

PAN AMERICAN PETROLEUM CORPORATION

DISTRICT CANADIAN DIVISIONPROVINCE ALBERTA

TWP. OR SURVEY _____

AREA POINTED MOUNTAIN AREA, NORTHWEST TERRITORIESSUBJECT: SURFACE GEOLOGY OF POINTED MOUNTAIN AREANORTHWEST TERRITORIES PERMITS NO. 998 AND 3240

GEOLOGICAL _____ NO. _____

DATE March 31, 1965PREPARED BY E. R. Michaelis

ENCLOSURES:

1. Surface Geological Map, Pointed
Mountain Area, N. W. T., showing
location of measured sections and
spot checks.

SURFACE GEOLOGY OF POINTED MOUNTAIN AREA, N. W. T. (95-B-5)

PERMITS NO. 998 AND 3240

INTRODUCTION

During the Fall of 1964, Pan American operated a surface geologic party in the vicinity of Pointed Mountain, N.W.T. (September 3, 1964 to September 18, 1964 inclusive). Personnel consisted of party chief, E. R. Michaelis, geologists, G. E. Steen and H. P. Nicholson, and two assistants. Camps were established at different locations on Pointed Mountain, and were supported by the Company Otter. A G-3B helicopter was used for transportation and mapping.

Surface work consisted of detailed mapping by structural traversing and aerial reconnaissance, and the measuring of five stratigraphic sections. All structural data obtained were plotted on aerial photographs in the field, and subsequently transferred to a topographic base map.

GENERAL DISCUSSION

(A) Stratigraphy

The Mattson

The Mattson Sand of Permo-Pennsylvanian to Mississippian age outcrops over most of the Pointed Mountain structure. The structural conformation of the top of this formation largely defines the surface structure, and projection of the structure to depth by geologic methods requires a knowledge of the varying thickness of the Mattson and the thicknesses of underlying units.

The Mattson Sand is known to be 1966 feet thick in Canada Southern N. Beaver R. YT I-27 (60° 13' N; 124° 04' W), 19 miles southwest of Pointed Mountain, and 4414 feet thick on Dall Sheep Mountain (60° 45' N; 123° 50' W) 25 miles to the north.

Five sections measured on Pointed Mountain in 1964 (see Enclosure No. 1) combined with a field-checked photogeologic interpretation provide a framework for Mattson stratigraphy.

Although control is poor, in the absence of further evidence the upper sand member of the Mattson is shown in concordance with the overlying Permian Fantasque chert.

(B) Structure

The Pointed Mountain anticline is a doubly-plunging fold striking northeast-southwest (Enclosure No. 1). It is situated west of the south end of the Liard Range and is separated from it by the broad, flat-bottomed Fisherman's Lake syncline, which plunges southward. At the northern end the Fisherman's Lake syncline rises and narrows to become a minor synclinal fold in the anticlinorium which forms the main, central portion of the Liard Range (G.S.C. Map No. 31 - 1959, Douglas and Norris, 1959). To the west of this syncline in the Liard Range, the Flett anticline strikes northwest-southeast along most of its length, but at its southern end swings into a northeast-southwest strike and plunges southwestward at 15 to 20 degrees. It lies en echelon to the east of the Pointed Mountain structure and the axis of the Flett and Pointed Mountain structures are displaced by about one and one-half miles. The Pointed Mountain anticline is bounded to the west by the Kotaneelee syncline which plunges northward. At the south end of the Pointed Mountain anticline, a saddle between the Kotaneelee syncline and the Fisherman's Lake syncline provides a structural low between the Pointed Mountain anticline and the Kotaneelee - Beaver River anticlines.

A thrust fault had been mapped previously along the east flank of the structure. Detailed examination showed that there is a pronounced steepening of the flank from 5 degrees to 10 degrees near the crest, to 45 to 60 degrees where the highest Permian beds dip beneath the ground surface but no faulting of the beds was observed nor can it be deduced from surface information.

PUBLISHED LITERATURE

- Douglas, R. J. W. and Norris, D. K. - 1959
Fort Liard and LaBiche Map Area, N.W.T. and Yukon
G.S.C. Paper No. 59-6
(Includes Maps No. 31 - 1959 and 32 - 1959)
- Harker, P. - 1963
Carboniferous and Permian Rocks, Southwest District of Mackenzie;
G.S.C. Bulletin No. 95
- Hage, C. O. - 1945
Geological Reconnaissance Along Lower Liard River, N.W.T., Yukon
Territory, and British Columbia; G.S.C. Paper No. 45-22
- Stott, D. F. - 1960
Cretaceous Rocks in the Region of Liard and Mackenzie Rivers, N.W.T.
G.S.C. Bulletin No. 63

ENCLOSURES

- Enclosure No. 1 - Surface Geological Map, Pointed Mountain Area, N.W.T., showing
location of measured sections and spot checks.



E. R. Michaelis, BSc., A.R.S.M., Ph.D., D.I.C.

Approved By:


K. A. Shepard, Prof. Geol.

PAN AMERICAN PETROLEUM CORPORATION

November 13, 1964.

Dr. E. R. Michaelis,
6th Floor, Building.

Attention: Mr. H. P. Nicholson

Dear Sir:

Please find attached preliminary identifications on the fossil material collected in 1964 in the Pointed Mountain area.

These identifications and other more refined work (notably on the Ostracoda) will make up part of a report in preparation on the Permo-Carboniferous faunas in the Pointed Mountain area and vicinity. The object of this report is to establish a standard section based on the faunas to which our Permo-Carboniferous sections can be referred.

Yours sincerely,



B. E. B. Cameron.

BEBC/k

c.c. H. P. Nicholson ✓

G. E. Steen

Att.

