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A HISTORICAL DEVELOPMENT  
of the  
METALLIFEROUS DEPOSITS  
of  
VANCOUVER ISLAND

An essay submitted in partial fulfilment  
of requirements of the Course in Applied Science,  
third year at the University of British Columbia.

W. L. Brown

November 15 1947

The essay is easy to read but I think the  
writer might have read "Blakey and Cooke" and  
indexed these references more satisfactorily.

What about the iron ore of Zeballos, Quinsam? and  
the stories of the Spaniards getting gold on the West  
Coast from the Indians? The reader is lead from  
"foreword" to expect some observations on the Geology  
of the area. None is forthcoming! P.W.

Presentation 24/35

Matter 18/25

Eng. 24/40

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4383 West 9 Avenue  
Vancouver  
British Columbia  
November 15, 1947.

The Faculty of Applied Science  
The University of British Columbia  
Vancouver, British Columbia.

Gentlemen:

I submit herewith an essay on "A HISTORICAL  
DEVELOPMENT of the METALLIFEROUS DEPOSITS of VAN-  
COUVER ISLAND", required in partial fulfilment of  
the Course in third year Applied Science.

Respectfully yours,



W. L. Brown.

## F O R E W O R D

The subject for this essay was chosen by the student because he felt that he would become familiar with the names of the men and localities that play a dominant role in the development of Vancouver Island. Much could be learned about the geology of Vancouver Island and the sources of information available on the subject.

Rather than just give a collection of facts and figures this essay will attempt at various points to explain the reasons behind the development or stagnation in some parts of the Mining Industry on Vancouver Island.

W. L. Brown


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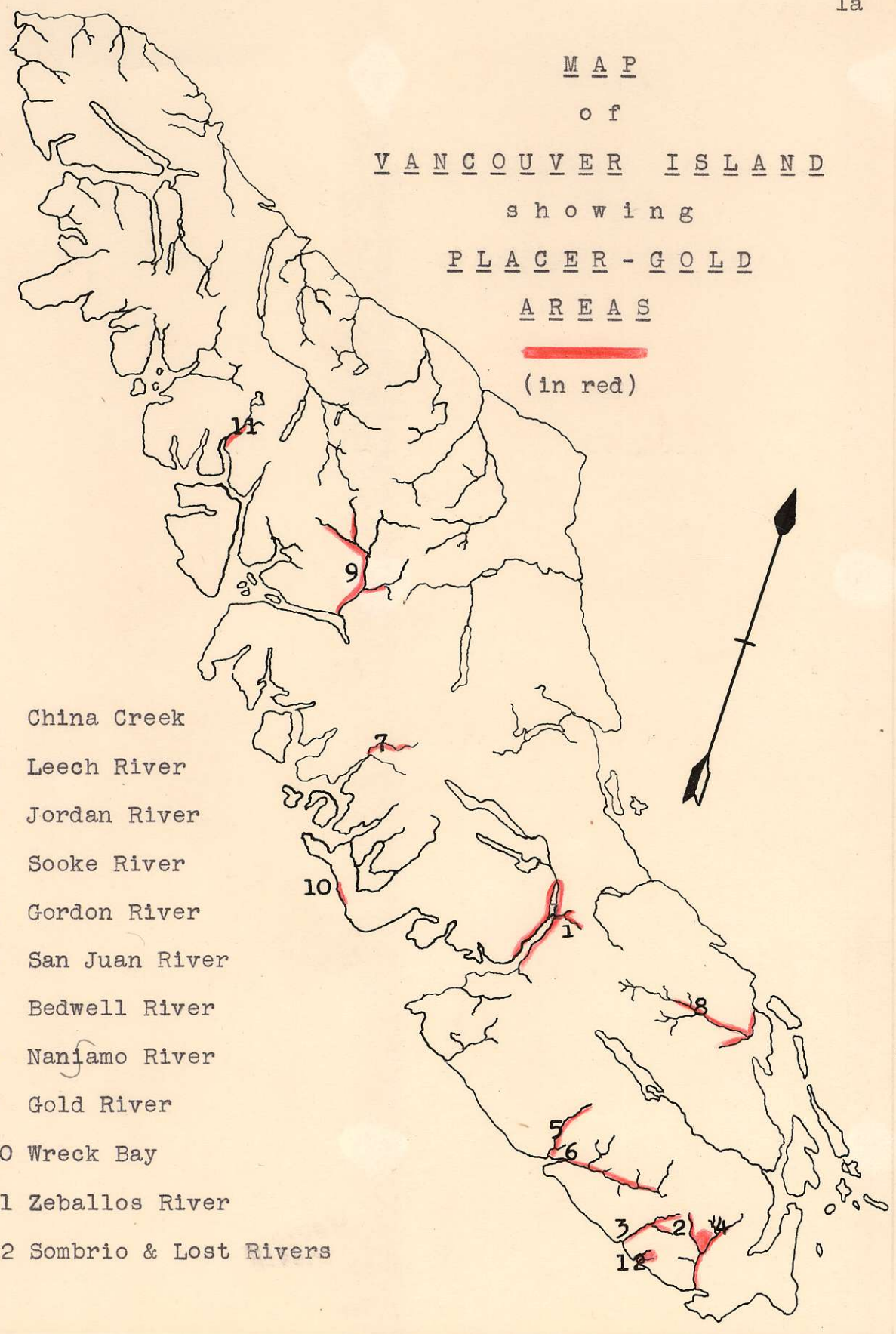
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M A P  
 o f  
V A N C O U V E R I S L A N D  
 s h o w i n g  
P L A C E R - G O L D  
A R E A S

