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REPORT ON

GRADIENT ARRAY EIP SURVEY

MT. MERTON GRID, NEAR ZEEHAN, TASMANIA

ON BEHALF OF

RENISON LIMITED

E.L. 17/77

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REPORT ON
GRADIENT ARRAY ELECTRICAL INDUCED POLARIZATION SURVEY
MT. MERTON GRID, NEAR ZEEHAN, TASMANIA
ON BEHALF OF
RENISON LIMITED

BY

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SUMMARY

A reconnaissance gradient array induced polarization survey over some four lines of the Mt. Merton grid has defined a north-west south-east trending sequence of rocks having three distinct zones. The south-eastern zone (A) is characterised by high/normal background chargeability and anomalously low resistivity; the north-western zone (B) by high resistivity and low/normal chargeability; while the centre section (C) shows intermediate resistivities and contains a series of anomalous induced polarization responses of moderate amplitude. These are considered to be of possible economic interest.

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REPORT ON GRADIENT ARRAY ELECTRICAL INDUCED POLARIZATION SURVEY MT. MERTON GRID, NEAR ZEEHAN, TASMANIA ON BEHALF OF RENISON LIMITED

INTRODUCTION

At the request of Mr. L.A. Newnham, Chief Geologist for Renison Limited, Scintrex Pty. Ltd. executed a gradient array electrical induced polarization survey over four lines of 520 metres each on the Mt. Merton grid. The work was carried out by a single operator crew over two days, 8th and 9th November, 1979, under the direction of geophysicist Mr. G. Street,M.Sc.DIC, assisted by Mr. A. James,B.Sc. and Mr. P. Gillespie,B.Sc.

The object of the survey was to locate and define areas of anomalous induced polarization within an area of volcanic rocks.

EQUIPMENT AND SURVEY METHOD

The equipment consisted of a 3 kilowatt Scintrex IP transmitter powered by an 8HP Briggs and Stratton motor generator to energise the field, with a Scintrex IPR-8 time domain induced polarization receiver to measure the primary and secondary potential fields (apparent resistivity and chargeability respectively). The energisation wave form was an eight second cycle, two second pulse, while the receiver programme measured over two seconds operated in mode 2. The decay curve slices M_1, M_3 and M_5 were recorded for decay curve information, although only M_3 has been plotted.

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The method adopted was the gradient array using an 850 current dipole placed at 200S and 650N on line 1250E, and a potential dipole of 30 metres. A brief description of the salient features of the array is contained in the appendix.

DATA PRESENTATION

The data profiles are presented at a horizontal scale of 1:2000 with the contour interpretations of resistivity and chargeability at a scale of 1:1000.

Apparent chargeability, M_3, and apparent resistivity were plotted on vertical scales of 1 centimetre = 4 millivolts/volt and 5 centimetres = 1 log cycle expressed in ohm-metres, respectively. Contour interpretations were contoured at 1 millivolt/volt intervals and on a logarithmically increasing scale for apparent resistivity.

DISCUSSION OF RESULTS

Generally, the resistivity data showed lower apparent resistivities of 20 to 100 ohm-metres south of about 200N, allied with higher background chargeability of 22 millivolts/volt ±2 millivolts/volt, while the centre section of the grid from about 200N to 350N ±25 metres showed a steady rise in resistivity to 800 ohm-metres±. A distinct series of low amplitude induced polarization anomalies were defined within this zone. To the north of 350N± the resistivity varies about the 700 ohm-metres(±) mark while the background chargeability remains a relatively low 15 millivolts/volt(±). With the exception of the induced polarization anomalism in the central section, decay forms were anomalously low, and in terms of ΔMn, varied about the -8% mark. This infers that the causative material to this background was either fine grained, or/and an inefficient polarizable material. Each of the three sections described above are considered separate rock types. A magnetic field survey would greatly assist in the identification of structure and rock type, however, the southern unit may well contain graphite or serpentinite, both of which could account for the anomalously low resistivity background, and high chargeability background.

Each line is discussed separately below:

Line 1100E

Resistivity .... Between 0 and 175N the results show a background resistivity of between 30 and 50 ohm-metres. North of this low resistivity zone the resistivity increases quite sharply to around 300 ohm-metres by 300N. This increase appears to correspond to a rock type change as north of this point the rocks have a higher background resistivity.

Chargeability .... Between 0 and 175N the rocks have a background chargeability of around 24 millivolts/volt $\pm$2 millivolts/volt. Between 175N and 325N a chargeability high is recorded up to 36 millivolts/volt to the north of which is a lower chargeability background of around 14 millivolts/volt. The induced polarization maximum recorded at 225N of about 12 millivolts/volt above background is estimated to have a maximum depth of 50 metres, with the chargeable material being located within a host slightly more resistive than the enclosing rocks to the south. The associated decay form is slightly slower than normal with ΔMn at +2%, but is in stark contrast to the fast decay background overall of -8%.

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LINE 1200E

Resistivity .... Between 0 and 150N the results show a background resistivity between 20 and 40 ohm-metres. This corresponds to the similar low resistivity zone on line 1100E. North of 150N the resistivity increases to a higher background level of 600 ohm-metres(±) at 360N. A resistivity low occurs in the transitional zone at 250N.

Chargeability .... The region between 0 and 125N has a background chargeability of 24 millivolts/volt(±) compared with a background at the northern end of the line of 14 millivolts/volt(±). Between these two areas, a broad chargeability high occurs up to 34 millivolts/volt centred at 200N. The chargeability appears to have a number of distinct sources centred at 130N, 200N and 300N, probably corresponding to increases in chargeable material in a broad chargeable zone. A guesstimate of the maximum depths in each case is 25 metres, 40 metres and 40 metres respectively. The decay forms noted are normal (i.e.$\Delta Mn = 0$), but contrast markedly with fast decay forms of -8% to the immediate south and gradually declining decay forms to the north (to -6%±).

LINE 1300E

Resistivity .... The resistivity profile shows a similar shape to those of the lines to the west. A low resistivity zone with a background of 15 to 50 ohm-metres occurs between 15S and 200N showing a steady increase from south to north. To the northern end of the line between 320N and 500N, the rocks have a higher background of around 600 ohm-metres. Between the two zones, a transitional zone occurs whose resistivities increase sharply from south to north. A resistivity low occurs in this zone at about 260N.

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Chargeability .... The chargeability profile on this line corresponds excellently with those of the other lines. However, the features noted on line 1200E become more prominent. Between 0 and 90N and 310N to 500N, the rocks show background chargeabilities of 22 millivolts/volt(±) and 16 millivolts/volt(±). Bounded by these two zones is a broad chargeable zone. This zone has three conspicuous sources of polarization centred at around 120N, 200N and 270N. These sources appear to correlate well with those on line 1200E. The maximum depth to source is estimated at 40 metres, 50 metres and 40 metres respectively. Normal decay forms were observed, while the apparent resistivity, although slightly higher than to the south, at 40 to 50 ohm-metres is still relatively low. The source is considered to be disseminated graphite and/or sulphides of average grain size.

LINE 1400E

Resistivity .... From 0 to 150N a low resistivity zone of 15 to 40 ohm-metres occurs. In the north between 280N and 500N a higher background of around 700 ohm-metres is recorded. Between these two zones the resistivity increases steadily with a slightly lower resistivity occurring at around 250N. The overall appearance of the profile for this line is a steady increase from south to north. However, using the gradient array the resistivity reading will be biased to some degreee by the rocks occurring between the potential dipole and the current electrodes. In this case the northern current electrode is is a resistive medium and the southern in a medium which is 20 times more conductive. This situation has created to some degree the overall appearance of the profile.

Chargeability .... Again this profile shows two background areas of different magnitude in the north and south separated by a broad chargeable zone. Between 0 and 100N background chargeability is around 21 millivolts/volt and from 280N to 500N 16 millivolts/volt(±). Two distinct sources occur in the chargeable zone centred at 160N and 250N. The second and higher peak on the profile corresponds with a slightly lower resistivity. The 10 millivolts/volt against background response referred to above at 160N has an estimated maximum depth of 60 metres, while the 20 millivolts/volt above background anomaly whose source is at 250N is considered to have a maximum depth of the order of 35 to 40 metres. The decay form in both cases is slightly slower than normal, inferring a coarser grain size than background to the causative material, but this contrasts with fast decays to the immediate south and north of -8%.

From an examination of the profiles and contour presentations, the area can be divided into three major regions:-

A - An area of low resistivity in the south between 0 and 160N with resistivities of 20 to 40 ohm-metres. This region has a background chargeability of 22 to 28 millivolts/volt.

B - An area of higher apparent resistivity from 500 to 1000 ohm-metres in the north between 300N and 500N. This region exhibits a lower background chargeability of less than 20 millivolts/volt decreasing to 8 millivolts/volt.

