GEOLOGICAL BRANCH
ASSESSMENT REPORT

13,597

REPORT ON JACK CLAIMS

LENS MOUNTAIN 82N/14E

GOLDEN MINING DIVISION

Lat 51°54'N Long 117°08'W

for

DIA MET MINERALS LTD.

KELOWNA B.C.

by

K.E.NORTHCOTE AND ASSOCIATES LTD.
AGASSIZ B.C.

GOWER, THOMPSON & ASSOCIATES
NEW WESTMINSTER B.C.

June 1983

TABLE OF CONTENTS

******

SUMMARY

The JACK claim group is located at Latitude 51°54'N, Longitude 117°08'W, NTS 82N/14E, approximately 60 kilometres north of Golden in the Golden Mining District, B.C. The property consists of 8 claims totalling 121 units.

The principal JACK claim is underlain by bedded sediments of Upper Cambrian and Ordovician to Silurian age. These units form part of the east dipping limb of the Cockscomb anticline which is thrust easterly over Upper Devonian on the west dipping Mons fault. The relatively small kimberlitic diatremes do not appear on regional scale maps. Their nature, composition, relationships to bedded sediments, structure and ecomomic significance require detailed study .

The JACK pipe is one of a series in a north-northwesterly trending belt of diatremes which crop out over a distance of 40 to 50 kilometres in the Rocky Mountains. Mantle materials incorporated in some of these pipes indicate that they are true kimberlites. Diamondiferous kimberlites contain abundant specific mantle derived indicator minerals which formed under similar physical conditions as diamonds. These indicator minerals include pyrope garnet, picroilmenite, chromite and chrome-diopside of a narrow range of compositions. These materials are diluted in the pipes by addition of extraneous material from the wall of the pipe all the way to the surface. Microdiamonds also occur in much smaller quantities than other indicator minerals but may also be detected in bulk samples.

Diamonds in ore grade material occur in concentrations of only 0.25 carats per ton, or 1 part diamond to 20 million parts waste rock,

or 0.00000005 percent. There is much greater probability of detecting indicator minerals than microdiamonds in bulk samples so indicator minerals are extremely significant for determining whether or not a kimberlite may be diamondiferous.

The exposed portion of the JACK kimberlite diatreme is thought to represent the uneroded top of a semistratified collapse breccia overlying the less diluted main kimberlite pipe. Units within the upper breccia portion have been identified as sandy marls, kimberlitic tuffs and kimberlitic dykes.

Bulk sampling has proven the JACK kimberlite diatreme to be diamondiferous. Treatment of seven bulk samples from the upper breccia portion of the kimberlitic diatreme produced 33 pyrope garnets, 48 ilmenites and 15 chromites of favourable composition consistent with diamondiferous kimberlite pipes. More significantly, one 29,50 kg bulk sample of sandy marl from the kimberlitic breccia produced an excellent quality octahedral microdiamond weighing $37,320 \times 10^{-8}$ carats. The large size of the diatreme is empirically very favourable for economic concentrations of diamonds as compared to diamond producing pipes elsewhere. The kimberlite pipe field is located where there is thickening of the earth's crust which is also a condition favourable for diamond exploration.

The less diluted main pipe below the collapse breccia is the structure in which diamonds may occur in sufficient quantity to constitute ore. The shape, size and precise location of this pipe must be determined. The positive indication of diamondiferous kimberlite through recovery of indicator minerals and the microdiamond justifies a core hole-bulk sampling to locate and test the main pipe for quantity and quality of diamonds. The proposed program will be a high cost high risk procedure but if successful the rewards could be large.

Detailed geologic mapping of the kimberlitic breccia with provision for geophysical surveys is required to assist in determining the position of the main kimberlitic pipe below the collapse breccia prior to drilling. Additional bulk sampling on surface is suggested in conjunction with geologic mapping.

Two core holes, 2000 feet each, are required to intersect and test the kimberlite pipe below the collapse breccia.

Taking into account the high cost logistics of high elevations and rugged terrain and the specialized procedures and equipment necessary for core drilling, bulk sampling and processing, the cost of the first stage of this project is estimated to be $515,000.00.

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
K.E. NORTHCOTE

JACK PROPERTY PROGRAM-ESTIMATED COST

GEOLOGICAL MAPPING AND GEOPHYSICAL SURVEYS	
1] Geologist and helper 15 days @ $350.00/day mapping and sampling	$ 5,250.00
2] 20 bulk samples @ $600.00/sample	12,000.00
3] Mountaineer 7 days @ $150.00/day	1,050.00
4] Geophysical survey, allow	20,000.00
CORE DRILLING	
1] Core 4000 ft @ $40.00/ft including bit costs waterline heaters, fuel, 2 skids	160,000.00
2] Mobilization and demobilization..$4,000.00 16 hrs with 204½ @ $1,400/hr 22,400.00 including fuel	26,400.00
3] Water supply, 2 pumps and high pressure hose	10,000.00
4] Helicopter move 3.5 hrs with 204½ @ $1400/hr	4,900.00
5] Transportation cost to and from road end	10,000.00
6] Geologist and helper 30 days @ $350/day	10,500.00
7] Core sample preparation 250 samples @ $600.00	150,000.00
CAMP	
Camp costs including propane, diesel fuel	10,000.00
Support 9 men @ $50.00/day 30 days	13,500.00
Helicopter 20 hrs @ $550.00/hr	11,000.00
REPORT PREPARATION	
Petrographic services, detailed core descriptions, SEM analyses and report	15,000.00
Assessment by diamondiferous kimberlites specialist	10.000.00
Contingencies	45,400.00
TOTAL STAGE 1	$515,000.00

REPORT ON

GEOLOGICAL AND HEAVY MEDIA GEOCHEMICAL SURVEYS JACK CLAIMS
Golden Mining District

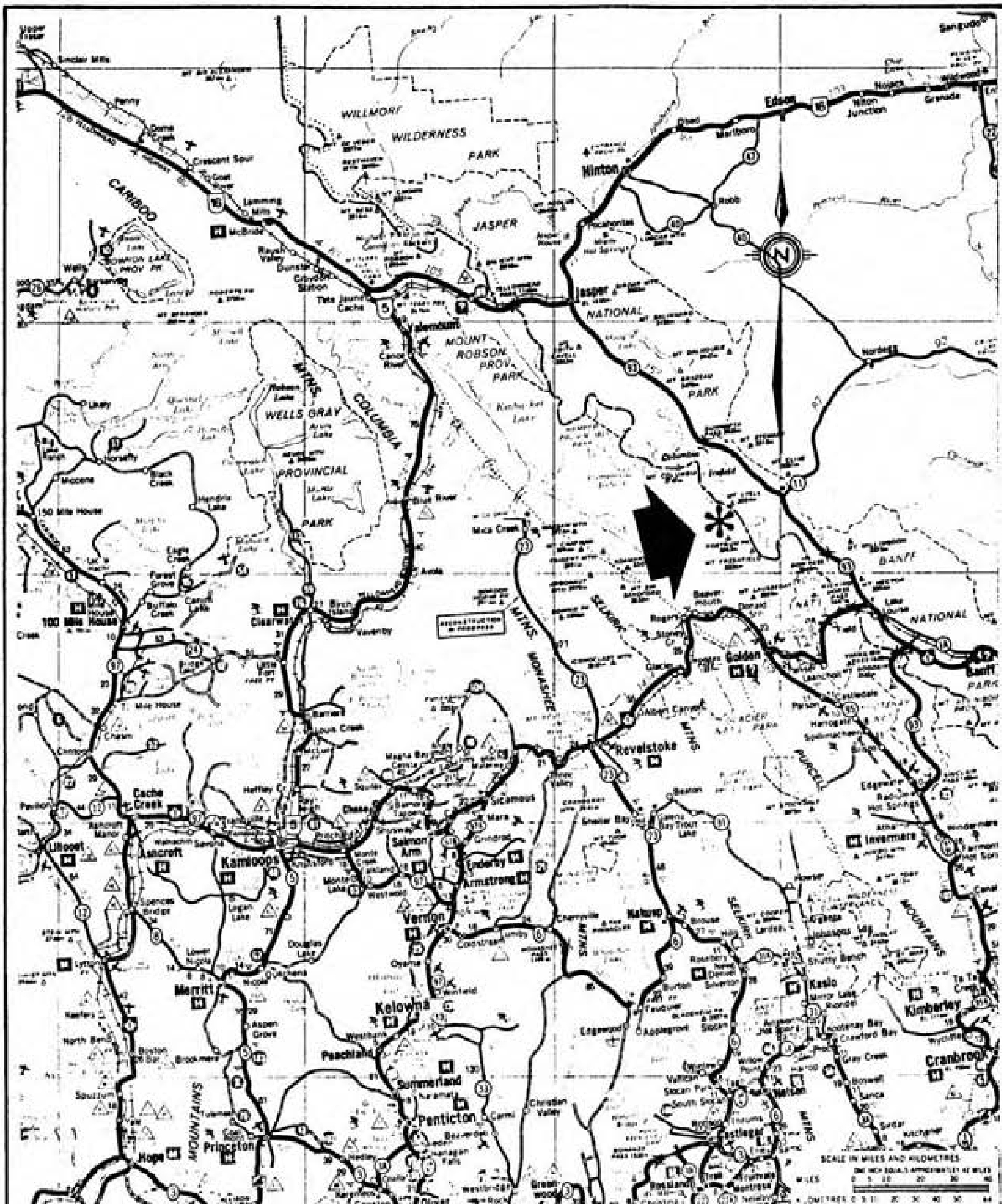
INTRODUCTION

TERMS OF REFERENCE

Gower, Thompson and Associates and K.E.Northcote and Associates were contracted by Dia Met Minerals Ltd. to examine the JACK claims, review and substantiate available data, prepare a geological-geochemical report assessing these data and outline a program to test the diamond potential of the Jack kimberlitic breccia pipe. This work was done during the period January 15 to April 30, 1983. Gower and Northcote, in company with C.Fipke, examined a portion of this property by helicopter landing April 3, 1983. Deep snow conditions prevented detailed geological study but one kimberlitic outcrop was examined and sampled and insight into size and nature of the kimberlitic structure was gained. Logistical problems of access and conducting geological, geochemical, geophysical and drilling programs on the JACK claims became apparent.

LOCATION, TOPOGRAPHY, ACCESS

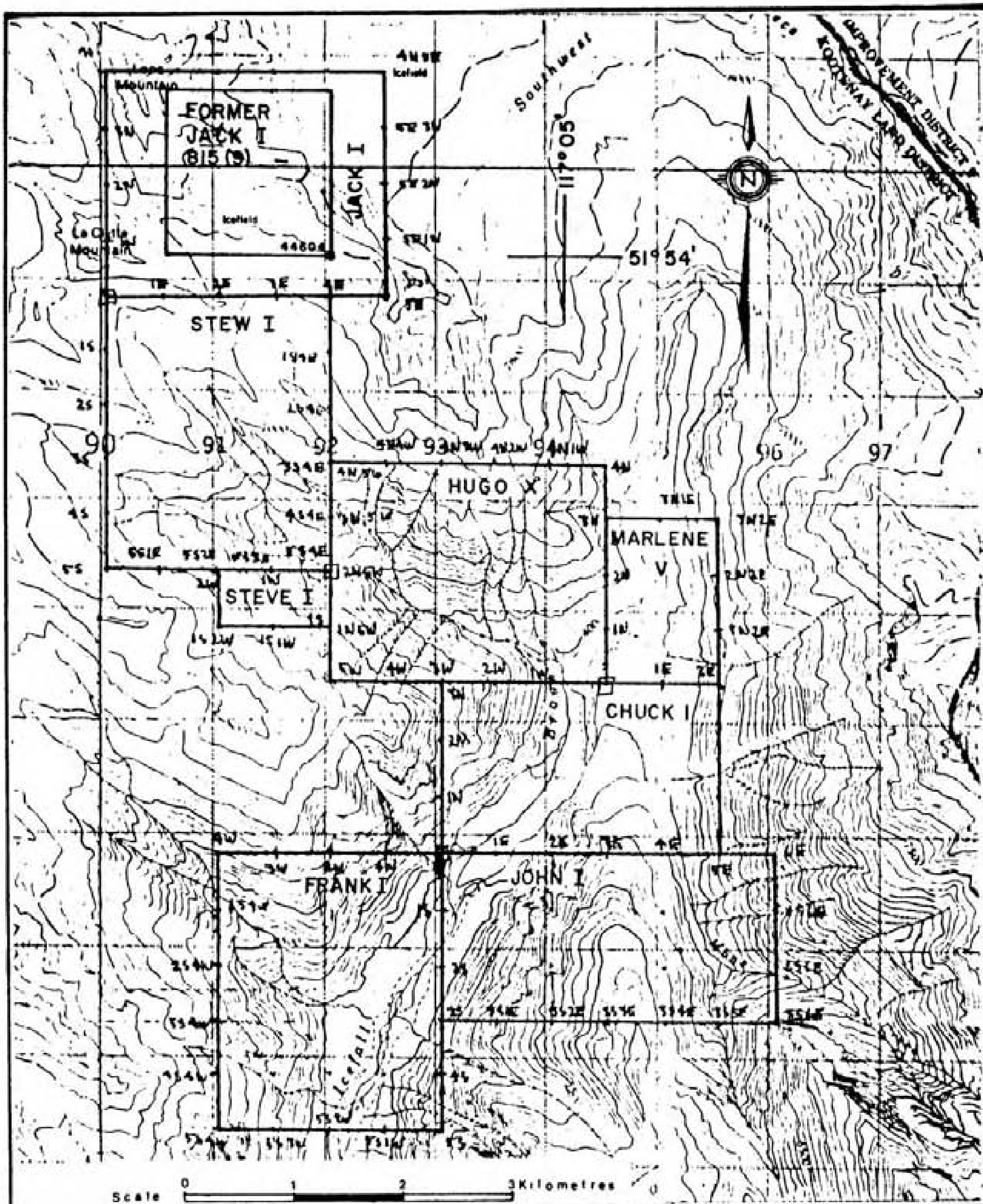
The JACK claim, the principal claim of the group, is located Latitude 51°54'N, Longitude 117°08'W, NTS 82N/14E in the Golden Mining Division. This claim straddles the ridge leading southeasterly from Lens Mountain, approximately 60 km in a direct line north-northwesterly from Golden, and 4.5 km west of the B.C.-Alberta border. The claim group extends approximately 10 kilometres from the JACK 1



DIA MET MINERALS LTD
INDEX MAP
JACK CLAIMS

82N/14E	51°54'N 117°08'W
GOWER, THOMPSON & ASSOCIATES Drawn J.F.B.	K.E. NORTHCOTE AND ASSOCIATES LTD April 30 1993

Figure 1



DIA MET MINERALS LTD

CLAIM MAP

JACK GROUP OF CLAIMS

82N/14E	51°54'N ; 117°08'W
GOWER, THOMPSON & ASSOCIATES Drawn J. F. B.	K. E. NORTHCOTE AND ASSOCIATES LTD April 30 1983

Revised By . . June 10, 1983

Fig. 2

claim in the north to the FRANK 1 claim in the south and spans approximately 5 kilometres at its widest point.

The topography is extremely rugged and hazardous. Parts of the claims on both sides of the ridge are under glaciers and perennial snow cover with exposed precipitous slopes and cliffs. Elevations on the property range from 1000 metres (3350 ft) at the south edge of the FRANK 1 claim to approximately 3000 metres (9700 ft) on the principal JACK 1 claim. See Figure 2.

The claims are accessible by helicoper from Golden. There is reported to be road access to within 7 kilometers of the property. Middle to late summer affords the best opportunity for mineral exploration but portions of the claims area requires experienced climbers to establish safe routes and to carry out effective mapping and sampling programs. Freezing conditions can be expected even in the summer months.

CLAIM STATUS

The JACK property is comprised of recently staked JACK 1, STEW 1, STEVE 1, HUGO X, MARLENE V, CHUCK 1, FRANK 1 and JOHN 1 four post contiguous mineral claims totalling 121 units. See Figure 2.

After the property was visited by Northcote and Gower the new JACK 1 20 unit claim was staked over the former 9 unit JACK 1 claim and the seven additional contiguous claims were located. The claim posts have not been examined to confirm accordance with the Mineral Act. Legality of the claims is the responsibility of Dia Met Minerals Ltd.

TABLE I

JACK PROPERTY CLAIM DATA

NAME	UNITS	RECORD NO.	RECORD DATE	EXPIRY DATE
[JACK-1(former)	9	815 (9)	Sept. 5, 1980	1986]
JACK 1	20	1077 (6)	June 2, 1983	1986*
STEW 1	20	1119 (6)	June 20, 1983	1984
STEVE 1	2	1120 (6)	June 20, 1983	1984
HUGO X	20	1116 (6)	June 20, 1983	1984
MARLENE V	6	1114 (6)	June 20, 1983	1984
CHUCK 1	15	1115 (6)	June 20, 1983	1984
FRANK 1	20	1118 (6)	June 20, 1983	1984
JOHN 1	18	1117 (6)	June 20, 1983	1984
New total	121 units			

* Information provided by Gold Commissioner, Golden Mining Division, Golden B.C.

BACKGROUND INFORMATION

Geological Environment of Diamond Deposits

Diamonds are found in extremely low concentrations as accessory minerals in kimberlite rocks and in fluvial and beach deposits. The Finsch Kimberlite in South Africa for example, which is one of the most profitable diamond mines in the Western World, has extremely low diamond concentrations of only the order of one part per billion by volume.

Diamonds, in order to form, require very special physical-chemical conditions found deep in the earth's outer mantle at depths exceeding 200 kilometers. Diamondiferous kimberlites may form in deep seated fracture systems where partial (H_2O, CO_2)

volatile pressures provide an explosive mechanism to quickly transport the diamonds to the earth's surface. If the partial pressure of the volatiles exceeds the confining pressure the partial melt would move towards the surface in a series of explosive bursts. Rapid passage results in minimum corrosion and reaction while the diamonds pass through zones where chemical-physical conditions make them unstable. Diamondiferous mantle material would be carried upwards and be mixed with increasing amounts and varieties of wall rock torn off the sides of the ever widening fracture or vent system by increasing explosive intensity upwards. As gaseous streaming diminishes there is commonly surface collapse of the cauldera and mixing of surficial materials with that brought up from depth. If the vent area or cauldera is underwater there may be sedimentary infilling showing some degree of stratification. The end result then, is a pipe similar to Figure 3, a model devised by J.B.Hawthorne of DeBeers.

Diatremes or breccia pipes are fairly common throughout much of geologic time. Most, however, have shallow origins and many have porphyry copper-molybdenum-gold-silver-tin-tungsten mineralization, corresponding characteristic suites of associated rocks,and hydrothermal minerals indicative of a shallow origin. Systems of deeper origin may be nickel-rich and have corresponding Fe Mg rich suites of associated rocks. Kimberlite diatremes of extremely deep origin, although showing a great diversity of fragments incorporated on the way to the surface, have characteristic mineral assemblages and compositions indicative of their deep origin. Similarly diamondiferous pipes have a narrower range of specific assemblages of indicator minerals of a particular composition range which originate under conditions which are also favourable for formation of diamonds.

