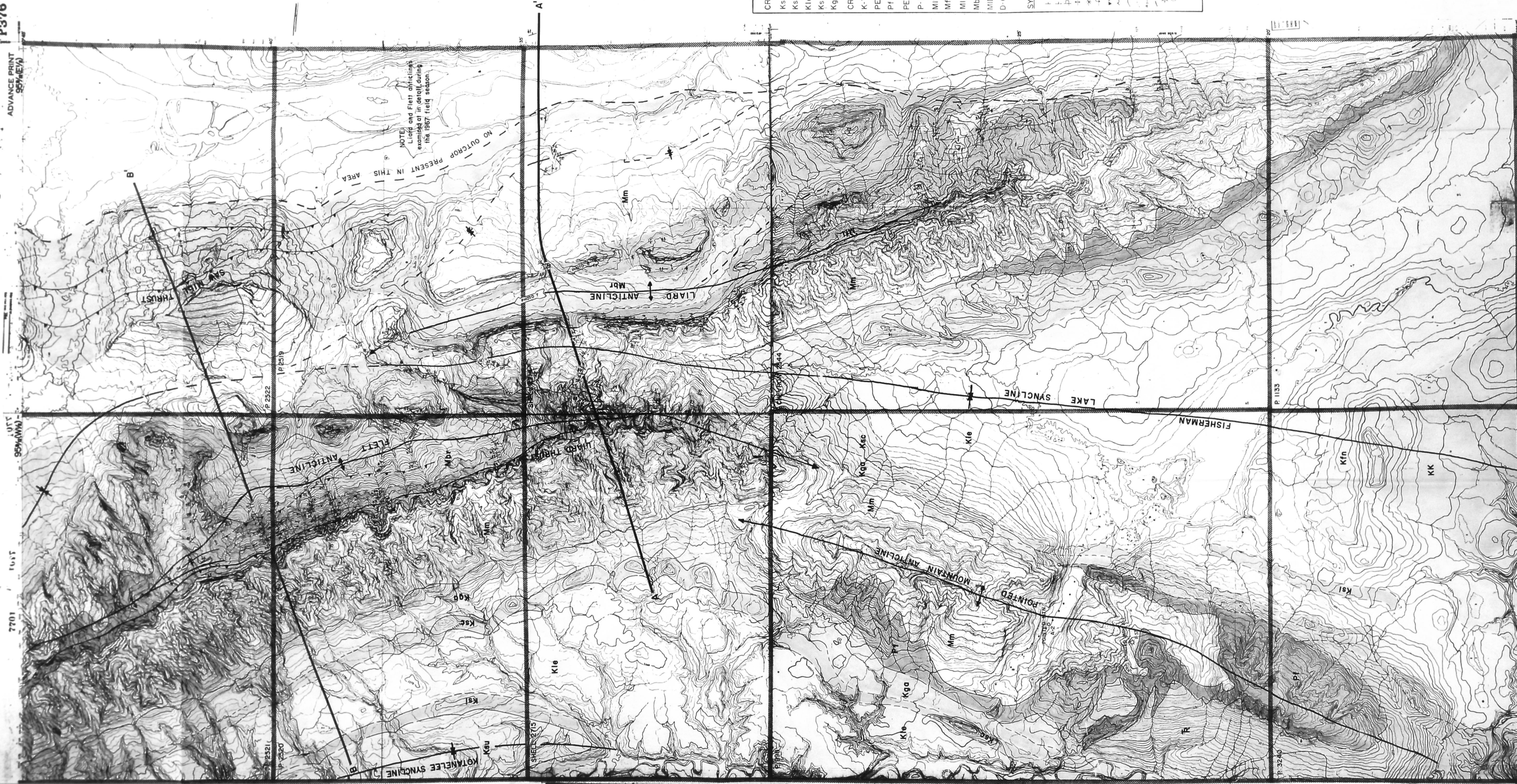




NOTE: Liar and Flett antiques examined at in detail, during the 1957 field season.

NOTE: Likelihood of examining the area

A topographic map showing a steep incline. The word "INCLINE" is written vertically along a contour line. The map features several contour lines indicating elevation changes.

LAKE
SYNCLINE

FISHERMAN

POINT B

A topographic map showing contour lines and a road labeled 'A1'.