LOG FOOTAGE

Ost. Zone

0-8 ①	Leiorhynchus carboniferus	Upper Miss.
	Ostracode Horizon No. 1	(Chesterian
58-59 ②	0-1' (Upper Productid bed)	Meramecian)
	Dictyoclostus? sp.	
	Ostracode Horizon No. 2	
393-96 ③	235-238'	
	Eumetria cf. vera	
	Brachythyris? sp.	
	crinoid - genus indet.	
	Dielasma sp.	
	Spirifer sp. indet.	
	Camarotoechia sp.	

According to Easton (1962) Leiorhynchus carboniferus is restricted to rocks of Chesterian age. It has been reported from Meramecian rocks by some authors nevertheless.

①	385'	sedimentary structures	
②	435'	spines (productid?)	Permo-Carb.
③	465'	spines (productid?)	"
④	480'	spines (productid?)	"
⑤	491'	Orbiculoidea sp. cf. sp. D.	"
	about 150' below chert		
⑥		Chonetes s.s. sp. Spiriferella? sp.	Permo-Penn

Although the above fossils do not suggest a more refined age than Permo-Penn., the stratigraphic position of these beds leads me to conclude they are Permian in age.

Spot checks

64-M-41

Chonetes sp. S.S.
Athyris? sp.
crinoid columnals

Permian?

This same species of Chonetes occurs on section PN-1-64 where it was assumed to be Permian in age.

64-M-38

Waagenoconcha sp.
chonetid brach.
spiriferid brach.
ostracodes

Permo-Penn.

64-M-14

blastoid calyx
?Licharewia keyserlingi
planispiral gastropod?
load casts
Waagenoconcha cf. payeri
crinoid columnals
?Spirifer cf. bambadhurensis
ostracodes
productid spines

Permian

GS-37-(64)

sedimentary structures
spiriferid fragments
productid fragment

Permo-Carb.

GS-36- (64)

Dielasma sp.
Neospirifer sp.
?Eumetria cf. vera
productid genus indet.
crinoid columnal
Spirifer sp. - undet.

Upper Miss.

64-M-28

fenestellid bryozoan
chonetes sp.
Athyris? sp.
productid genus indet.
Lissochonetes sp. (non sp.A)

Permo-Penn.

- ① 355'
(1075) Straparollus sp. Permian
Orbiculoidea sp. B
Lissochonetes sp. A
Dielasma sp. B
Chonetina sp.
Linoproductid?
Neospirifer? sp.
Spirifer sp. A
Linoproductus cf. ovatus
?Diaphragmus elegans
Eomarginifera? sp.
Spiriferella cf. keilhavii
Cleiothyridina sp. A
Marginifera? sp.
Cancrinella cancriniformis
Muirwoodia sp. indet.
Athyris sp. A
Athyrid gen. indet.
productid gen. A indet.
productid gen. B cf. Alexenia
- ② 400
(1120') Spirifer aff. paranitiensis Permian
S. cf. bambadhurensis
productid gen. indet.
Neospirifer cf. subfasciger
?Licharewia keyserlingi
- ③ 530'
(1250-1255) Leiorhynchus carboniferus Up. Miss.
(see note on PN-2-64)
Chesterian-Meramecian
- ④ 1156-1151
(235-240) Fenestrellina sp. Up. Miss.
Marginatia sp.
Dictyoclostus cf. inflatus
productid cf. Tolmatchoffia
- ⑤ 1176
(215) Dielasma sp. Miss.
Eumetria cf. vera (Chesterian)
fenestellid bryozoan
Spirifer cf. rowleyi
Spirifer aff. logani
Neospirifer sp.
Marginifera sp.
Buxtonia? sp.
- ⑥ 1202
(189') Spirifer sp. indet.
productid spines
- ⑦ 1217
(174) Orbiculoidea sp. A
allorismid pelecypod

Spot Checks

64-M-40

Waagenoconcha cf. payeri
rhynchonellid - cf. Rhynchopora
athyrid brach - juvenile
ostracodes
Dictyoclostus sp.

Perm.

64-M-37

Spirifer bambadhurensis
Waagenoconcha cf. payeri

Perm.

64-M-16

Unit #1 Spiriferella or Licharewia?
Spirifer sp. indet.

Permo-Penn.

age. Although these fossils are fragmentary, I prefer the Permian

64-M-36

Kochiproductus cf. freboldi
Spirifer cf. bambadhurensis & vars.
Ingelarella sp.
Chonetina sp. B
Dielasma sp. B
Hustedia sp.
Allorima ? sp.
Waagenoconcha cf. sp. A
W. cf. payeri
Orbiculoidea sp.
athyrid brachiopod

Permian

64-M-39

Waagenoconcha sp. A
Buxtonia sp.
Spirifer cf. bambadhurensis

Permo-Penn

64-M-44

Dielasma sp.
pectinid pelecypod
Cancrinella cf. cancriniformis
Linoproductus cf. ovatus

Perm?

138-150' Waagenoconcha sp. A
 (No. 10) Dictyoclostus sp.
 Orbiculoidea sp.
 Marginifera? sp.
 few ostracodes
 180-186' chonetid brach. fragments
 (No. 12) frosted sand grains
 279-281' Orbiculoidea sp.
 (Unit 19) Dictyoclostus? sp.
 in ostracodal limestone
 Ostracode horizon No. 3

PERMIAN

PERMO-CARB.

This appears to be the same assemblage that occurs on section PN-2-64 in the interval 0-1', the "productid bed" of late Mississippian age.

This ostracode horizon has the following genera represented:

*Rectobairdia sp.
 *"Jonesina" sp.
 ***Healdia (three species)
 *Bythocypris
 **Sansabella (two species)
 Cavellina sp.
 Glyptopleura? sp.

In addition to other species the forms marked with an asterisk also occur in the interval 0-1' on PN-2-64. In my opinion this is excellent evidence for the proposed correlation.

Spot Checks

64-M-31

Athyris? sp.
productid fragments
indet. gastropod fragments

Permo-Carb.

GS-9 (64) 4

Stenocisma cf. plicatum (Kutorga)
Odontospirifer sp.
brach. related to Eumetria sp.
fenestellid bryozoan
Martinia sp.
Athyris sp.
Dictyoclostus sp.
Buxtonia? sp.
Spirifer aff. rockymontanus
Spirifer sp. C
Spirifer sp. B

Perm.