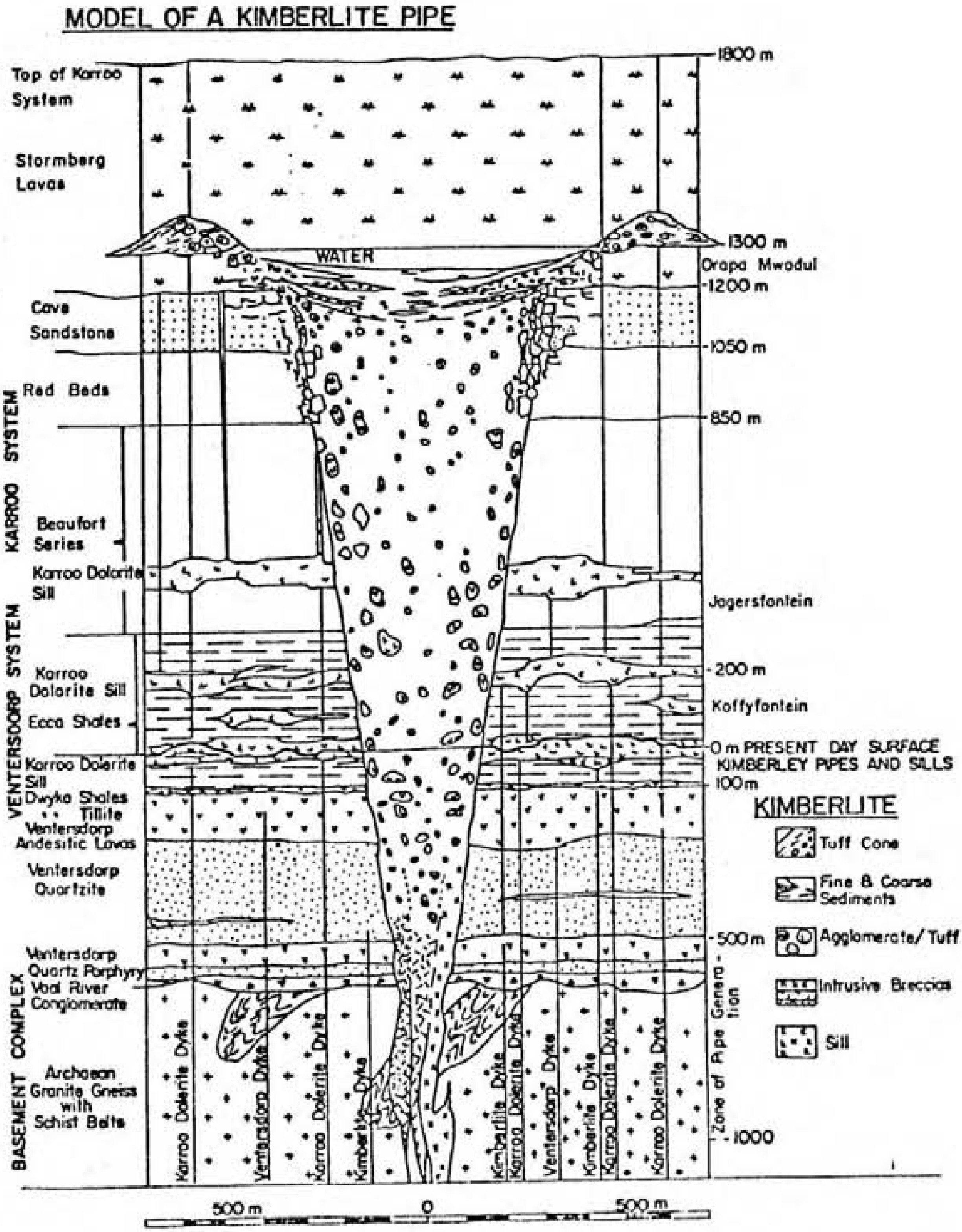


Figure 3

Hawthorne

There is not complete agreement among petrologists specializing in kimberlites regarding what constitutes kimberlites and diamondiferous kimberlites. In general, however, kimberlite is characterized by inequigranular texture (porphyry/breccia) and mineral components dominated by olivine. There may be large fragments and smaller groundmass grains of olivine and phlogopite. The effects of carbonation and serpentinization are characteristic and there may be large patches of carbonation and serpentinization in the groundmass. Macrocrystal pyrope-rich garnet and picroilmenite grains are often abundant On a finer scale the textures and chemistry of groundmass spinels and ilmenites also characterize kimberlite. Reaction relationships between early crystals and kimberlite melt are prominent. In diamondiferous kimberlites these indicator minerals have characteristic compositions and are far more abundant than microdiamonds and macrodiamonds and their presence is of extreme significance in exploring for diamonds.

Kimberlites are undersaturated rocks with a silica content near or below 33 Wt%. Alumina and titanium contents are high for ultramafic rock whereas total iron is about average. Compared to other ultramafic suites, kimberlites have a high alkali content, are volatile-rich; H_2O often greater than 7,5 wt% and CO_2 is high,3 wt% and variable. The large P_2O_5 content 0.5 to 1.0 wt% is similar to granite.

In addition to primary upper mantle materials, such as eclogites (garnet, clinopyroxene, orthopyroxene and olivine) which originated where diamonds formed, large quantities and wide ranging varieties of extraneous material torn from the sides of the ever widening pipe are incorporated into the kimberlite during its upward passage. The composition of this extraneous material is dependent upon the rock succession traversed by the pipe and may be quite different from one locality to another.

EXPLORATION FOR DIAMONDIFEROUS KIMBERLITE DIATREMES

Aids in locating kimberlites pipes in areas devoid of vegetation include Landsat imagery, aerial photographs or aerial reconnaissance. Testing of stream sediment bulk samples for indicator minerals may assist in locating pipes in covered areas. In certain cases, dependent upon differences in lithologies, certain sensitive geophysical methods may be utilized.

However, once a kimberlite pipe is discovered determination of whether or not it is diamondiferous and economic becomes both arduous and costly. The concentration of diamond in a rich kimberlite ore (e.g. at the Premier pipe in South Africa) is approximately one carat per ton (0.2 gm/ton) or one part diamond per 4.5 million parts of waste rock which constitutes a grade of approximately 0.00000022 percent. Average kimberlite ore runs about 0.25 carat per ton or approximately one part diamond per 20 million parts waste rock (0.00000005 percent) (McCallum and Mabarak, 1976)

Although it is not unknown, the probability is extremely low that a macrodiamond will be found during reconnaisssance exploration. Microdiamonds which are minute crystals or fragments occur in greater abundance, provide a greater but still low probability for detection. Therefore exploration and evaluation of diamond potential of kimberlite pipes is carried out by exploration for and analysis of indicator minerals. These indicator minerals include pyrope garnet, chrome diopsides, picroilmentites and chromite. The presence of certain elements and element ratios in the indicator minerals are indicative of diamondiferous potential of pipes.

Other considerations include size of a kimberlitic pipe. There appears to be some empirical relationship between size and production capability. The larger a diamondiferous pipe is the greater the potential for production is considered to be because the larger pipes appear to have higher concentrations of diamonds. Appendix B is two pages from Diamonds, by Eric Bruton, which graphically shows size relationships among kimberlite pipes

Pipe fields which have intruded thin crustal areas are thought to have less production probability than those penetrating thicker crustal areas.

There are a large number of kimberlite pipes known in North America and many of these are diamondiferous. Of these, other than the Jack, three are regarded as having economic significance. These are the Prairie Creek pipe in Arkansas (located in a park), the Batty pipe on Somerset Island N.W.T. (De Beers), and the Sloan pipe in the Rocky Mountains of Colorado (Superior Oil). These were discovered where there had been no previous reports of diamonds being found.

EXPLORATION FOR DIAMONDS IN BRITISH COLUMBIA

One of the earliest reports of discovery of diamonds in British Columbia is recorded by C. Camsell, 1914. He reported a diamond identified in ultrabasic rocks of the Tulameen District* Since that time much has been learned and reported regarding the origin and occurrence of diamonds.

Exploration for diamonds in B.C. was stimulated by renewed interest in diamondiferous terrains and discovery of new diamondiferous kimberlitic breccia pipes elsewhere in North America, particularly with the Mountain diatreme Northwest Territories and the Sloan pipe in Colorado. Cominco began actively exploring for

* The diamond reported here was subsequently identified as spinel by S.E.M. analysis by Arvid Lacis, U.B.C. (Fipke, personal communication)

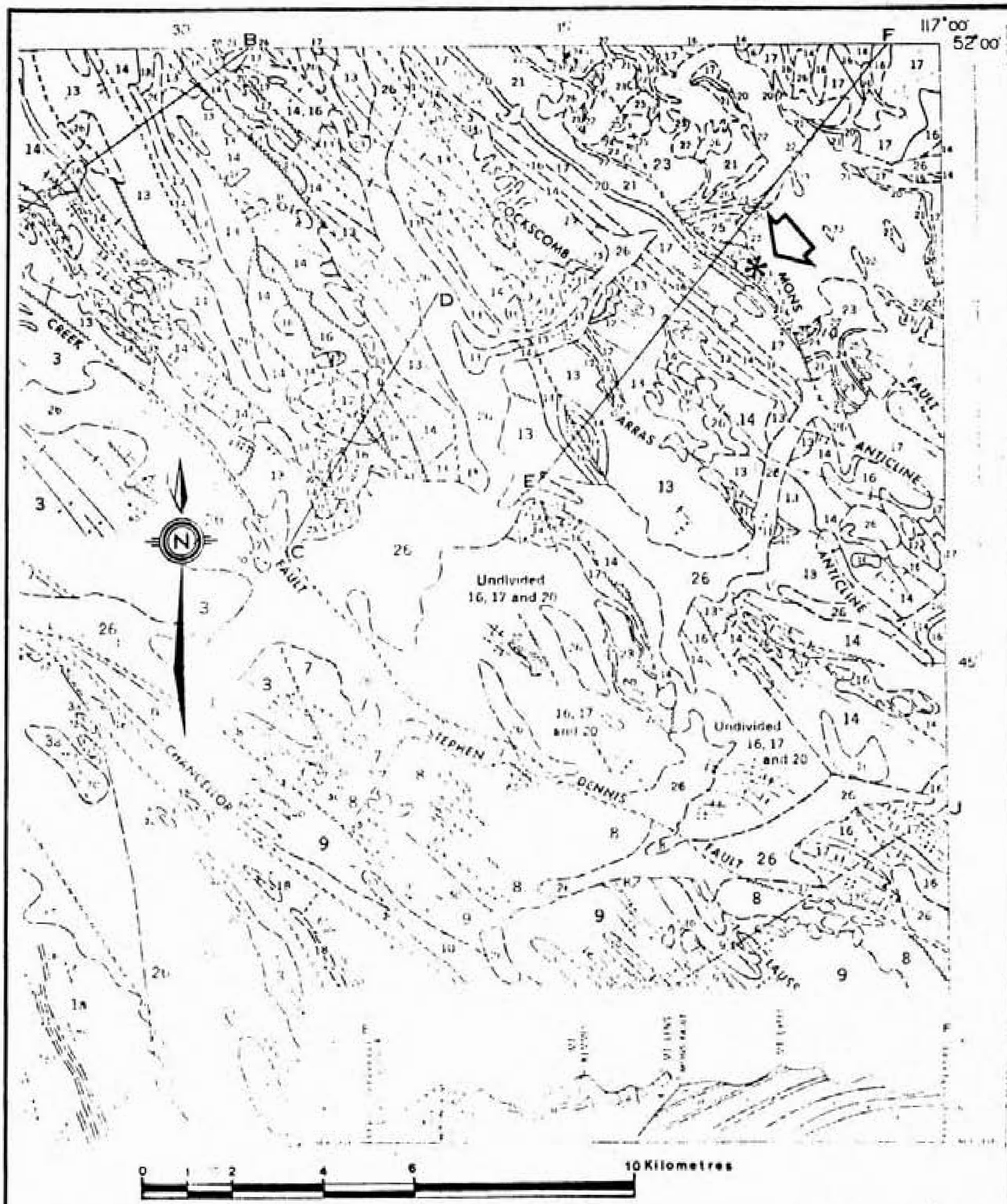
diamondiferous pipes in the B.C.-Alta. Cordillera about 1976. Concurrently or subsequently other companies including Falconbridge, Superior Oil, Serem, Dupont, Anaconda, Exxon, Amax and peripherally De Beers became active in exploration for diamonds in the cordillera. Junior companies including Petragem and C.F.Minerals Research Ltd. also began active exploration for diamonds in B.C. at about this time.

During the past several years C.F.Minerals Research Ltd. has been actively conducting geological reconnaissance, heavy media stream sediment and rock geochemical surveys in the Rocky Mountains. This has lead to discovery of a number of kimberlite pipes including the Jack and Mark. The JACK and MARK claims were staked in 1980 and rock sampling and processing procedures outlined below proved the Jack and Mark kimberlite pipes to be diamondiferous. Dia Met Minerals Ltd. was formed as a vehicle to fund exploration to test economic viability of these pipes.

GEOLOGY OF THE JACK CLAIMS

The regional geology in the vicinity of the principal JACK claim was mapped on a scale of 1 inch to 4 miles by J.O.Wheeler, 1962. The bedded carbonate-shale stratigraphy and structure of the area is therefore well documented. The relatively small kimberlitic diatremes, however, do not appear on regional scale maps. Their nature, composition, relationships to bedded sediments, structure and their economic significance require detailed study.

The principal JACK claim is underlain by bedded sediments of Upper Cambrian to Ordovician and (?) Silurian age; consisting mainly of limestone, limy slate, intraformational limestone-breccia, conglomerate overlain by dolomite. These units form part of the



Legend – see Figure 4

after J.O Wheeler 1962

DIA MET MINERALS LTD
GEOLOGY MAP
JACK I CLAIM

SCALE 1 in = 4 Mi	DRAWN J.F.B.
GOWER ; THOMPSON & ASSOCIATES	K.E. NORTHCOTE AND ASSOCIATES LTD Figure 4

LEGEND

SELKIRK AND DOGTOOTH MOUNTAINS

CENOZOIC

QUATERNARY

PLEISTOCENE AND RECENT

26 Glacial drift, silt, alluvium, alpine moraine; areas of little or no outcrop

PALAEOZOIC

CAMBRIAN AND LATER

LOWER CAMBRIAN AND LATER

LARDEAU GROUP

6 6b, upper part, grey, greenish, brown quartz mica schist, mica schist, micaceous quartzite, minor limestone, quartz-pebble conglomerate
6a, lower part, dark grey to black carbonaceous, limy slate and limestone, buff slate, dark grey to black carbonaceous, siliceous siltstone, argillite, and slate, grey quartzite, minor quartz-pebble conglomerate (some quartzite may belong to 6b), 6c, limestone

CAMBRIAN

LOWER CAMBRIAN

4 | 5 4 DONALD FORMATION: interbedded rusty brown sandstone, grey slate, and limestone, locally oolitic and pisolitic
5. BADSHOT FORMATION: upper part; dark grey, light grey, and buff limestone
Middle part: green limy slate, phyllite
Lower part: grey and yellowish limestone

2 | 3 2 HAMILL GROUP: pale brown, grey, and pale green quartzite, commonly crossbedded, feldspathic grit, minor rusty-brown, grey, and green slate, phyllite, and conglomerate, 2a, quartz-mica schist, mica schist; 2b, amygdaloidal greenstone, greenstone breccia, tuff
3. Upper formation: pink and pale brown quartzite, feldspathic grit, argillite
Middle formation: interbedded grey, green, brown, and purple slate and quartzite
Lower formation: alternating sericitic quartzite and slate and phyllite; maroon slate, 3a, quartz-mica schist, micaceous quartzite

PROTEROZOIC

WINDERMERE

HORSETHIEF CREEK GROUP

1 | 1b Pale grey, dark grey, green, and maroon slate and phyllite quartzite, feldspathic quartzite, and grit, pebble conglomerate; minor limestone;
1a, grey, silvery brown and golden brown quartz-mica schist, gneiss, pegmatite, and amphibolite (schists commonly contain garnet, staurolite, andalusite, and kyanite); 1b, limestone marble; 1c, coarse breccia; 1d, mainly slate; 1e, mainly grit and quartzite

INTRUSIVE ROCKS

POST LOWER CAMBRIAN

A Granitic rocks, undivided, Aa, hypersthene-augite monzonite; Ab, hornblende granodiorite; Ac, hornblende-biotite granodiorite; Ad, biotite granodiorite; Ae, biotite granite; Af, porphyritic biotite granite

ROCKY MOUNTAIN TRENCH AND WESTERN ROCKY MOUNTAINS (WEST OF STEPHEN DENNIS AND CHATTER CREEK FAULTS)

CENOZOIC

QUATERNARY

PLEISTOCENE AND RECENT

26 Glacial drift, silt, alluvium, alpine moraine; areas of little or no outcrop

PALAEOZOIC

CAMBRIAN AND ORDOVICIAN

UPPER CAMBRIAN AND LOWER ORDOVICIAN

18 | 19 18 McKAY GROUP: green, grey, pale brown, pale grey to silvery limy slate and limestone, limestone-conglomerate and breccia
19. GOODSIR GROUP: green limy slate and limestone, and limestone-conglomerate

CAMBRIAN

MIDDLE AND/OR UPPER CAMBRIAN

15 OTTERTAIL FORMATION: brownish grey weathering, grey and blue-grey limestone

MIDDLE CAMBRIAN

8 | 9 | 10 CHANCELLOR FORMATION 10. Upper unit: orange, green, maroon, and grey limy slate with interbeds of limestone, oolitic limestone, limestone-breccia and conglomerate
9. Middle unit: interbedded grey limestone and rusty brown slate and dolomite
8. Lower unit: thin-bedded grey and greyish brown limestone and argillaceous limestone
8a, micaceous crystalline limestone, phyllite, and mica schist

MIDDLE (?) CAMBRIAN

7 CANYON CREEK FORMATION: pale grey limy slate and grey limestone, 7a, mica schist

LOWER CAMBRIAN

4 DONALD FORMATION: limestone

3 Grey, brown, and pink quartzite, locally gritty and feldspathic, sericitic and chloritic slate; minor conglomerate and limestone,
3a, quartz-mica schist, micaceous quartzite, locally carrying garnet and kyanite

INTRUSIVE ROCKS

MID PALAEOZOIC TO LATE PALAEOZOIC

B Syenite, nepheline syenite

EASTERN ROCKY MOUNTAINS (EAST OF THE STEPHEN/DENNIS AND CHATTER CREEK FAULTS)

QUATERNARY

PLEISTOCENE AND RECENT

26 Glacial drift, silt, alluvium, alpine moraine; areas of little or no outcrop

DEVONIAN

UPPER DEVONIAN

25 Upper part: moderately resistant dark grey, thin-bedded limestone
Lower part: cliff-forming pale grey thick-bedded limestone, locally mottled

24 Recessive pale grey and tan dolomite, brown weathering, thin-bedded quartzite

23 Main part: cliff-forming dark grey sandy dolomite, dolomite-breccia, local massive pale grey vuggy dolomite with stromatoporoids
Basal beds white, purple, green and brown crossbedded quartzite with interbeds of maroon and brown shale; minor limestone and brecciated dolomite at top

ORDOVICIAN AND (?) SILURIAN

22 Upper formation: buff and grey dolomite, intraformational dolomite-breccia, lenses of quartzite
Lower formation: buff and orange sandy dolomite, dolomite-breccia, pale brown quartzite, and maroon shale

ORDOVICIAN

LOWER ORDOVICIAN

21 Cliff-forming, well-bedded, grey and brown dolomite, locally vuggy; minor chert

CAMBRIAN AND ORDOVICIAN

UPPER CAMBRIAN AND LOWER ORDOVICIAN

20 Recessive grey and green limy slate, intraformational limestone-breccia and conglomerate

PALAEOZOIC

CAMBRIAN

UPPER CAMBRIAN

17 Upper formation: cliff-forming grey limestone; lower part mainly clastic limestone with slate interbeds and chert lenses. Upper part mainly massive thick-bedded limestone with algal structures
Middle formation: recessive interbedded grey limestone, brown, grey, and green slate, limestone-conglomerate, oolitic and algal limestone
Lower formation: cliff-forming, well-bedded brownish grey weathering wavy laminated limestone, mottled grey and pale brown limestone, dolomite; chert lenses

16 Recessive brown, orange, green, and grey slate with numerous interbeds of oolitic limestone and limestone conglomerate

MIDDLE CAMBRIAN

14 Upper formation: two cliff-forming grey, mottled and laminated limestone units separated by recessive brownish grey dolomite, minor limestone. Algal structures in the thick limestones
Lower formation: recessive, principally brown and subordinately greenish weathering, thin-bedded slaty dolomite, maroon and green slate, grey limestone, and limestone-breccia

13 Upper formation: cliff-forming, brownish grey weathering, grey limestone, locally mottled, wavy laminated, and oolitic with more recessive argillaceous interbeds
Lower formation: very resistant cliff-forming, thin-bedded dark grey and light grey limestone, partly altered to brown weathering dolomite

12 Recessive unit of thin-bedded brown and grey limestone, locally mottled orange and grey, underlain by green limy shales and slates, limestone-breccia and conglomerate

11 Cliff-forming, thick-bedded grey and brown laminated and mottled limestone, grey dolomite

Geological boundary (defined, approximate or assumed)

Bedding, tops known (horizontal, inclined, vertical, overturned)

Bedding, tops unknown (vertical, inclined)

Schistosity, cleavage, gneissosity (horizontal, inclined, vertical)

Lineation (horizontal, inclined)

Fault (defined, approximate or assumed)

Anticline (defined, approximate)

Syncline (defined, approximate)

Anticline and syncline (overturned, arrow indicates direction of plunge)

Fossil locality

Mineral property ×5

Figure 4A

(after J.O. Wheeler - Legend for figure 4)

DIA MET MINERALS LTD

JACKI CLAIM

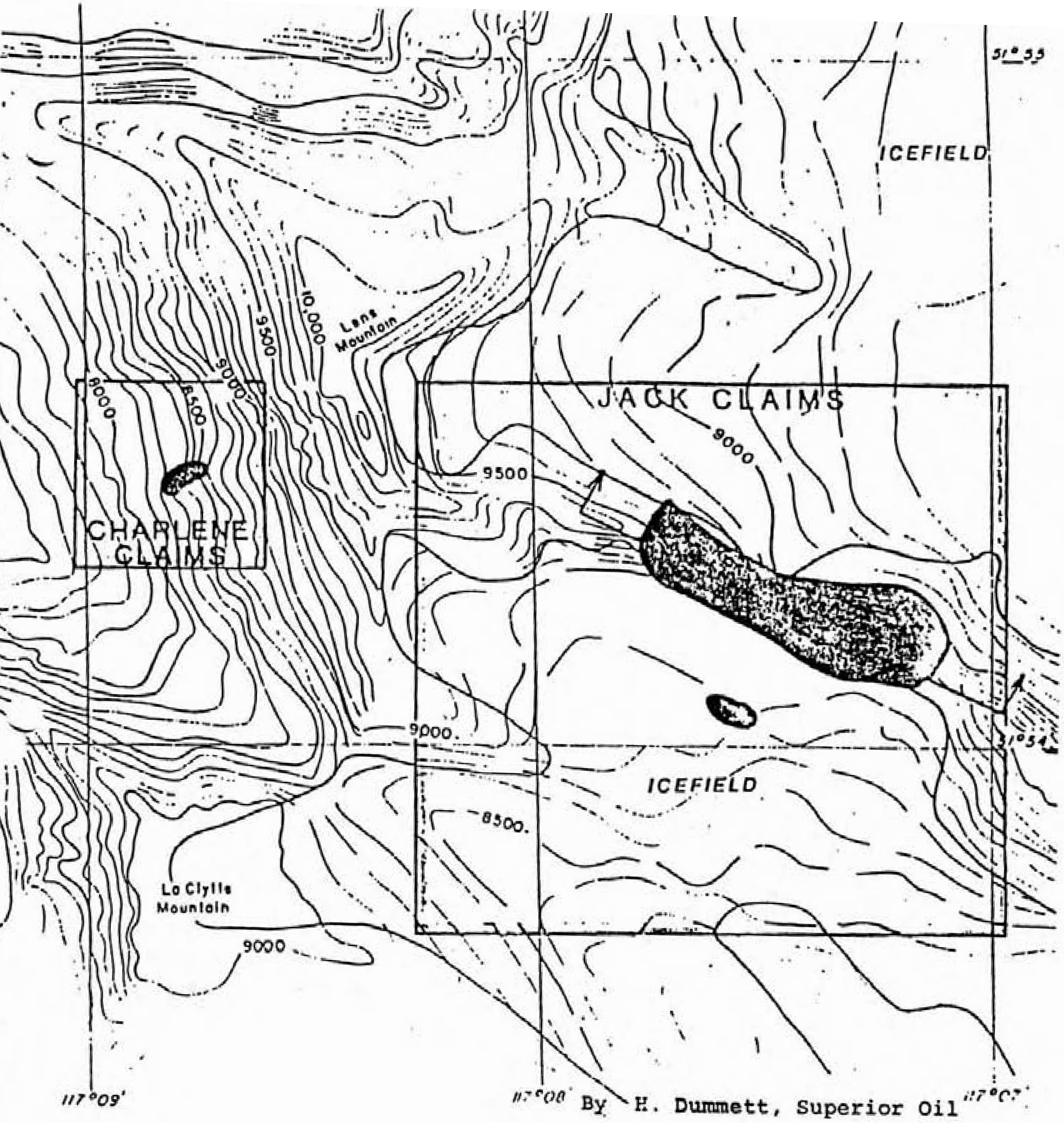
GOWEH; THOMPSON & ASSOCIATES Drawn J.F.R.	K.E. NORTHCOTE AND ASSOCIATES LTD April 30 1983

east dipping limb of the Cockscomb anticline which is thrust easterly over Upper Devonian on the west dipping Mons fault. See Figure 4, Geology Map and Cross Section after J.O.Wheeler, 1962.

The Jack pipe is one of a series of north northwesterly trending belt of diatremes which crop out over a distance of 40 to 50 kilometres into Jasper Park. Some of the pipes contain chrome diopside, phlogopite and peridotite nodules, breccia fragments of sedimentary and gneissic basement rock, nodular chromite and magnetite and rounded serpentine autoliths. These traits classify the pipes as true kimberlites.

The Jack kimberlite pipe is indicated on Figure 5. Its dimensions are partly obscured by snow and glaciers. The minimum dimensions of the Jack kimberlite pipe breccia are estimated by Fipke and Blusson to be 600 yards by 550 yards or about 54 acres. Assuming the small kimberlitic exposure in the ice field on southwest side of the ridge is part of the main pipe estimates of the total area are in the order of 50 to 65 acres. An unknown amount of the pipe may be covered by the glacier on the northeast side of ridge. If these dimensions are correct, according to E.Bruton's classification, 1978, the Jack pipe would rank at least the 10th largest kimberlite pipe in the world. This is larger than the Russian pipes and is only exceeded in size in South Africa by the Premier Mine pipe.

The exposed portion of the Jack kimberlitic diatreme is thought to represent an uneroded top of a semi-stratified subaqueous collapse breccia overlying the less diluted main pipe portion of the kimberlite pipe. See Figure 3. The size and composition of clasts are extremely varied ranging from minute grains forming the breccia matrix to large clasts several tens of metres across.



KIMBERLITE

PLANE OF PHOTO

ICEFIELD

This figure, provided by Dia Met Minerals Ltd shows the approximate outline of the Jack diatreme and the outline of former JACK and CHARLENE claims.

Figure 5

JACK & CHARLENE KIMBERLITES

A composite photo, facing northeast, illustrating the outcrop of most of the phases of the Jack pipe

Figure 6

JACK DIATREME

Units within the Jack kimberlitic breccia have been termed sandy marls, kimberlitic tuffs and kimberlitic dykes. See Figure 6.

Study of two thin sections of the Jack breccia by Hugo Dummett a diamondiferous kimberlite specialist with Superior Oils Minerals Branch, Tucson, are summarized here:

> H.D. #1 sample indicates a tuff or similar fragmental rock with high perlitic dacite glass fragment content and less abundant fragments of marly sediment or microgranular limestone with a scattering of basic andesitic fragments. The glass has been epizonally altered to sericite.
>
> H.D. #2 sample is described as a crudely layered sandy marl sediment with a fine grained calcareous matrix containing rounded quartz clasts with numerous rounded to subrounded xenoliths of marl, cherty to sandy marl, siltstone and argillite. The quartz grains have developed fibrous tails that mingle with foliae of sericite. Argillic fragments are also converted to foliated sericite. The calcite has recrystallized in cherty or sandy sediments but may also remain very fine grained in pure carbonate xenoliths.

Jack #1 bulk sample, represented by H.D. #2, produced the microdiamond of Figure 7 and indicator minerals listed in Table II.

Thin sections described by Northcote for Jack #3 and #4 localities indicate similar findings as for H.D. #2. Northcote's descriptions form a separate petrographic report. Most of the matrix and clasts have a high carbonate and/or sericite content but dilutely dispersed among this material may be basic lithic fragments and exotic mineral grains presumably from a deeper crustal mantle source. It should be noted that because of the extreme dilution factor in diatremes and the small sampling area available in thin sections it would be most fortuitous to observe indicator minerals and almost unbelievable.

to observe microdiamonds in random thin sections. Table II lists indicator minerals obtained from processing approximately 30 kg of material from each of 7 samples from the Jack diatreme.

The structural controls for emplacement of the Jack kimberlitic diatremes is presently not known. Mapping the geology of the general area and detailed mapping of the diatreme should provide a better understanding of age and mode of emplacement.

Fipke notes that a number (20+) of kimberlitic diatremes elsewhere in the southern B.C.-Alta. Cordillera have some spatial relationship to northeast and north northwest trending major fracture zones. The possible relationships between kimberlitic diatremes and late northeast and north northwest structures suggests that the great thickened mass of Rocky Mountain stratigraphy thrust on the cratonic basement during Late Jurassic to Tertiary times caused basement subsidence and breakage on preexisting northeast and north northwest basement structures. The breaks may have allowed kimberlitic mantle derived magma in several instances to explosively penetrate the crust thickened by approximately 6 miles of overthrust sediments. (Fipke, personal communication)

Recent seismic data, reported by Price, 1980, indicate that the crustal thickness north and east of Golden to be the thickest in B.C., 50 to 55 km to the Mohorovicic discontinuity, and compares well with the Sloan area, Colorado. Because formation of diamonds apparently necessitiates 70 K bars of pressure or 200 km of depth (Kennedy, 1968,p196) the Sloan diamonds must have formed in the plastic mantle below 200 km even though the crust in the vicinity is 50 km thick. A similar situation is envisaged for the Jack diatreme.

EXPLORATION FOR DIAMONDS, JACK CLAIMS

In order to determine the potential for presence of diamonds in the Jack pipe, 7 bulk samples of kimberlitic rock, weighing approximately 30 kg each, were collected from outcrops. Dr. Paul Lurie, Falconbridge Metallurgical Laboratories, Thornhill, Ontario, subjected these samples to a series of treatments in order to separate indicator minerals (pyrope-garnet, ilmenite, chrome diopside, chromite) and microdiamonds.

The indicator minerals are separated by a combination of crushing, milling, heavy liquids and a variety of magnetic separations. These minerals are identified microscopically and compositions determined by microprobe. Separation and detection of microdiamonds requires a similar procedure coupled with acid digestion and fusion. The minerals surviving fusion are zircon and moissanite, which may be etched, and microdiamonds which are relatively unaffected. Microdiamonds are detected by optical properties and may be confirmed by scanning electron microscope.

Treatment of the 7 bulk samples of kimberlitic rock produced the indicator minerals listed in Table II of favourable composition for diamondiferous kimberlite. See Appendix A.

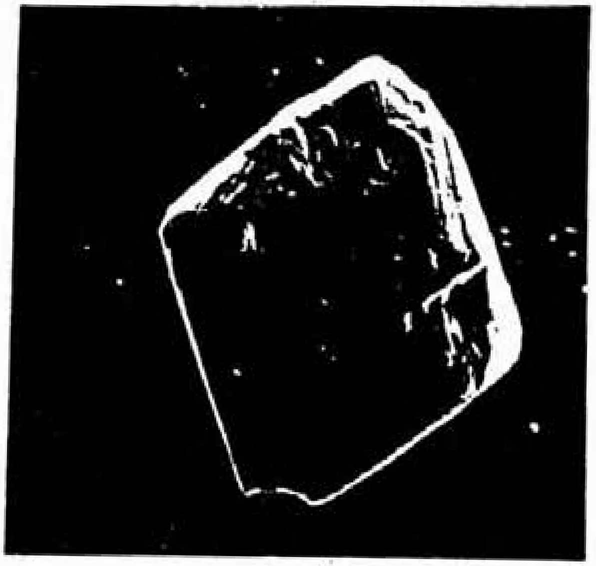
TABLE II

INDICATOR MINERALS WITH COMPOSITIONS
CONSISTENT WITH GENETIC RELATIONSHIPS
TO DIAMONDIFEROUS KIMBERLITE PIPES

SAMPLE NO	GARNET(PYROPE)	ILMENITE	CHROMITE*
Jack 1**	13	18	-
Jack 2	5	14	-
Jack 3	---------- NR ----------		
Jack 4	1	1	3
Jack 5	2	9	3
Jack 6	8	4	9
Jack 7	4	2	-

*Chromite of this composition is also found in alpine ultramafics
**Jack 1 produced the microdiamond, Figure 8.

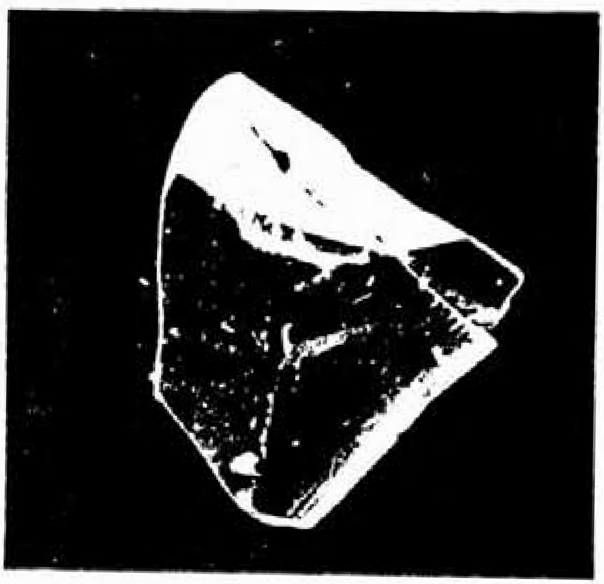
Treatment of about 30 kg of bulk sample,Jack #1, resulted in recovery of one octahedral microdiamond of good quality weighing 37,320 X 10^{-8} carats. (See Figure 8) Discovery and authenticity of the Jack microdiamond are well documented by specialists in diamond exploration, the mineralogy and petrology of diamondiferous kimberlitic pipes. Notable among these investigators are Dr. Paul Lurie, S.W. Marsh of Falconbridge and Hugo Dummett of Superior Oil. Documentation of the Jack microdiamond by scanning electron microscope (SEM) and micrographs is found in company reports by Superior Oil and Falconbridge Nickel Mines Limited. Although there is always some possibility of the Jack microdiamond being a laboratory contaminant this possibility is remote; nor do I have reason to believe the microdiamond originated other than from the sample from which it is said to have been recovered.



Orientation A 140X

Orientation B 170X

#18 Jack 1



170X

500X

#9 Big Mark Lower West

Figure 7 SEM Micrographs of Microdiamonds

recovered from Jack and Big Mark Lower West pipes. The microdiamonds weigh 37,320 X 10^{-8} and 15,820 X 10^{-8} carats respectively.

Plate #1

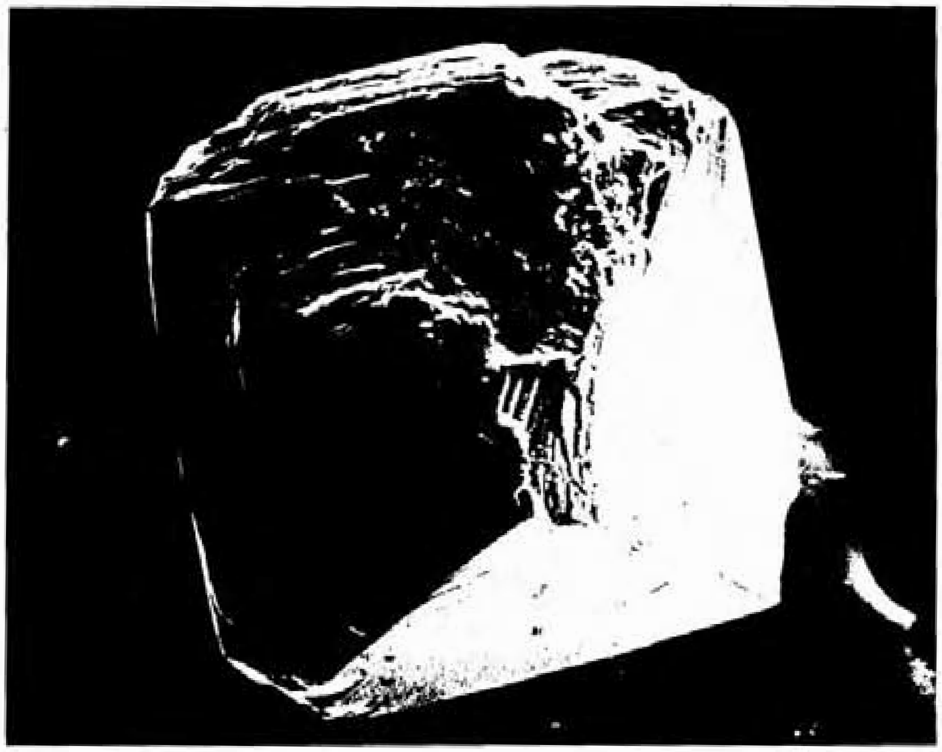


Plate #2

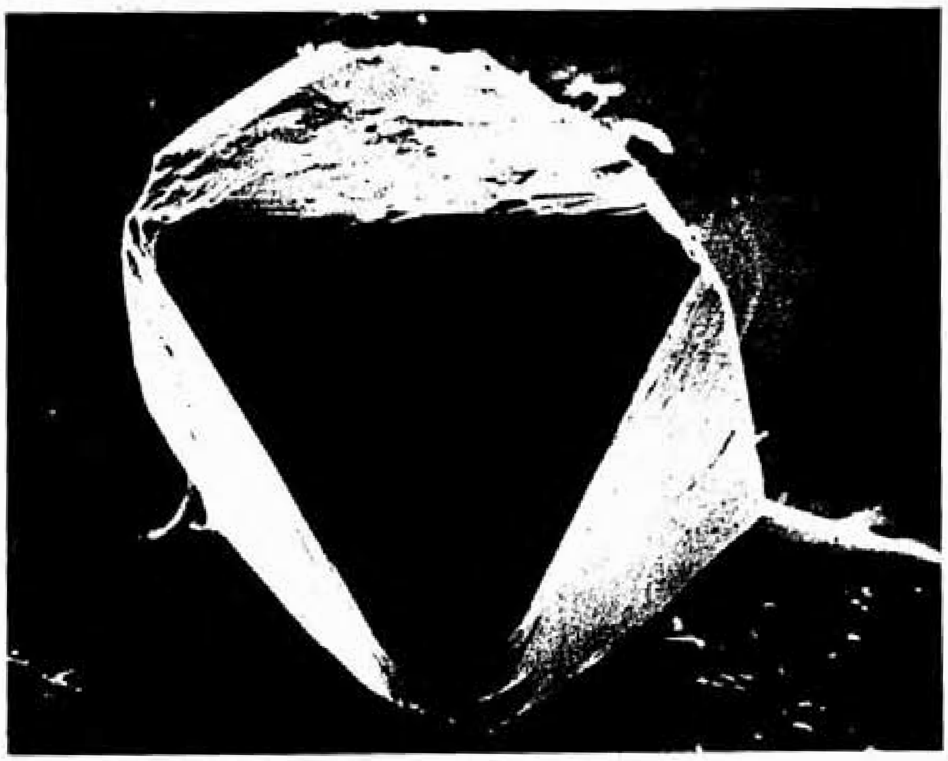


Figure 8 JACK MICRODIAMOND Scale 100 u

$37{,}320 \times 10^{-8}$ carats. Scanning Electron Microscope Micrographs

Note partly removed gold film placed on microdiamond to aid in SEM analysis.

As a further check on authenticity the Jack microdiamond was analyzed by SEM and micrographed by Arvid Lacis of Bacon and Donaldson and Associates Ltd. Vancouver, B.C. in the presence of Northcote. The resulting SEM micrographs, Figure 8, can be compared to SEM micrographs by Superior Oil, Figure 7 SEM charts, Appendix C, show the conductive gold coating which was put on the microdiamond and traces of surface silica contaminants , but no other elements greater than atomic number 12. Octahedral habit, optical properties, atomic number less than 12 indicate diamond, and micrographs indicate it is the same microdiamond described by Superior Oil-Falconbridge.

CONCLUSIONS

The exposed portion of the Jack kimberlite diatreme is believed to be the uneroded top of a semistratified collapse breccia overlying the less diluted main kimberlite pipe.

Bulk sampling has proven the Jack kimberlite diatreme to be diamondiferous. Treatment of seven bulk samples from the upper breccia portion produced 33 pyrope garnets, 48 ilmenites and 15 chromites of favourable composition consistent with diamondiferous kimberlite pipes. More significantly one 29.50 kg bulk sample of sandy marl from the kimberlitic breccia produced an excellent quality octahedral microdiamond weighing 37,320 X 10^{-8} carats.

The large size of the diatreme is empirically very favourable for economic concentration of diamonds as compared to diamond producing pipes elsewhere.

The kimberlite diatreme is located where there is thickening of the earth's crust which is also a condition favourable for diamond exploration.

The less diluted pipe below the collapse breccia is the structure in which diamonds may occur in sufficient quantity to constitute ore. The shape, size and precise location of this pipe must be determined.

The extremely high dilution of mantle material in diamondiferous kimberlitic breccia pipes and the nature of diamonds and indicator minerals limits exploration techniques for their detection to processing bulk samples on surface or in core drill holes. Special precautions must be taken to avoid contamination of core by diamond drill bits.

The positive indication of diamondiferous kimberlite through recovery of indicator minerals and the microdiamond justifies core hole-bulk sampling program to locate and test the main pipe for quantity and quality of diamonds. The proposed program will be a high cost high risk procedure but if successful the rewards could be large.

RECOMMENDATIONS

Assessment of economic potential of the diamondiferous kimberlitic Jack pipe requires core drilling into the pipe for depths of at least 600 metres (2000 ft). Two vertical core holes of at least NQ size are recommended using bits which will not contaminate the core. Close to 100% recovery is required.

The core should be photographed and described in detail prior to bulk sample processing. This can be done in the field or, preferably, in laboratory conditions. Pieces of core representative of different lithologies should be retained for further petrographic study.

The remainder of the core, in lengths amounting to about 30 kg (or 5 metres) should be labelled and processed as bulk samples for indicator minerals and microdiamonds. Number and type of indicator minerals and number, habit, weight (carats) of any microdiamonds recovered should be carefully recorded for each core length and plotted with lithologic descriptions.

Prior to core drilling the Jack kimberlite pipe should be geologically mapped in detail. Provision should be made for geophysical surveys. These data would assist in determining the position of the main pipe which could be anywhere under the collapse breccia. This information is required in order to spot the core drill holes more effectively. It is suggested that additional bulk samples of about 30 kg each should be taken, if logistically possible, on a fairly regular grid system crossing the pipe in two or three lines. These samples should be processed for indicator minerals and microdiamonds. Lithologies should be carefully noted and a representative fragment retained for detailed petrographic studies.

Upon completion of the drilling stage of the project these data should be reviewed by an independent engineer specializing in evaluation of diamondiferous kimberlitic pipes.

If the first stage of exploration yields a quantity of microdiamonds a more rigorous program to process bulk samples, the order of 50 tonnes each, may be necessary. A pilot plant to process these samples would be justified and adits or shafts to provide access for sampling would be required.

PROFESSIONAL
PROVINCE
K.E. NORTHCOTE
BRITISH
COLUMBIA
ENGINEER

CERTIFICATE

I, Kenneth E. Northcote of 2346 Ashton Road, R.R.#1, Agassiz B.C. do hereby certify that:

1] I have been practising as a professional geologist for a period of approximately 25 years for petroleum exploration companies, mining exploration and consulting companies, federal and provincial agencies.

2] I obtained a Ph.D in geology from U.B.C. in 1968 and qualified for registration with the Association of Professional Engineers of B.C. in 1967.

3] One day was spent on helicopter reconnaissance at the JACK and MARK claims in company with C.Fipke and S.C.Gower. Recent publications and data supplied by Dia Met Minerals Ltd and laboratory tests of microdiamonds from Jack and Mark kimberlitic diatremes form the basis for this report.

4] I have no interest either directly or indirectly in the properties or securities of Dia Met Minerals Ltd. nor do I expect to receive any.

5] I consent to use of this report in, or in connection with, a prospectus relating to the raising of funds.

Dated at Agassiz B.C. this 20th day of June 1983.

PROFESSIONAL ENGINEER
PROVINCE OF
K.E. NORTHCOTE
BRITISH COLUMBIA

C E R T I F I C A T E

I, STEPHEN C. GOWER, of 985 Gatensbury Street, Coquitlam, B. C. V3J 5J6, do hereby certify that:

1. I have been practising as a professional geologist for a period of approximately 14 years for mining and consulting companies.

2. I obtained a Bachelor of Science Degree in Geology from the University of British Columbia in 1970 and am a member of various professional associations.

3. One day was spent on helicopter reconnaisance at the Jack and Mark claims in company with C. Fipke and K. E. Northcote. Recent publications and data were supplied by Dia Met Minerals Ltd. for the basis of this report.

4. I have no interest either directly or indirectly in the properties or securities of Dia Met Minerals Ltd., nor do I expect to receive any.

5. I consent to use of this report in or in connection with a prospectus relating to the raising of funds.

Stephen C. Gower
Stephen C. Gower

July 28 1983
Date

REFERENCES

Boyd, F.R.; Meyer, H.O.A.;(1979) Kimberlites, Diatremes and diamonds, Their Geology, Petrology and Geochemistry. Proceedings of the Second International Kimberlite Conference, Volume 1. American Geophysical Union

_____________________; (1979) The Mantle Sample: Inclusions in Kimberlites and other Volcanics Proceedings of the Second International Kimberlite Conference, Volume 2, American Geophysical Union.

Bruton, E. (1970) Diamonds, N.A.G. Press Ltd.,London, England Second Edition, 1970.

Cox, K.G. (?) Kimberlite Pipes, Scientific American, Vol.? No. ? pp 120-133 (?)

McCallum, M.E.; Mabarak, C,D.;(1976) Diamond in State-Line Kimberlite Diatremes Albany County, Wyoming, Larimer County, Colorado. The Geological Survey of Wyoming Report of Investigation No. 12

Price R.A. (1965) Flathead Map-Area, British Columbia and Alberta, GSC Memoir 336, pp 1-217

__________(1979) Unpublished information concerning crustal thickness as ascertained from seismic results of 1979 fieldwork. The Department of Geological Sciences, Queens University, Kingston, Ont.

________-; Mountjoy, E.W.(1970) Geologic Structure of the Canadian Rocky Mountains Between Bow and Athabasca Rivers- A Progress Report- In Structure of Southern Canadian Cordillera ed. by Wheeler, J.O., pp 7-25

________ et al, (1972), The Canadian Rockies and Tectonic Evolution of the Southeastern Canadian Cordillera, XXIV International Geological Congress Field Excursion A15-C15 Guide Book ed. Canadian Export Gas and Oil Ltd. Calagary, pp 1-13

________, Lis, M.G. (1976) Large-Scale Block Faulting During Deposition of the Windermere Supergroup (Hadrynean) In Southeastern British Cloumbia, GSC Paper 76-1A, pp 135-136

Wheeler, J.O. 1963, Rogers Pass Map-Area British Columbia and Alberta, GSC Paper 62-32, pp 1-30

APPENDIX A

ANALYSES OF INDICATOR MINERALS

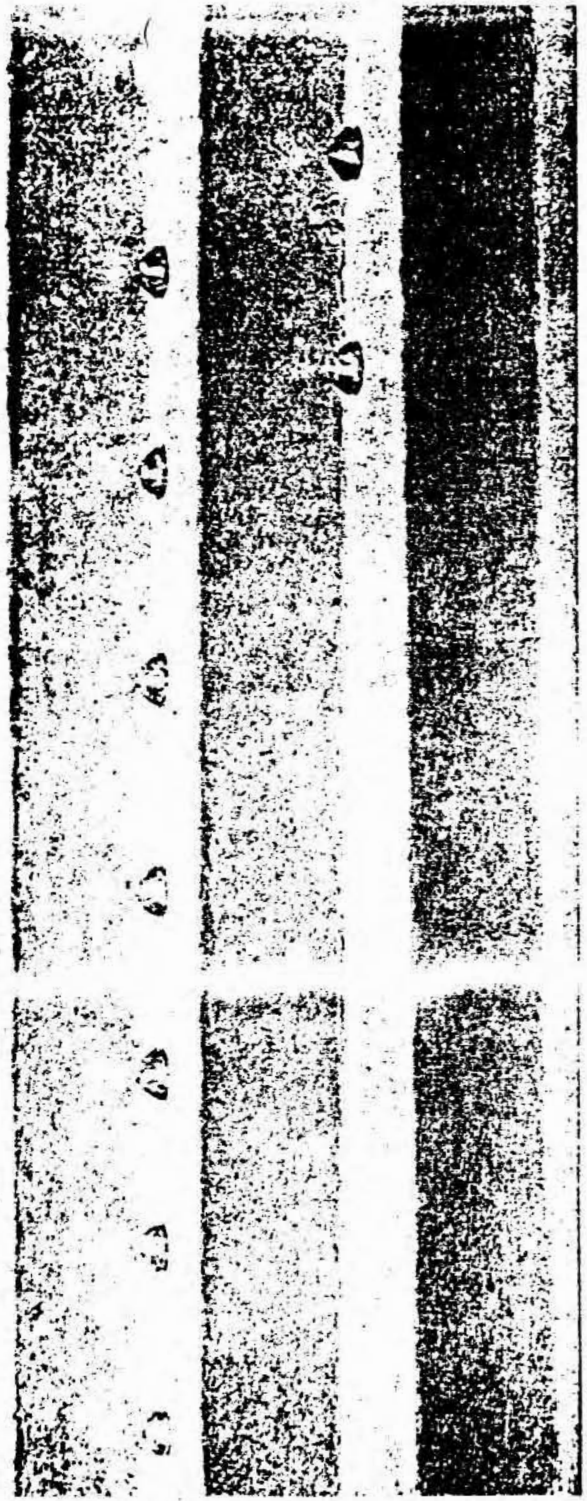
ID	NUM	OR	GRN	MIN	SIO2	TIO2	AL2O3	CR2O3	FEO	MNO	MGO	CAO	NA2O	K2O	TOTAL
HP	2	R	7	CR	.	0.69	23.28	42.36	15.71	0.26	16.78	.	.	.	99.08
HP	2	R	8	CR	.	0.87	18.62	47.18	15.57	0.32	16.47	.	.	.	99.03
HP	2	R	9	CR	.	0.76	24.32	40.83	16.24	0.26	17.13	.	.	.	99.54
HP	2	R	10	CR	.	0.81	20.95	44.29	17.00	0.25	16.20	.	.	.	99.50
HP	2	R	11	CR	.	0.66	23.81	41.43	16.51	0.25	16.94	.	.	.	99.60
HP	2	R	12	CR	.	0.53	25.18	39.00	16.05	0.23	16.75	.	.	.	97.74
HP	2	R	14	IL	.	48.96	0.38	0.60	35.09	0.27	11.80	.	.	.	97.10
HP	2	R	16	GT	43.64	1.01	21.03	2.00	10.61	0.42	18.68	4.99	.	.	102.38
HP	8400	R	1	CD	52.48	0.35	3.41	1.39	2.30	0.09	16.52	22.96	0.5	0	100.00
JAC	1	R	1	GT	41.78	0.46	16.80	7.74	7.48	0.42	18.46	7.54	.	.	100.68
JAC	1	R	2	GT	41.48	0.39	19.97	4.57	8.82	0.44	19.34	5.15	.	.	100.16
JAC	1	R	3	GT	41.81	0.14	20.19	4.17	7.67	0.36	19.97	5.52	.	.	99.83
JAC	1	R	4	GT	41.71	0.53	17.97	5.96	7.45	0.26	19.03	6.56	.	.	99.47
JAC	1	R	5	GT	40.21	0.85	13.33	12.53	6.93	0.35	18.60	8.46	.	.	101.26
JAC	1	R	6	GT	41.30	0.65	17.44	8.19	7.48	0.29	18.19	7.52	.	.	101.06
JAC	1	R	7	GT	41.79	0.72	15.44	10.13	7.04	0.26	19.65	7.40	.	.	102.43
JAC	1	R	8	GT	42.48	0.65	17.15	8.05	7.29	0.35	18.95	7.58	.	.	102.50
JAC	1	R	9	GT	41.02	0.65	15.60	9.85	7.04	0.39	18.55	7.44	.	.	100.54
JAC	1	R	10	GT	40.51	0.00	20.68	0.00	33.56	0.93	6.35	0.43	.	.	102.46
JAC	1	R	11	GT	42.89	0.17	22.01	3.08	8.01	0.30	22.10	3.80	.	.	102.36
JAC	1	R	13	GT	43.51	0.05	20.44	3.74	8.29	0.34	20.34	5.59	.	.	102.30
JAC	1	R	14	GT	44.09	0.79	20.31	1.28	8.64	0.22	21.10	5.29	.	.	101.72
JAC	1	R	15	GT	40.60	0.01	19.75	0.00	27.25	2.69	5.34	7.50	.	.	103.14
JAC	1	R	16	GT	44.03	0.68	20.09	1.84	8.65	0.23	21.10	5.24	.	.	101.86
JAC	1	R	17	GT	45.27	0.24	20.54	2.00	8.66	0.19	21.27	4.78	.	.	102.95
JAC	1	R	18	GT	41.09	0.03	20.34	0.06	27.61	2.25	4.82	7.63	.	.	103.83
JAC	1	R	19	GT	43.42	0.69	21.26	2.96	7.80	0.17	20.17	5.43	.	.	101.90
JAC	1	R	21	GT	42.32	1.07	21.38	0.53	11.87	0.35	18.92	4.70	.	.	101.14
JAC	1	R	22	GT	40.14	0.02	19.88	0.00	34.28	0.80	1.09	7.98	.	.	104.19
JAC	1	R	28	IL	0.02	53.93	0.51	0.61	35.55	0.23	11.36	0.08	.	.	102.29
JAC	1	R	29	IL	0.00	51.53	0.15	0.37	41.42	0.23	9.24	0.05	.	.	102.99
JAC	1	R	30	IL	0.04	51.03	0.15	0.42	39.50	0.23	10.31	0.09	.	.	101.77
JAC	1	R	31	IL	0.00	51.85	0.17	6.10	32.36	0.22	13.08	0.08	.	.	103.86
JAC	1	R	32	IL	0.00	54.06	0.65	0.85	34.56	0.28	11.73	0.09	.	.	102.22
JAC	1	R	33	IL	0.00	53.82	0.28	0.71	37.70	0.26	10.79	0.11	.	.	103.67
JAC	1	R	34	IL	0.00	55.64	0.72	0.68	30.63	0.25	13.93	0.13	.	.	101.98
JAC	1	R	35	IL	0.00	53.25	0.25	0.66	37.62	0.24	10.40	0.08	.	.	102.50
JAC	1	R	36	IL	0.00	54.01	0.53	2.70	31.32	0.20	12.87	0.09	.	.	101.72
JAC	1	R	37	IL	0.00	54.57	0.28	0.63	34.62	0.22	12.06	0.10	.	.	102.48
JAC	1	R	38	IL	0.00	56.34	0.42	0.62	32.95	0.17	12.94	0.12	.	.	103.56
JAC	1	R	40	IL	0.06	54.69	0.28	0.55	35.31	0.22	11.19	0.08	.	.	102.38
JAC	1	R	41	IL	0.00	53.05	0.57	2.77	31.56	0.18	12.39	0.07	.	.	100.59
JAC	1	R	42	IL	0.02	50.71	1.05	0.21	39.18	0.11	10.00	0.08	.	.	101.36
JAC	1	R	43	IL	0.00	53.10	0.32	0.52	37.40	0.32	11.27	0.09	.	.	103.02
JAC	1	R	45	IL	0.00	53.89	0.58	0.90	33.85	0.28	11.74	0.12	.	.	101.36
JAC	1	R	46	IL	0.00	51.60	0.28	4.06	32.94	0.16	12.12	0.12	.	.	101.28
JAC	1	R	47	IL	0.00	55.55	0.11	0.41	35.49	0.34	11.24	0.08	.	.	103.22
JAC	1	R	48	IL	0.03	53.03	0.78	4.19	33.46	0.23	13.32	0.10	.	.	105.14
JAC	2	R	1	GT	37.25	0.08	20.97	0.00	32.92	0.80	1.06	7.96	.	.	101.04
JAC	2	R	2	GT	42.55	0.99	20.33	3.34	8.09	0.22	17.75	5.65	.	.	98.92
JAC	2	R	3	GT	43.25	0.78	21.31	2.57	8.00	0.20	18.66	5.18	.	.	99.95

ID	NUM	OR	GRN	MIN	SIO2	TIO2	AL2O3	CR2O3	FEO	MNO	MGO	CAO	NA2O	K2O	TOTAL
JAC	2	R	4	GT	43.68	0.88	21.11	2.25	8.04	0.22	18.22	5.27	.	.	99.67
JAC	2	R	5	GT	44.46	0.73	22.44	1.05	8.44	0.24	17.69	4.78	.	.	99.83
JAC	2	R	6	GT	43.48	1.18	20.90	1.99	9.56	0.28	18.03	5.25	.	.	100.67
JAC	2	R	7	GT	40.68	0.03	22.22	0.01	28.59	0.74	3.76	5.34	.	.	101.37
JAC	2	R	8	IL	.	49.52	0.33	0.88	34.98	0.33	11.24	.	.	.	97.28
JAC	2	R	10	IL	.	49.89	0.33	0.08	37.00	1.05	11.12	.	.	.	99.47
JAC	2	R	11	IL	.	46.40	0.21	0.85	40.59	0.29	9.19	.	.	.	97.53
JAC	2	R	12	IL	.	47.22	0.20	0.54	40.05	0.29	9.76	.	.	.	98.06
JAC	2	R	13	IL	.	50.93	0.36	0.59	33.72	0.27	12.31	.	.	.	98.18
JAC	2	R	14	IL	.	45.07	0.06	0.80	50.44	0.28	0.17	.	.	.	96.82
JAC	2	R	15	IL	.	47.24	0.21	0.03	40.97	1.46	9.28	.	.	.	99.19
JAC	2	R	16	IL	.	48.14	0.23	0.59	37.74	0.30	10.81	.	.	.	97.81
JAC	2	R	17	IL	.	49.43	0.27	0.58	39.08	0.28	10.13	.	.	.	99.77
JAC	2	R	18	IL	.	44.76	0.13	0.18	50.71	0.26	2.69	.	.	.	98.73
JAC	2	R	19	IL	.	51.59	0.36	0.67	33.02	0.27	13.53	.	.	.	99.44
JAC	2	R	20	IL	.	49.86	0.30	0.73	37.39	0.30	10.87	.	.	.	99.45
JAC	2	R	21	IL	.	48.06	0.27	0.57	38.96	0.31	10.47	.	.	.	98.64
JAC	2	R	22	IL	.	52.35	0.43	0.96	33.35	0.30	13.07	.	.	.	100.46
JAC	2	R	23	IL	.	48.06	0.10	0.07	46.74	3.04	0.17	.	.	.	98.18
JAC	2	R	24	IL	.	52.53	0.66	0.77	31.86	0.26	14.10	.	.	.	100.18
JAC	2	R	25	IL	.	51.81	0.34	0.88	34.49	0.28	12.02	.	.	.	99.82
JAC	4	R	1	GT	41.64	0.09	22.46	0.25	20.10	0.39	10.56	5.39	.	.	100.88
JAC	4	R	2	GT	43.98	0.78	20.69	2.41	7.82	0.23	19.11	5.25	.	.	100.27
JAC	4	R	3	IL	.	49.93	0.27	0.64	35.67	0.30	10.49	.	.	.	97.30
JAC	4	R	4	IL	.	49.78	0.06	0.11	45.41	0.50	1.11	.	.	.	96.97
JAC	4	R	6	IL	.	49.14	0.06	0.12	47.01	0.38	0.24	.	.	.	96.95
JAC	4	R	7	IL	.	49.52	0.24	0.64	34.58	0.25	11.00	.	.	.	96.23
JAC	4	R	13	IL	.	48.46	0.03	0.02	47.00	0.38	0.28	.	.	.	96.17
JAC	4	R	15	IL	.	49.47	0.10	0.12	45.44	0.44	0.77	.	.	.	96.34
JAC	4	R	16	CR	.	0.66	20.16	45.93	15.89	0.28	16.73	.	.	.	99.65
JAC	4	R	17	CR	.	0.65	19.89	45.72	15.60	0.29	17.01	.	.	.	99.16
JAC	5	R	1	GT	37.40	0.02	21.90	0.07	30.49	2.90	3.28	5.87	.	.	101.93
JAC	5	R	2	GT	40.46	1.14	23.96	0.27	10.02	0.35	18.72	5.27	.	.	100.19
JAC	5	R	3	GT	38.17	0.03	23.95	0.16	27.67	1.11	7.77	4.26	.	.	103.12
JAC	5	R	4	GT	36.33	0.04	23.42	0.10	31.63	0.98	7.46	1.15	.	.	101.11
JAC	5	R	5	GT	37.65	0.01	24.34	0.06	26.89	0.66	10.87	1.36	.	.	101.84
JAC	5	R	6	GT	36.48	0.10	24.28	0.13	29.00	0.70	8.73	2.51	.	.	101.93
JAC	5	R	7	GT	37.05	0.06	24.03	0.15	26.99	0.66	10.98	1.28	.	.	101.20
JAC	5	R	8	GT	36.69	0.04	23.30	0.09	28.58	0.71	9.86	1.16	.	.	100.43
JAC	5	R	9	GT	36.64	0.00	23.18	0.16	30.12	1.02	7.80	1.64	.	.	100.56
JAC	5	R	10	GT	34.34	0.07	22.60	0.07	31.38	1.08	7.58	1.25	.	.	98.37
JAC	5	R	11	GT	38.85	0.78	22.28	1.93	8.63	0.31	19.33	5.25	.	.	97.36
JAC	5	R	12	GT	34.37	0.06	22.12	0.05	28.75	0.67	4.88	7.24	.	.	98.14
JAC	5	R	13	GT	35.11	0.04	23.32	0.07	33.72	1.60	5.11	1.13	.	.	100.10
JAC	5	R	14	GT	35.21	0.02	23.10	0.04	26.35	1.02	7.21	6.07	.	.	99.02
JAC	5	R	15	GT	35.88	0.06	23.43	0.10	27.23	0.77	5.46	7.68	.	.	100.61
JAC	5	R	16	GT	38.63	0.06	22.21	0.01	12.62	0.07	0.15	22.98	.	.	96.73
JAC	5	R	17	IL	.	53.91	1.34	1.01	25.96	0.42	16.13	.	.	.	98.77
JAC	5	R	18	IL	.	50.30	0.51	0.61	32.89	0.26	12.39	.	.	.	96.96
JAC	5	R	19	IL	.	49.71	0.40	0.13	43.99	0.57	1.34	.	.	.	96.14
JAC	5	R	20	IL	.	48.69	0.51	0.68	34.90	0.33	11.57	.	.	.	96.68