ENGINE

P. 1133

P 3240

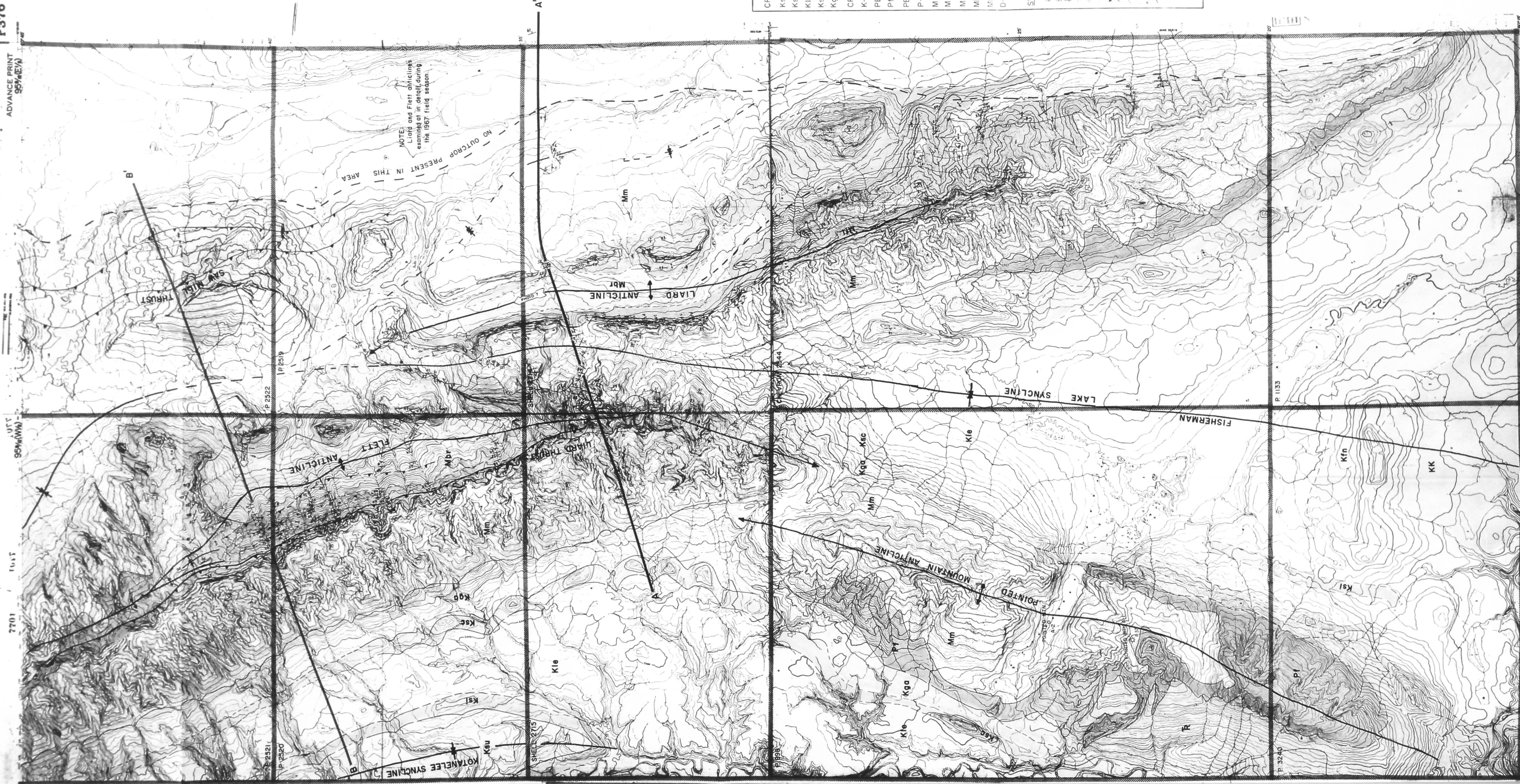
Kfn

KS

19

CRETACEOUS	Ksu	Sully FM	Shale
	Ksi	Sikanni FM	Sandstone
	Kle	Lepine FM.	Shale
	Ksc	Scatter FM	Sandstone, shale
	Kgd	GARBUTT	Shale
CRETACEOUS - TRIASSIC			
K-R		UNDIFFERENTIATED	
PERMIAN			
Pf		FANTASQUE FM	Chert Sandstone
P-Mm		MATTSON FM	Limestone
MISSISSIPPIAN			
Mfl		FLETT FM	Crinoidal Limestone Shale
MISSISSIPPIAN - DEVONIAN			
Mbr		BESA RIVER FM	Shale
MIDDLE DEVONIAN ORDOVICIAN			
D-O		includes NAHANNI, AFRICA, LONE MTN, CARB ETC.	