Stenoscisma cf. plicatum is known from the Arctic and the Stikine River area, where it has been found in association with Lower Permian fusulinids. The spiriferids in this collection may be the same species reported by Harker (G.S.C. Paper, 1961), namely s. rockymontanus and s. boonensis. Although the GS-9 (64) 4 specimens are fairly similar to the above mentioned species, I am quite confident they are not of these taxa.

Another specimen lending strong support to the Permian age assignment is the genus Odontospirifer which, to my knowledge, is known only from the Permian of Greenland (Dunbar, 1955).

GS-28 (64) 4

Fantasque fm.
productid spines

Permo-Carb.

- ④ (297'-303-) #4 productid fragment
 (294'-297') #5 rare ostracodes
- ostracodes, including Miss.
 Polytylites
 Amphissites
 Sulcella?
- ③ (237'-241') #11 pectinid pelecypod Perm? *carb.*
 apparently the same as occur on
 64-M-44 of Permian? age.
- ② (184'-185') #15 Licharewia? sp. Perm?
 productid genus indet.
 Cancrinella sp.
 Spirifer (possibly bambadhurensis)
- ① (175'-179') #17 productid spines Permo-Carb.

SECTION: SEC. _____ TWP. _____ RGE. _____
COUNTY _____
ANY _____
WELL NO. _____

T.D. _____ B. H. FORM. _____
 COMM. _____ COMP. _____
 PRODUCTION _____

LOCATION PN-3-64 CASING RECORD POINTED MOUNTAIN, N.W.T.
SECTION 123° 52' W. 60° 27' N

123° 53' W; 60° 27' N

123° 53' W; 60° 27' N

Scale 1" = 50'

INTERVAL 20' - 30' = 30' WAS CALCULATED FROM SURFACE MAP.

5715609

Premium

325-65 STRAPAROLLUS SP
 OCHROLOIDIA SP B
 LISOCHARTES SP A
 DIELISMA SP B
 CHONETINA SP
 LINOPOBIUS ?
 NEOPIRIFER ? M
 SPIRIFER SP A
 LINOPOBIUS ET OVATUS
 DIAPHANUS ELEGANS
 EOMAGNIFERA SP
 SPIRIBELLA C5 MELHAVI
 CLEATHRYNA SP A
 MARGNIFERA ? SP
 CANTINELLA CANCINUMMIS
 MYRABOIA SP INERT
 ATHYRIS SP A
 ATHYRIS GEN. INERT
 PRODOTIA GEN A INERT
 PRODOTIA GEN B C5ALCER

YFG. STROBE, CLEAN, & 17% BM CAN GLASS, - 1-2% WHITE TO Y. GIVE FREEDOM GRAM & F4 ON SPEECH.

INTERIORS OF SS. DM. Y. AN. WITH Y. RUPE (SIBIRIATIS?) UNBULVATORY BEES + BEBRO (LANT ON W.S. SL. FRIGGLE BEES 1-2" IN ZONES UP TO 1/2" THICK FROM NELOWS & LUGS
CARBON. AN. BEBRO. NO COMPLETE LAMINAE OF CARBON. SHELL FRAGE IN FALDPAW.

OTHOSE, CHALK, SCOTT PEAK SPURTS. BEDS 6'-2' w. 1/2-2" STRIPS (V. VAGUE & LENTIC.) IS IS M-10000 WTH M. SP.
UFO. OTHOSE, WELL SORTED - 1/8" FRO. SPURTS, FELD. & CLAU. ST. CONTAINS NUM. SP-W. CHERT PEBBLES TO 1/4".
UFO. OTHOSE, WELL SORTED - 25-30% OF SPURTS ARE GLASS. Ca CO₃ SLAG FRAGS ALTHOUGH BEING SORTED GLASS.

5718509

400' SPIRIFER ATE. PARANITENUS
SPIRIFER C5. PARADITHUNUS
PARADITHUNUS GEN. INDET.
NEOSPIRIFER C5. SUBSANGIEN
LICHAMENIA MEYERBACH

150	1	ELONGULATISS	MISS	CHESTERIAN - MEGALOCIAN
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[illegible][illegible][illegible]

U.S. CITIZEN, IN PT U.S.-B, FAIR SORTING, GR SA-SA SCATT FLAME DM GW MTRM, NYC, 8 FOR GRAMS, REPS 7-9 LOW W

V4-S6 OTTAWA FRAGMENTING COMPANY SPECIES FOR CR SE-3M, FINABLE

INTERESTS OF THE U.S. WELL-TESTED STEEL

85 19 M. GRAY WITH M. GRAY SEP 1'-3' W. GRAVE. 2' STONE, PL.

W.C. BOWSER IN EXON SPACE. TR. ELEGANT CLAN

IS 18 M. GRAY WITH M. GRAY NOV 6-172. WELL GROWN. NOW FRUITFUL

M-23-64

POINTED MOUNTAIN, N.W.T.

SCALE 1" = 50'

123° 31' W; 60° 27' N

0' & 280' ON PN-3-64

LOGGED BY: E.R. MICHAELIS,
SEPT. 1964

FOSSILS

173-179' PRODUCTID SPINES PERMO-CARB.

184-185' LICHAREWIA? SP. PERMIAN?

PRODUCTID GENUS INDET.

CANCRINELLA SP.

SPIRIFER (POSS. SAMABHUEWENSIS)

217-241' PECTINID PELECYPOD PERMO-CARB.

294-297 PRODUCTID FRAGMENT MISS.

297-302 RARE OSTEOCORALS, INCLUDING

POLYTHYLITES

AMPHISSITES

SULCELLA?

SS. VSG. QTBOSSE, NUM. GLAUC. GR. & FELDSPAR GR. NUM. VC VUGS, SOME PARTLY FILLED W. WHITE QTB. (PROB. LEACHED FOSSILS). TA PHA. ROCK HAS PATCHES OF SS. W. CLAY MATRIX, PEBBLE BED CONSISTS OF LG. QTBOSSE SANDY SLT. PEBBLES IN SANDY MATRIX.
SS/SLT. QTBOSSE, - 10% FELDSPAR, COMMON GLAUC. GR. NUM. SPINES F. GR. WEAK FERRUG. (SIDMITH) CHT, FAIR SORTING. SS WITH IN MASSIVE BLOCKS.

INTERVAL FROM 25-60' COVERED, BUT A STEEP SLOPE

INTERVAL 60-95' PROBABLY SIMILAR TO UNDERLYING 95-129' UNIT, BUT IS LARGELY COVERED. LOWER PART OF INTERVAL IS SS. VSG. CALC. WITH IN LARGE BLOCKS SHOWING 1-4" BEDS. THERE ARE CONTINUOUS, BUT OF UNEVEN THICKNESS.

SS/SLT. VSG. MICROSE, WELL SORTED TA GLAUC. - 10% F. GR. SPINES, TA FELDSPAR

BEDDING IS MASSIVE, + BEDDED UNITS 2-3', W. 6" SHALE INTERBEDS.

AT TOP OF EACH BED THERE IS AN UNWORN CHANNELLED SPACE W. CLAY LAMINAE

COV. INT. SHALE W. SLT. ONOS(?)

OR GRN SLT. SHALE (167-173'); SLT. SHALY, ARG. (173-174'); SHALE (174-175')

ARG. F. GR. IN PATCHES & AS DISCRETE GRAINS

VSG. QTBOSSE - 5-10% FELDSPAR GR. R-3A, RARE GLAUC. - 10% MICROFOSSILS IN PT. RECYST. TO CLEAR CALCITE

SHALE (177-184'), 184-185' IS SLT. ARG. CALC. AROUND SMALL FRACS & SOME GRAINS

185-187' IS ARG. SLT. W. SHALE INTERBEDS

SLT/VSG. SS. QTBOSSE, RARE GLAUC. GR. SORTING, TIBERLITE CHT, WAVY (RIFLED) BEDDING, MICRO PARTINGS

197-237' COVERED INTERVAL.

MAINLY SHALE

MASS. UNWORN BEDS, GRAY BED AT TOP, GR. GRN, WITH BUFF

QTBOSSE, 2-3% F. GR. SPINES, TA FELDSPAR, PROB. FALES, RARE GLAUC. WELL SORTED, FAIR PETROL. BEDS, FAIR SD. CHT,

SHALE W. OCCAS. SLT. BEDS, SOME PYRITIC IN

SLT. QTBOSSE - 10% FELD. SCATT. SPINES F. GR. RARE GLAUC. ONE LAYER EG 1 VSG. GRANULES OF WR. SS & SLT. IN SLT. MATRIX. POSS. BITUM. MTL IN PAINT LAM. GR. GRN WITH BUFF. MASSIVE BEDS, PROB. SIDMITH CHT OR GRN. HARD TO SCRATCH, SL. LUSTROUS SCRATCHED SECE. SULPHUR STAINED

UNWORN 12-24" TO MASSIVE BEDS, GRN GRAY SS

VSG. SS/SLT. QTBOSSE, TA FELD. POSS. SIDMITH CHT, RARE GLAUC. COMMON F. GR. SPINES (12%), TA BITUM. MTL, SMALL FRACS

SHALE

SHALE, BROWN, LUSTROUS F. FISSILE SCATT. MICROF. (OSTEOCORALS?) INTER. LG. V. ARG. TA MICRO. F. GR. COMM. PAINT LAM. 12"

VSG. SCATT. NO. PH. SORTING, TA FELD. COMMON SMALL FRACS (DET.) SCATT. GR. PH. CH. SMALL FRACS BOTH SILIC.

1 MICRO X (CaCO₃) (IN IRREG. PATCHES); BROWN SHALE; MASSIVE BEDS

LG. MICROF. CONCHOID. FRACS, RARE GLAUC. M. GRV. WITH GRV. GRN. NOODLING WS. INTER. GRN. SHALE, BEDS 12-24"

SHALE, GR. GRV. TA SLT. GR. GRV. TO GRV. GRN. WITH F.

VSG. QTBOSSE, WELL SORTED, 1-2% F. GR. SPINES, GR. GR-3A; LG. GRN. WITH BUFF. MASSIVE BEDS

+ GRN. ARG. LOW ANGLE, TRUNCATED TOP.

SCALE 1" = 50'

1. The first group of authors (e.g., [1, 2]) considers the problem of the stability of the motion of a system of particles in the field of a central body. The problem is solved by the method of the variation of constants. The results are obtained in the form of a series of powers of the small parameter ϵ . The first two terms of the series are obtained explicitly. The third term is obtained in the form of a series of powers of ϵ . The results are obtained in the form of a series of powers of the small parameter ϵ . The first two terms of the series are obtained explicitly. The third term is obtained in the form of a series of powers of ϵ .

POINTED MOUNTAIN, N.W.T.

123° 51' W ; 60° 28' N

LOGGED BY: E.R. MICHAELIS, SEPT. 1963

WITH BURROW. BROWN QUEEN WITH. BIRD HAVE FEW FEET (BURROW COST). BIRD IS INTRINSICALLY DISTINGUISHED
BY THE STITCH. THE STITCHING. COMES IN THE FORM OF FEET STITCH. OR ST. ST. OTHER. THE STITCH. BIRD STITCH. STITCH

[illegible]

IN ON BRN TO PKR (GRAIN + 1/2 BR STAINING ON PKR), WITH LT GRAY & MED BRN, IN UNVERN BRN
PARTICULARLY STARK, SLIGHTLY W/ 1/2 PKR & FEAR, PINK CLAY GRAY, W/ 1/2 PKR, SPARK, GRAY STAINING, 1" UNVERN
BRN, COCA, SOUTHERN W/ 1/2 PKR (GRAINING)
AT 70' MAINLY COVERED, PROBABLY SMALL BRN, MC. ONE R' CLAY BY AT 80' & STAY BRN BRN

[illegible]

SLT. EXTREMELY TOUGH - 700 PPS (4.5% I. FORD STAINING - EXTREME AND EXTENSIVE)
UNIT CONTAINS HARD SERRATE BANDS AT 99', 110', 125' & 130'
UNIT PROBABLY CONTAINS INTERBEDDED SILTY SHALE AS ABOVE.

15. MICROW. V. SANDY W. - 30% V.S. - 50 FT. I - 30% SILE. F. COLD STG. GASTRO (BRANCH, PALE, BETHROUS), GRAY
FLAME, STAFF OF ST. OF, 12 WTH. LT. ST. GRAY. BIRD. 1" - 12" TENDING TO HASTING. DUNE SEED. SHAL. GRAY
BY TOP

170-180' = COM. INTERVAL = MAINLY SHALE

[illegible][illegible]

SHALE W. HARD SILTY GRAY AT INTERVALLS. IN IS BR. CRP - SIL W/TH. IN. VARIOUS INCORPORATIONS, OR
IND. 24-28" PLATES.

13. CONJUGIAL (NACH), W. 100% SHELL REELS & POSSIBLY CONTAINED IN CAROL MATRIX, 13 IS
GRAY WITH RED & ORANGE, REELS 12" W. UNUSUALY SECURE.

SS, USG, GYROSE, WELL SORTED, FRAGILE, OR GRN W/TH GRN GRN, MASSIVE BEDD, 14. UP TO 3' ENCL. GR. W/TH LT. GR. ENCL. SPEC. FINE SANDY, SILTY CLAYSTONE

12. V5-S6 = 10'0" SILT, PARTLY SORTED COMMAN MG OF QTW, UP TO 20% CLAY & FERRUG. MTL IN LAM. & PATCHES TRFED. V. HARD CLING. GRV BUFF - WITH LT GRV. MASSIVE, APPEARS ALL CHURNED UP. LAM. FINE MG. QTW. V5-S6. CORROBORATING TRFED. HARD CLING. EX OR SPOTS. GRV TRFED. WITH GRV & FERRUG. MASSIVE HARD MG. CAN. UNIFORM SPOTS. STRONG LOW-ANGLE & BEDDING WITHIN MASSIVE UNITS. LARGE SCALE SCANTILARITY IN UNITS. INTERNAL LAM. SHOWS UP TO LT. BUFF & GRAYN. GRV. BEDDING.

SS, STARK, VLG, WELL SORTED, TO FINE, SLIGHT SPARSITY LEAD, OR-BAND, MINORITE BEVE, UNIFORM BEDDING, STRONG LOW ANGLE + GAPS
THINSE 30% OR 40% UP TO 30% ONLY, W. UP TO 10% VLS BED SAND, IMP. IS. SLIGHT MINOR SAND; WITH LT. GRAY + YELLOW FA-1 GAPS.

UNDERLYING GDPs NOT EXPOSED

Fossils

138-150'	WAGGENOCONCHA SP. A
	DICTYOCLOSTUS SP.
	ORICULARIA SP.
	MARGINIFERA? SP.
	FEW OSTRACODES

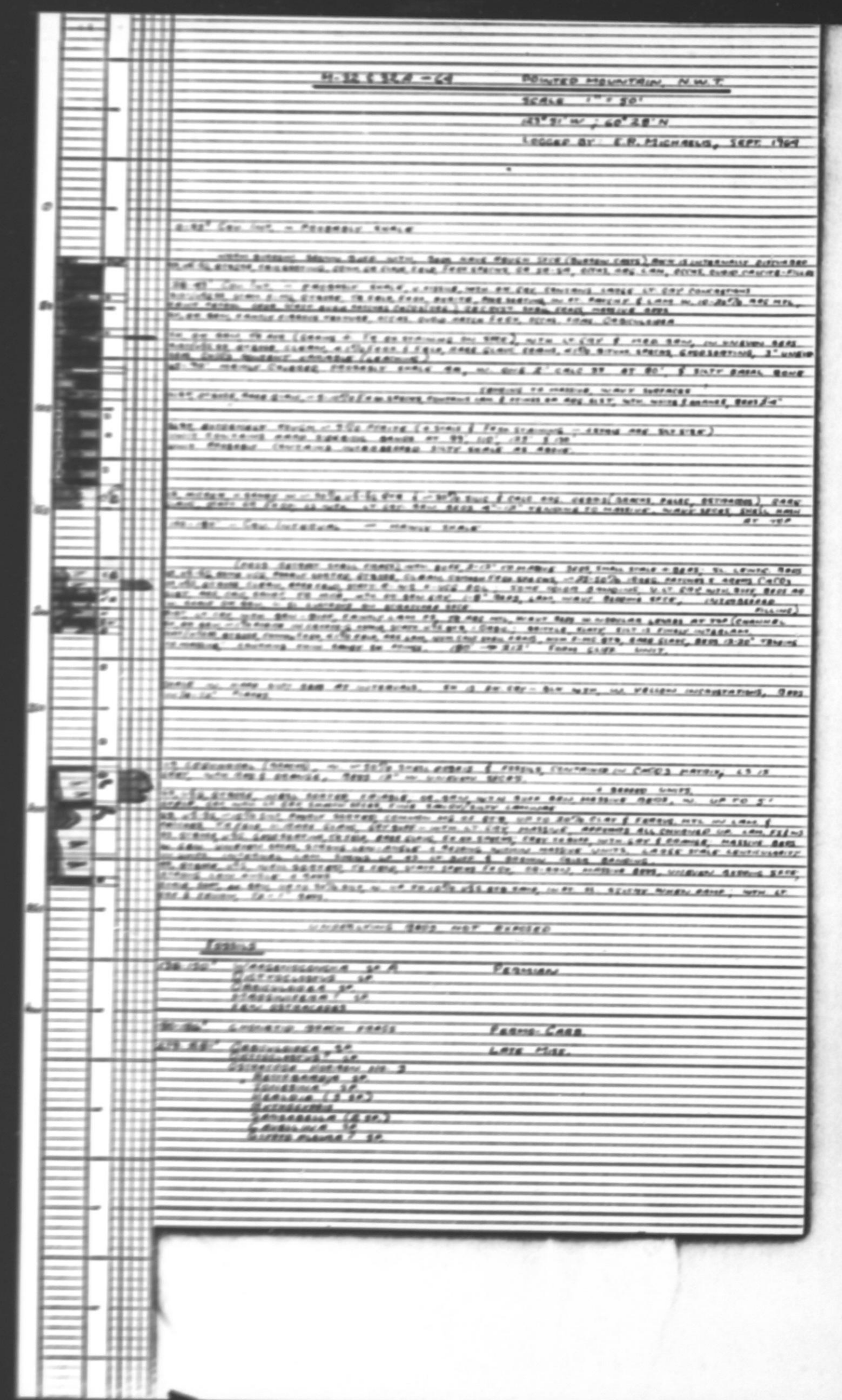
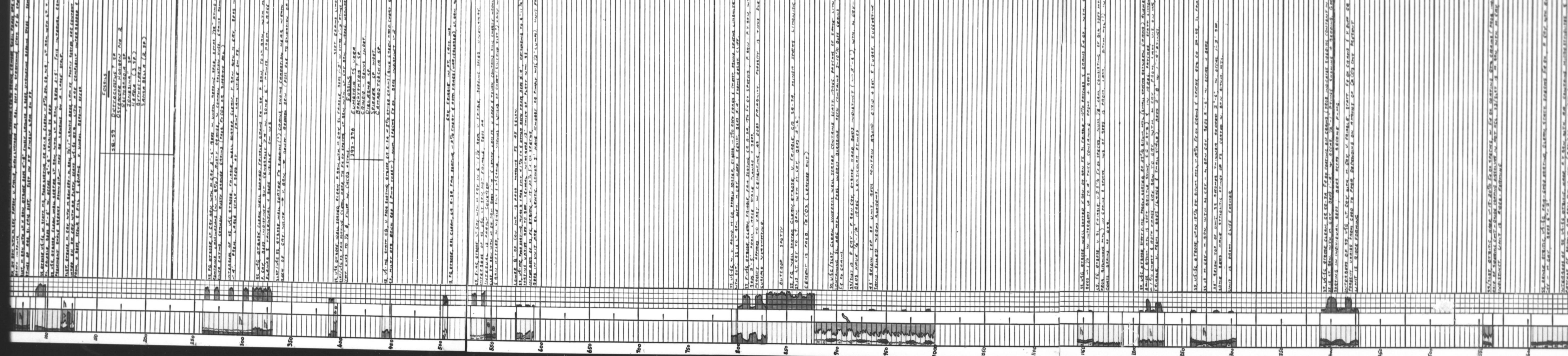
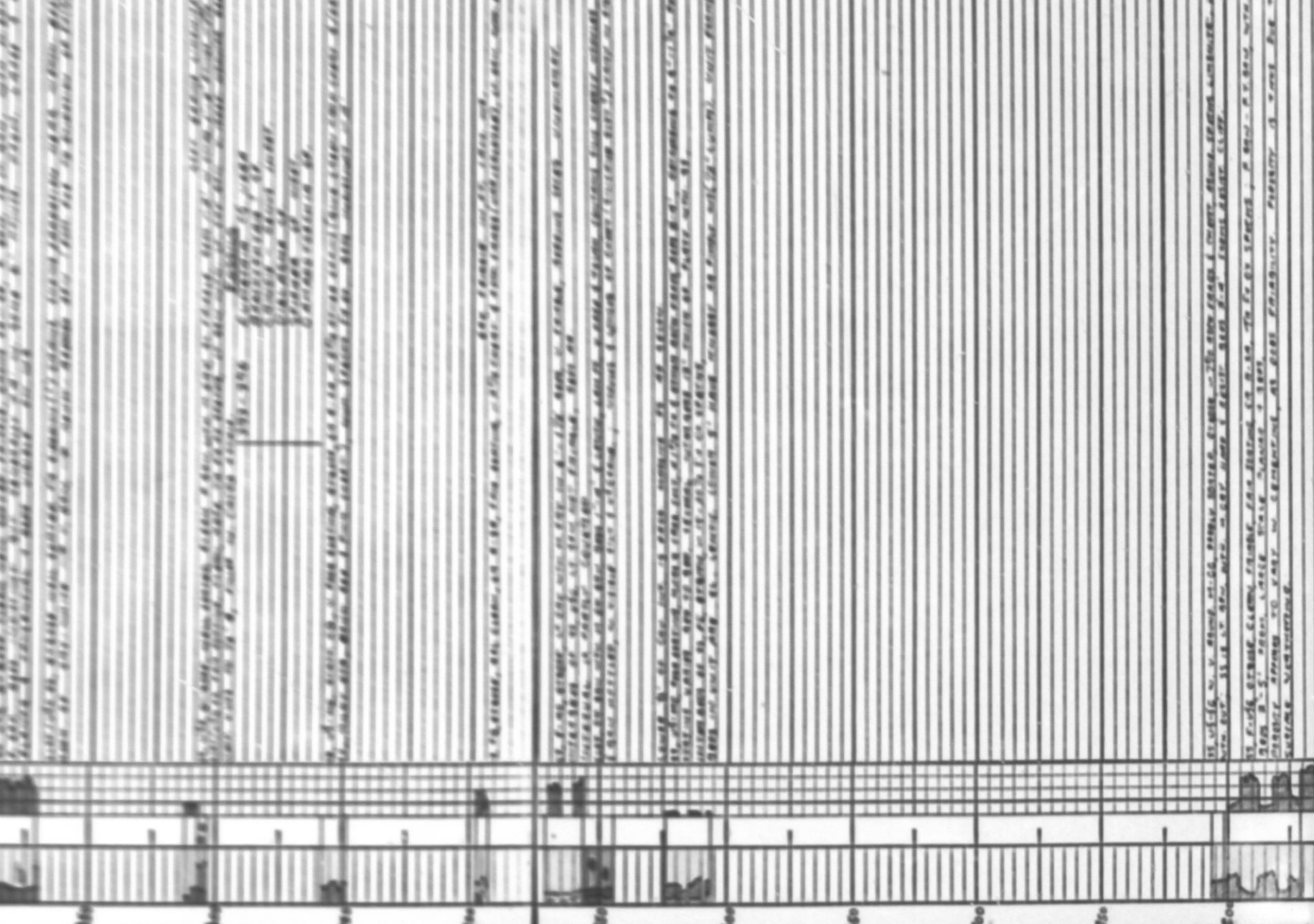
РЕЗУЛТАТЫ