  
 (in red)

- 1 China Creek
- 2 Leech River
- 3 Jordan River
- 4 Sooke River
- 5 Gordon River
- 6 San Juan River
- 7 Bedwell River
- 8 Naniamo River
- 9 Gold River
- 10 Wreck Bay
- 11 Zeballos River
- 12 Sombrio & Lost Rivers



A HISTORICAL DEVELOPMENT  
of the  
METALLIFEROUS DEPOSITS  
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VANCOUVER ISLAND

PLACER-GOLD

The history of the exploitation of the mineral resources of Vancouver Island follows much the same pattern as that for most of the mining areas of this continent. The rich deposits of placer-gold attracted men into the hinterland. When these deposits were eventually mined out the miners started looking further afield and discovered the lode deposits that finally lead to the development of a mining industry.

The British Columbia Department of Mines Bulletin No. 21, "Notes on Placer-mining in B. C." published in 1946 states that placer-miners have worked the following streams



and rivers of Vancouver Island; China and Loss creeks, Leech, Gordon, Jordan, Sooke, Sombrio, San Juan, Bedwell, Naniamo, Gold, and Zeballos rivers. Of these, it is possible that the first was China creek which flows into Alberni Canal. There are numerous reports that some Chinese prospectors were working this creek as early as 1862. It is also reported that this creek yielded about \$40,000 in fine gold. Where these Chinese came from or how they discovered the deposits on China creek is not reported, but a good guess would be that they came from the placer-fields of California.

In the year 1864 the Vancouver Island Exploration Company under the command of Commander Verney started out from Victoria to determine the natural resources of the Island. This expedition was financed by public donations from the people of Victoria and had the blessings of the Government headed by Sir James Douglas. The largest placer-gold rush on Vancouver Island came as a direct result of this expedition. Lieutenant Peter Leech while under the direction of Commander Verney to explore the south-western area of the island discovered gold along a tributary of the Sooke river ten miles from its mouth. This river now bears his name and it is reported that in two years between \$100,000 and \$200,000 were taken from this placer deposit. In the reports of G. M. Dawson he mentions that the gold was coarse and nuggety and

that as high as thirty-four dollars to the rocker was made in 1864.