SYMBOLS			
f 34	STRIKE & DIP, FIELD CHECK		
p 34	STRIKE & DIP, ESTIMATED		
p p	STRIKE & DIP, OVERTURNED		
+ +	NORMAL PLUNGING ANTICLINAL AXIS		
* *	NORMAL PLUNGING SYNCLINAL AXIS		
- f	OVERTURNED ANTICLINE		
v v v	THRUST FAULT		
~~~~~	NORMAL FAULT		
~~~~~	FORMATION CONTACT		
~~~~~	UNCERTAIN FORMATION CONTACT		
-----	STRUCTURAL XSECTION		
-----	LIMIT OF OUTCROP		
○	GAS WELL		
⊙	PROPOSED WELL		
⊗	SEISMIC LINE		
—	ACREAGE		

ADVANCE PRINT  
1 P376  
95% E/W



CRETACEOUS	
Ksu	Sully FM Shale
Ksl	Sikanni FM Sandstone
Kle	Levine FM Shale
Ksc	Scatter FM Sandstone
Kgc	Garbutt Shale
CRETACEOUS - TRIASSIC	
K'r	Undifferentiated
Pf	Permian
Pf	Fantasque FM Shale
P-Mm	Permian-Mississippian
Mm	Mattson FM Sandstone
Mf	Mississippian
Mf	Flett FM Sandstone
Mbr	Mississippian - Devonian
Mbr	Bea River FM Shale
MIDDLE DEVONIAN - ORDOVICIAN	
D-O	Includes Nahanni, Arnicia, Lone Mtn, Carb, etc
SYMBOLS	
1-34	Strike & Dip, Field Check
1-34	Strike & Dip, Estimated
P-P	Strike & Dip, Overturned
1-*	Normal Plunging Synclinal Axis
1-*	Overturned Anticline
***	Thrust Fault
---	Normal Fault
---	Uncertain Formation Contact
---	Structural Section
---	Limit of Outcrop
○	Gas Well
○	Seismic Well
---	Seismic Line
---	Acresage

REPORT ON SURFACE  
STRUCTURAL GEOLOGY  
EXAMINATION BY PAN AMERICAN  
PETRO CORP ON THE LIARD &  
FLETT ANTICLINES N.W.T.

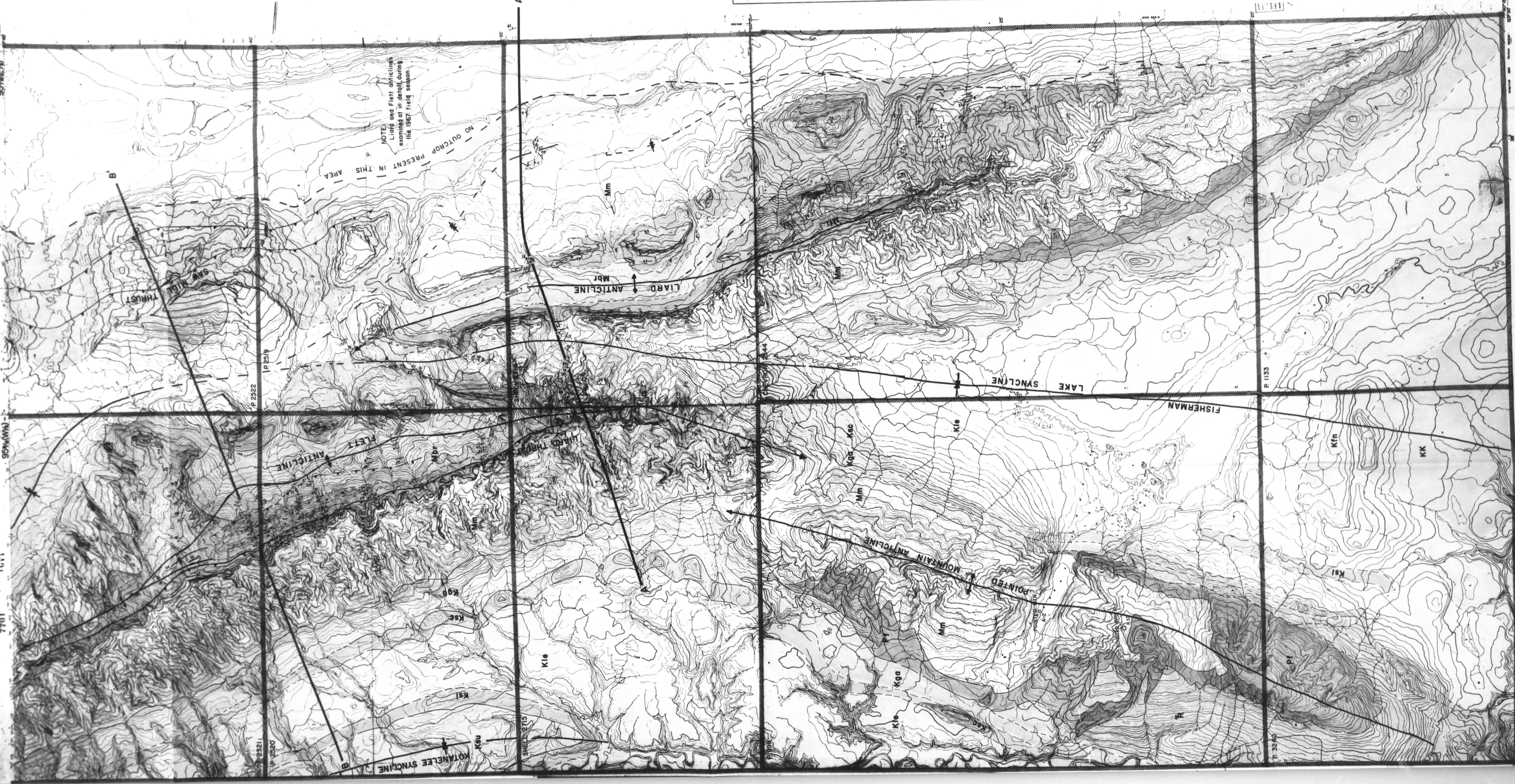
SURFACE GEOLOGICAL MAP

ENCL. NO. 1  
SCALE 1" = 4,000'  
COMPILED BY M. LARSON, DATE FEB. 12, 1968

P376

ADVANCE PRINT  
95% ME/A

7701 1615

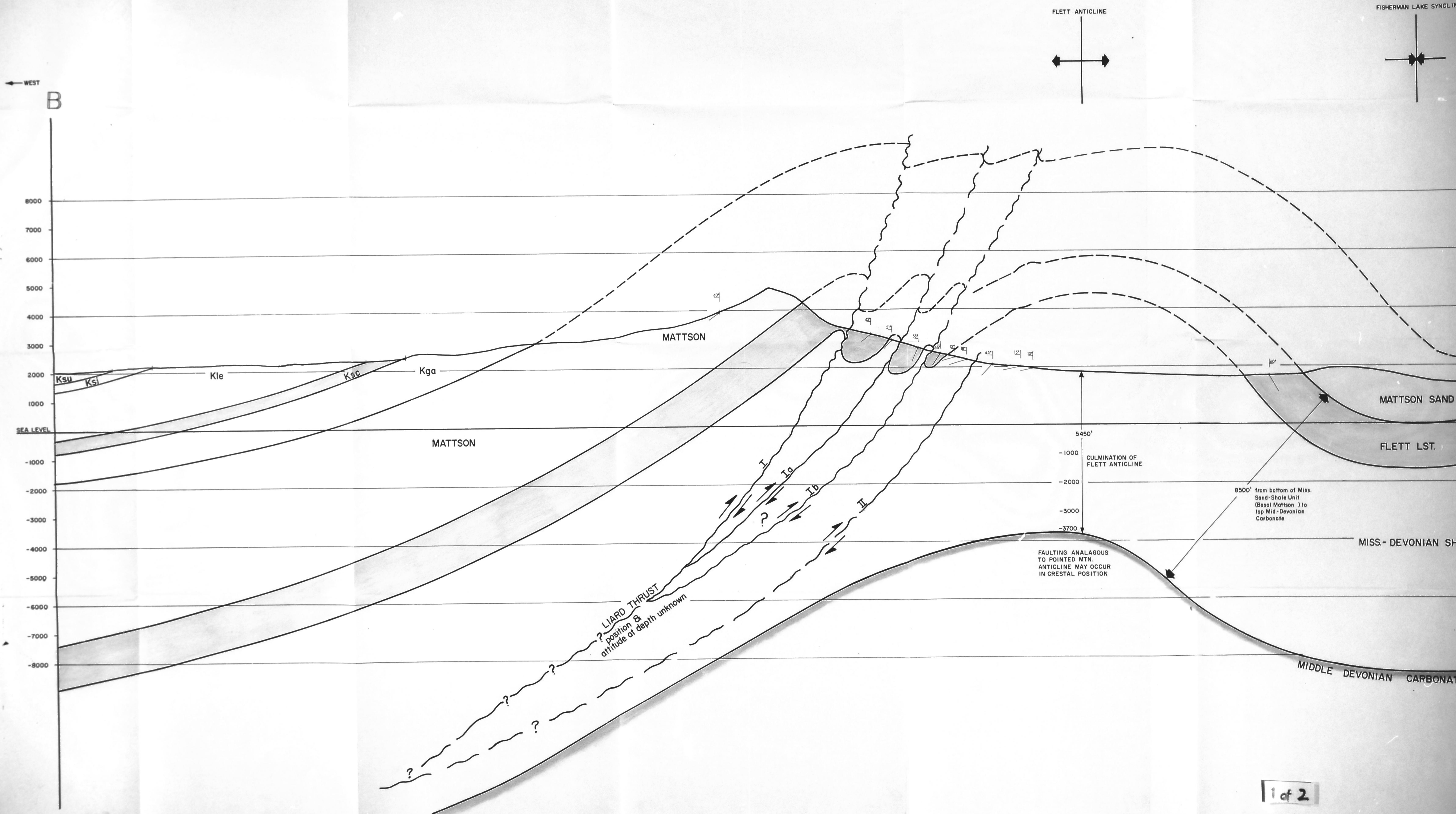


NOTE:  
Liard and Flett anticlines  
examined in detail during  
the 1987 field season.

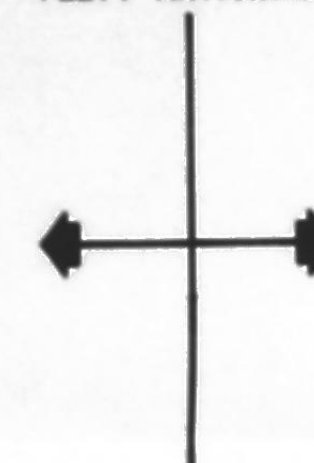
NO OUTCROP PRESENT IN THIS  
AREA

<b>CRETACEOUS</b>	
Ksu	Sully FM. Shale
Ksi	Sikanni FM. Sandstone
Kie	Lepine FM. Shale
Ksc	Scatter FM. Sandstone
Kga	Garbutt Shale
<b>CRETACEOUS - TRIASSIC</b>	
K-R	Undifferentiated
<b>PERMIAN</b>	
Pf	Fantasque FM. Shist.
<b>PERMIAN - MISSISSIPPIAN</b>	
P-Mm	Mattson FM. Sandstone
Mm	Mississippian
Mdr	Devonian
<b>MISSISSIPPIAN - DEVONIAN</b>	
Mdr	Bea River FM. Shale
<b>MIDDLE DEVONIAN ORDOVICIAN</b>	
D-O	Devonian, Ordovician, etc.
<b>SYMBOLS</b>	
F 34	Strike & Dip, Field Check
F 34	Strike & Dip, Estimated
P P	Strike & Dip, Overturned