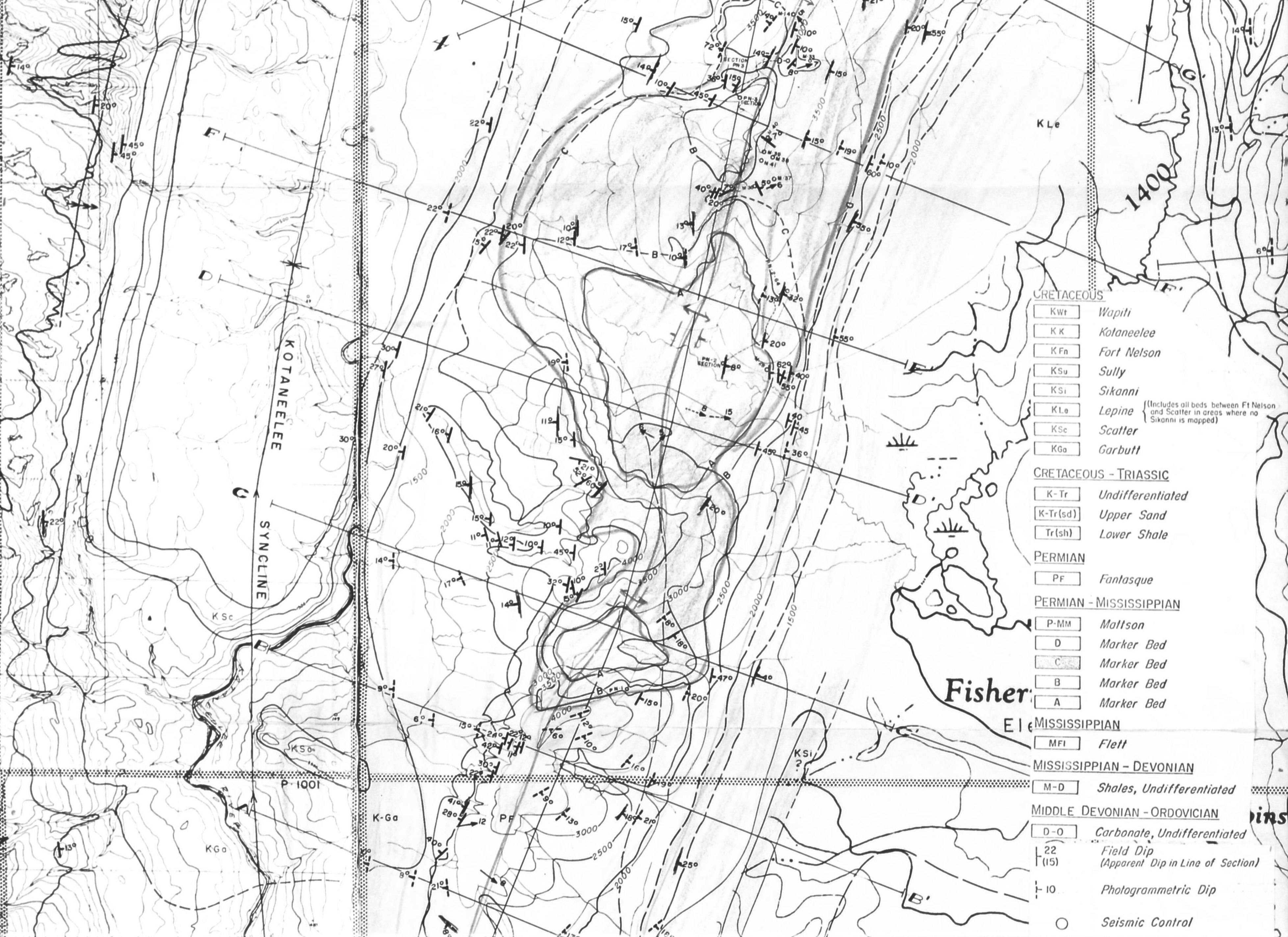
180-186' CHONETID BRACH FRAGS

Резюме-Сара

279-281' ORAIFULOIDES ? SP.
DICTYOCALYPTUS ? SP.
OSTRACODE HORIZON NO. 3
" RESTOMATIDIA ? SP.
" TONARINA ? SP.
HEALDIA (3 SP.)
BYTHOXYPRIS
SARABALLA (2 SP.)
CAVELLINA ? SP.
GYPTO PLUMA ? SP.

