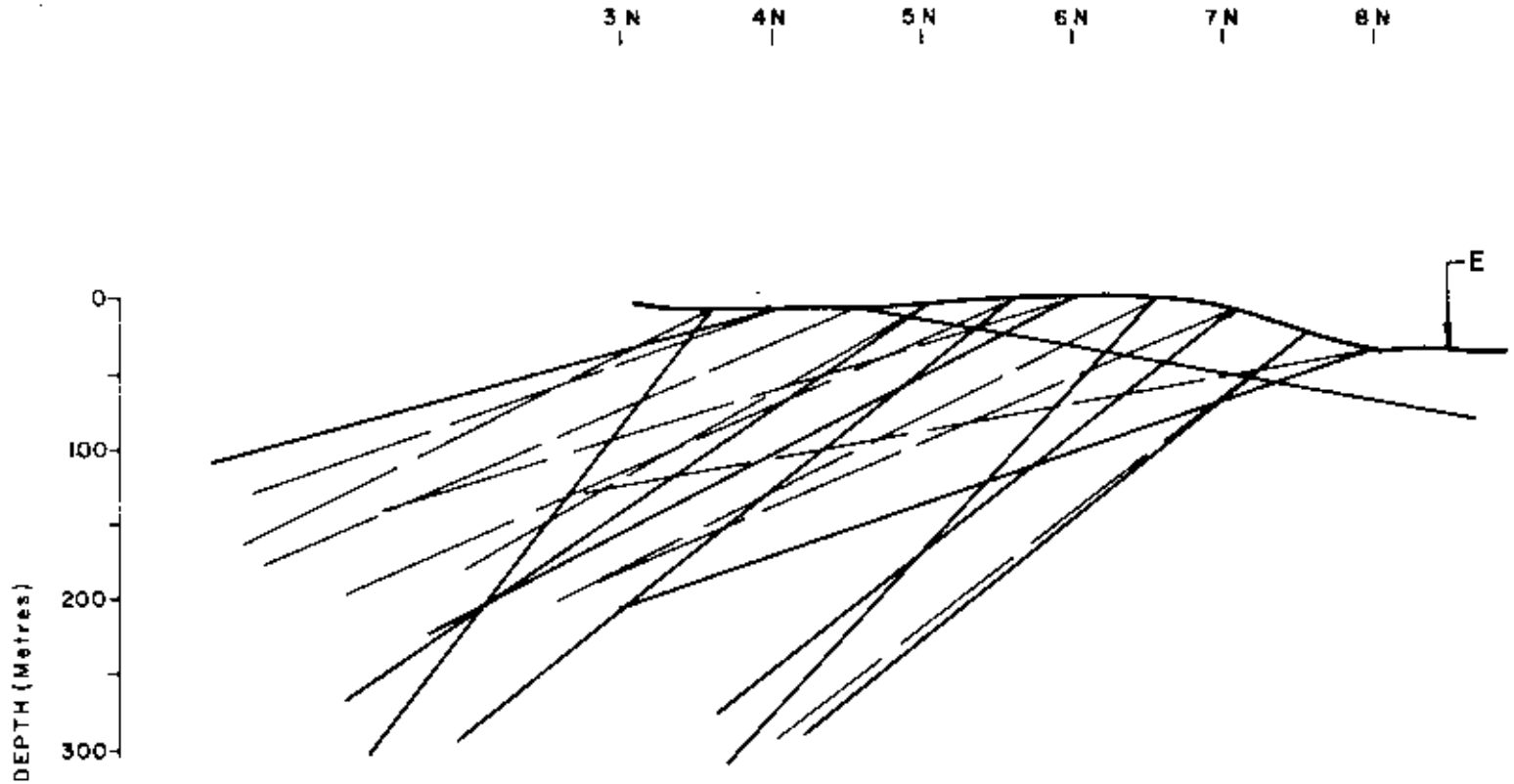
LINE 1+00 E

1 cm = 50 Metres

—INSTRUMENT : CRONE PE M —

SEPT. 1978

FIG. 46



LOOP

CHANNEL 1
CHANNEL 2
CHANNEL 3
CHANNEL 4
CHANNEL 5
CHANNEL 6
CHANNEL 7
CHANNEL 8

GRÄNGES EXPLORATION AB

D & E CLAIMS

PULSE ELECTROMAGNETOMETER

—VECTOR SECTION—

LINE 2+00 E

Geo Phys. Consulting Ltd.

1 cm = 50 Metres

—INSTRUMENT : CRONE P.E.M.—

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FIG. 49

125° 10'

LOOP D

LOOP C

20°

LOOP E

6+00 N

53° 17'

"D" CLAIM

"E" CLAIM

0+00 BL

4W 3W 2W 1W 00 1E 2E

LOOP F

20°

N

S

5+00 S

POND

LOOP B

11°

LOOP A

16 W 15 W 12 W 11 W 10 W 9W 8W 7W 6 W

LEGEND

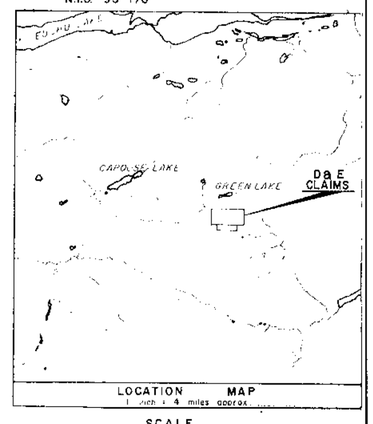
CONDUCTOR FOCUS

DIVERGENCE

CONVERGENCE

COPPER 53.

N.T.S. 93 F/6



LOCATION MAP
1 inch = 4 miles approx.

SCALE

50m 25m 0 50m 100m 150m

GRÄNGES EXPLORATION AB

D & E CLAIMS

PULSE ELECTROMAGNETOMETER

LOOP POSITION MAP

To Accompany Geophysical Report

Date .....

By GLEN E WHITE - B Sc. - GEOPHYSICIST

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA GLEN E. WHITE

Glen E. White geophysical consulting & services ltd.

INTERPRETED BY:

DRAWN BY: PMJR

CHECKED BY:

DATE:

FIG. No.: