

666

GEOLOGICAL REPORT

on the

Bingo Nos. 1-10, 31-40 Mineral Claims

for Endako Mines Ltd. (N.P.L.)

Francois Lake Area, 93 K/3 SE,

Omineca Mining Division, British Columbia

K.M. Dawson

A.M. Laird, P. Eng.

9th September, 1965

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Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 666 MAP.....

# ENDAKO MINES LTD. (N.P.L.)

## ENDAKO, BRITISH COLUMBIA

### SUMMARY

Geological mapping of the Bingo Nos. 1-10 and 31-40 mineral claims situated in the Endako area, on a scale of 200' = 1", was undertaken by the writer during June and July 1965, on behalf of Endako Mines Ltd. (N.P.L.). Unmineralized, medium-grained pink granite outcropped throughout the area, and unfavourable structure, lack of alteration and dissimilarity with Endako Mine granite make molybdenite mineralization unlikely.

### PROPERTY

The Bingo Mineral Claims are situated on the North shore of Francois Lake 7 miles SE of the village of Endako, 54° 125° SE, in the Omineca Mining Division. Endako is 100 miles west of Prince George on Highway 16.

The claims are as follows:

<u>Omineca M.D.</u>	<u>Record Nos.</u>	<u>Record Dates</u>
Bingo 1-10	14216-14225	Sept. 5, 1961
Bingo 31-40	14246-14255	Sept. 7, 1961

### TOPOGRAPHY AND ACCESS

The Bingo Mineral Claims are situated in an area of rolling hills on the north shore of Francois Lake. Elevation of the ground ranges from 3270' at the highest peak to 2320' at lake level, the average local relief being less than 1000'. Peaks and southern slopes of hills are generally sparsely covered with vegetation and overburden, while northern slopes and valleys are

heavily timbered with spruce, pine and poplar.

Access to the Bingo Group may be attained by either the Francois Lake Road, or the Pipeline Access Road running SE from Endako Mine.

#### MAPPING AND SURVEY CONTROL

The base map used is a 200' = 1" reconnaissance topographic map of the Endako Mine area and adjacent ground prepared for Endako Mines Ltd. by Hunting Surveys Ltd., Vancouver. Geochemical survey lines running NS spaced at 1000' intervals were cut in 1963, and were used in mapping control, as was the South Baseline which runs immediately N of the Bingo Group. Aerial photographs were used to locate outcrop areas, old logging roads, trails, etc.

#### GENERAL GEOLOGY

The Bingo Mineral Claims lie within a group of acid intrusive rocks called the Topley Intrusions which includes granite, quartz monzonite, syenite, granodiorite, alaskite and diorite. The Topley Intrusions comprise a probably continuous granitic body of over 600 square miles areal extent, located in the southern Ft. St. James and northern Nechako River areas. The Topley Intrusions are believed to be Lower-Middle Jurassic in age by Dr. J.E. Armstrong (1-1949), and Upper Triassic-Lower Jurassic in age by Dr. H.W. Tipper (3-1963). Topley granites intrude Upper Triassic Takla andesitic volcanics on the N. shore of Francois Lake, and are overlain by volcanics of the Tachek, Ootsa Lake and

Endako Groups ranging in age from Upper Jurassic to Oligocene.

REGIONAL SETTING

1. The Bingo Mineral Claims encompass an area wholly underlain by fresh, unmineralized, medium-to coarse-grained pink porphyritic granite.
2. A body of quartz latite porphyry has intruded the granite 2000 feet west of the Bingo Group, forming a roughly circular plug 5000 feet in diameter. This rock type, apparently a member of the Topley Intrusions was not previously described by either J.E. Armstrong or H.W. Tipper. In composition, the quartz latite porphyry is similar to the granite which it intrudes, the major difference being the lower percentage of quartz.
  - 50% - pink K-Feldspar phenocrysts, 2 mm, euhedral, fresh.
  - 15% - white plagioclase, phenocrysts, 1-2 mm, subhedral to euhedral, green alteration common.
  - 10% - rounded quartz phenocrysts, 1 mm.
  - 5% - biotite, 1-3 mm, magnetite and minor accessory minerals.
  - 20% - aphanitic pink matrix, mainly quartz and K-Feldspar.
3. Volcanic rocks overlie the quartz latite porphyry and granite 4000 feet west of the Bingo Group. These rocks are mainly andesitic and basaltic

flows of the Ootsa Lake and Endako Groups, ranging in age from Upper Cretaceous to Oligocene (3-1963). Contact between quartz latite porphyry and volcanics trends WNW at lakeshore along a small creek, then swings NW toward Savory Ridge.