C - A transitional region between areas 'A' and 'B' in which resistivities increase from 40 ohm-metres to 500 ohm-metres. This increase in resistivity corresponds with a broad chargeable zone. On lines 1200E and 1300E three sources of chargeability are resolved. To the west on 1100E these combine to form a narrower zone and in the east the zone is still broad but has only two distinct sources. In effect the chargeable zone is open to both east and west. A slight resistivity low occurs at around 250N on all lines.

Decay Form .... Decay form has been plotted as a normalised percentage of the chargeability. The profile form is consistent with three major rock type zones. Area 'A' in the south exhibits a strong rapid decay consistent with a source that is highly chargeable but a poor retainer of charge. Typically very fine sulphides or graphite or mafic minerals have this property. Area 'B' has normal to normal/fast decay forms characteristic of most 'backgrounds'. Area 'C' has normal to slow decay forms which are most often observed over chargeable sources having a coarser grain size.

The detailed geology of the area is unknown to the authors, although Renison have kindly provided the geochemical data on which the locations of old workings have been displayed. Firstly it is observed that higher tin geochemistry to 25 ppm is associated with zone 'A' (the southern section), which shows high normal chargeability background and anomalously low resistivity background. This geochemistry high could be considered to correlate with a low amplitude chargeability high centred at about 045N on line 1200E.

The geochemical contour plan shows a distinct difference in level between the northern section of line 1100E which is low, and lines 1200E to 1400E which are high (to 300ppm!). The chargeability contour data does show a suggestion of a dislocation along a trend passing through 1200E/200N and 1300E/500N. Thus the distribution of tin in the soils may be a function of the underlying geology and not just pollution and topography.

The chargeability contour plan emphasises three distinct zones of moderate induced polarization which although related, are separate entities, and have limited strike lengths (where defined) of less than 100 metres. These are:-

1. Line 1100E at 230N - open to the west

2. Line 1300E at 200N, with lesser confirmatory responses on line 1200E at 200N and line 1400E at 160N.

3. Line 1400E at 250N, which while confirmed by a much smaller response on line 1300E at 270N, remains open to the east.

Although 'workings' are associated broadly with each high, none of them can be directly correlated with workings. Also some of the strongest geochemicsty was defined on line 1400E north of 300N from low background of 16 millivolts/volt. The authors are concerned to learn why.

CONCLUSIONS AND RECOMMENDATIONS

1. The trend of the geophysical profiles of chargeability and resistivity suggest a general grid east west strike. However, it is quite possible that the fine structure is in detail more complex than can be observed on 100 metres spaced lines. There may in fact be a case for 50 metre line spacing over the surveyed grid, and there is certainly a very strong case for extending the grid to the east to follow the high geochemistry located there, and to close off the highest induced polarization response which remains open to the east.

2. Three separate grid east west trending zones were defined. The southern zone (A) characterised by low chargeability, very low resistivity and fast decay forms; the northern zone (B) by low chargeability, higher resistivity and fast to normal decay forms; and the central zone (C) by *anomalous* induced polarization responses of limited strike length.

3. The induced polarization responses located have maximum individual depths to source varying from 30 to 60 metres, are invariably disseminated in nature as they show no *material* change in background resistivity, and show *slow to normal* decay forms indicative of normal to coarse grain size, which, however, contrast with markedly *fast* decay forms overall.

4. A *precise* magnetometer survey on *close spaced lines* may help to define the finer structure of the area.

The authors look forward to discussing the results of this survey with Renison in the near future to establish the geologic merit of the moderate anomalies located.

Repsectfully submitted on behalf of:

SCINTREX PTY. LTD.

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Geophysicist

APPENDIX

BRIEF SIMPLE COMMENTS ON THE GRADIENT, DIPOLE-DIPOLE AND POLE-DIPOLE ARRAYS AND ON DECAY FORM

INTRODUCTION

In the case of the surveys discussed in this report, it is important that the geologist can relate the geophysical data to the underlying geology if he is to make the best use of this data. It is the author's opinion that *only* the geologist will be able to relate the data to geology. For this reason brief, simple comments follow on the salient features of the gradient, dipole-dipole and pole-dipole arrays. These comments show how the data relates to the volume of underlying rock which influences it. Comments are also made on the decay form.

DISCUSSION

Gradient Array:- In this array both current electrodes are distant from the potential dipole. Figure 1 displays the salient features of the *primary* current flow and primary equipotential field generated during energisation and shows the influence of terrain on the current paths. From this diagram it can be seen that the *apparent resistivity* measurement is a summation of a volume of material normal to the local slope, *beneath* the surface and at *right angles* to the line.

The apparent resistivity will be *biased by* the influence of each current electrode, but the *relative* values of *adjacent* readings can be considered to be *reliable*. As each electrode is approached, the readings become *increasingly biased by* that electrode.

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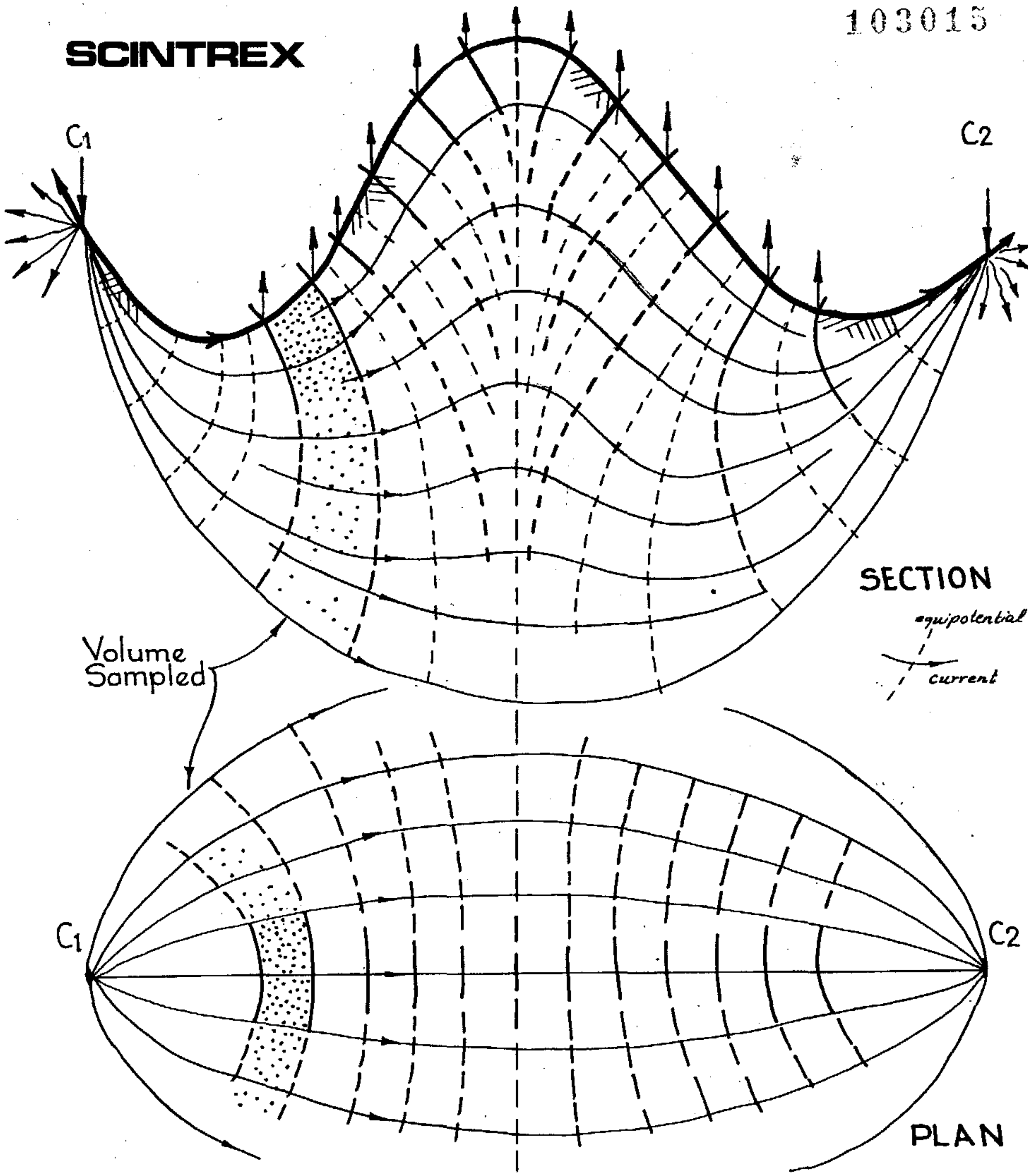

Diagrammatic Representation of Primary Current and Potential Field in Steep Topography.

FIGURE 1.

5 cm

Note particularly that the *source volume* is *normal to slope* and not vertically beneath the potential dipole. Therefore all maximum depths refer to depths below surface *normal to the slope*.

Note also that the volume of material *closest to* the potential electrodes will influence the data most. It is difficult to easily quantify the complex relationship between the volume of material sampled and its distance from the potential dipole.