ID	NUM	OR	GRN	MIN	SIO2	TIO2	AL2O3	CR2O3	FEO	MNO	MGO	CAO.	NA2O	K2O	TOTAL
JAC	5	R	21	IL	.	50.52	0.75	0.56	31.86	0.23	12.93	.	.	.	96.85
JAC	5	R	22	IL	.	48.50	0.49	0.69	35.34	0.29	10.79	.	.	.	96.10
JAC	5	R	23	IL	.	49.67	0.31	0.05	45.55	0.50	0.75	.	.	.	96.83
JAC	5	R	25	IL	.	47.28	0.50	0.46	37.77	0.29	9.75	.	.	.	96.05
JAC	5	R	26	IL	.	50.56	0.69	0.69	33.12	0.23	12.52	.	.	.	97.81
JAC	5	R	27	IL	.	51.63	0.84	0.63	29.75	0.34	14.74	.	.	.	97.93
JAC	5	R	32	IL	.	49.87	0.34	0.19	43.48	0.42	2.66	.	.	.	96.96
JAC	5	R	33	IL	.	48.05	0.54	0.49	37.16	0.29	10.48	.	.	.	97.01
JAC	5	R	34	CR	.	0.74	17.97	49.85	14.33	0.28	16.83	.	.	.	100.00
JAC	5	R	35	CR	.	0.84	14.10	54.29	16.05	0.34	16.11	.	.	.	101.73
JAC	5	R	36	CR	.	0.71	22.74	45.39	15.52	0.29	16.36	.	.	.	101.01
JAC	6	R	4	GT	43.89	0.38	18.89	8.11	6.35	0.36	17.95	6.14	.	.	102.07
JAC	6	R	7	GT	44.42	0.54	19.02	5.54	7.20	0.35	16.63	6.56	.	.	100.26
JAC	6	R	8	GT	46.10	0.77	20.90	2.78	7.68	0.27	17.99	4.65	.	.	101.14
JAC	6	R	9	GT	41.72	0.03	23.20	0.01	23.75	0.72	7.89	6.12	.	.	103.44
JAC	6	R	10	GT	43.16	0.08	15.80	10.75	6.19	0.30	17.10	6.33	.	.	99.71
JAC	6	R	11	GT	44.48	0.10	22.16	2.97	8.24	0.35	16.09	5.77	.	.	100.16
JAC	6	R	12	GT	44.43	0.08	22.85	1.18	10.80	0.51	16.08	4.96	.	.	100.89
JAC	6	R	13	GT	43.49	0.78	16.49	8.94	6.76	0.29	16.74	6.73	.	.	100.22
JAC	6	R	14	GT	42.42	0.72	14.34	12.01	6.81	0.36	15.35	8.33	.	.	100.34
JAC	6	R	15	GT	42.43	0.69	15.13	10.87	7.01	0.34	15.74	8.35	.	.	100.56
JAC	6	R	16	GT	42.50	0.63	14.04	12.34	6.62	0.38	16.02	8.63	.	.	101.16
JAC	6	R	17	GT	42.56	0.61	15.37	10.30	6.63	0.40	16.33	7.82	.	.	100.02
JAC	6	R	18	IL	.	50.14	0.16	0.08	45.54	1.61	0.11	.	.	.	97.64
JAC	6	R	19	IL	.	53.73	0.68	1.29	26.69	0.39	14.32	.	.	.	97.10
JAC	6	R	20	IL	.	53.91	0.49	0.41	28.48	0.30	13.22	.	.	.	96.81
JAC	6	R	21	IL	.	49.69	0.91	4.06	30.72	0.31	13.74	.	.	.	99.43
JAC	6	R	22	IL	.	46.13	0.12	0.06	44.32	5.72	0.06	.	.	.	96.41
JAC	6	R	23	IL	.	50.69	0.51	0.52	35.38	0.39	12.18	.	.	.	99.67
JAC	6	R	24	IL	.	51.08	0.15	0.08	45.96	1.88	0.16	.	.	.	99.31
JAC	6	R	25	CR	.	0.22	3.69	62.44	21.06	0.45	11.16	.	.	.	99.02
JAC	6	R	26	CR	.	0.36	3.21	60.68	20.59	1.71	11.45	.	.	.	98.00
JAC	6	R	27	CR	.	0.90	21.04	45.53	17.08	0.32	15.79	.	.	.	100.66
JAC	6	R	28	CR	.	0.60	22.16	46.32	15.64	0.29	16.10	.	.	.	101.11
JAC	6	R	29	CR	.	0.09	13.93	57.44	14.35	0.68	14.42	.	.	.	100.91
JAC	6	R	30	CR	.	0.83	20.68	42.53	27.49	1.84	6.93	.	.	.	100.30
JAC	6	R	31	CR	.	0.59	21.83	46.44	15.54	0.29	16.14	.	.	.	100.83
JAC	6	R	32	CR	.	0.69	22.53	40.81	20.23	0.28	15.74	.	.	.	100.28
JAC	6	R	33	CR	.	0.86	22.10	44.36	16.46	0.30	16.44	.	.	.	100.52
JAC	7	R	1	GT	39.99	0.70	14.48	12.45	6.54	0.38	16.62	7.96	.	.	99.12
JAC	7	R	2	GT	39.42	0.73	14.56	12.45	6.33	0.38	15.91	7.77	.	.	97.55
JAC	7	R	3	GT	39.73	0.59	16.13	9.66	7.03	0.34	16.36	6.78	.	.	96.62
JAC	7	R	5	GT	39.64	0.59	13.86	13.04	6.78	0.34	16.66	6.69	.	.	97.60
JAC	7	R	8	IL	.	50.84	0.65	0.77	32.26	0.30	14.23	.	.	.	99.05
JAC	7	R	9	IL	.	48.09	0.93	4.08	30.26	0.23	14.85	.	.	.	98.44
JAC	7	R	10	IL	.	48.46	0.09	0.06	45.90	1.94	0.09	.	.	.	96.54
JAC	7	R	12	IL	.	49.57	0.10	0.06	45.57	0.95	0.49	.	.	.	96.74
LRY	2	R	2	IL	.	50.75	0.63	0.47	34.25	0.35	12.34	.	.	.	98.79
LRY	2	R	3	IL	.	50.86	1.09	3.19	29.98	0.30	13.55	.	.	.	98.97
LRY	2	R	4	CR	.	1.75	12.79	50.56	21.09	0.41	14.03	.	.	.	100.63
LRY	2	R	5	CR	.	1.82	12.92	50.06	21.09	0.40	14.04	.	.	.	100.33

APPENDIX B

DIAMONDS-Bruton



It is impossible to show on the printed page an accurate range of polished diamonds graded for colour and the object of this plate is to give some idea of the narrowness of the range of colour in "white" stones. The stones in the top row are Cape Series stones and range from about Crystal to Yellow or Dark Cape (see page 270). There are several grades whiter than the stone on the left. The two stones on the lower row are Brown Series. The stones are shown on a corrugated piece of white paper in a white light at about the angle that they should be graded by eye. The difficulties in reproducing the colours accurately are in the different colour values caused by the camera lighting, the film stock, the colour separation at the printing block makers, the ink used in reproduction and finally the paper on which the reproduction is printed, since that also has a tint which is several grades below that of the finest white diamond. Photograph by Peter Parkinson, F.I.I.P., London.

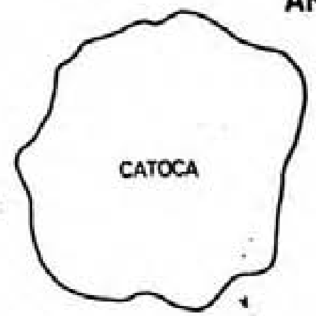
DIAMONDS

Second Edition

Eric Bruton F.G.A.

CHILTON BOOK COMPANY
Radnor, Pennsylvania

Shapes and Sizes of Diamond Pipes



	Name	*Country*	*Ha.*	*Acres*
1	Mwadui	Tanzania	146	360·5
2	Orapa	Botswana	110·6	273·1
4	Camafuca-Camazambo	Angola	67·5	166·7
5	Catoca	Angola	66·2	163·4
6	Talala	Congo	50	123·5
8	Jwaneng	Botswana	44	108·7
9	Premier	S. Africa	32·2	79·5
10	Zarnitsa	Siberia	21·5	53·1
11	Udatchnaya	Siberia	20	49·4
12	Kao	Lesotho	19·8	48·9
13	Massif I	Zaire	18·6	45·9
14	Finsch	S. Africa	17·9	44·2
15	Letseng-la-Terai	Lesotho	15·9/4·6	39·3/11·4
16	Batty Claim	Canada	13·1	32·3
17	Letlhakane	Botswana	11·6	28·6
18	2125B/K9	Botswana	11·2	27·7
19	Koffiefontein	S. Africa	11·1	27·4
20	Jagersfontein	S. Africa	10·0	24·3
21	Camutue I	Angola	9·3	23
22	Massif V	Zaire	9	22·2
23	Leningrakaya	Siberia	9	22·2
24	Mir	Siberia	6·9	17·0
25	Dalnaya	Siberia	5·4	13·3
26	De Beers	S. Africa	4·8	11·9
27	2229 B2/K2	Rhodesia	3·9	9·6
28	Kimberley	S. Africa	3·6	8·9
29	Ham Claim	Canada	3·4	8·4
30	KI	Swaziland	2·5	6·2
31	Nevidimka	Siberia	2·5	6·2
32	Dolgodjdannaya	Siberia	2·5	6·2
33	Osennyaya	Siberia	1·6	4
34	Molodejnaya	Siberia	1·5	3·7
35	Blauwbosch	S. Africa	1·5	3·7
36	West End	S. Africa	1·4	3·5
37	Geophysitchakaya	Siberia	1·2	3
38	Polyarnaya	Siberia	I	2·5
39	Sosyednayaya	Siberia	0·5	1·2
40	Malyntka	Siberia	0·4	1
41	Roberts Victor	S. Africa	0·4	1

This list and the diagrams were completed with considerable assistance from John Martens, General Manager, Orapa Diamond Mine, Botswana, and Arthur Wilson, Editor of *The International Diamond Annual*. Not all the kimberlite pipes named are in production and it is not known if all those in Siberia are diamondiferous. There is a bigger pipe in Australia, the Fitzroy (128 ha./315·3 acres), but it is not known at this reprinting whether it is diamondiferous or not.

APPENDIX C

DOCUMENTATION

Jack # 1 Microdiamond (Bottle #4)

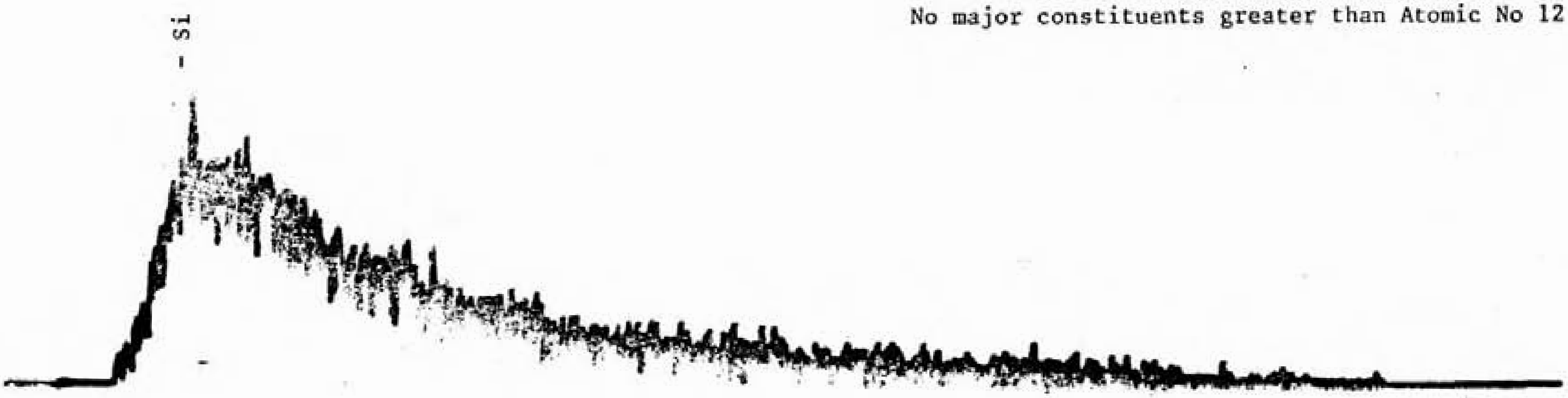
Scanning Electron Microscope Analysis

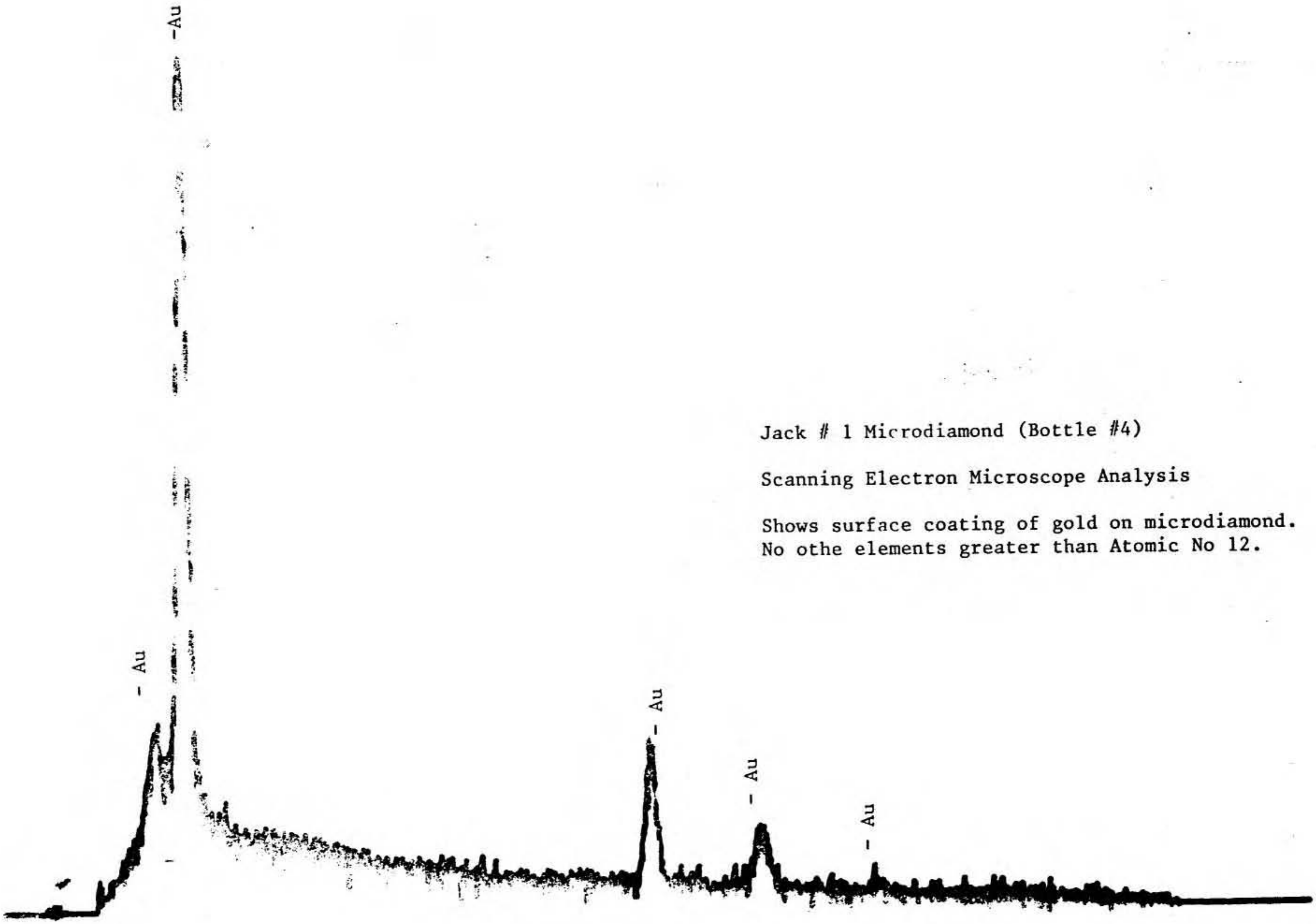
Shows traces of Si and S (surface contamination)
No major constituents greater than Atomic No. 12

Jack # 1 Microdiamond (Bottle #4)

Scanning Electrom Microscope Analysis

Shows traces of Si (surface contamination)
No major constituents greater than Atomic No 12





Jack # 1 Microdiamond (Bottle #4)

Scanning Electron Microscope Analysis

Shows surface coating of gold on microdiamond.
No othe elements greater than Atomic No 12.

FALCONBRIDGE LIMITED
METALLURGICAL LABORATORIES
8810 Yonge Street
Thornhill, Ontario, Canada L4J 1W9
Telex 06-986615 Telephone 416/889-6221

February 23, 1983

Mr. Chuck Fipke
C.F. Mineral Research Ltd.
263 Lake Avenue
Kelowna, British Columbia
V1Y 5W6

Dear Chuck,

Enclosed please find the micro-diamonds extracted from the J.V. project samples, as you requested. The sample details are given in Table 1. I have attached a copy of a memo to Hugo Dummett which presents SEM micrographs of the above MDs.

Please note that I have attached the MDs to double-sided tape in the bottle lids, so open the lids carefully and if we are lucky the MDs will still be there for easy removal. If not, they will be in the bottles. In addition, you will have to acid clean the MDs, as they were coated with gold for the SEM work.

Yours sincerely,

FALCONBRIDGE LIMITED

Paul Lurie

P.G. Lurie

PGL/seh
Enclosures

TABLE 1: Details of the MD Samples

Sample Description	Bottle #	No. of MDs	Approx. MD Weight (carats x 10^{-8})	Bulk Sample Weight (kgs)
# 18 Jack 1	4	1	37320	29.50
# 9 Big Mark Lower West	5	1	15820	30.4

FALCONBRIDGE NICKEL MINES LIMITED

INTER OFFICE MEMORANDUM

MEMO TO: R. Dummett

FROM: S.W. Marsh/P.G. Lurie

DATE: August 10, 1982

SUBJECT: SEM Micrographs of Diamonds from British Columbia Samples

PROJECT No. 307-820810 (JO#2717)

KEYWORDS: Diamonds, Kimberlite

COPIES TO: CMHJ, RAB, RB/File, File (2)

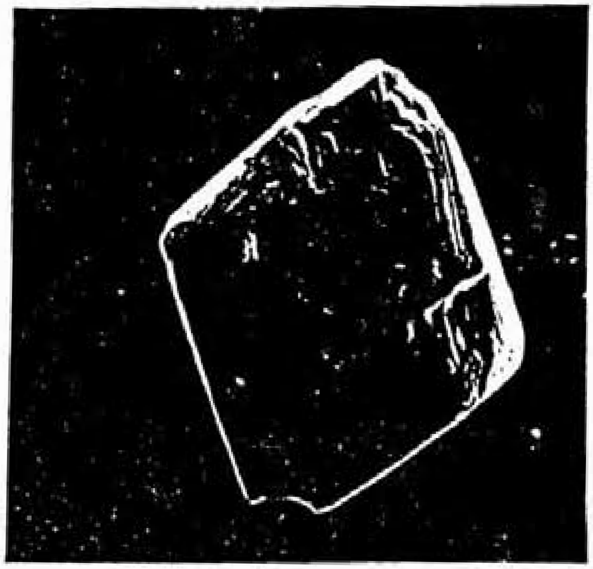
As requested, this memo presents the SEM micrographs of the diamonds from the British Columbia prospecting samples (Jack 1 and Big Mark Lower West).

In some instances, different crystal orientations and higher magnifications were used to illustrate the diamond shapes and the surface features.

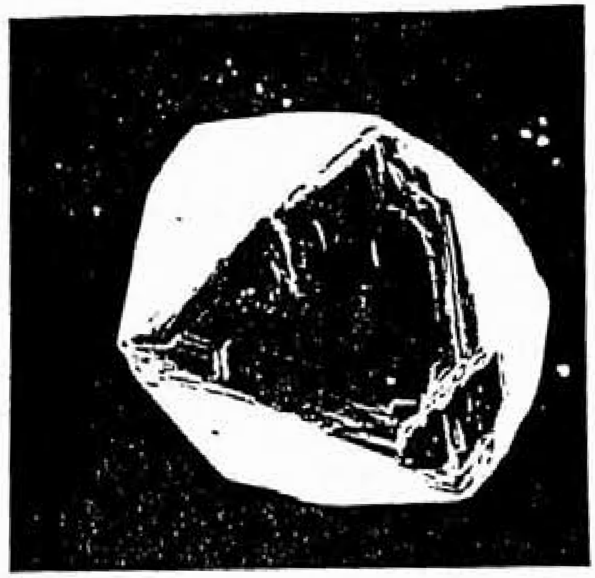
S.W. Marsh

P.G. Lurie

SWM/PGL:sls
attach.