4. A SSE-trending 1000-foot wide biotite andesite dike cuts Topley granites 8000 feet NE of the Bingo Group. The dike outcrops along Francois Lake Road in the vicinity of Glenannon Lodge and two miles NW along strike in the Pat Mineral Claims. The dike was mapped previously by C.W. Ball, July 1963 (2).

#### PETROGRAPHY

The following rock types were identified within the Bingo Group:

1. Granite

The pink granite which forms the principal rock type of the Bingo Mineral Claims is uniformly medium-to coarse-grained, slightly-porphyrific granite. Subhedral perthitic K-Feldspar phenocrysts range up to 6 mm in length, averaging 3-4 mm. The K-Feldspar is fresh and unaltered, and lends the characteristic pink colour to the rock.

Smaller, 1-3 mm euhedral white oligoclase phenocrysts ( $an_{13-18}$ ) are normally-zoned, with the calcic cores commonly altered to a light green argillic mixture of Kaolinite, calcite

and sericite.

Biotite commonly occurs as euhedral plates and "books" up to 4 mm in size, and rarely as a secondary mineral in fine platy masses and veinlets penetrating primary minerals. Rims of biotite grains are usually partially altered to magnetite and chlorite, and grains commonly enclose minute zircon crystals with striking pleochroic halos.

Glassy anhedral quartz grains containing myriad tiny inclusions of rutile, zircon and apatite poikilitically enclose all minerals except K-Feldspar.

Other accessory minerals present are magnetite, pyrite, ilmenite, hematite sphene, leucoxene, limonite and epidote.

The average composition of the granite is as follows:

- 45% Perthitic K-Feldspar
- 34% Quartz
- 14% Oligoclase
- 5% Biotite
- 2% Accessory minerals

Granite in the Bingo Group differs from Endako Mine granite in its tendency to equigranularity, its fewer and smaller K-Feldspar phenocrysts, and its lack of intense kaolinitic alteration of plagioclase.

2. Aplite

Aplite dikes are common within a SE-trending, 3000-foot wide zone across the NE corner of the Bingo Group. Dikes range in size from a fraction of an inch to 70 feet wide, the average thickness being 4 inches. In colour aplites vary from pale pink to pinkish buff and have a very fine-grained sugary texture. In thin section, aplite displays myrmekitic intergrowths between equigranular perthitic K-Feldspar, oligoclase (an<sub>15</sub>), and quartz. Except for lack of mafic and metallic minerals, aplites are very close in composition to granite, the average composition of four specimens being:

- 47% Quartz
- 37% Perthitic K-Feldspar
- 14% Oligoclase
- 1% Accessory minerals, - apatite, rutile, zircon, pyrite.

Several aplites exhibit a segregation of quartz into small rounded phenocrysts adjacent to dike walls, while in a few others quartz has segregated into irregular masses and veinlets in a sub-graphic intergrowth with the aplite. One such quartz "vein" located on Bingo No. 31 is a barren pegmatitic mass of quartz 20 feet long and 2 feet thick located centrally within a 70-foot wide aplite dike. Another 15-foot wide aplite north of Bingo No. 33 contains a zone of quartz



intergrowths and veinlets, and numerous vugs up to 1½" diameter lined with euhedral quartz crystals. The quartz is barren of mineralization.

3. Alaskite

One occurrence of alaskite was noted on the Bingo Group - a 2" wide alaskite dike on Bingo No. 33. The dike is probably genetically related to an extensive, irregular, E-W body of alaskite north of Endako Mine which shows intrusive relationships with the older Endako Mine granite. Alaskite is texturally similar to aplite but slightly coarser-grained, the average grain size being 1 mm. Alaskite possesses a sugary equigranular texture distinct from the slightly porphyritic hypidiomorphic granite it intrudes. Alaskite is not a purely leucocratic rock since smokey quartz and small amounts of biotite and pyrite impart a colour slightly darker than that usually associated with alaskite. Thin sections of alaskite were not available at time of writing, but macroscopic examination indicates its composition is close to that of aplite.