Figure 2 displays the secondary current pattern generated from the decay of induced polarization effect *within* a chargeable sulphide source, together with the equipotential field generated by that decay. Note that due to the necessarily curved nature of the current flow outside the body, the on-surface manifestation is *wider than* the *source width*. Note also that the volume sampled in the primary potential field (apparent resistivity ρa) is not necessarily the same volume as is the secondary potential field (apparent chargeability Ma). This is, of course, true for *any* array.

Dipole-Dipole:- In this array the current dipole is generally small, generally 20 to 100 metres. Figure 3 displays the current pattern in section and in plan for a dipole-dipole array. The equipotential P_1 and P_2 tap a volume as shown in this diagram whose characteristics are read on the $n = 1$ station and plotted as a single point midway between the transmitting dipole C_1 to C_2 and the potential dipole P_1 to P_2. As progressively higher n values are read, a deeper and wider volume of material is sampled, this always being plotted midway between the transmitting and receiving dipole, and at a deeper level in the pseudo-section presentation used in this report. It is *vital* to realise that this data point

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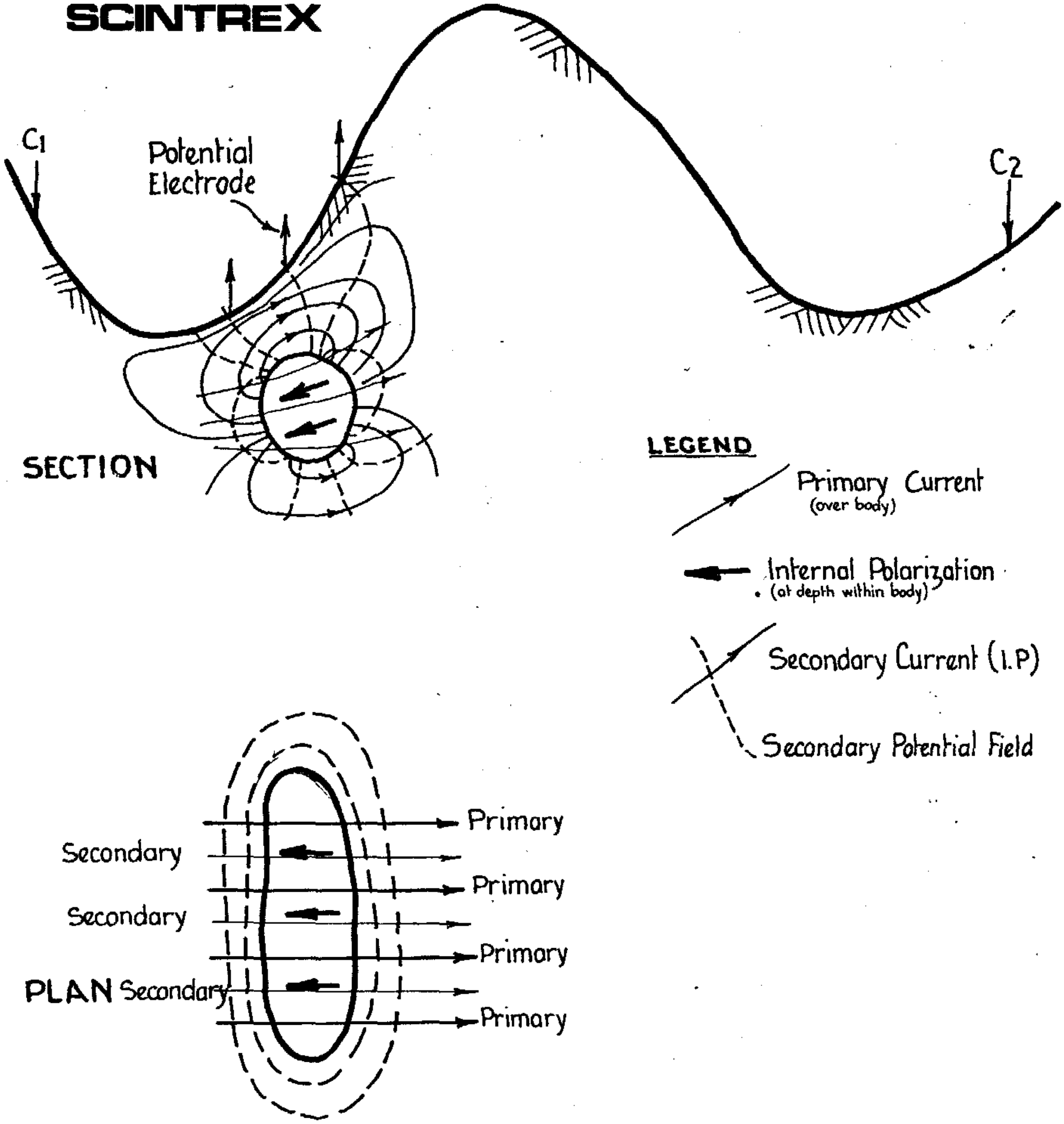

Diagrammatic representation of secondary current (I.P. effect) and secondary potential field in steep terrain.

FIGURE 2.

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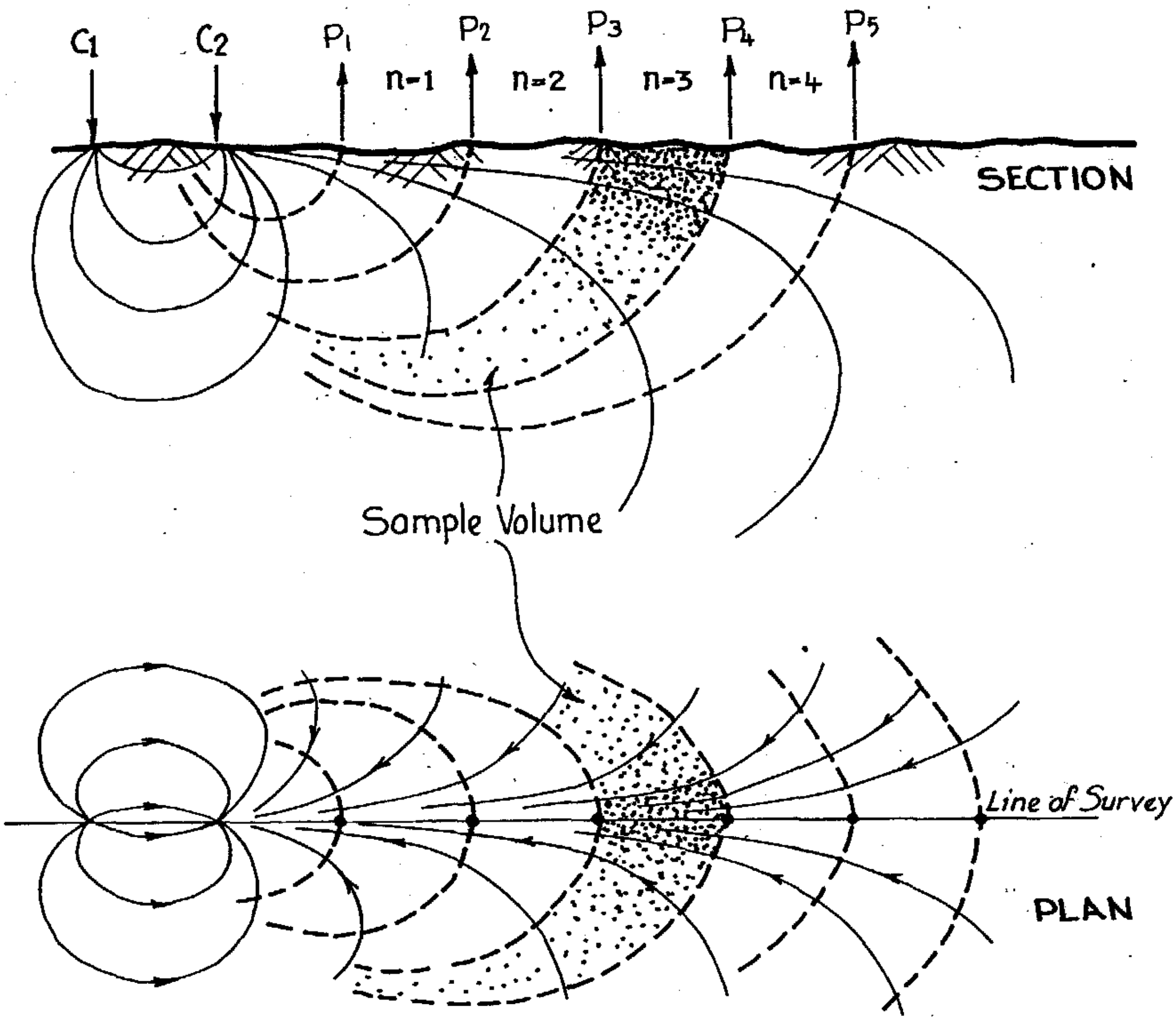

Dipole - Dipole Array
Primary current paths and equipotential field
Showing volumes sampled

5 cm

FIGURE 3.

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does not represent the characteristics of the ground at the point plotted, but that of the *total volume* sampled.