+	Normal Plunging Synclinal Axis
-	Overturned Anticline
***	Thrust Fault
---	Normal Fault
---	Formation Contact
---	Uncertain Formation Contact
---	Limit of Outcrop
○	Gas Well
○	Proposed Well
---	Seismic Line
---	Acpeage

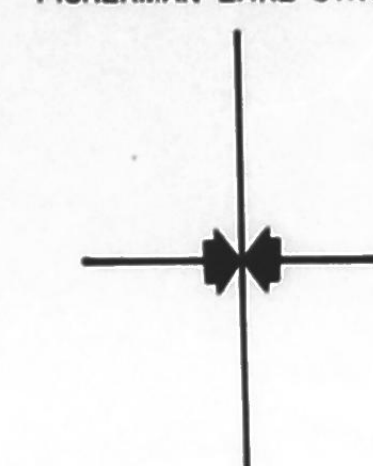
REPORT ON SURFACE  
STRUCTURAL GEOLOGY  
EXAMINATION BY PAN AMERICAN  
PETRO CORPORATION, THE LIARD &  
FLETT ANTICLINES, N.W.T.  
SURFACE GEOLOGICAL MAP  
SCALE 1:50,000  
COMPILED BY T. L. LARSEN, JUNE 1987, 1:50,000



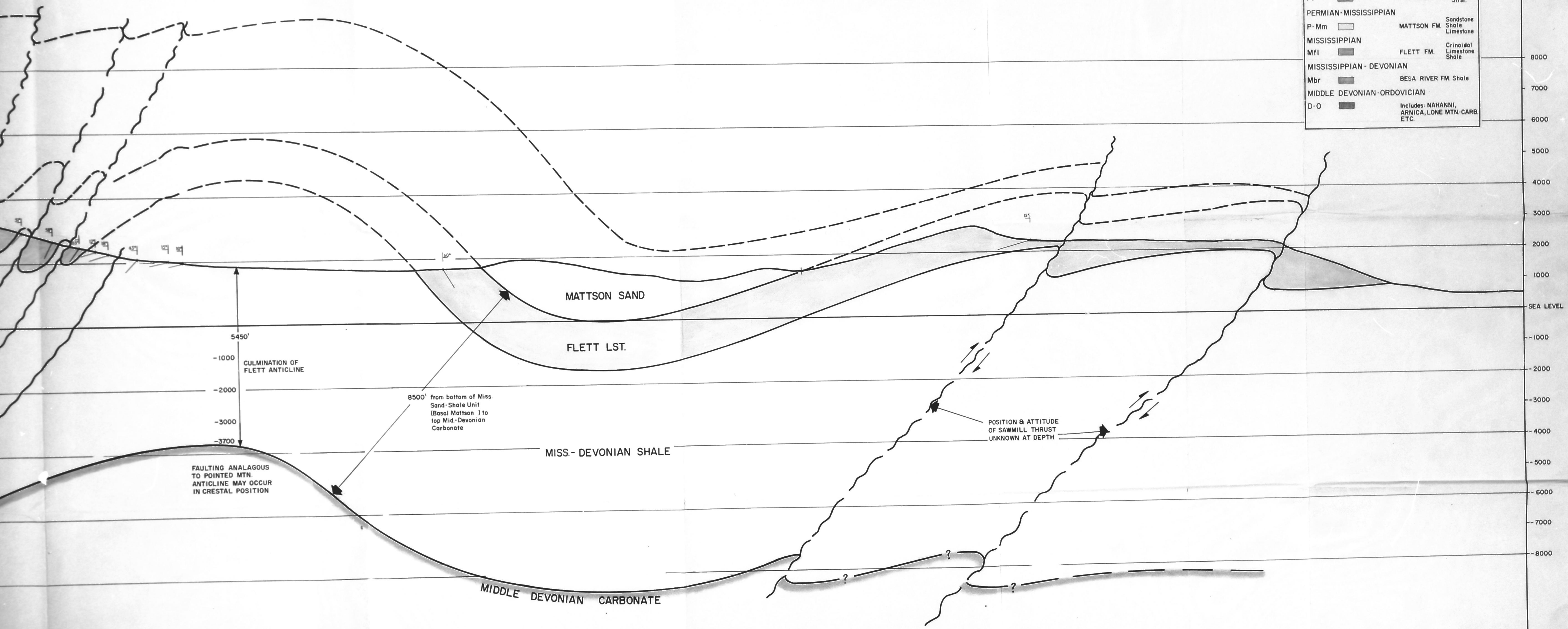
FLETT ANTICLINE



FISHERMAN LAKE SYNCLINE



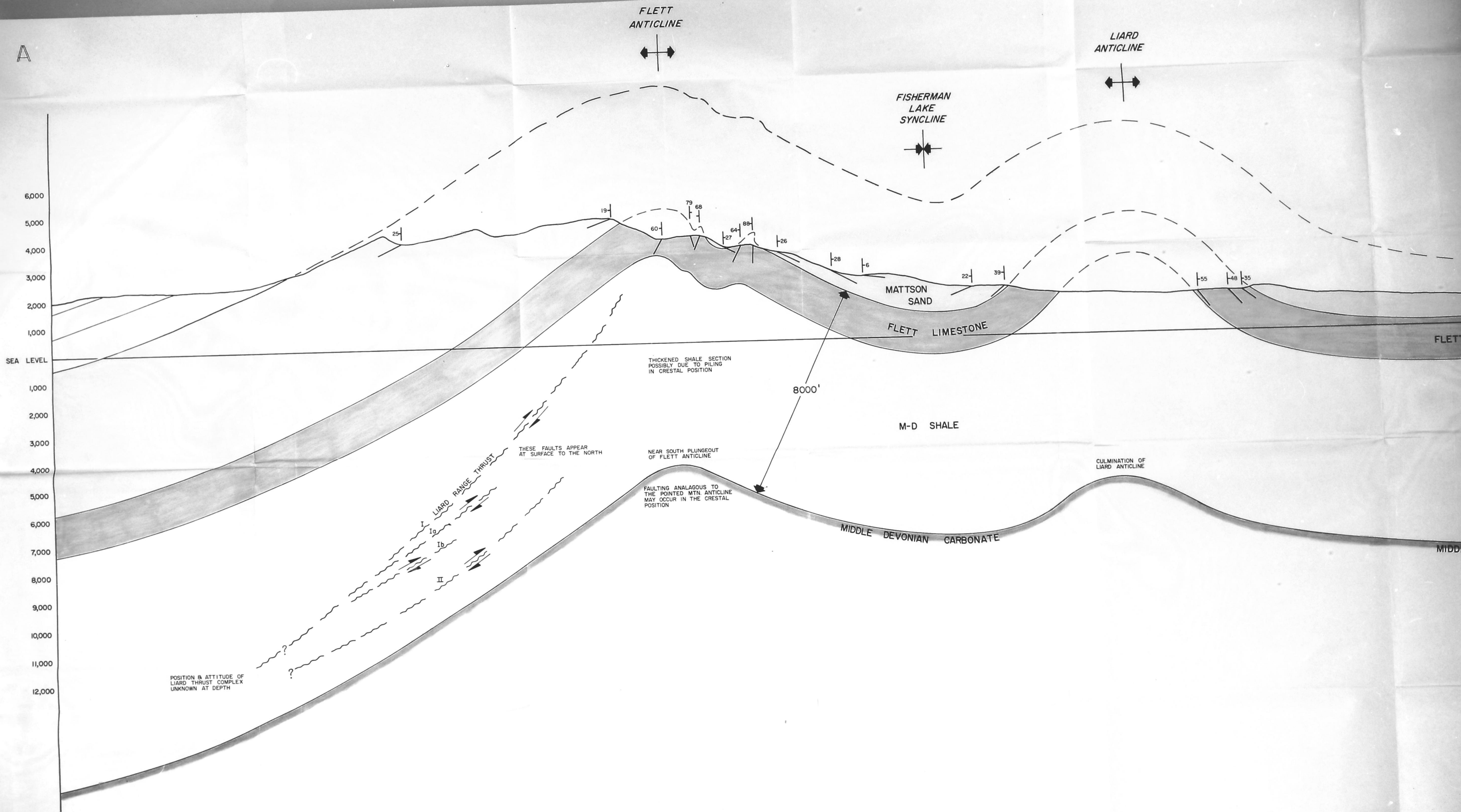
CRETACEOUS		
Ksu	SULLY FM.	Shale