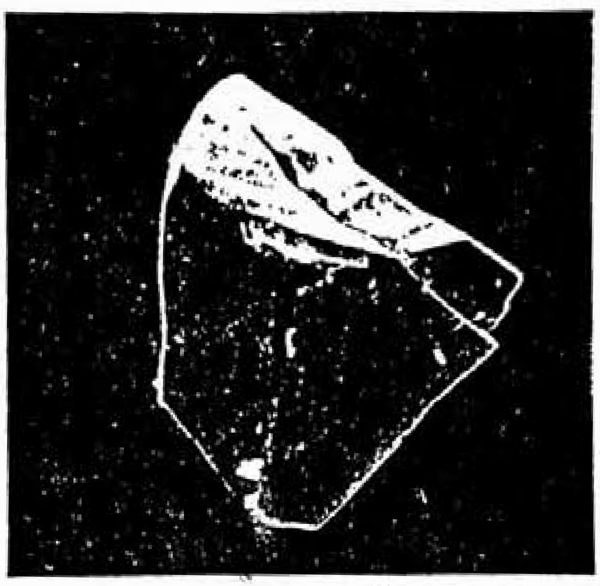
BOTTLE # (4)



Orientation A 140X

Orientation B 170X

#18 Jack 1



BOTTLE # (5)

170X

500X

#9 Big Mark Lower West

SEM Micrographs of Microdiamonds

A photo showing (in the middle distance) the small outcrop of kimberlitic sandy marl, surrounded by ice, to the right of which is the ridge in which much of the Jack pipe is exposed.

A photo, facing east, of one of the outcrops of kimberlitic sandy marl. The outcrop is approximately three feet in the vertical dimension.

APPENDIX D

SUPPLEMENT TO ENGINEERING REPORT FOR JACK GROUP CLAIMS

C.E. Fipke & R. Capell

INTRODUCTION

Additional bulk rock sampling, stream and glacial drift sampling and ground magnetics surveys have been completed subsequent to the foregoing engineering report of Dr. K.E. Northcote.

METHODOLOGY AND RESULTS

1. Rock Samples - As of June 20/84 eight additional ±35 kg rock samples had been helicopter collected over and above the results of six rock samples reported in the previous assessment report. Three of the eight rock samples were processed (as described in Northcote's report) at Falconbridge Metallurgical laboratories. The remaining five rock samples are being processed for micro-diamonds at the C.F.M. laboratory in Kelowna using crushing, pulverizing, bal- milling, washing, and wet sieving, tetrabromo-ethane and methylene iodide heavy liquid separations, electromagnetic separations and acid digestions. Two of the rock samples processed at Falconbridge did not contain any M.D.'s but one sample did contain a gem quality 0.43 mm microdiamond and this is illustrated in Northcote's report. Ilmenites and chromites have been found' in one sample processed at C.F.M. but no other results are available at the time of writing this report.

2. Stream Sediment and Glacial Sediment Sampling - As of June 20/84 17 samples had been processed for kimberlitic indicator minerals at the C.F.M. laboratory as outlined in the statement of expenditures. The -20+60 mesh binocular microscope findings of kimberlitic indicator minerals are plotted on Figure 3. An additional 45 ±10 kg bulk -20 mesh samples of glacial drift and stream sediment samples were collected prior to June 20/84. These sample site locations are shown on figure 3. The results of these samples are unavailable at the time of writing this report.

3. Ground Magnetic Profile

A ground magnetic profile survey using a Barringer GM-122 portable proton magnetometer SN 7047 and a base station magnetometer and sensor SN 7155 was completed over the alluvial covered creek bottom of icefall brook creek. The object was to determine if there are any magnetic highs that could be related to buried kimberlites. The location of the magnetic profile line is given on Figure 2. The profile results with diurnal variation removed are given as Figure 1A to 1M. The results indicate a weak 5-10 gamma anomaly is present between 700 and 1150 m and a stronger 10-15 gamma anomaly is present between 4700 m and 4900 m.

CONCLUSIONS AND RECOMMENDATIONS

The additional glacial drift and stream sediments will determine the likelyhood of additional kimberlitic diatremes on the claims. Additional groundmagnetic surveys are warrented for covered area's of anomalous kimberlitic indicator minerals. The results of the additional rock samples will determine whether or not the findings obtained by Falconbridge Metalurgical Laboratories are reproducible.

Statement of Exploration & Development Jack I Group Claims

Northcote, Gower and Thompson professional fees for completion of engineering report	$2,000.00
Field and report compilation expenses of Northcote, Gower and Thompson including drafting etc.	$2,276.25
Total helicopter and fuel cost to June 20,1983	$3,513.65
Bacon and Donalson S.E.M. analysis of microdiamonds	$ 253.00
Geologist C.E.Fipke's salary and expenses of Anaconda geologist trip April 13-15	$ 629.11
Freight of rock samples and thin sections Steve Bergman, Anaconda, Houston, Texas	$ 23.30
Vancouver Petrographic costs	$ 241.33
Spillsbury radio rental	$ 679.46
Total technical field salaries and benefits S.Emerson, Brent Carr, Paul Derkson,Mike Finney and Dan Tomelin	$3,870.00
Total equipment rentals-camp gear, topofil,radios, chain saw	$1,425.00
Total meals and food	$1,302.36
Total hotels	$ 223.62
Motorway freight of samples to Kelowna	$ 130.36
Total four wheel drive truck rental and taxis	$ 790.48
Total gas and oil	$ 139.35
Total supplies-plastic bags, rock pails, batteries, gloves, topofil, propane etc.	$ 250.07
Long distance telephone to Anaconda, Houston, Texas Monopros, Kelowna etc.	$ 54.00
Services of R. Gersch, mountain climber	$ 300.00
Professional salary geologist C.E.Fipke organization and field 14 days @$350.00 per day	$3,850.00

Sample processing 17 Jack bulk samples through multistage washing, sizing, specific gravity concentration; processing 2000 gms. -20+35, 2000 gms. -35+60 and all -6- mesh through a TBE and a methylene iodide heavy liquid separations; processing the resultant heaviest fractions through 7 electromagnetic diamond indicator separations @ $88.50 each	$1,504.50
Microscope examination of -20+60 indicator fractions 68 hours @ $12.00/hr.	$ 850.00
Drafting and plotting ground magnetic profile	$ 150.00
Barringer base station and portable magnetometer rental	$ 232.45
Micro-diamond processing of 3 Jack ±35 kg. rock samples through crushing and pulverizing, milling and wet sieving, TBE and/or MI heavy liquid separations, multiacid and/or fusion separations @ $1,300.00 each	$3,900.00
Drafting and copying costs	$ 68.00
Geologist writing, copying, organizing appendix 1 day	$ 300.00
Total:	$28,956.29

STATEMENT OF QUALIFICATIONS

Mrs Rosemary Capell is a 1965 BSc graduate of University College of Rhodesia. Between 1966 and 1975 Mrs Capell worked for Anglo American in Rhodesia chiefly on base metal geochemistry.

C. Fipke is a BSc Honors Geology graduate of the University of British Columbia. Between 1970 and 1977, C. Fipke worked as a geologist involved to a large extent in heavy mineral exploration and research for Kennecott Copper in New Guinea, Samedan Oil in Australia, Johannesburg Consolidated Investments in Southern Africa and Cominco Ltd. in Brazil and British Columbia. C. Fipke and L.M. Fipke organized C. F. Mineral Research Ltd. in 1977. Currently the C.F. Mineral Research heavy mineral laboratory which employes 25 to 35 people is involved in heavy mineral exploration and processing on behalf of many international companies.