A further characteristic of the array is that where the effective spacing ($n \times a$) is greater than the depth to the source, a 'high' (or 'low', depending on characteristics) will occur as each of the dipoles (i.e. transmitting C_1 and C_2 and potential P_1 and P_2) pass over the source of that anomaly. The resultant 45° patterns on the pseudo-section DO NOT represent dip, or even depth extent, but merely represent a complex interference pattern over the source due to the potential and current dipoles. For a single source, this *double peak effect* can be recognised as it tends to have two maxima displaced by ($n \times a + w$) where w is the width of the source. For multiple bodies this is difficult if not impossible to resolve by dipole-dipole arrays alone.

The enclosed Figure 4 shows the discharge of the energy stored in the body. As can be seen, the area sampled in section is tapped between the equipotentials generated by the discharge of the stored energy. These will not necesssarily be of the same form as those for the resistivity data, although they are, for convenience, plotted in the same format as for resistivity. Again, it is vital to note that theyrepresent the volume sampled as shown in Figure 4, *and not* the characteristics of the point at which they are plotted. Double peaks also occur as each of the two sets of electrodes pass over a source, where $n \times a$ is greater than the depth to source. Where $n \times a$ is less than the depth to source, a single maximum will be produced midway between the energising and measuring dipoles C_1/C_2 and P_1/P_2.

Pole-Dipole:- This array is similar in principle to the dipole-dipole array,

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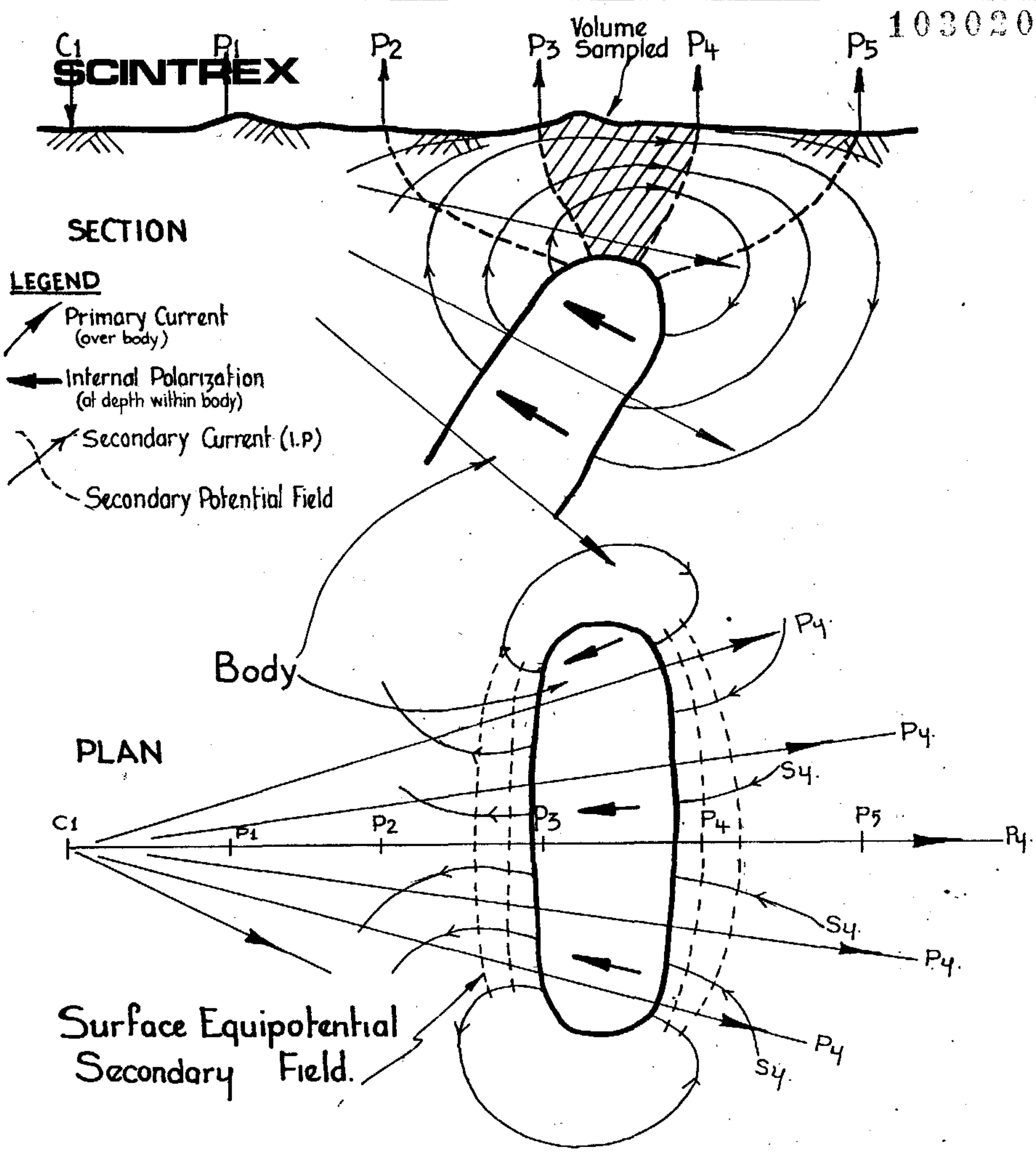

Current path and secondary equipotential field due to discharge of stored energy (I.P. effect) in the case of Pole-Dipole or Dipole-Dipole.

FIGURE 4.

5 cm

except that a single electrode is placed 'close' to the potential dipole, with an 'infinite' electrode placed 10 $\times n \times a$ away from the 'pole-dipole' set-up, and, where practical, at right angles to it. The enclosed Figure 5 shows the distribution of current flow in section and in plan, about the pole source C_1. The potential electrodes P_1 and P_2 tap off the volume between them, which is contained between spheres whose centres are the pole source. The primary current reading is normalised for the geometry and plotted in profile or pseudo-section format as per dipole-dipole, namely, midway between the closest potential and current dpoles, which in the pseudo-section format is 45° towards the pole source. The chargeability reading is generated in a similar fashion to that described for dipole-dipole (Figure 4).

As with the dipole-dipole array, a double peak will result when $n \times a$ is greater than the depth to source, however, with pole-dipole it will be asymmetric. This will be true for both major resistivity features as well as for chargeability features. An example of this asymmetry for different depth to spacing arrays is shown for the three-array. (The three-array is a pole-dipole array when $n = 1$ and the a spacing is varied.)

The Choice Between Arrays:- Even after some thirty years of active use of gradient, dipole-dipole and pole-dipole arrays, controversy still reigns as to the relative merit of the various arrays. Much depends on the object of the programme, the terrain, the type of source sought, the type and complexity of the overburden/oxidation. Table 1 shows a comparison between arrays which may be helpful, taken from a fairly recent Canadian Geological Survey publication. In resistive mountainous terrain the author prefers the gradient array as the prime reconnaissance method due to the high productivity (2 to 5 times that for

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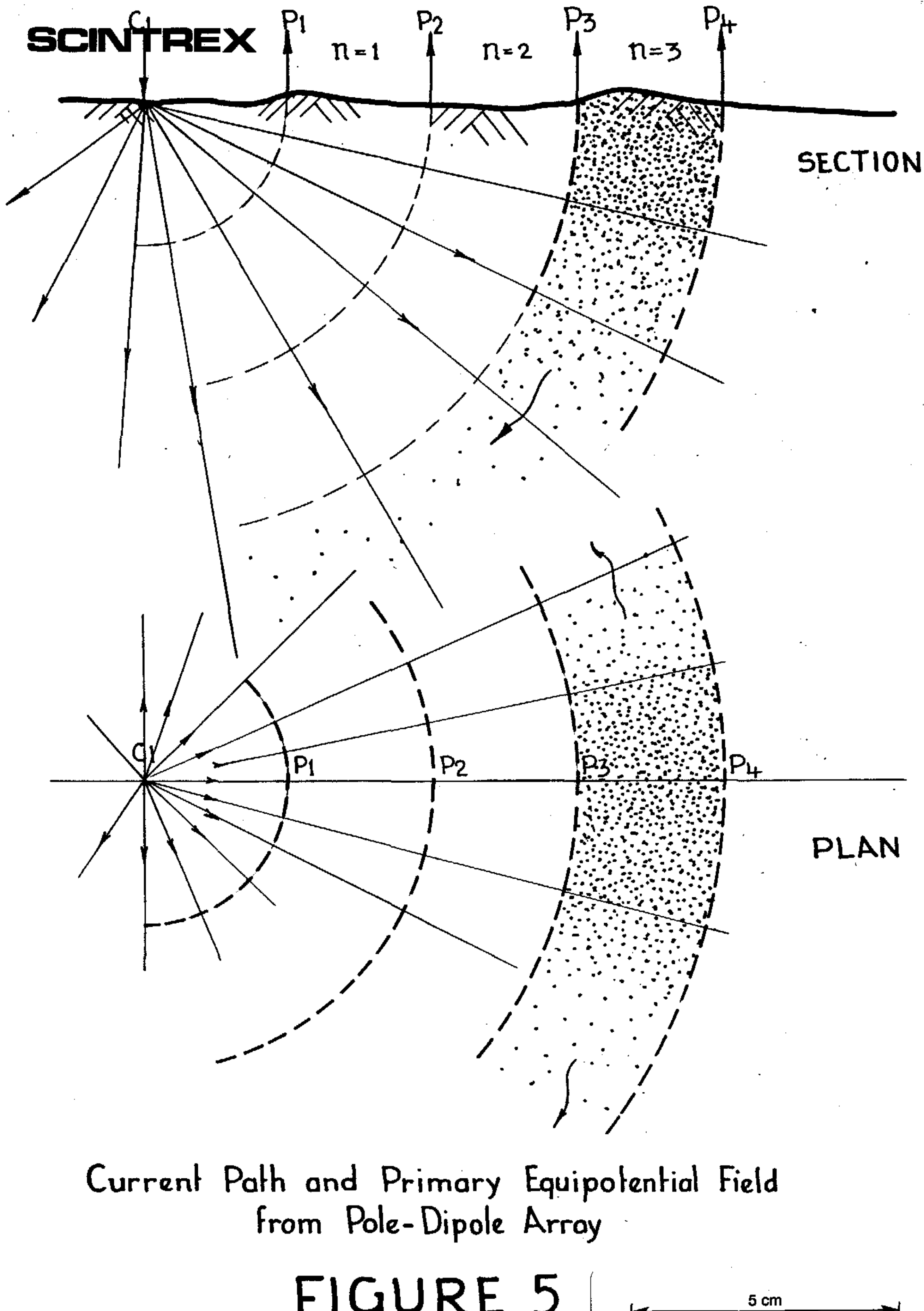