Ksi	SIKANNI FM.	Sandstone
Kle	LEPINE FM.	Shale
Ksc	SCATTER FM.	Sandstone, Shale
Kga	GARBUTT	Shale
CRETACEOUS - TRIASSIC		
K-R	UNDIFFERENTIATED	
PERMIAN		
Pf	FANTASQUE FM.	Chert, Siltst.
PERMIAN-MISSISSIPPIAN		
P-Mm	MATTSON FM.	Sandstone, Shale, Limestone
MISSISSIPPIAN		
Mfi	FLETT FM.	Crinoidal Limestone, Shale
MISSISSIPPIAN - DEVONIAN		
Mbr	BESA RIVER FM.	Shale
MIDDLE DEVONIAN - ORDOVICIAN		
D-O	Includes NAHANNI, ARNICA, LONE MTN-CARB. ETC.	

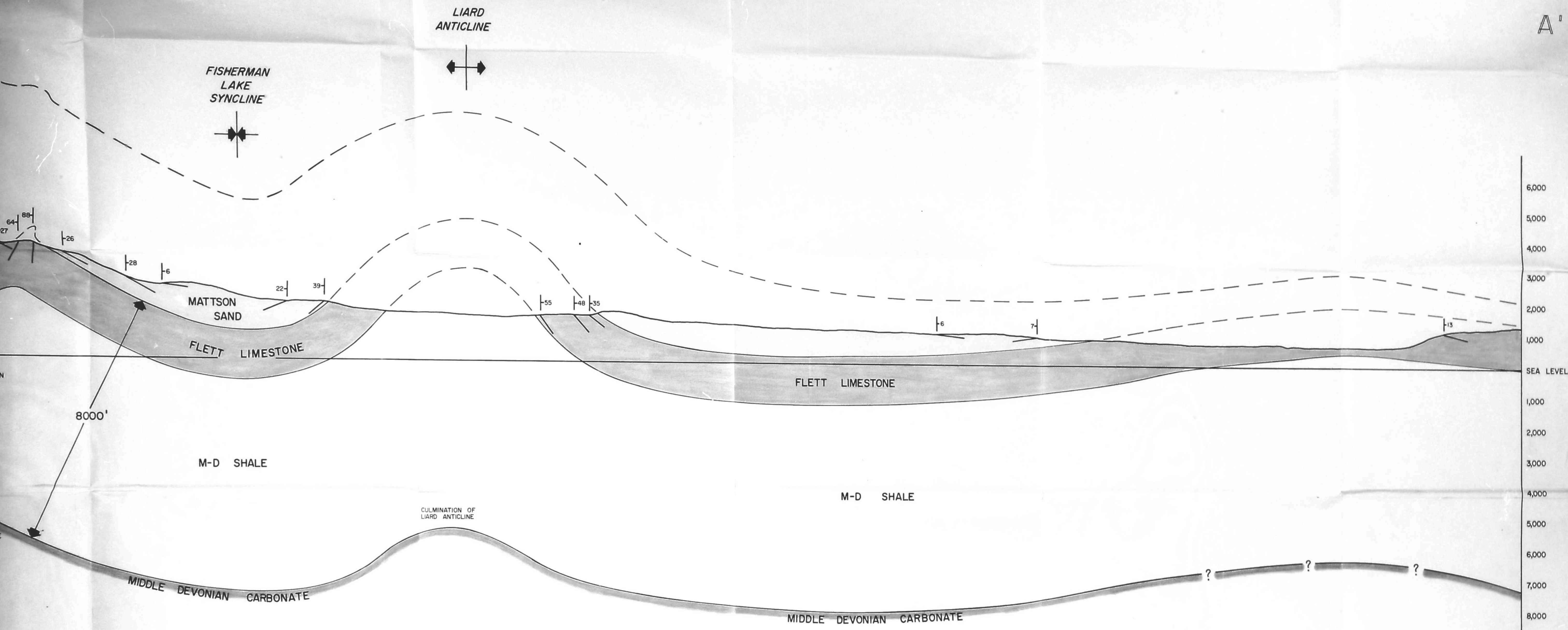


REPORT ON SURFACE  
STRUCTURAL GEOLOGY  
EXAMINATION BY PAN AMERICAN  
PETRO. CORP. ON THE LIARD &  
FLETT ANTICLINES N.W.T.  