Owing to the number of miners participating in this rush the beds of Leech river were soon exhausted for the placer methods of the miners. Around 1890 the Gordon Hydraulic Mining Company (Ltd) acquired large tracts on the benches halfway between the Sooke and Leech rivers. There are no available reports as to the extent of the operations but the ground must have proven profitable for work on these benches continued more or less regularly until 1941.

During the Leech river gold-rush placer-gold was discovered on Jordan river which flows into the sea about twenty miles to the north-west from the mouth of Sooke river. Gold valued at \$30,000 was mined within a few months of discovery by "crevicing" the bedrock.

Bedwell river was being worked about the same time as the operations on China creek. Thirty Chinese and White prospectors were still working the claims in 1893.

In 1895 there were many claims and hydraulic leases along China and Franklin rivers and their tributaries Mineral and Grant's creeks. In fact, during this period both sides of Alberni Canal were extensively prospected.


The beach placer-gold field, a three mile stretch of beach at Wreck Bay and the mouth of the Nahwitte river on the west coast, was extensively worked for three years, 1899 to 1901. During this period \$20,000 in fine gold was recovered. The operations possessed several difficulties. The major constituent of the sand was magnetite. This naturally proved a problem in the recovery of the fine placer-gold when using the rocker and sluice methods and it was only a careful miner who could make the property pay. Another factor that hindered operations was that the miners could only work after a storm had repiled the sand above the normal tide mark. There are several sketchy reports about these beach placers being worked since 1901 but it appears that the operations were not of sufficient scope to warrant any official report.

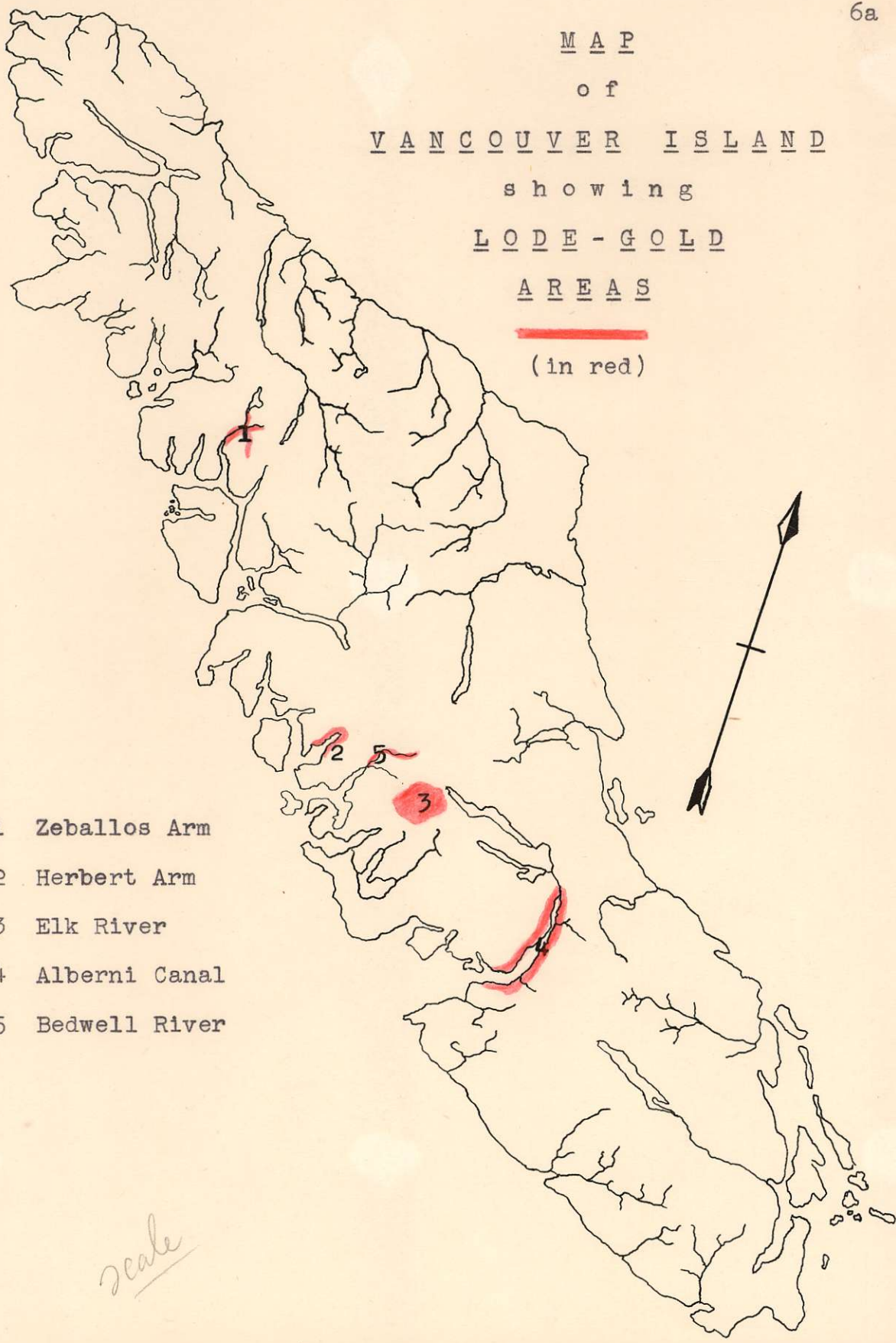
In 1909 <sup>286</sup> ~~two hundred eighty six~~ acres of land on the southern shore of Vancouver Island where the Lost and Sombrio rivers empty into the Straits of Juan de Fuca were crown-granted for the purpose of starting the largest hydraulic operation to work on the Island. The estimated value of the gravel was fifteen cents to the yard. This appeared sufficient for a profitable enterprise. However after spending \$35,000 on development work in putting in pipe, flumes and buildings the operations closed down to obtain