Current Path and Primary Equipotential Field
from Pole-Dipole Array

FIGURE 5

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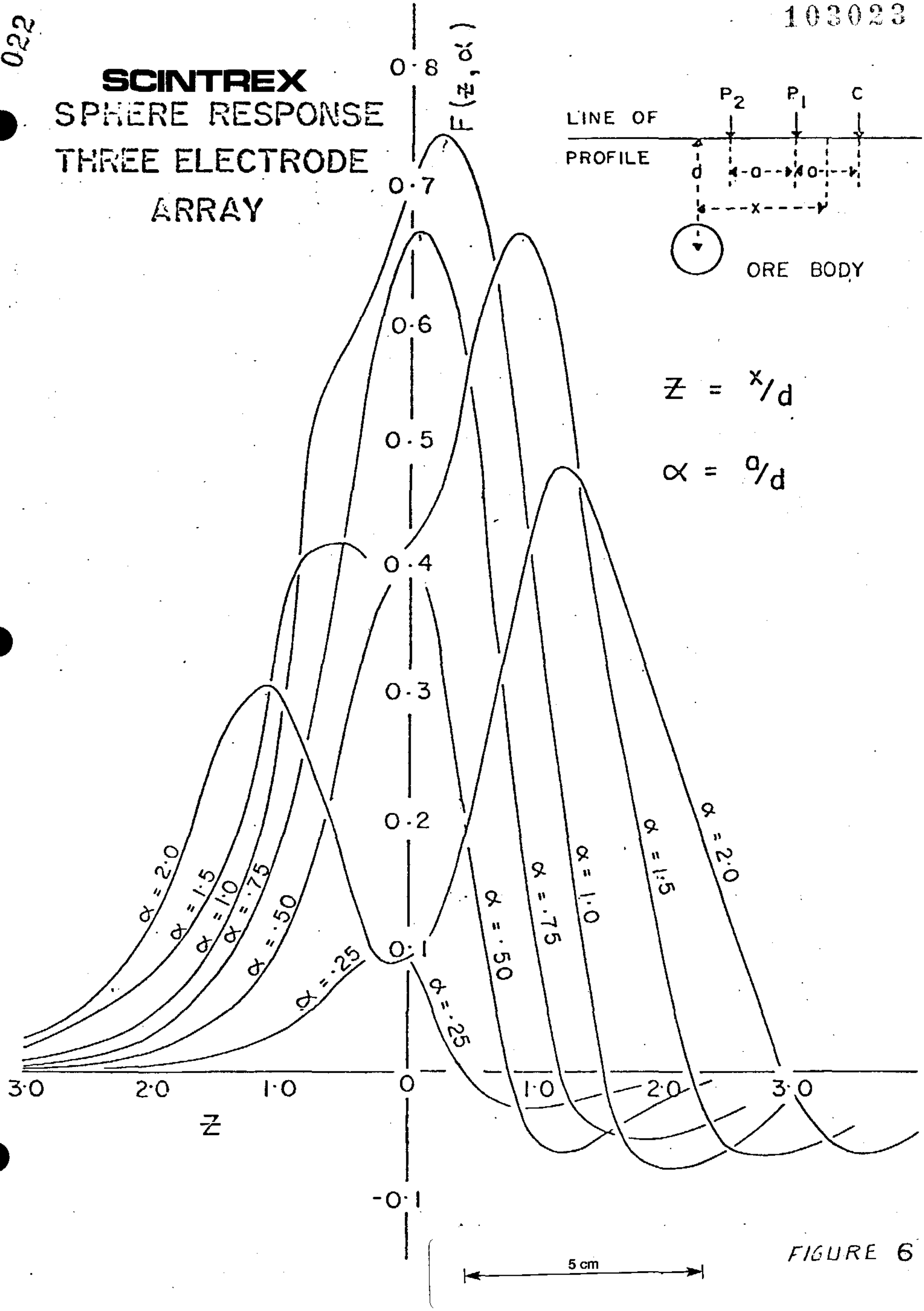

FIGURE 6

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TABLE 1

(Table 3. 1)

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Comparison of IP Survey Electrode Arrays

(after Sumner, 1972)

	Advantages	Disadvantages	Survey Speed	Signal to-Noise	EM Coupling Rejection
Parallel Field Arrays Wenner	Anomalies symmetrical Synchronous detector possible Many case histories available	Requires more wire: larger field crew Poor resolution Unfavourable in capacitive coupling situations	Fair	Good	Fair
Schlumberger	Symmetrical array Synchronous detection possible Fewer men required Works well in layered earth Type curves available	Less horizontal resolution Unsuitable for horizontal profiling Capacitive coupling possible	Fair	Fair	Fair
Gradient	Map interpretation easier Less masking by conductive overburden Penetration good; safer Communications easier Can use two or more receivers Less topographic effect Data easily contoured in plan Useful where difficulty in making good current contacts	Poor resolution with depth Poor in low resistivity areas Geometric factor varies complexly	Good	Fair	Poor
Potential-About-a-Point Three-Array	Good reconnaissance array Fairly good resolution	Asymmetrical More wire needed	Fair	Good	Good
Pole-Dipole, Collinear	Good resolution Good subsurface coverage	Asymmetrical Asymmetrical	Fair	Fair	Fair
Perpendicular Three-Array, Pole-Dipole, Pole-Pole	Virtually eliminates EM coupling	More wire needed	Fair to Poor	Fair	Very Good
Pole-Pole (Two-Array)	Smaller crew needed Less wire needed than for some arrays Good penetration in nonconductive overburden	Susceptible to masking by conductive over-burden	Good	Fair	Poor
PDR (Potential Drop Ratio)	Sensitive to lateral variations "Common mode" noise rejection	Complex interpretation	Fair	Good	Fair
Dipole Field Array Dipole-Dipole Collinear	Symmetrical, good resolution Good penetration Less survey wire needed	Slow unless equipment is portable Resistivity topographic effects Interpretation somewhat involved	Fair	Poor	Fair
Dipole-Dipole, Parallel	Special use for EM coupling interpretation	Not used for routine surveying	Poor	Poor	Fair
Down-the-Hole Arrays Azimuthal Array (One Potential Electrode Down the Hole)	Fair for exploration purposes Useful in finding the best search direction	Interpretation complex Negative anomalies Strong geometric effects Mainly measures changes in resistivity	Fair	Good	Good
Radial Array (One Current Electrode Down the Hole, mise-à-la-masse)	Good for exploration purposes Useful in finding the best search direction Hole need not stay open	Interpretation complex Negative anomalies Not good for obtaining rock properties	Fair	Good	Good
In-Hole Arrays (More than One Electrode in the Hole)	Good for obtaining rock properties Good for assaying Interpretation simple	Current densities may be too large Possible capacitive coupling problems Not designed for exploration purposes Special equipment, expensive	Good	Fair	Good

Extract from: Geological Survey of Canada - Paper 75-31 "Borehole Geophysics Applied to Metallic Mineral Prospecting: A Review" dipole-dipole), but this should be followed-up by detailed dipole-dipole or pole-dipole surveys as the gradient array, while giving 'maximum depths', cannot give 'minimum depths' as moving source arrays can. Similarly pole- or dipole-dipole surveys which have complex or muliptle sources can very often be resolved by use of limited gradient array detail. While pole-dipole is more efficient to apply in mountainous terrain, it tends to yield asymmetric double peak anomalies, however, to the trained observer, this is no disadvantage.