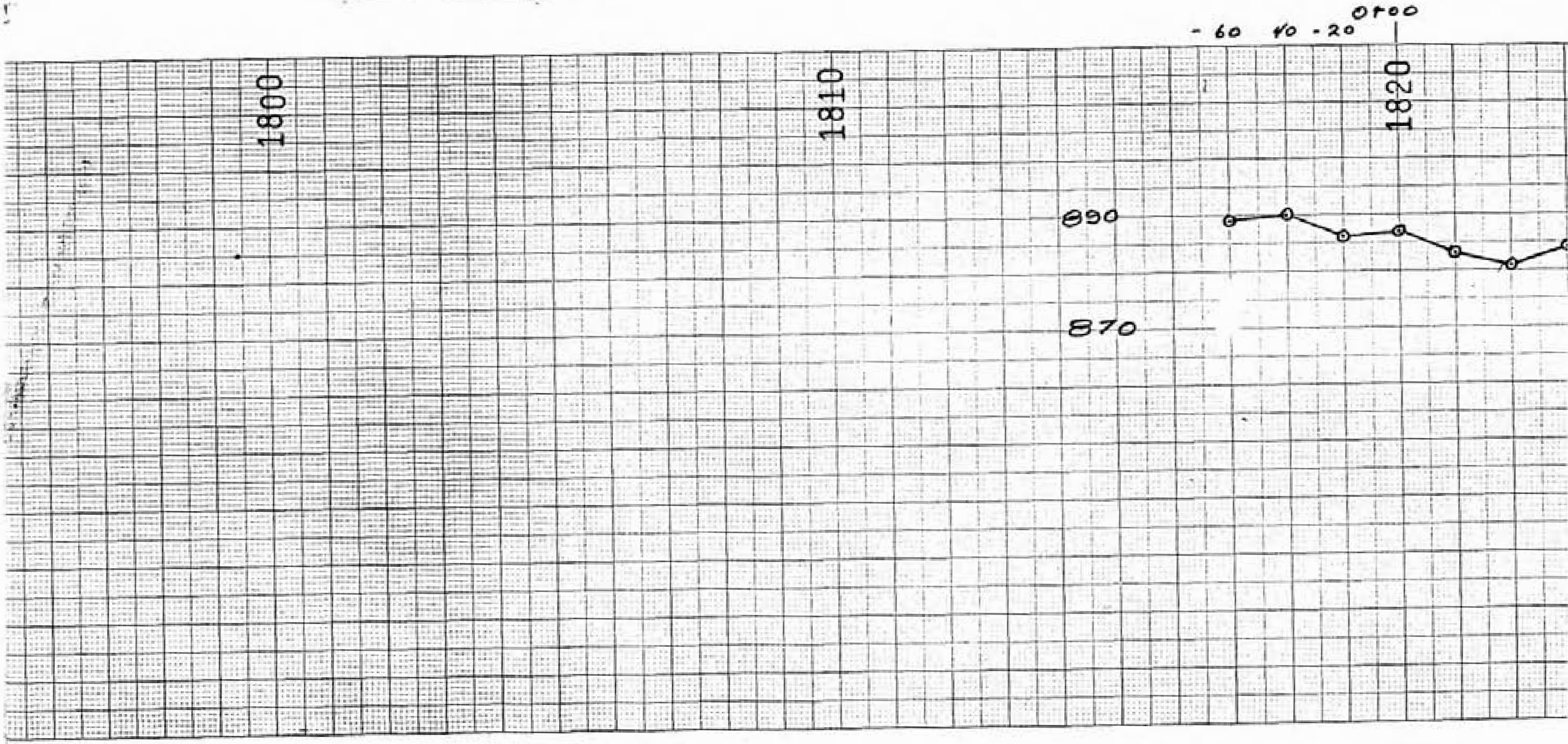


fig 1-A

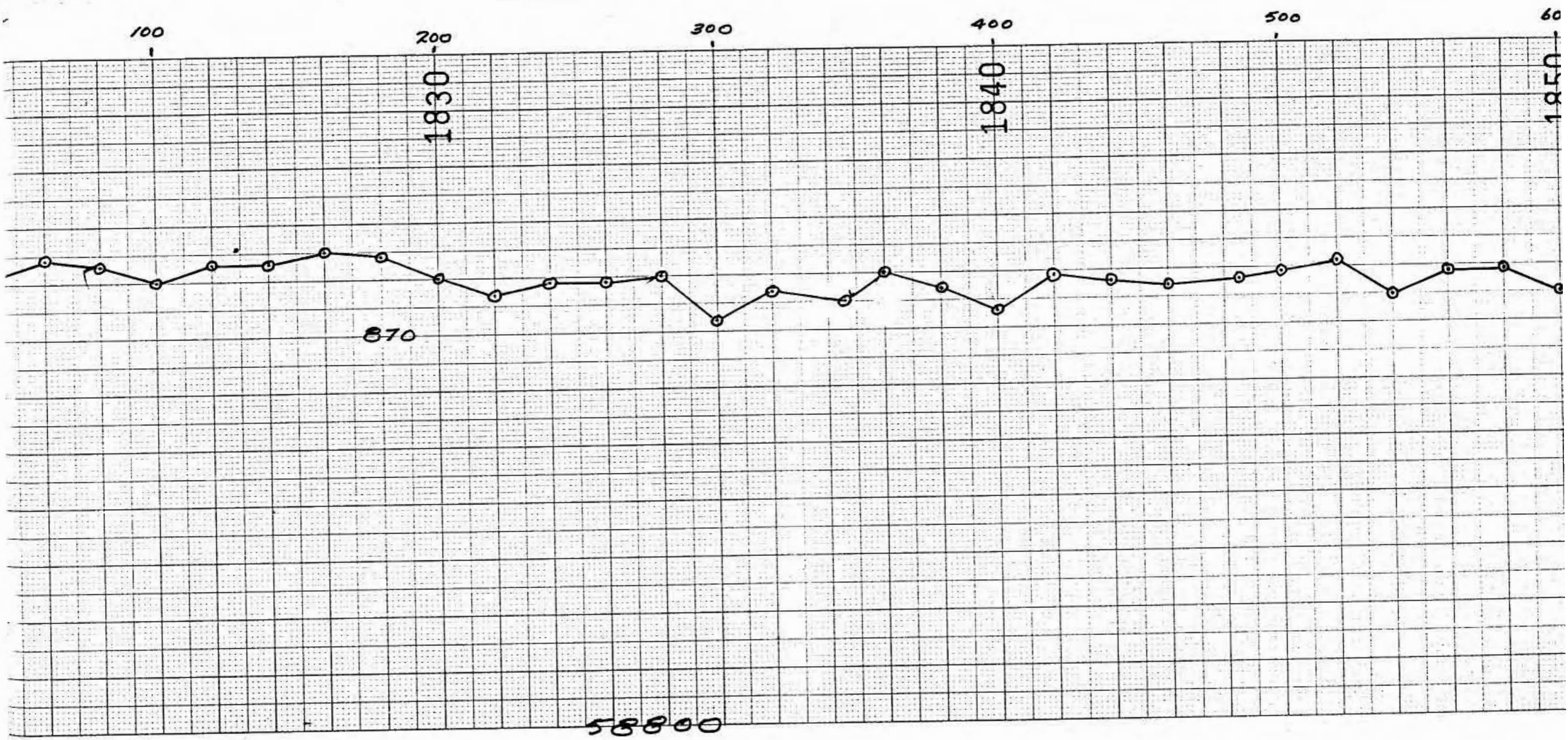


fig 1-B

2

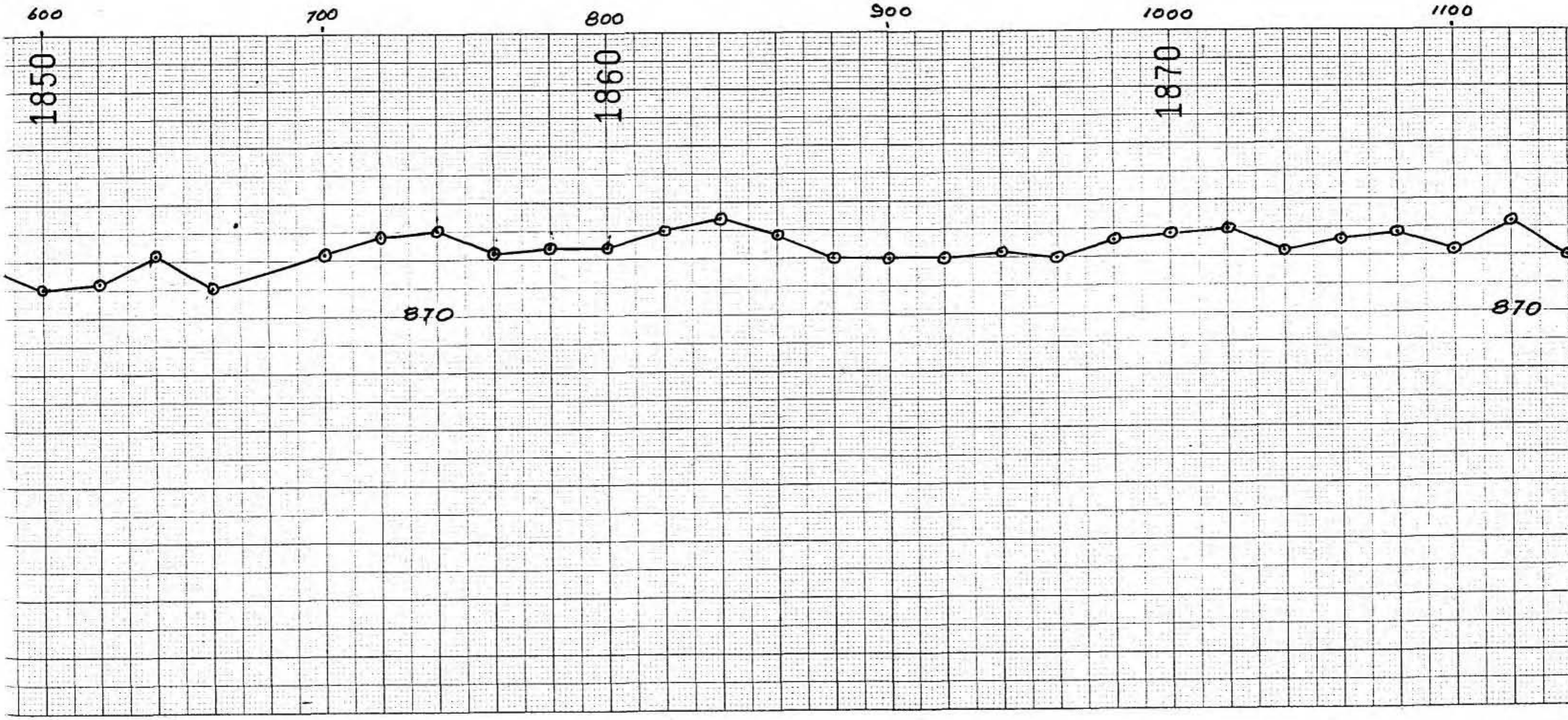


fig 1-C

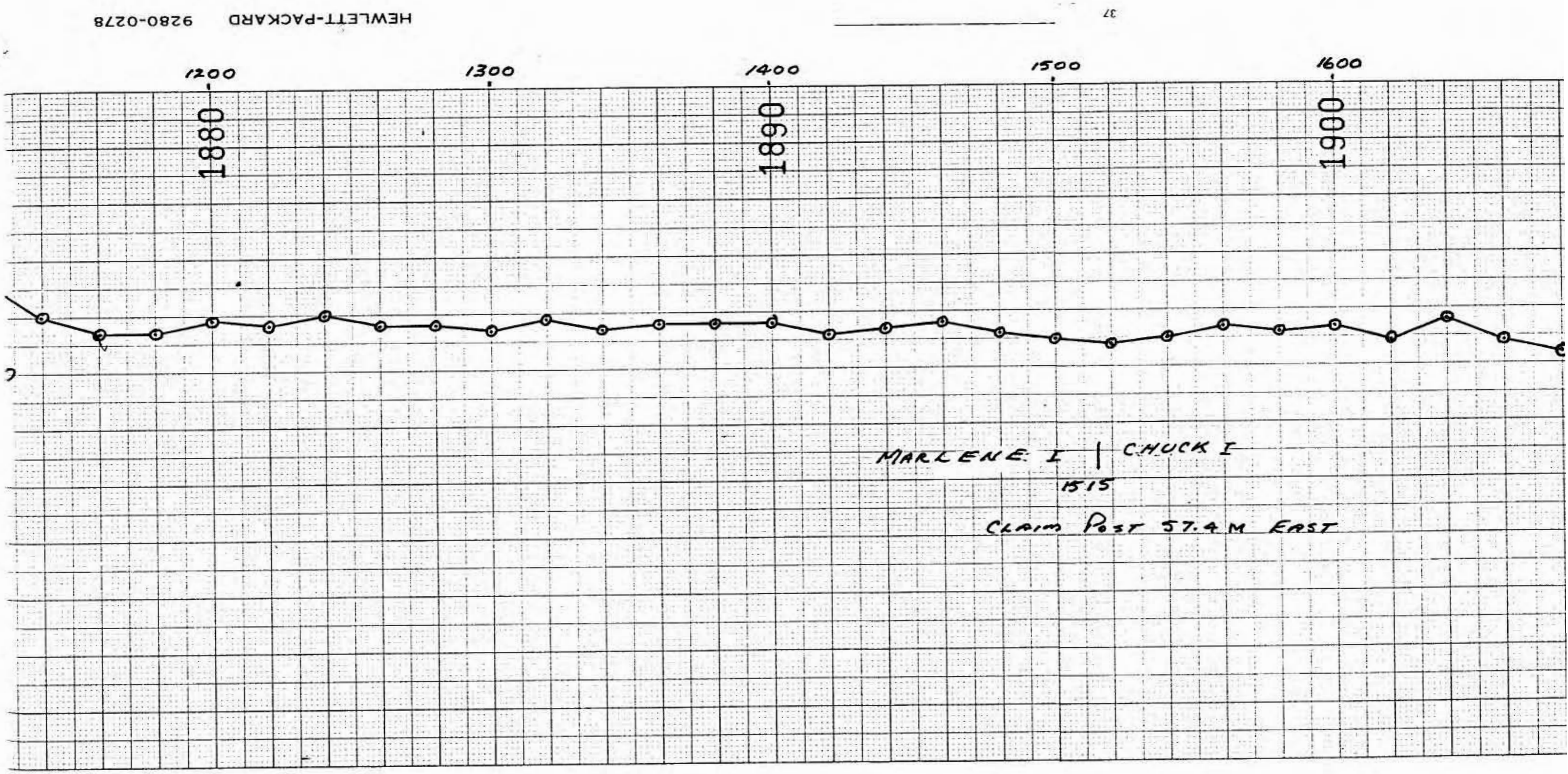

HEWLETT-PACKARD 9280-0278
1200
1300
1400
1500
1600
1880
1890
1900
MARLENE I | CHUCK I
1515
CLAIM POST 57.4 M EAST

fig 1-D

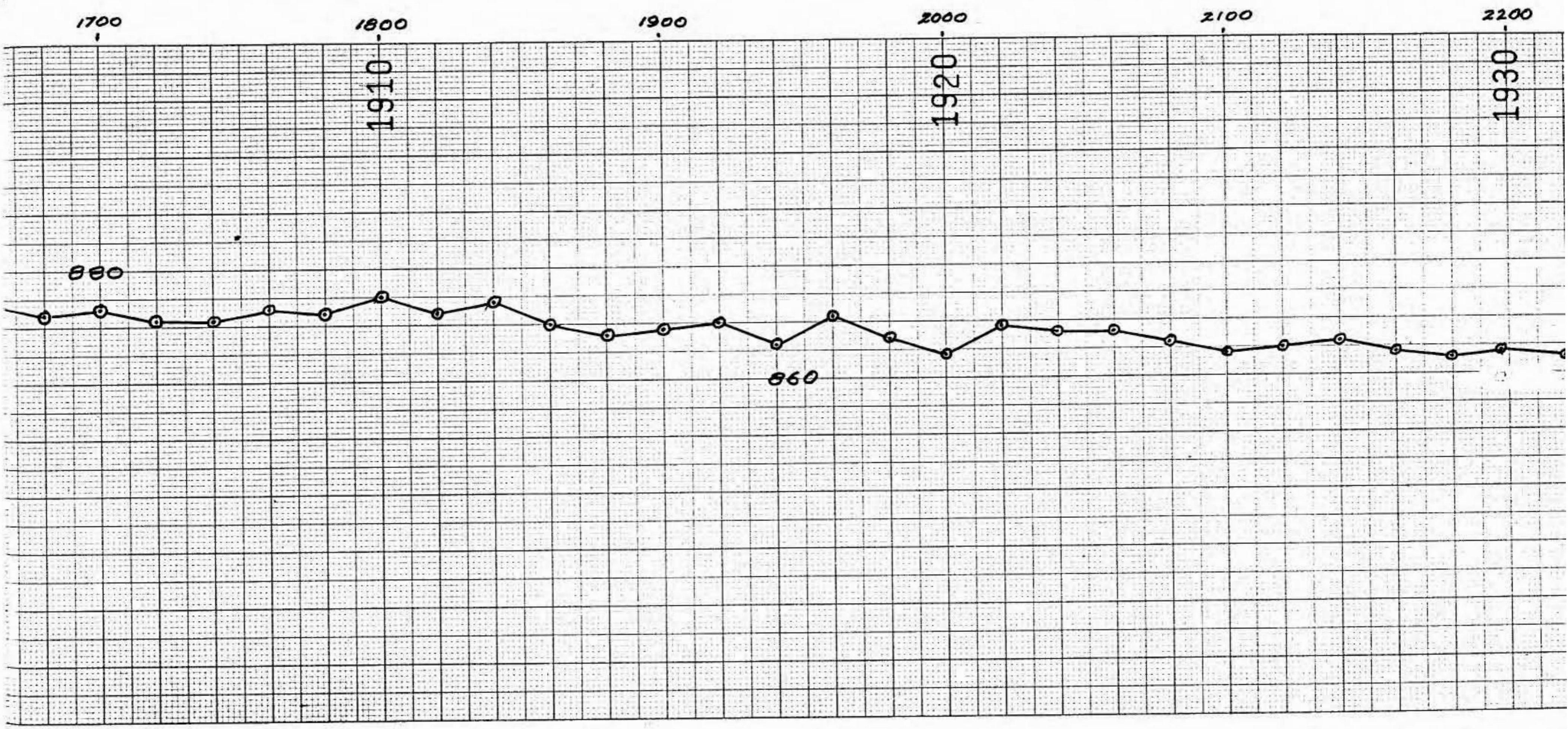


fig 1-E

5

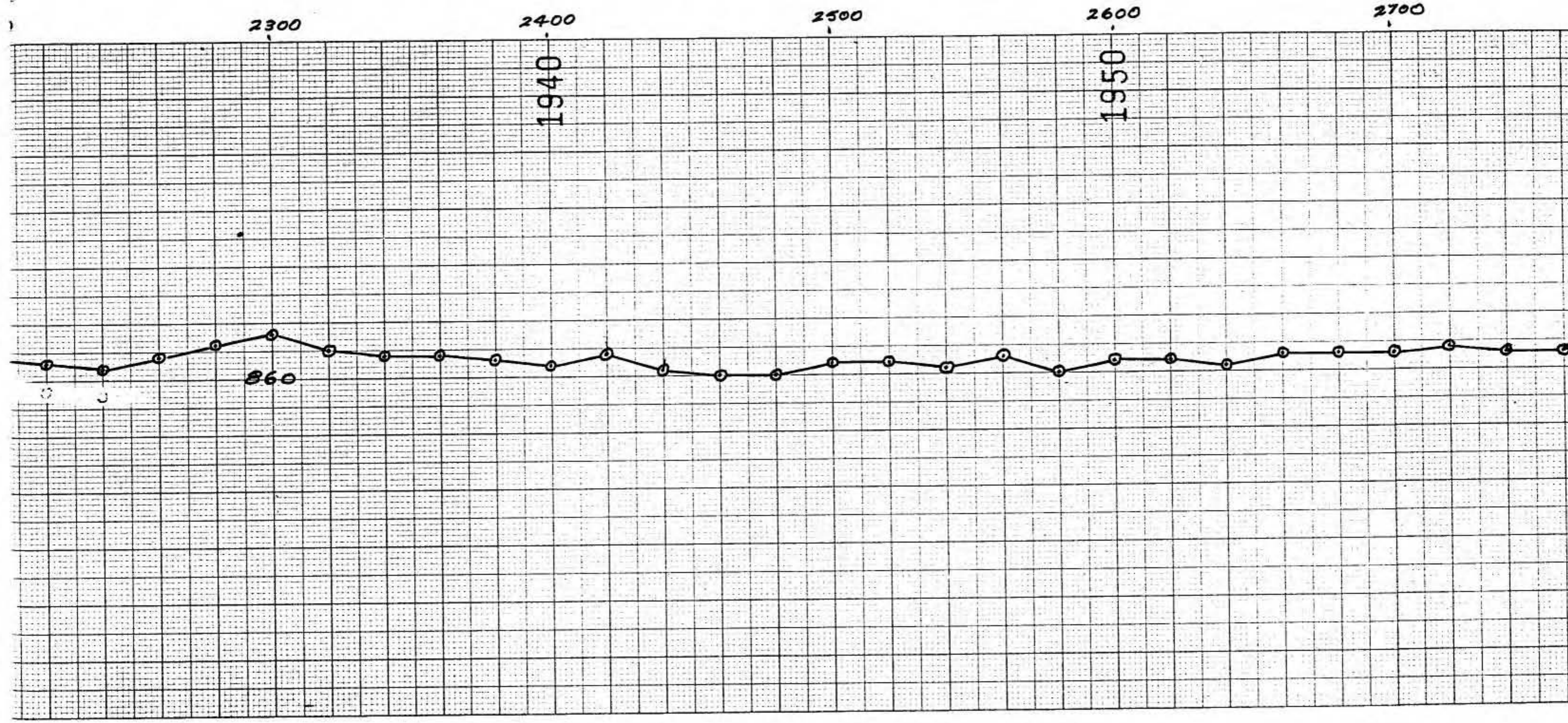


fig 1-F

6

HEWLETT-PACKARD 9280-0278

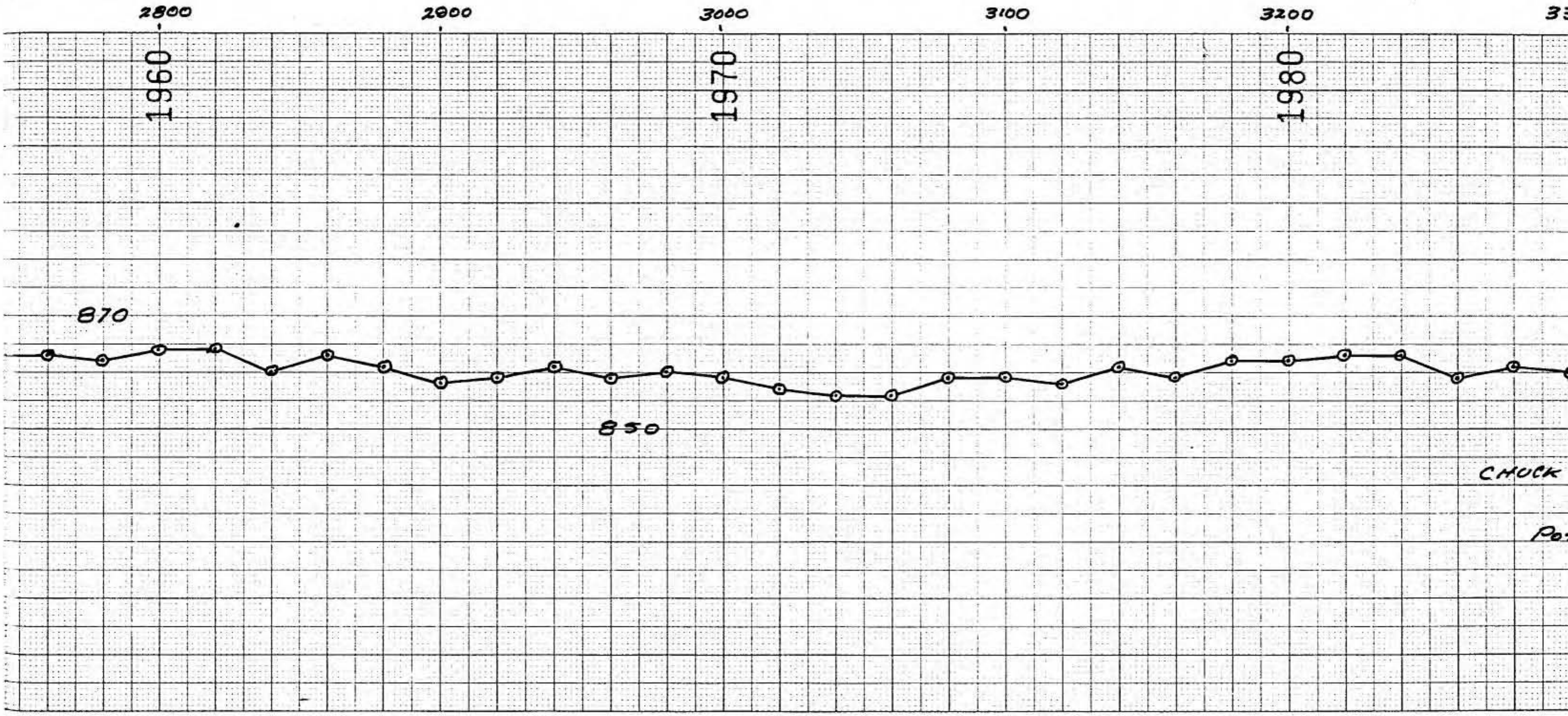
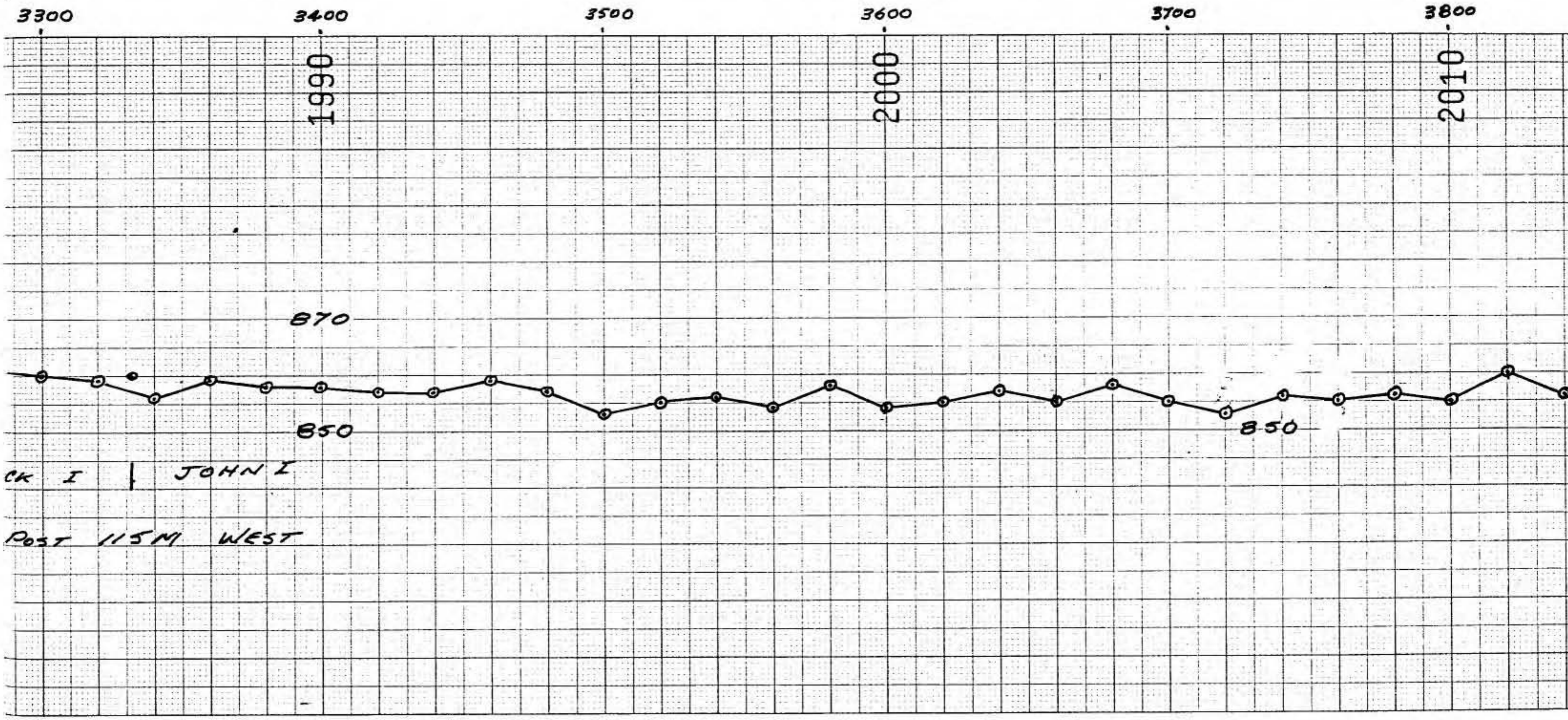


