

826420

EXAMINATION OF MAGNETIC DISTURBANCE

MERILIA PASSAGE

MILLBANK SOUND. B.C.

W. M. Sirola.

January 16, 1961.

TABLE OF CONTENTS

Page No.

| | |
|---------------------------------------|---|
| Summary..... | 1 |
| Introduction | 2 |
| Schedule of Accompanying Maps | 3 |
| Location of Survey | 4 |
| Procedure of Investigation | 5 |
| General Geology | 6 |
| Results of survey | 7 |
| Cost of evaluating area | 8 |
| Conclusions and Recommendations | 9 |

SUMMARY.

1. The presence of a magnetic disturbance in Merilia Passage was brought to our attention by Mr. W.S. McGowan of West Vancouver, B.C. Merilia Passage is approximately 300 miles north of Vancouver and 25 miles west of Bella.
2. The potential significance of the disturbance lay in the possibility that a commercial deposit of magnetite might underlie the passage and could possibly extend eastward or northeastward to Dowager Island. The Noranda deposit at Kennedy Lake was found by prospector Ed. Chase while investigating a magnetic anomaly which was very briefly mentioned in a 1903 government publication.
3. The islands in the immediate vicinity of Merilia Passage were investigated by means of a fishing vessel chartered at Bella-Bella. Very heavy seas prevented examination of some very small islands but these had no economic significance in any case.
4. The presence of the magnetic disturbance in the Passage was confirmed by ship's compass but no accurate quantitative appraisal was possible from the boat.
5. The islands in the vicinity of the disturbance do not contain magnetite deposits as such. Dip needle variations, however, of from - 38° to 32° were found in one isolated case. This anomalous zone was caused by a minor dissemination of magnetite in the Jurassic Diorites.
6. No further investigation of the area is warranted.

INTRODUCTION

The current Japanese demand for B.C. iron ores together with the relaxation of restrictive Provincial taxes has greatly enhanced the commercial possibilities of the small but high grade magnetite deposits on the West Coast. During the past few years, several deposits described in the early literature on iron ores as being too small to be commercial have proved to be considerably larger than the reports indicated.

The search for magnetite iron ores has been greatly intensified during the past year with the discovery of a 4,000,000 ton deposit at Kennedy Lake located very close to tidewater. This deposit did not outcrop and was covered with 10 - 200 of flatdipping volcanics. A single paragraph in a 1903 publication mentioned an anomalous zone near Kennedy Lake.

We elected to investigate the Merilia Passage disturbance in the hope that a similar situation might exist there.

SCHEDULE OF ACCOMPANYING MAPS

1. Key Map.
2. Map of Merilia Passage.

LOCATION OF SURVEY.

Merilia Passage is located on the West Coast of British Columbia approximately 20 miles N.W. of the fishing village of Bella-Bella at Lat. $52^{\circ} 22'$ n, Long. $128^{\circ} 28'$ W.

PROCEDURE OF INVESTIGATION.

The magnetic disturbance is indicated on Chart No.3728 of the Hydrographic Survey. The extent or degree of the disturbance is not indicated. It occurs on or near the trend line of several known limestone deposits north-west and south-east of Merilia Passage. Consequently the disturbance was a potential indicator of a contact metamorphic type magnetite deposit.

In the normal course of events the obvious travel approach to the problem would be to fly from Vancouver to Ocean Falls via a scheduled B.C. Airlines flying boat and then charter an aircraft or fish boat for the trip to Merilia Passage. However, flights into Ocean Falls are sometimes cancelled for weeks and B.C. Airlines do not operate Charter flights out of Ocean Falls during the winter months. To avoid delays we flew P.W.A. into Port Hardy and chartered an amphibious Beaver to Merilia Passage. We had thought that the Beaver could ferry a small row boat to us from Bella-Bella but heavy seas made it impossible to use a small boat for examining the islands. After carefully scrutinizing the working condition from the air we flew to Bella-Bella and were able to charter a seiner for \$40.00/day. This is quite remarkable considering the fact that such a boat represents a \$40,000.00 investment. From this boat we were able to examine all the areas we considered pertinent. We started our investigation early in the morning of January 11th and finished in the evening of the 12th. We walked the shorelines of the islands taking frequent dip-needle readings and looking for changes in rock type. We cruised Merilia Passage and Moss Passage looking for compass deflections.

GENERAL GEOLOGY

All of the islands in the vicinity of Merilia Passage have abundant outcrop along their shorelines. 75%(approximately) of this outcrop is composed of rather coarse grained (3 - 5 mm) diorites of Jurassic age. The diorites are cut by one set numerous, persistent andesite dykes striking N.W.-S.E. and another set striking E - W approximately. One isolated band of biotite gneiss 50' wide was encountered.

No limestone was encountered on any of the islands. However, Able Hall from whom we chartered the seiner, advised that his step-father had found limestone 30 years ago on Price Island. We were unable to visit this island because of heavy seas.

RESULTS OF SURVEY

We found no compass deflections in Moss Passage but picked up a 15° - 20° deflection in Merilia Passage. It was however, very difficult to determine accurately the degree of deflection, because of the pitching of the boat. We could only cruise through the passage twice before having to run for shelter. Ideally this work should be done in the summer from an aircraft equipped with a magnetometer.