ALTERATION AND MINERALIZATION

No mineralization was discovered within the Bingo Mineral Claims. Some alteration of granite occurs, including silicification, pyritization, and K-Feldspathization, but no evidence of hydrothermal mineralization was detected.

Silicification of wallrock adjacent to small faults was commonly seen. Zones of silicification seldom exceed one foot in width and no mineralization accompanies the alteration.

K-Feldspar alteration of granite along joints and small faults was noted within Bingo No. 31. Three zones of salmon pink secondary K-Feldspar up to 3 feet wide were discovered in the area, but no quartz veins or molybdenite mineralization accompanies the K-Feldspar as is the case in the Endako orebody to the north.

Pyritization occurs in a 50-foot wide, northerly-trending shear zone on Bingo No. 36. Numerous closely-spaced fractures have rendered the granite permeable to hydrothermal fluids. Plagioclase is completely altered to a light green argillic mass and fine-grained pyrite is disseminated throughout the granite. No economic mineralization was discovered.

#### STRUCTURAL TRENDS

Joints, faults, dikes and shear zones were mapped over the Bingo Group, and regional structural trends have been depicted on the accompanying map. Two zones of strong, NE-trending joints located on the NW corner of the Bingo Group correspond to well-defined lineaments evident on aerial photographs. Less well-defined zones of SE joints, N and ESE joints and faults in the central and eastern portions of the claim group are less evident on aerial photographs. In general the Bingo Group granite is relatively dense and unfractured in comparison with the Endako Mine granite to the north, rendering it

a less-favourable host rock for hydrothermal alteration and mineralization.

An interesting structural feature of the area is a broad, ESE-trending swarm of aplite dikes across the eastern half of the claim group. This dike swarm includes a well-defined ESE zone of siliceous aplites, quartz segregations and small faults, in the NE corner of the Bingo Group. Silicification and K-Feldspar alteration occur within this zone indicating the possibility of mineralization.

#### CONCLUSIONS

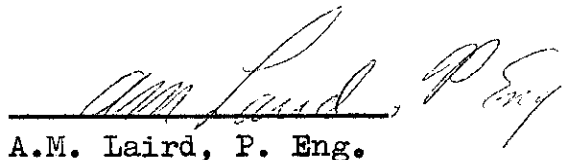
The proximity of the Endako orebody and the rough similarity in lithology render molybdenite mineralization in the Bingo Group a possibility not to be entirely overlooked. While structure and alteration appear generally unfavourable to mineralization, an ESE zone of aplite dikes, silicification and K-Feldspar alteration contains possibilities of mineralization.

Textural and compositional differences between granite of the Bingo Group and Endako Mine granite have been noted by other workers in the area (4-1965), and elongated E-W bodies of the two granites have been delineated on a regional scale. Structural evidence indicates granite of the Bingo Group is a younger differentiated phase of the Topley Intrusions than the Endako Mine granite. Hence the likelihood of molybdenite mineralization in the Bingo Group is considerably reduced.

Several studies of the petrology and petrogenesis of the various phases of the Topley Intrusions are presently in progress. The findings of these investigations will doubtlessly aid in mineral exploration.



K.M. Dawson



A.M. Laird, P. Eng.

emg/KMD

13th September, 1965

cc: H.J. Matheson

F.V. Hendershot

E.T. Kimura

File: Vancouver Office

A P P E N D I X

STATEMENT OF EXPENSES

1. Geologist - field mapping, June 30 - July 22, 1965	
96 hrs. @ \$5/ hr.....	\$ 480.00
Geologist - map preparation, Sept. 6 - 10, 1965,	
34 hrs. @ \$5/hr.....	170.00
2. Assistant - field mapping, June 30, 1965.	
8 hrs. @ \$2/hr.....	16.00
3. Vehicle time - 13 days @ \$15/day.....	195.00
	<u>195.00</u>
	<u>\$ 861.00</u>

R E F E R E N C E S

1. Armstrong, J.E., Fort St. James Map-Area, Cassiar and Coast Districts, British Columbia; Geological Survey Canada Memoir 252, p. 96, 1949.
2. Ball, C.W., Geological and Geochemical Report on Bingo Nos. 11-30 Mineral Claims for Copper Ridge Mines Ltd., Francois Lake Area, 93 K/3 SE, Omineca M.D., B.C.; p. 3, 1963.
3. Tipper, H.W., Nechako River Map-Area, British Columbia; Geological Survey Canada Memoir 324, p. 41, 1963.
4. Bright, Ted, Personal communication, September, 1965.