Brief Comments on Decay Form:- In most surveys three 'slices' of the decay form for the induced polarization reponse are acquired for each station as shown in Figure 7. While six slices are capable of being measured (M_1 to M_6), they are normally combined into pairs $M_1 + M_2 = M_1$ etc. as shown in Figure 7(C). Each of the slices M_1 to M_6 is normalised for a 'normal' decay form such that should the decay form be 'normal' $M_1 = M_3 = M_5$. Thus the operator can immediately recognise any anomalous decay forms which may arise from one of two major sources. Firstly the type of the source can influence the decay form. Coarse grained efficient sources such as sulphides show *slow* decay forms, magnetic and fine grained sulphides often show *fast* decay forms. This can be shown as $\Delta M = M_5 - M_1$, where positive ΔM infers *slow* decay form and negative ΔM *fast* decay form. A superior parameter is ΔMn where

$$\Delta Mn = \frac{M_5 - M_1}{M_3} \times 100 \text{ (in percent)}$$

which is essentially ΔM normalised for the amplitude of the decay. ΔM and ΔMn are merely short hand ways to profile changes in decay form and are essentially qualitative and relative.

Decay forms can also demonstrate the presence of electromagnetic coupling as Figure 7 shows. This is a regional effect as shown on Figure 7(b). This will

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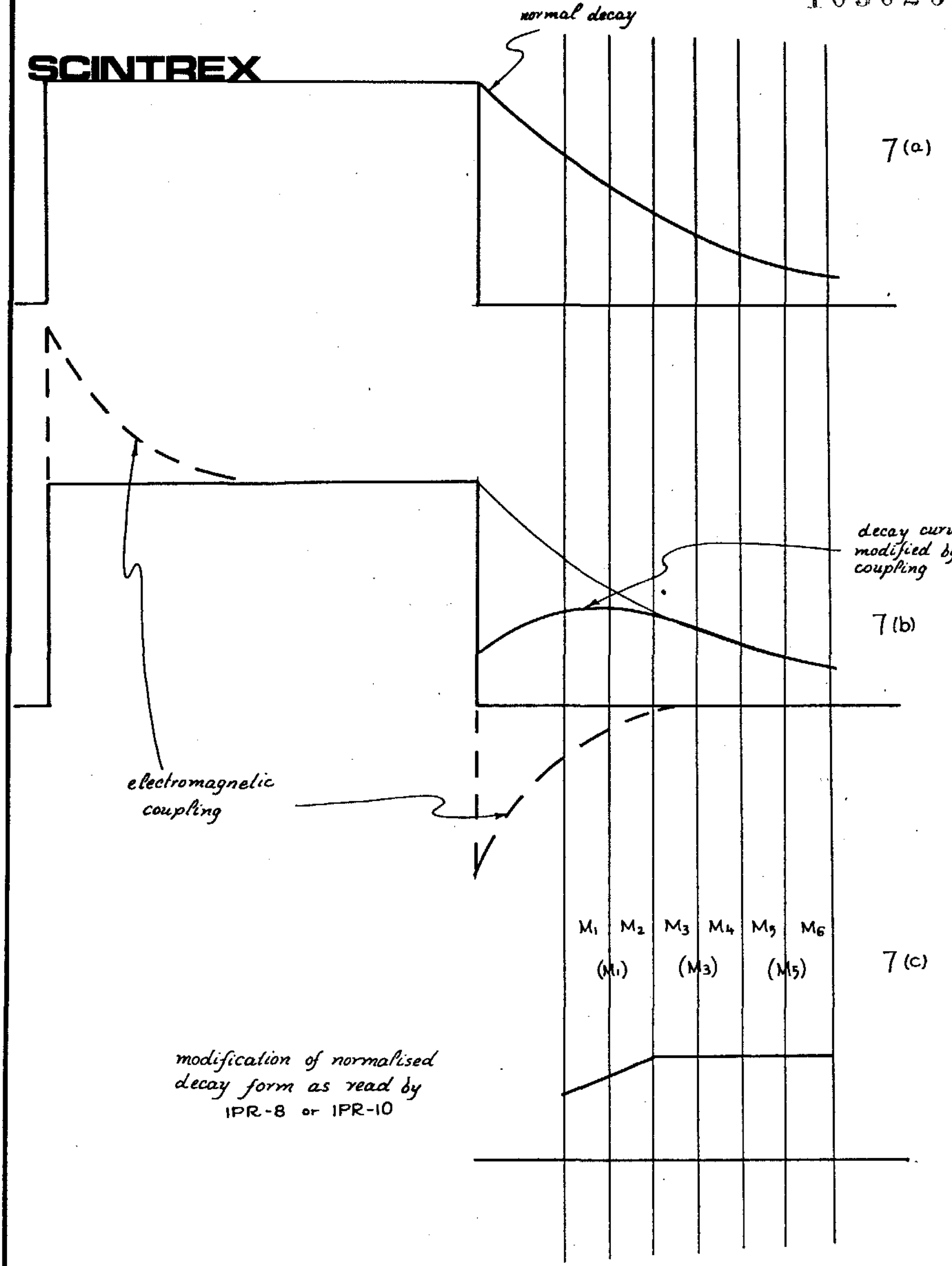

EFFECTS OF ELECTROMAGNETIC COUPLING ON IPR-8 / 10

5 cm

Fig. 7

produce a normalised M_1 smaller than either M_3 or M_5.

Conclusion:- The above comments are indeed simplistic, and should be considered as a guide only. The author would be pleased to supply references on additional reading on any of the points commented upon.

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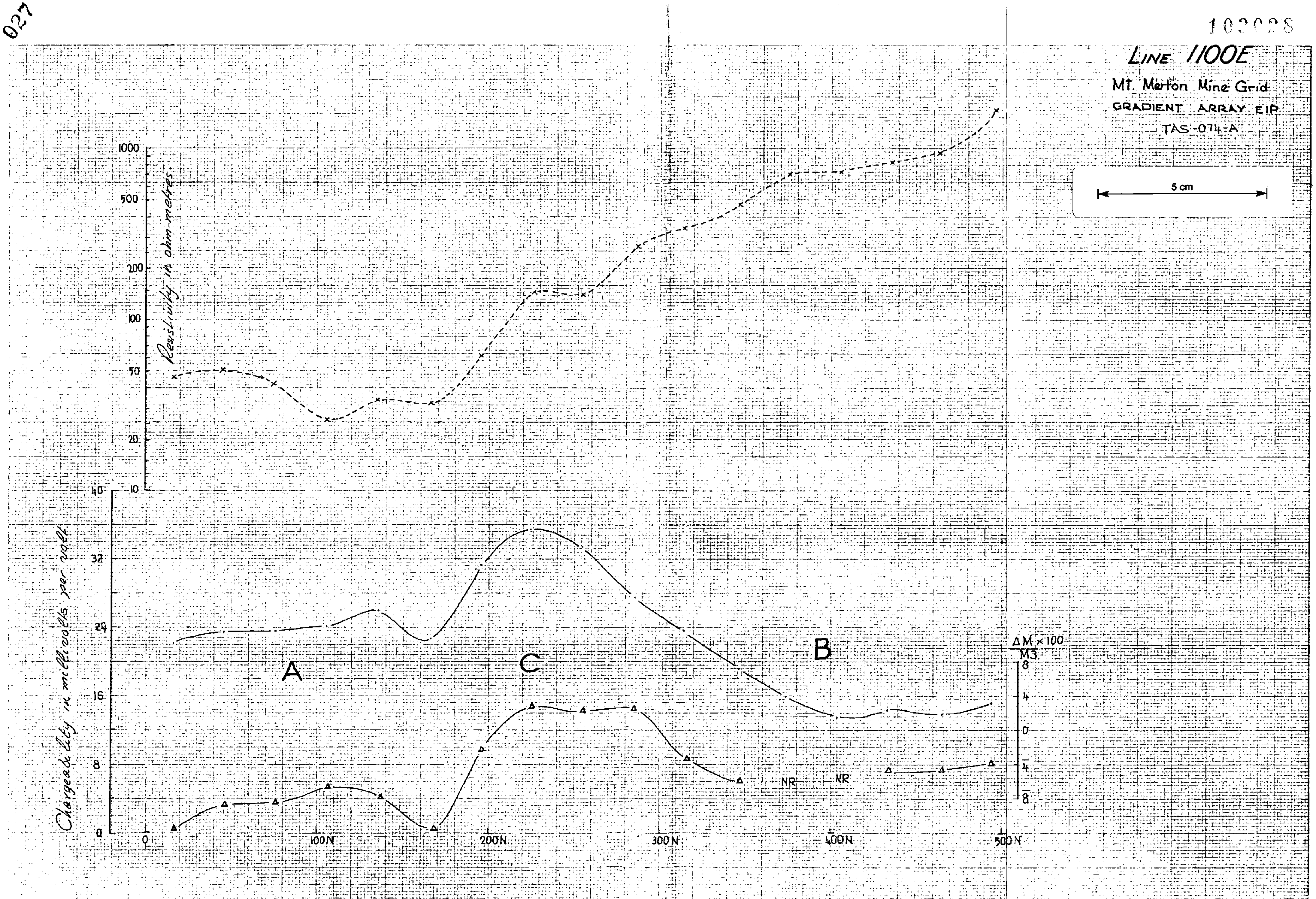