CROSS-SECTION B-B'  
ENCL. NO. 3 SCALE 1" = 1000'  
COMPILED BY M.L. LARSON DATE FEB. 12, 1968

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A





CRETACEOUS		
Ksu		SULLY FM. Shale
Ksi		SIKANNI FM. Sandstone
Kle		LEPINE FM. Shale
Ksc		SCATTER FM. Sandstone, Shale
Kga		GARBUTT Shale
CRETACEOUS - TRIASSIC		
K-R		UNDIFFERENTIATED
PERMIAN		
Pf		FANTASQUE FM. Chert, Siltst.
PERMIAN - MISSISSIPPIAN		
P-Mm		MATTSON FM. Sandstone, Shale, Limestone
MISSISSIPPIAN		
Mfl		FLETT FM. Crinoidal Limestone, Shale
MISSISSIPPIAN - DEVONIAN		
Mbr		BESA RIVER FM. Shale
MIDDLE DEVONIAN - ORDOVICIAN		
D-O		Includes: NAHANNI, ARNICA, LONE MTN, CARB, ETC.

REPORT ON SURFACE  
STRUCTURAL GEOLOGY  
EXAMINATION BY PAN AMERICAN  
PETRO. CORP. ON THE LIARD &  
FLETT ANTICLINES N.W.T.

CROSS-SECTION A-A'

ENCL. NO. 2 SCALE 1" = 1000'  
COMPILED BY: M.L. LARSON DATE: FEB. 12, 1968

REPORT ON SURFACE GEOLOGIC EXAMINATIONS  
BY PAN AMERICAN PETROLEUM CORPORATION  
ON THE STRUCTURES OF THE FLETT AND LIARD ANTICLINES  
OF THE NORTHWEST TERRITORIES

Abstracted for  
Geo-Science Data Index

Date _____

		<u>Acquisition Date</u>
Permits - <i>Pan Am</i>	#2521	22-1-59
	#2520	22-1-59
	#2522	22-1-59
	#2519	22-1-59
Shell Permits	#2715	9-3-59
	#2714	9-3-59
Chevron Permits	#2544	27-1-59

Location :     60° 35' N  
                  123° 45' W

Field Time : June 1 - July 8, 1967

Prepared by

Murray L. Larson,

Geologist

with

Pan American Petroleum Corporation,

February 8, 1968



This report on field geologic work in 1967 by Pan American Petroleum Corporation on the structure of the Flett and Liard Anticlines, N.W.T. is submitted in support of application for credit; see affidavit made by G. L. KIRK on FEBRUARY 19TH 1968.

(Three Enclosures in Attached Pocket)

T A B L E   O F   C O N T E N T S

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Enclosure 2 - Cross-section A-A', Liard Anticline - In Pocket	
Enclosure 3 - Cross-section B-B', Flett Anticline - In Pocket	

T E X TIntroduction

During the period June 1 to July 8, 1967, a surface geologic party conducted by Pan American Petroleum Corporation of Calgary, Alberta in the Liard Fold Belt of the Northwest Territories for the purpose of examining in detail the structure of the Flett and Liard anticlines. The crew consisted of a party chief, M.L. Larson, geologist with Pan American, two senior assistants and two junior assistants. The mode of transportation was a G3-B1 helicopter.

Description of Work

The Flett and Liard anticlines both doubly-plunging features have been known to exist for some time, but in not much detail thus the work consisted of close spaced ground traverses where necessary and spot checks by helicopter where a traverse was not warranted. The information gained was plotted on aerial photographs and subsequently transferred to the surface geologic map (Enclosure 1). Two cross-sections were then constructed showing the form of the two anticlines at the surface and the interpreted form at depth.

The plotting of the structural information and construction of the cross-sections was carried out in the office from August 1, 1967 to January, 1968, by the geologist who did the field work.

  
Murray L. Larson, Geologist  
PAN AMERICAN PETROLEUM CORPORATION