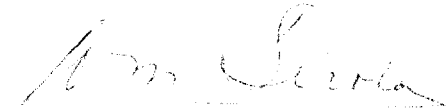
On the islands the diorites normally showed only a few scale divisions deflection. In one isolated instance however, a very small area (1,000 sq.ft.) showed a variation of from - 38° to 32° . This anomaly was caused by 3% - 5% magnetite in the form of distinct 1 - 2 mm. octahedra in calcic feldspar. This occurrence was on the west side of the small island due north of Dallas Island. A similar concentration of magnetite over a larger area under Merilia Passage could possibly account for the compass deflection but the possibility of a submarine contact metamorphic deposit still exists. Since however, it does not extend to Dowager Island it has no economic significance.

COST OF EVALUATING AREA.

The direct cost of the study was approximately \$550. of which 86% was transportation.

CONCLUSIONS AND RECOMMENDATIONS.

No further study of this area is advocated. However, similar compass disturbances whether found by aircraft or boat should be given some consideration. We are aware that any exposed magnetite would in all probability have been found by Indians or prospectors. Overburdened areas would be overlooked.



WILLIAM SIROLA.
January 18, 1961.

DOWAGER ISLAND + VICINITY

SCALE 1" = 1.2 MILES

Price Island

52°20' N

128°30' W

DOWAGER ISLAND

MERILLA PASSAGE

SUB-MARINE MAGNETIC DISTURBANCE

ANOMALY IN DIORITE
-38° TO +32°

DALLAS ISLAND

MOSS PASSAGE

SALAL ISLAND

LADY DOUGLAS ISLAND

3-DENOTES COAST RANGE DIORITE

PRINTED ON CLEARPRINT 1000-H

BRITISH COLUMBIA

EST. POP. 1958 1,563,000

PARTIAL LIST OF CITIES AND TOWNS

| | | | |
|-------------------|------|---------------------|------|
| Abbotsford, 840 | J-8 | Michel | J-14 |
| Agassiz | J-8 | Midway | J-11 |
| Alberni, 4,000 | J-6 | Mission City, 3,500 | J-8 |
| Albreda | F-10 | Moberly Lake | B-8 |
| Alert Bay, 700 | H-4 | Monte Creek | H-10 |
| Alexandria | F-8 | Monte Lake | H-10 |
| Alexis Creek | F-7 | Montney | A-9 |
| Aleza Lake | D-8 | Morictown | C-4 |
| Alice Arm | B-2 | Mt. Robson | E-10 |
| Ambsbury | C-3 | Moyle | J-13 |
| Anahim Lake | F-5 | Mynaster | J-10 |
| Armstrong, 1,250 | H-10 | Nadina River | D-4 |
| Arras | B-9 | Nakusp | H-11 |
| Arrowhead | H-11 | Nanaimo, 13,800 | J-6 |
| Ashcroft, 805 | H-9 | Naramata | I-10 |
| Ashcroft Manor | H-9 | Natal | I-14 |
| Aspen Grove | I-9 | Needles | I-11 |
| Balfour | I-12 | Nelson, 7,500 | I-12 |
| Bamfield | J-5 | Nelway | J-12 |
| Barrett Lake | C-4 | New Denver, 750 | I-12 |
| Barriere | G-9 | Newgate | J-13 |
| Bella Bella | F-3 | New Hazelton | B-4 |
| Big Creek | G-7 | New Westminster | J-10 |
| Birch Creek Lodge | F-11 | 35,000 | J-7 |
| Bloedel | I-5 | N. Bonaparte | G-9 |
| Blue River | F-10 | N. Vancouver | J-6 |
| Boston Bar | I-8 | 22,000 | I-7 |
| Boswell | I-12 | Ocean Falls | F-3 |
| Bowler | I-6 | Okanagan | H-10 |
| Brentwood Bay | J-7 | Okanagan Falls | I-10 |
| Bridesville | J-10 | Okanagan Landing | H-10 |
| Britannia Beach | I-7 | Olalla | I-10 |
| Buckley Bay | I-6 | Oliver, 1,150 | J-10 |
| Burns Lake, 1,016 | D-5 | 100 Mile House | G-9 |
| Butedale | E-3 | 150 Mile House | F-8 |
| Cache Creek | H-9 | Oona River | D-1 |
| Cameron Lake | J-6 | Ootsa Lake | D-5 |
| Campbell River | I-5 | Osoyoos, 900 | J-10 |
| 3,509 | I-5 | Oyama | I-10 |
| Canoe | H-10 | Oyster River | J-5 |
| Carquille | H-8 | Parksville, 1,100 | J-6 |
| Cascade | J-11 | Paterson | J-11 |
| Cassidy | J-6 | Pavilion | H-8 |
| Castlegar, 1,800 | J-11 | Peachland | I-10 |
| Chapmans, 600 | I-8 | Pendleton Bay | C-5 |
| Charlie Lake | A-9 | Pentlton, 12,000 | I-10 |
| Chase | H-10 | Pioneer Mine | H-2 |
| Cham View | | | |

STEAMER SERVICE ALONG THE PACIFIC COAST BETWEEN VICTORIA, VANCOUVER AND PRINCE RUPERT, OPERATED BY CANADIAN NATIONAL S.S. COMPANY AND CANADIAN PACIFIC RY. S.S. LINES.

TREND OF L.S. DERIVATS

QUEEN CHARLOTTE ISLANDS

MELILLA PASSAGE

D
E
F
G
H