# ENDAKO MINES LTD. (N.P.L.)

ENDAKO, BRITISH COLUMBIA

14, September 1965

Mr. G.H. Beley  
Mining Recorder  
Box 340  
Smithers, B.C.

Dear Mr. Beley,

This letter is to inform that geological work covered in attached "Geological Report on the Bingo Nos. 1-10, 31-40 Mineral Claims" was undertaken by Mr. K.M. Dawson, geologist for Endako Mines Ltd. (N.P.L.)

Mr. Dawson graduated from the University of British Columbia in 1964 obtaining a Bachelor of Science degree in Honours Geology. He is currently enrolled at the same university to obtain a Doctorate degree in geology; his thesis topic will delve on the geology of the Endako Mines area. During his undergraduate years Mr. Dawson has been employed as student assistant and field geologist for Canex Aerial Exploration Ltd., Vancouver, B.C. and this past summer as geologist for Endako Mines Ltd. (N.P.L.).

I trust that this statement of qualifications is acceptable in accordance with conditions governing acceptance of geological work as assessment work.

Yours truly,

ENDAKO MINES LTD. (N.P.L.)

  
E.T. Kimura,  
Senior Geologist.

cc: H.J. Matheson  
F.V. Hendershot  
4 File

bd/ETK

DOMINION OF CANADA:  
PROVINCE OF BRITISH COLUMBIA.  
To Wit:

In the Matter of Geological Mapping of  
the Bingo Nos. 1-10 and 31-40 Mineral  
Claims

I, Edmond T. Kimura

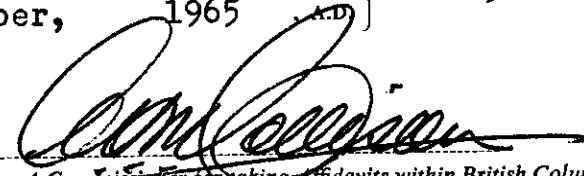
of Endako Mines Ltd. (N.P.L.), Endako, B.C.

in the Province of British Columbia, do solemnly declare that the following expenditures have been incurred by Endako Mines Ltd. (N.P.L.) in carrying out assessment work on the Bingo Nos. 1-10, 31-40 Mineral Claims:

- 1. Geologist - field mapping. Between June 30 - July 22, 1965,  
96 hours @ \$5/hour..... \$ 480.00
  - Geologist - map preparation. Sept. 6 - 10, 1965,  
34 hours @ \$5/hour..... \$ 170.00
  - 2. Assistant - field mapping. June 30, 1965,  
8 hours @ \$2/hour..... \$ 16.00
  - 3. Vehicle time. 13 days @ \$15/day..... \$ 195.00
- \$ 861.00

And I make this solemn declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath and by virtue of the "Canada Evidence Act."