LATE MISS





KLe

CRETACEOUS

- KWt Wapiti
- KK Kotaneelee
- KFn Fort Nelson
- KSu Sully
- KSi Sikanni
- KLe Lepine (Includes all beds between Ft Nelson and Scatter in areas where no Sikanni is mapped)
- KSc Scatter
- KGa Garbutt

CRETACEOUS - TRIASSIC

- K-Tr Undifferentiated
- K-Tr(sd) Upper Sand
- Tr(sh) Lower Shale

PERMIAN

- PF Fantasque

PERMIAN - MISSISSIPPIAN

- P-MM Mattson
- D Marker Bed
- C Marker Bed
- B Marker Bed
- A Marker Bed

Fisher

MISSISSIPPIAN

- MFI Flett

MISSISSIPPIAN - DEVONIAN

- M-D Shales, Undifferentiated

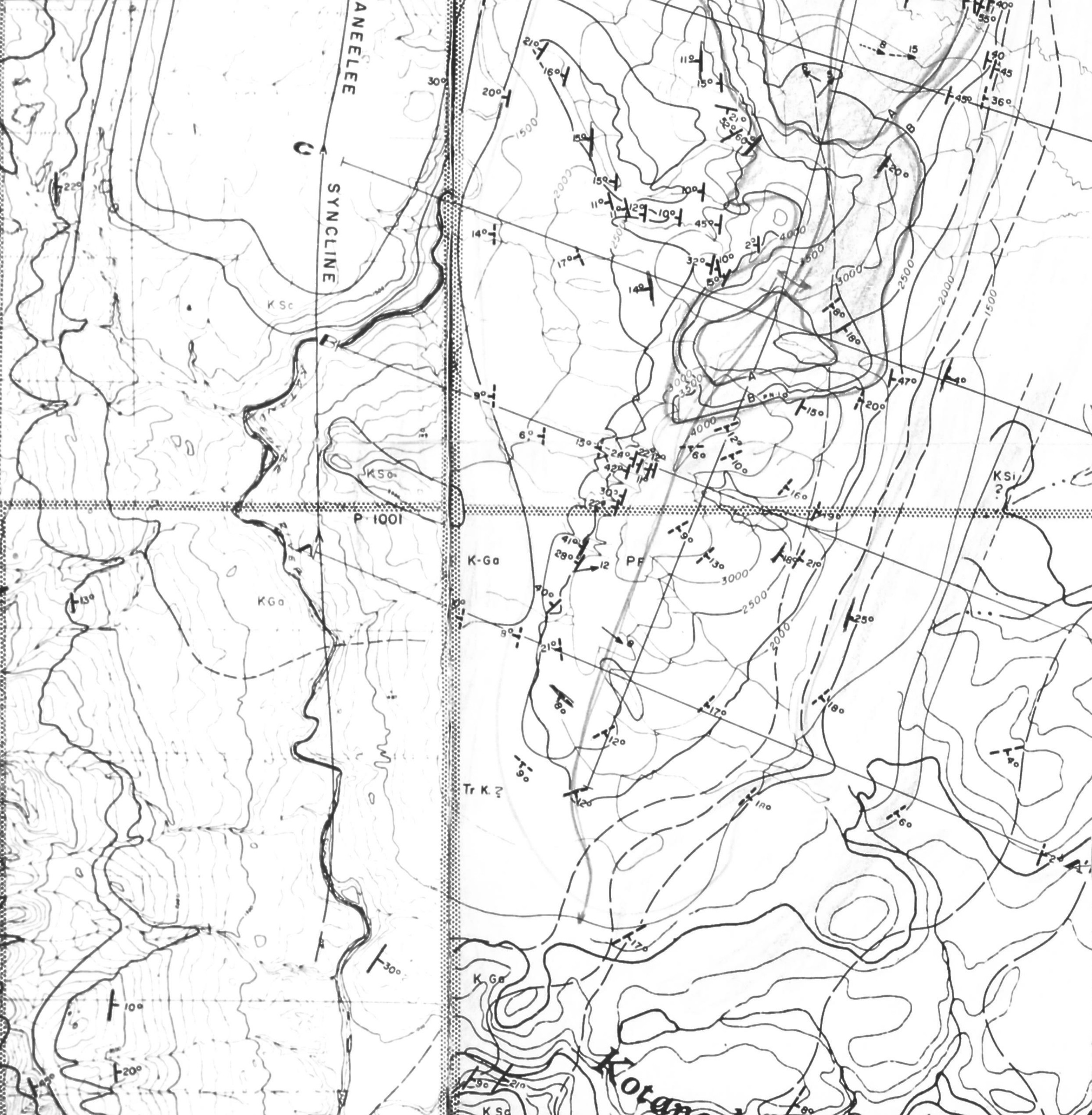
MIDDLE DEVONIAN - ORDOVICIAN

- D-O Carbonate, Undifferentiated

22 (15) Field Dip (Apparent Dip in Line of Section)

10 Photogrammetric Dip

○ Seismic Control



- LEGEND**
- CRETACEOUS - TRIASSIC**
- KSi *Sikanni*
 - KLo *Lepine* (Includes all beds between Ft Nelson and Scatter in areas where no Sikanni is mapped)
 - KSc *Scatter*
 - KGo *Garbutt*
- PERMIAN**
- PF *Fantasque*
- PERMIAN - MISSISSIPPIAN**
- P-MM *Mottson*
 - D *Marker Bed*
 - C *Marker Bed*
 - B *Marker Bed*
 - A *Marker Bed*
- MISSISSIPPIAN**
- MFI *Flett*
- MISSISSIPPIAN - DEVONIAN**
- M-D *Shales, Undifferentiated*
- MIDDLE DEVONIAN - ORDOVICIAN**
- D-O *Carbonate, Undifferentiated*
- SYMBOLS**
- 22 (15) *Field Dip (Apparent Dip in Line of Section)*
 - 10 *Photogrammetric Dip*
 - *Seismic Control*
 - M-33-64 *Field Station with Fossil Control*
 - *Fault*
 - *Axial Plane*

PAN AMERICAN PETROLEUM CORPORATION CANADIAN DIVISION	
POINTED MOUNTAIN AREA, N.W.T. & Y.T.	
SURFACE GEOLOGY MAP	
G.G.R. FXB - I	Compiled By: E. MICHAELIS, J. HARDING P. NICHOLSON
Enclosure No.: 1.	Date: JANUARY 1965
Scale: 1" = 4000'	