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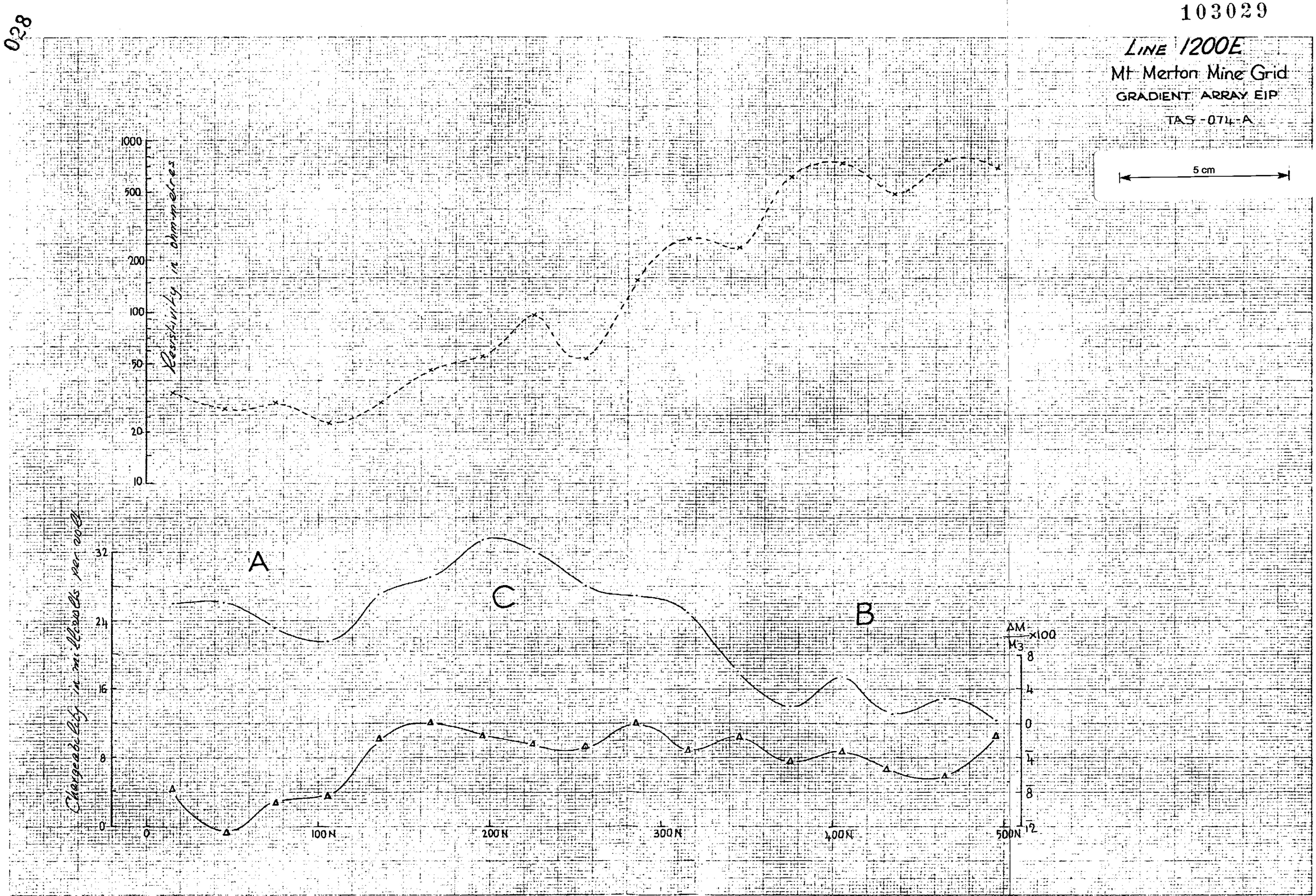
LINE 1100E
Mt. Merton Mine Grid
GRADIENT ARRAY EIP
TAS-074-A
5 cm
Resistivity in ohm-metres
1000
500
200
100
50
20
10
Chargeability in millivolts per volt
40
32
24
16
8
0
A
C
B
NR
NR
ΔM × 100 / M3
8
4
0
4
8
0
100N
200N
300N
400N
500N

103029


028
LINE 1200E
Mt Merton Mine Grid
GRADIENT ARRAY EIP
TAS-074-A
5 cm
Resistivity in ohm-metres
1000
500
200
100
50
20
10
Chargeability in millivolts per volt
32
24
16
8
0
A
C
B
ΔM/M3 ×100
8
4
0
4
8
12
0
100N
200N
300N
400N
500N

029

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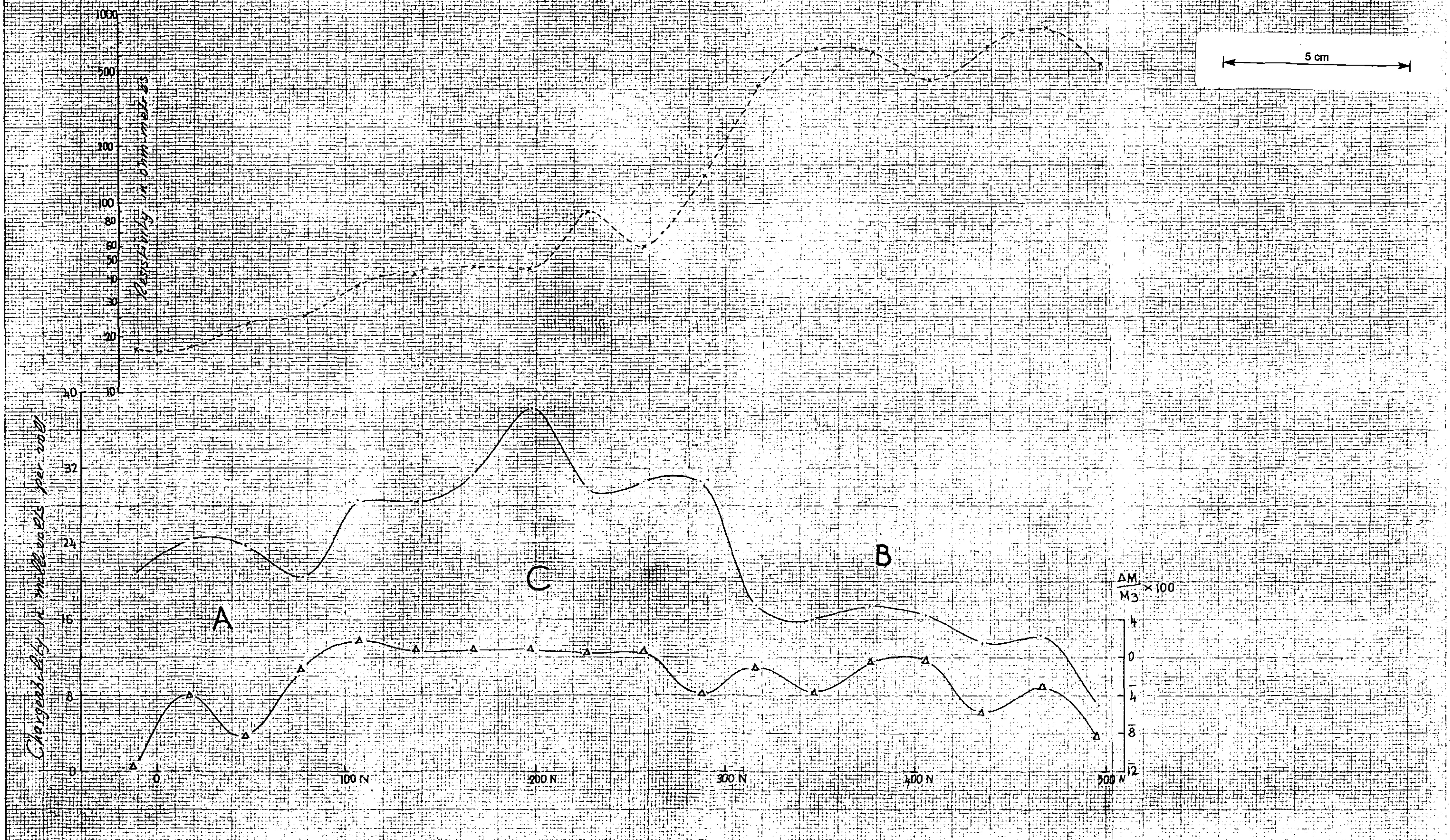
LINE 1300E
Mt. Merton Mine Grid
GRADIENT ARRAY EIP
TAS-074-A