fig 1-G


3300
3400
3500
3600
3700
3800
1990
2000
2010
870
850
850
CK I
JOHN I
POST 115M WEST

H-1 fig

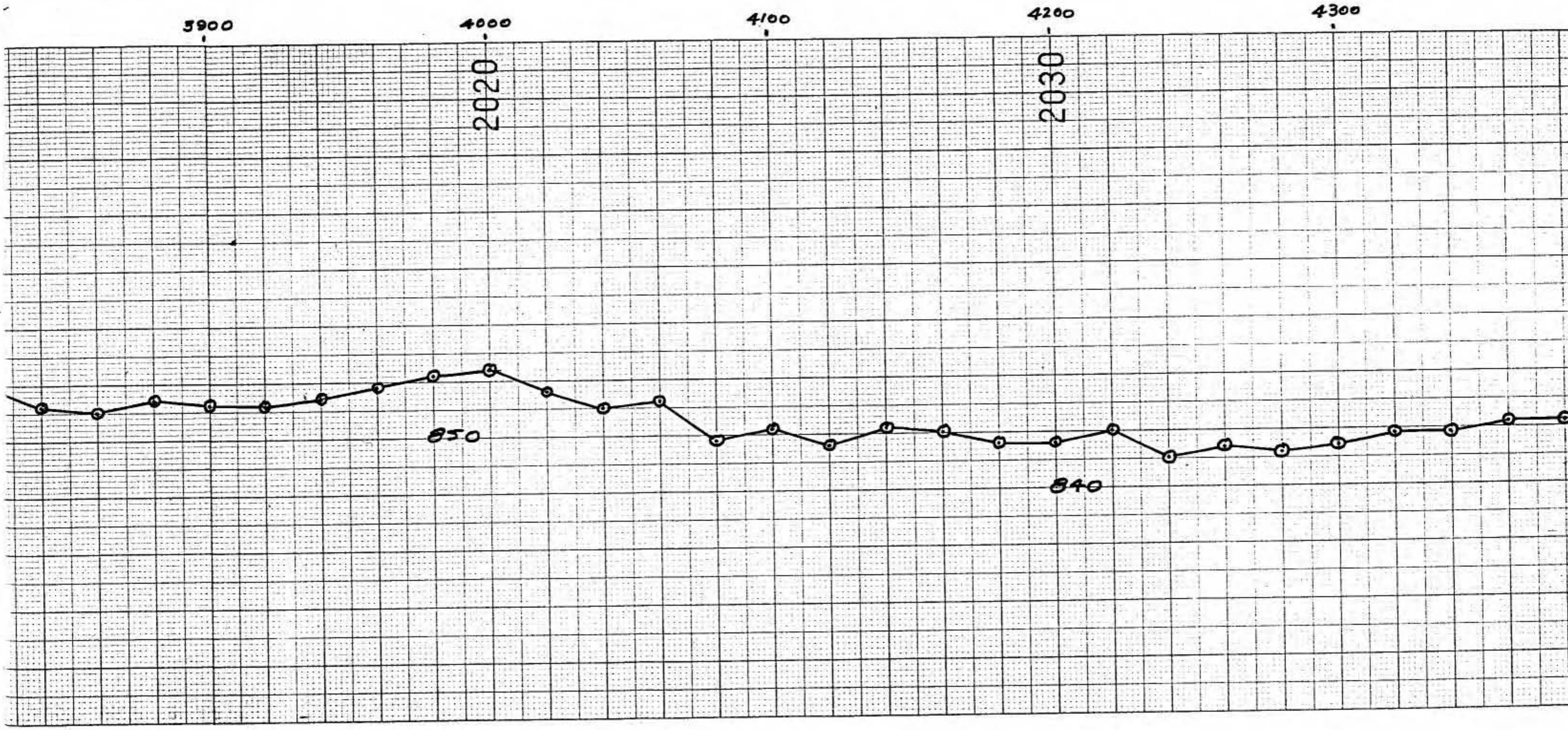


fig 1-1

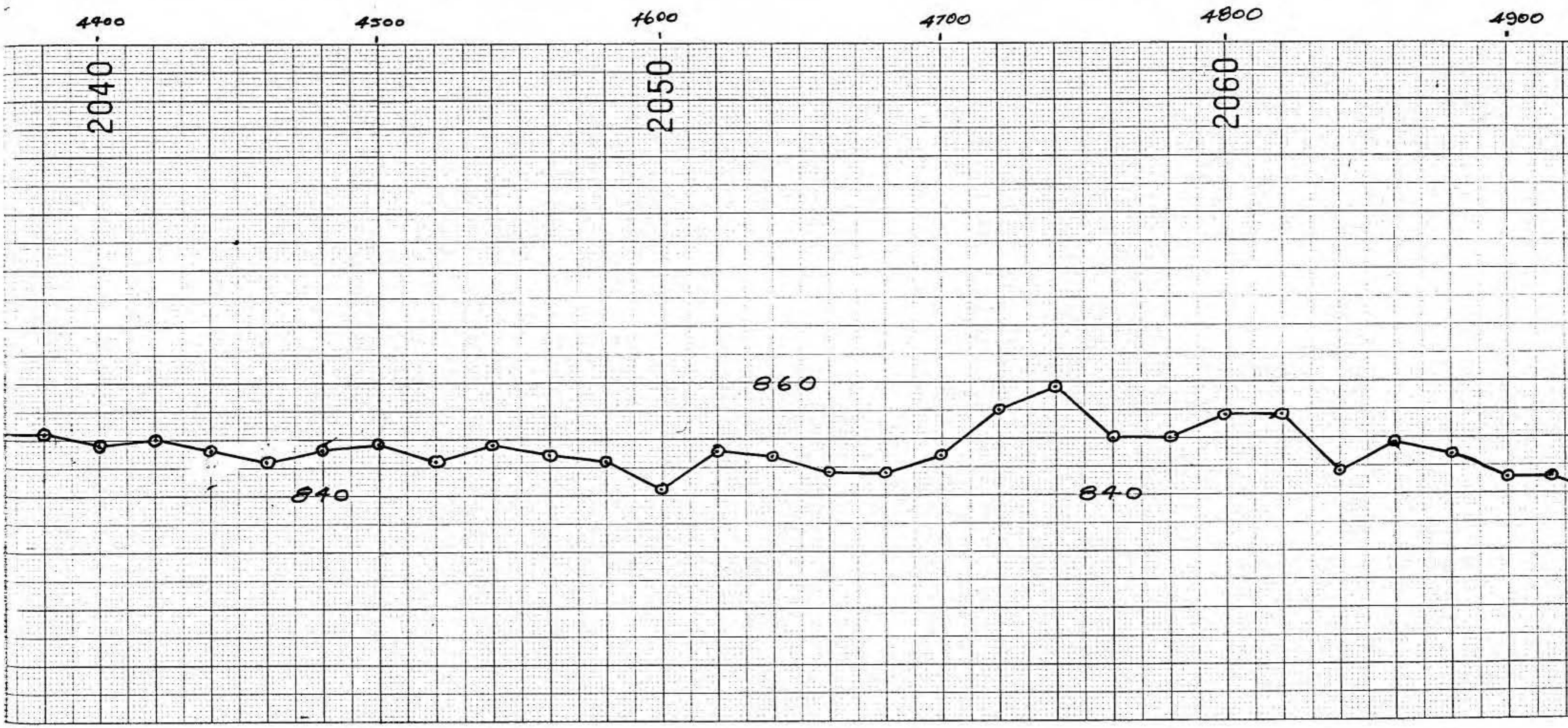


fig 1-J

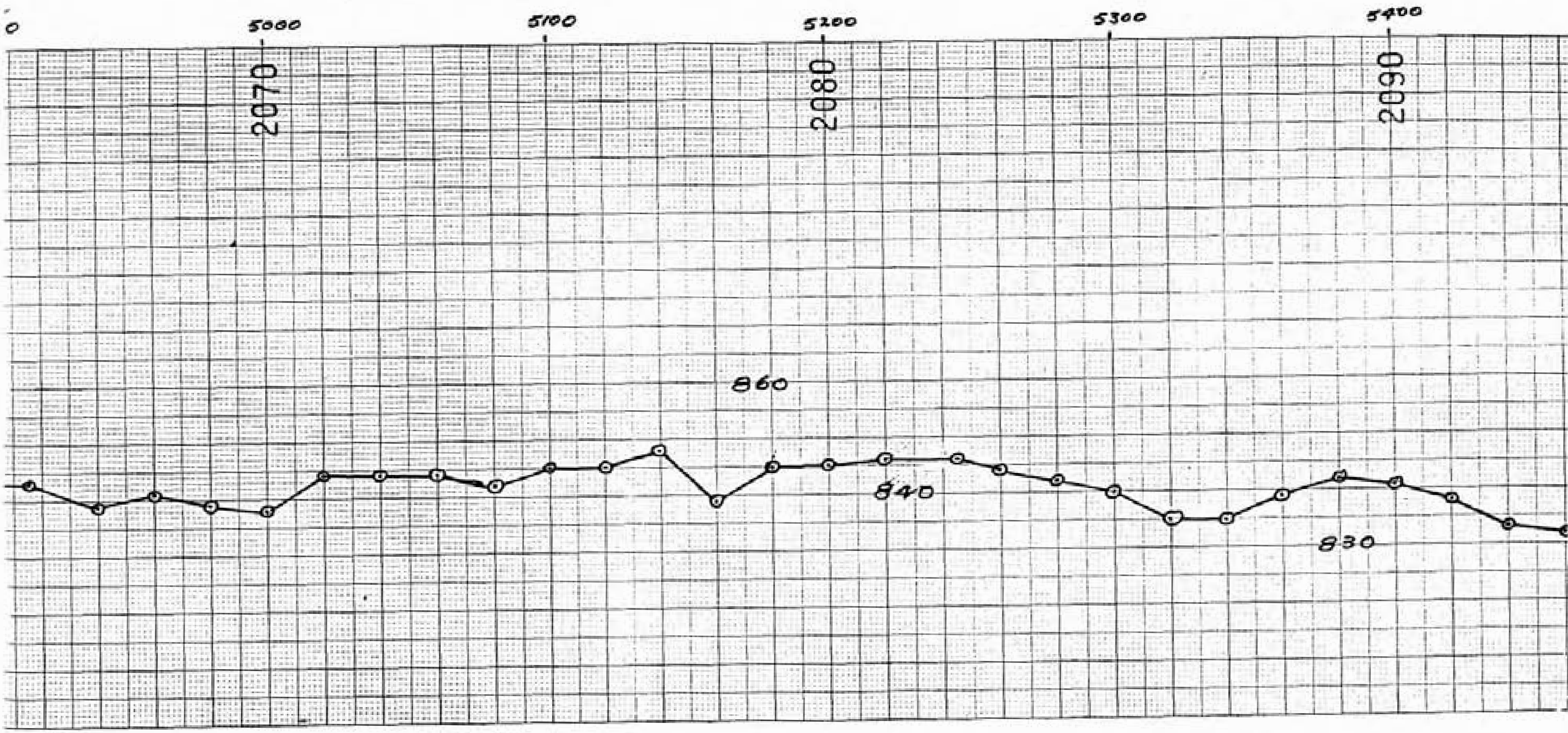


fig 1-K

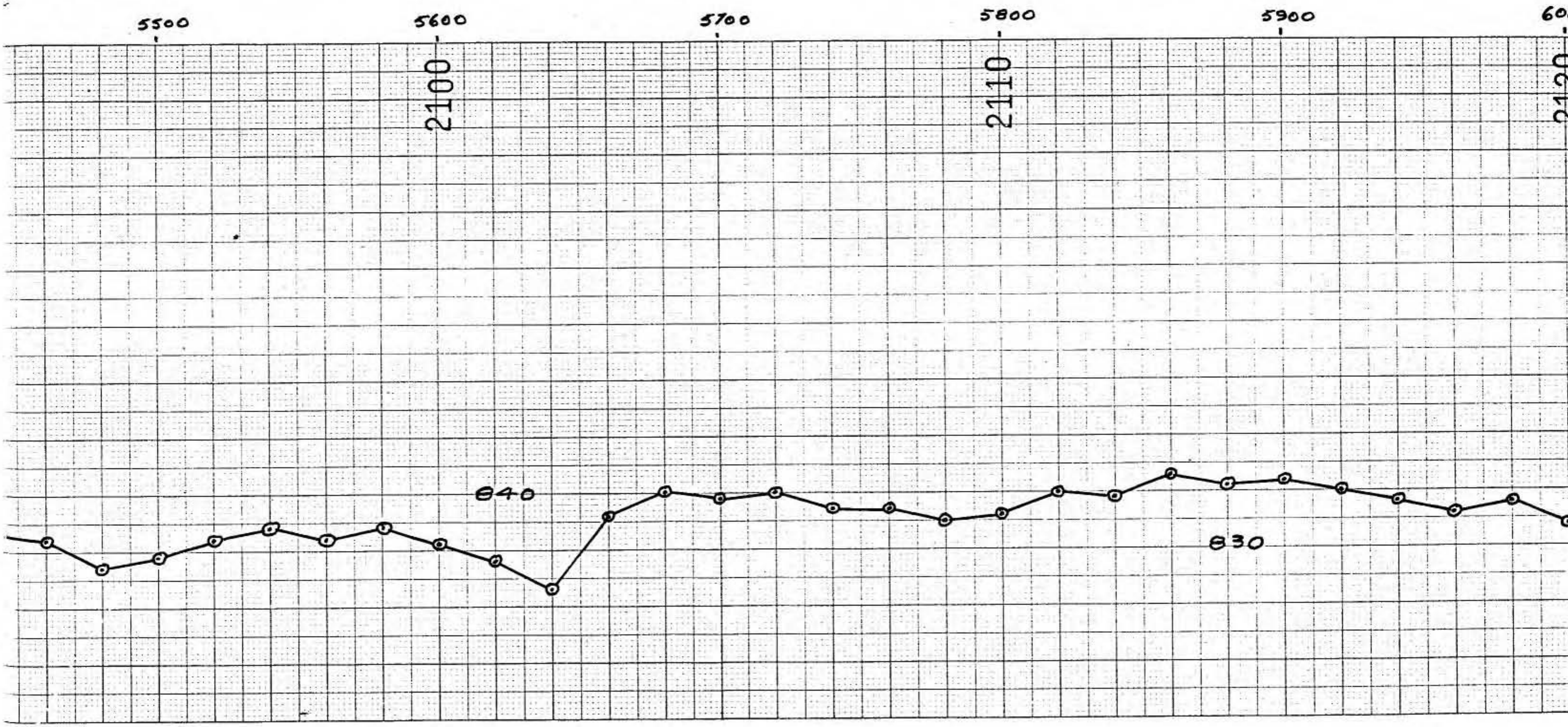


fig 1-L

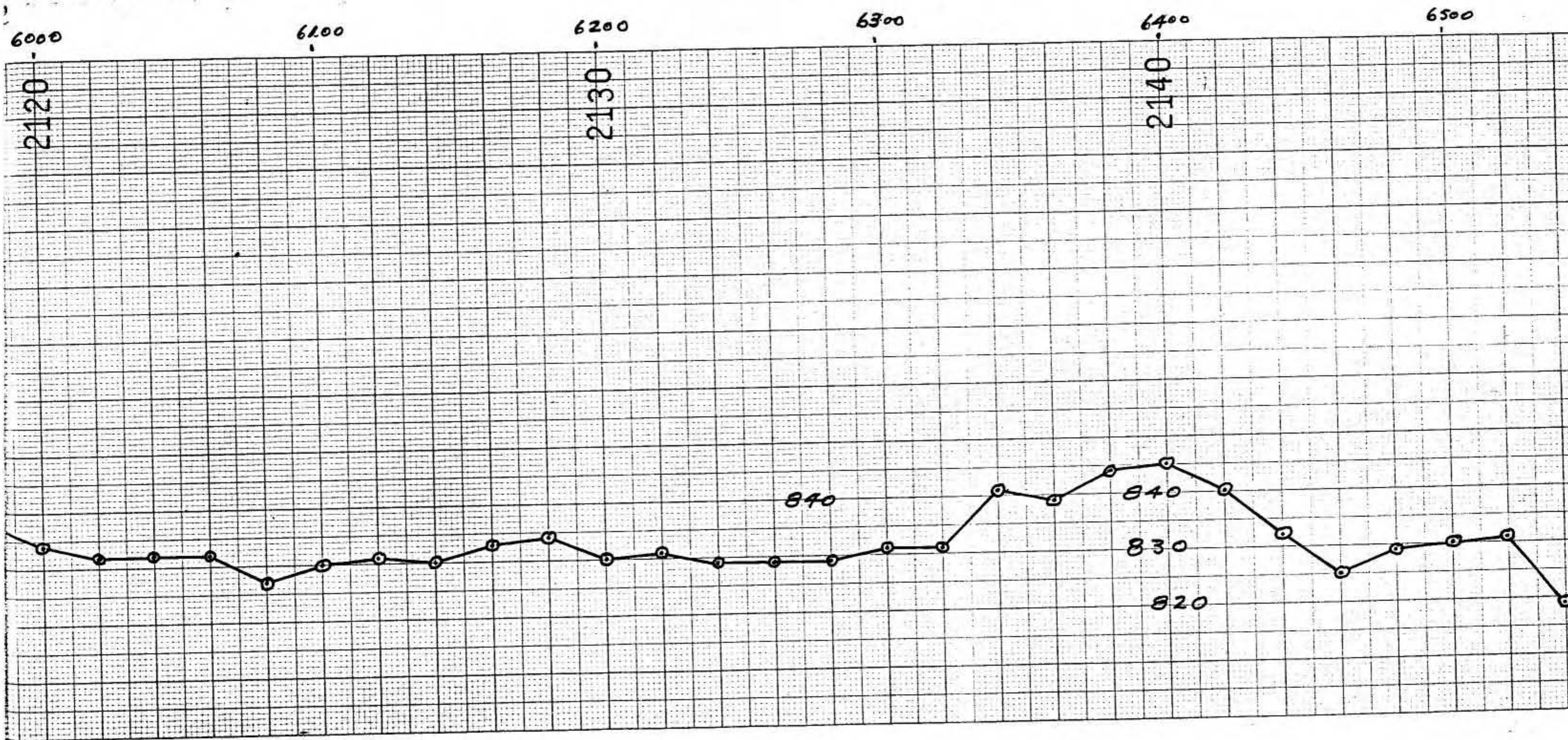
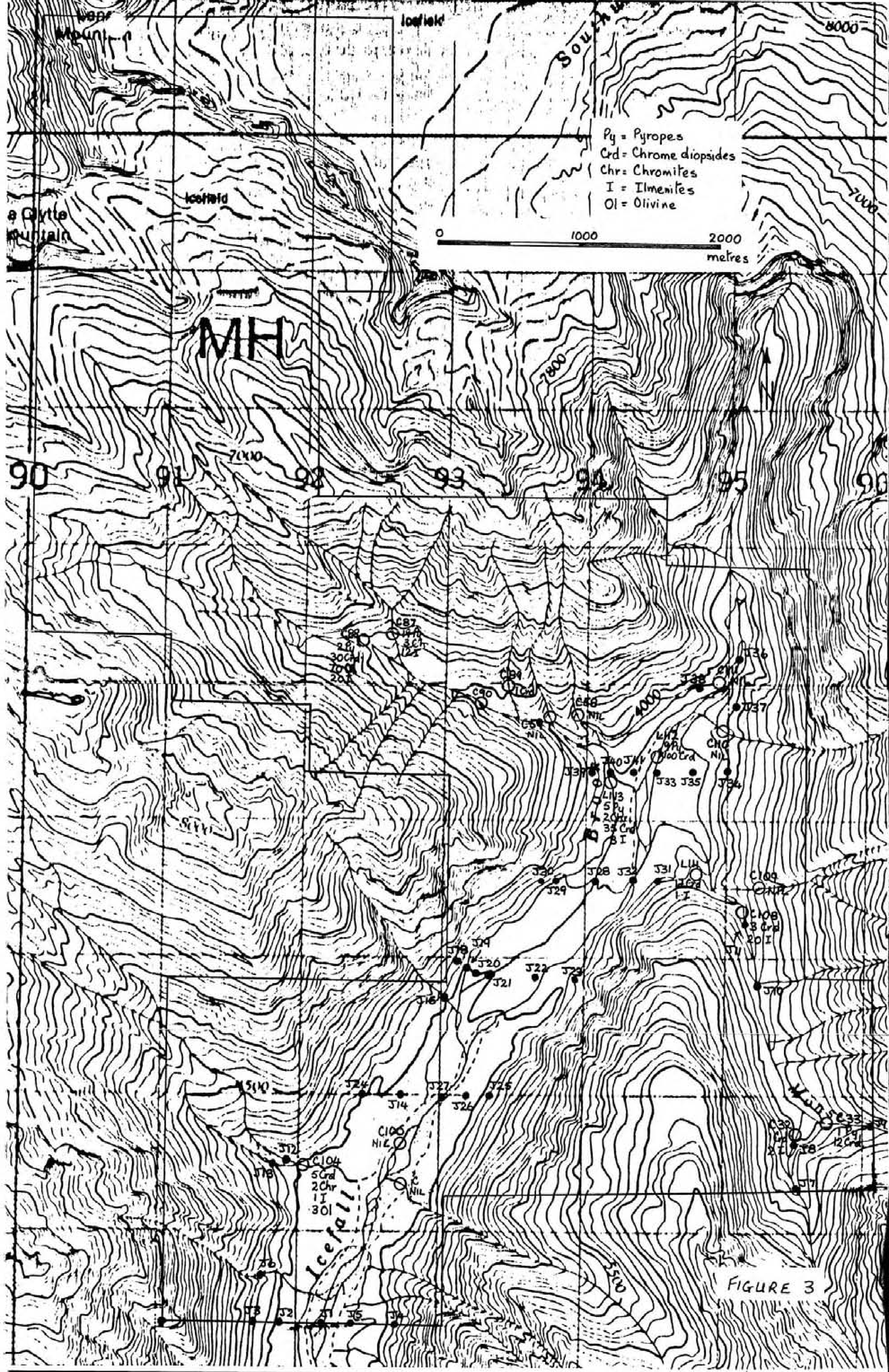


fig 1-M



Py = Pyropes
Crd = Chrome diopsides
Chr = Chromites
I = Ilmenites
Ol = Olivine
0
1000
2000
metres
MH
Icefield
Icefield
Icefall
7000
4000
90
91
92
93
94
95

FIGURE 3

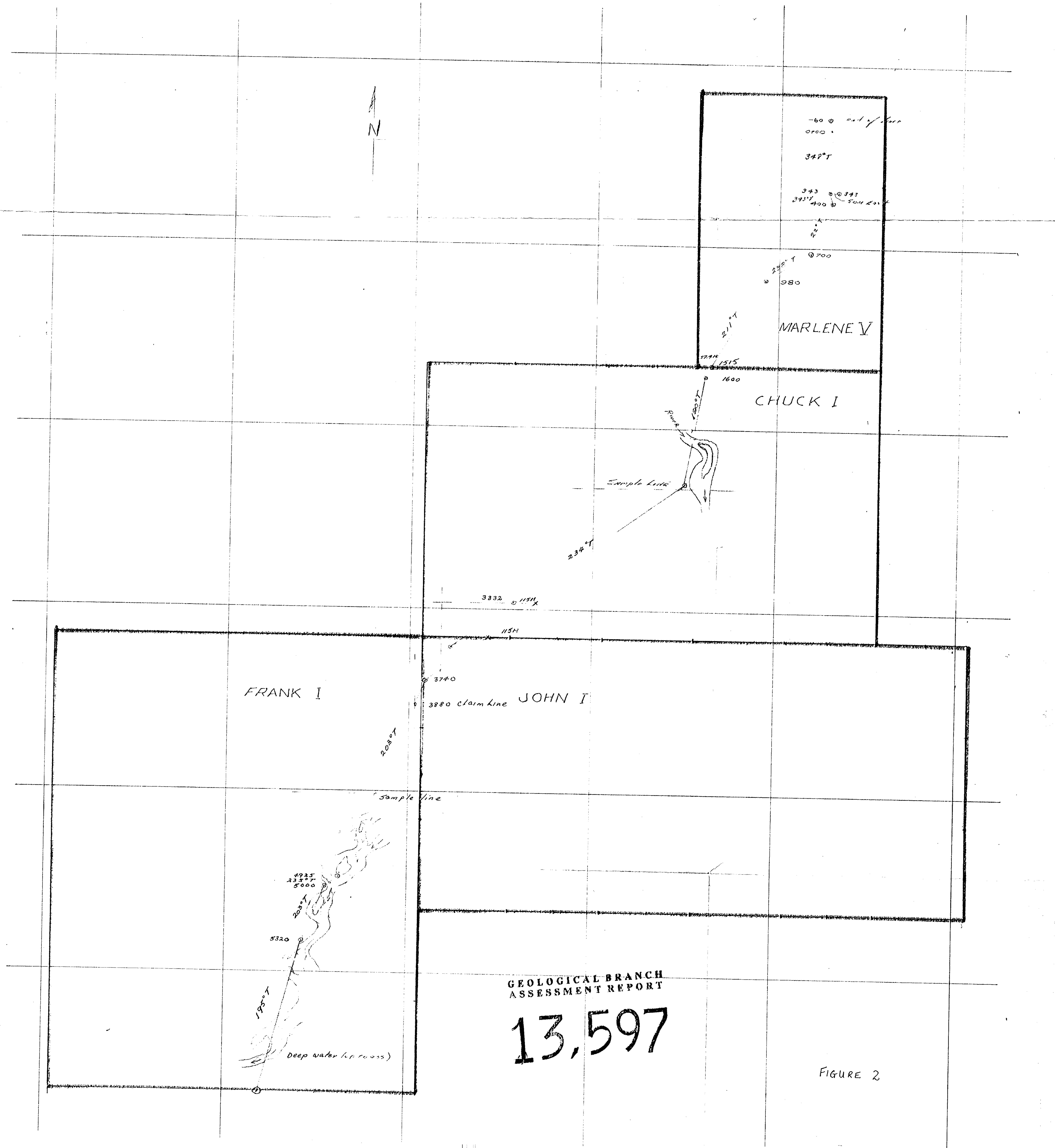

N
MARLENE V
CHUCK I
FRANK I
JOHN I
Sample line
3880 claim line
Deep water
GEOLOGICAL BRANCH
ASSESSMENT REPORT
13,597

FIGURE 2