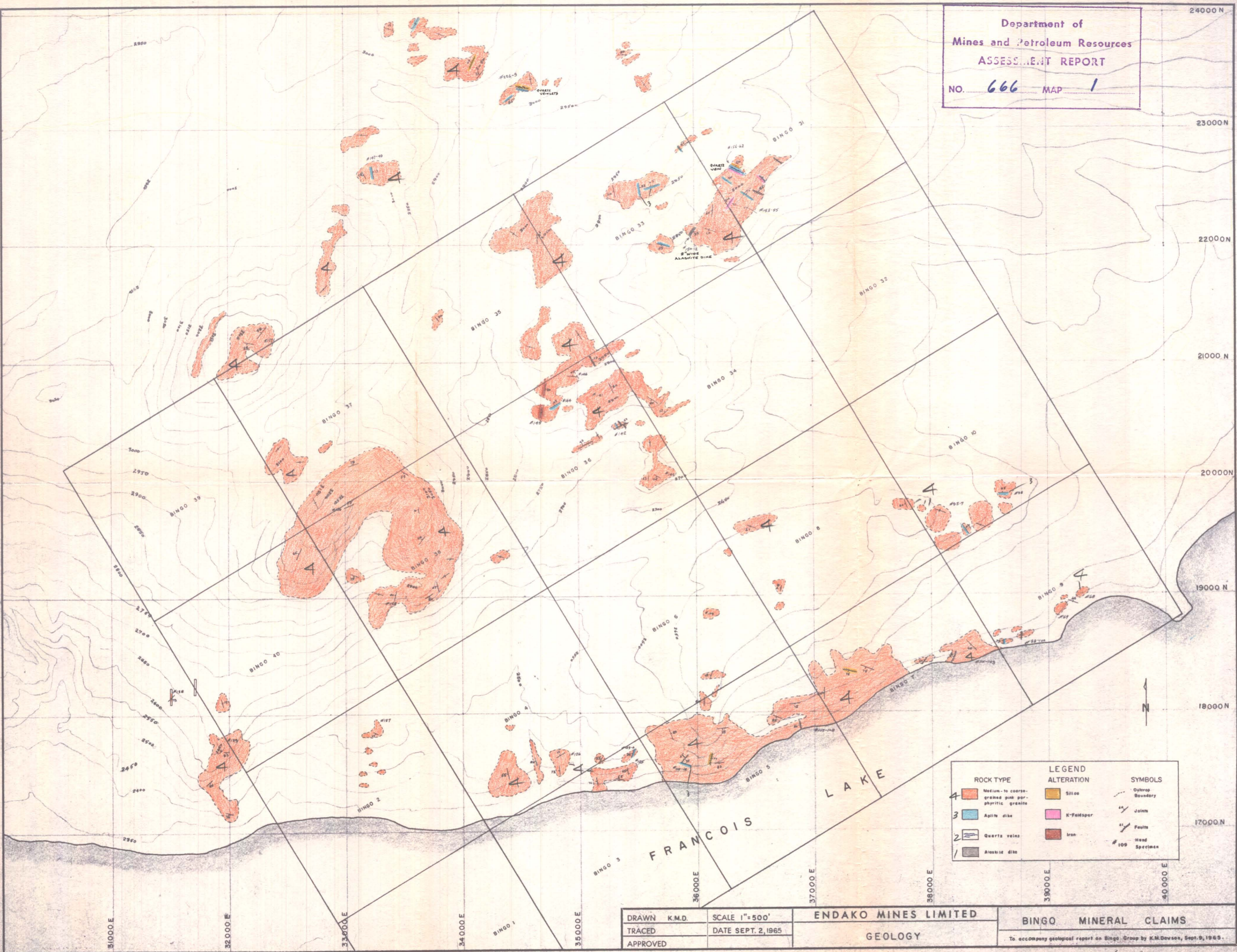
Declared before me at the Village  
of Burns Lake, in the  
Province of British Columbia, this 16th.,  
day of September, 1965 A.D.



A Commissioner for Taking Affidavits within British Columbia or  
A Notary Public in and for the Province of British Columbia.  
Commissioner for Taking Affidavits  
in British Columbia.