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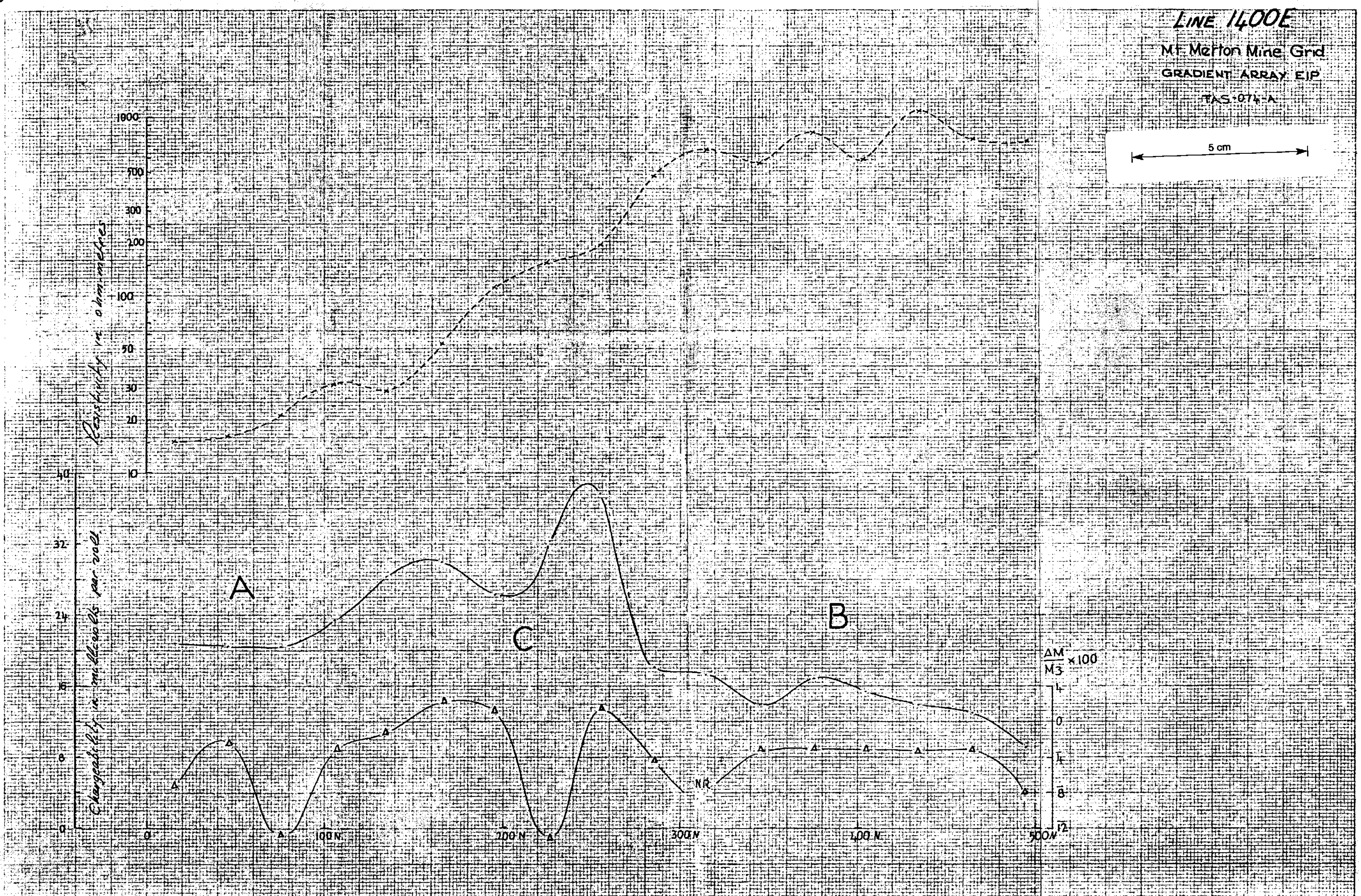


LINE 1400E
Mt Merton Mine Grid
GRADIENT ARRAY EIP
TAS-074-A
5 cm
Resistivity in ohm-metres
1000
500
300
200
100
50
30
20
10
Chargeability in millivolts per volt
40
32
24
16
8
0
A
B
C
ΔM/M3 ×100
4
0
4
8
12
NR
0
100N
200N
300N
400N
500N

GRADIENT ARRAY
EIP SURVEY

CHARGEABILITY
CONTOUR PLAN

SURVEYED & COMPILED BY
SCINTREX

November 1979

Job № TAS-074-A

103032

RENISON LIMITED 80-1479

EL 17/77 WILSON RIVER AREA

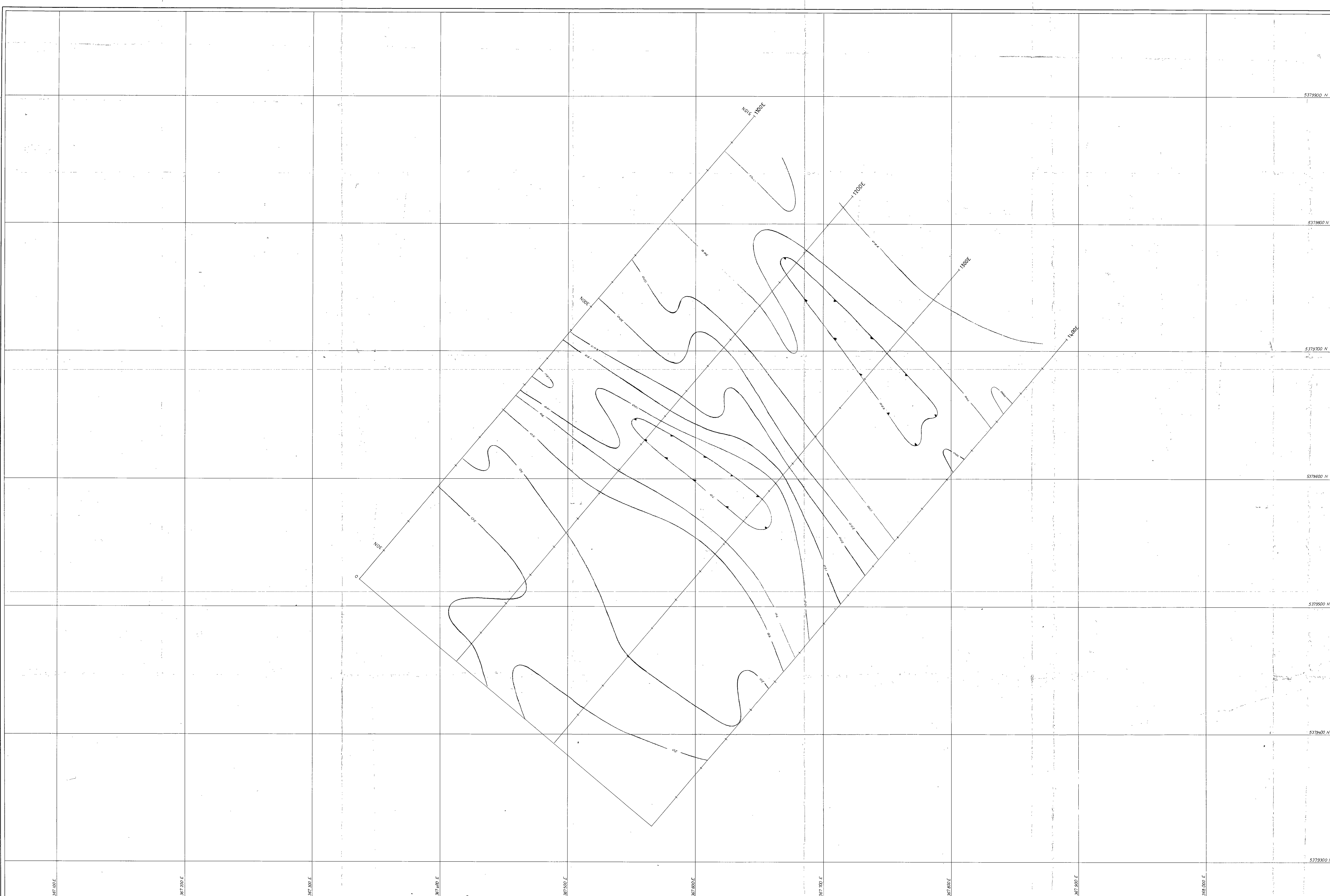
MT MERTON MINE GRID

SCALE 1 1000 METRES

20 0 20 40

5 cm

Plate 1



GRADIENT ARRAY
EIP SURVEY

RESISTIVITY
CONTOUR PLAN

SURVEYED & COMPILED BY
SCINTREX

November 1979

Job Nº TAS-074-A

103033

RENISON LIMITED 80-1419

E.L 17/77 WILSON RIVER AREA
MT. MERTON MINE GRID

SCALE 1 1000 METRES
20 0 20 40

5 cm

Plate 2