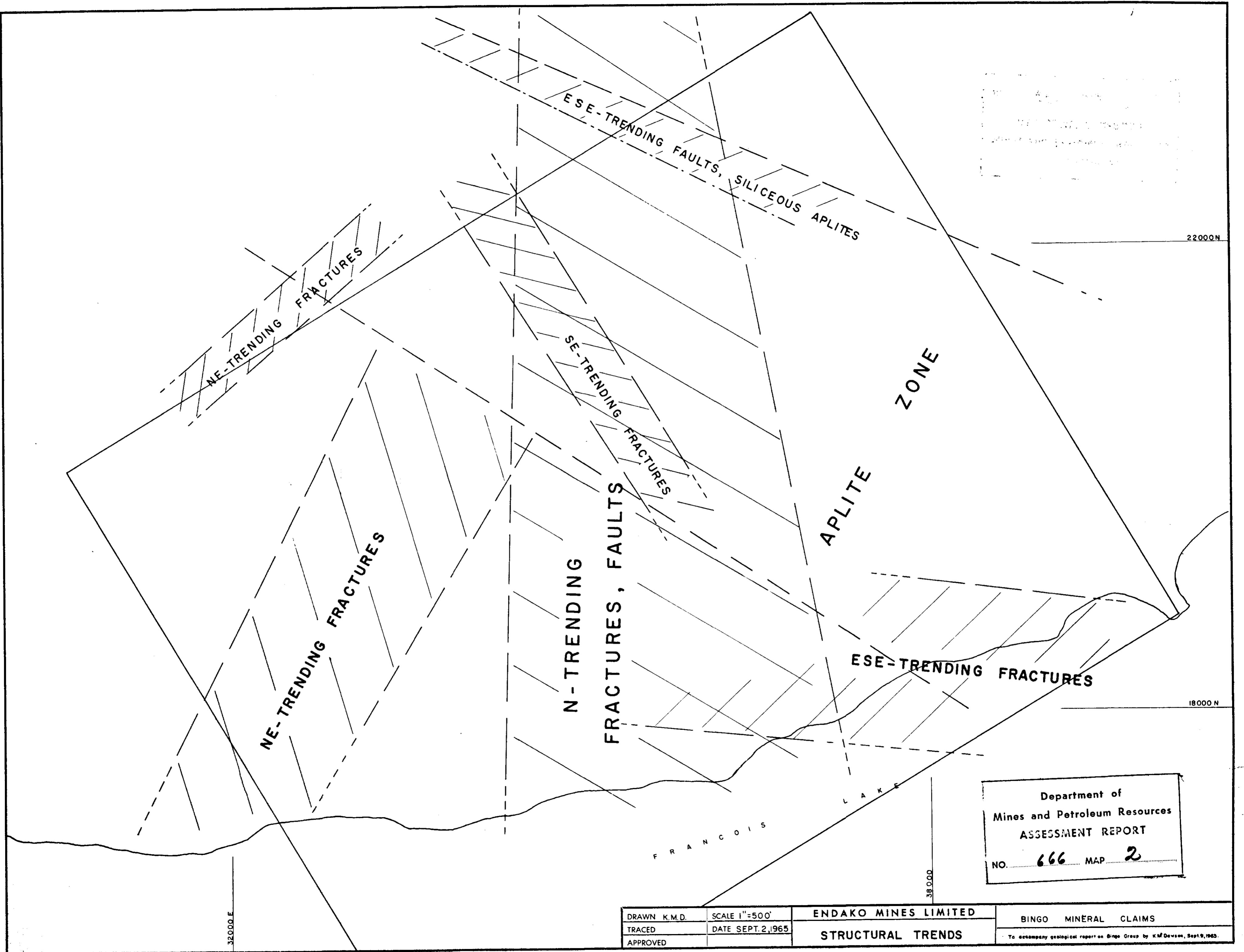
Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 666 MAP 1



ROCK TYPE		ALTERATION		SYMBOLS	
4	Medium-to coarse-grained pink porphyritic granite	Yellow box	Silica	---	Outcrop Boundary
3	Apite dike	Pink box	K-Feldspar	—/—	Joints
2	Quartz veins	Red box	Iron	—/—	Faults
1	Alaskite dike			# 100	Hand Specimens

DRAWN K.M.D.	SCALE 1"=500'	ENDAKO MINES LIMITED	BINGO MINERAL CLAIMS
TRACED	DATE SEPT. 2, 1965	GEOLOGY	To accompany geological report on BINGO Group by K.M. Dawson, Sept. 9, 1965.
APPROVED			

*K.M. Dawson*



NE-TRENDING FRACTURES

NE-TRENDING FRACTURES

ESE-TRENDING FAULTS, SILICEOUS APLITES

SE-TRENDING FRACTURES

N-TRENDING FRACTURES, FAULTS

APLITE ZONE

ESE-TRENDING FRACTURES

FRANCOIS LAKE

Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 666 MAP 2

22000 N

18000 N

32000 E

38000 E

DRAWN K.M.D.	SCALE 1"=500'	ENDAKO MINES LIMITED	BINGO MINERAL CLAIMS
TRACED	DATE SEPT. 2, 1965	STRUCTURAL TRENDS	To accompany geological report on Bingu Group by K.M. Dawson, Sept. 9, 1965.
APPROVED			