more capital without making any gold recovery. There is no evidence that the company ever resumed operations for in the British Columbia Minister of Mines Report of 1915 is the statement that the Sombrio river project is still awaiting capital.

Activity in placer-mining for gold on Vancouver Island began slowing down after a profitable period of about forty-five years. There were still small workings of individual miners going for many years after the turn of the century but it appears that the rich fields were soon worked out and no new ones were discovered to replace them. So the prospectors on the Island turned to developing and discovering lode-gold deposits. This type of deposit was discovered because the placer fields had begun to open up the hinterlands of Vancouver Island.

M A P  
o f  
V A N C O U V E R I S L A N D  
s h o w i n g  
L O D E - G O L D  
A R E A S

  
(in red)

- 
- 1 Zeballos Arm
  - 2 Herbert Arm
  - 3 Elk River
  - 4 Alberni Canal
  - 5 Bedwell River

*scale*

LODE-GOLDZeballos Arm Area

As early as 1904 reports of placer-gold on the Zeballos River were recorded and there was considerable prospecting activity around this time. However it was not until 1924 that the first gold vein was staked in the area. This was on the Tagore property about two miles up the Zeballos River from its mouth. In 1929 the first shipment consisting of two tons of high-grade ore left Tagor.

There are few reports of the activities in the Zeballos area until 1934 when the first of the gold bearing quartz veins was staked at the White Star properties. The first shipments were made during the winter of 1934-35.

The main vein at Privateer Gold Mines was staked in 1936 and shipments of ore started the following year. This was the start of the largest present gold producer on Vancouver Island. Privateer subsequently took over the mining of the adjoining Prident property and at the present time both are under the same production staff.

The great rush came to the Zeballos Arm area during 1938 when practically every accessible part of the territory was staked irregardless of the surface showings. During this year there were over thirty companies employing approximately

400 men prospecting, developing, and mining the area. This year saw the start of the Central Zeballos and Spud Valley mines in Spud Valley.

Two amalgamation-cyanide mills were installed in 1938; a seventy-five ton mill at Privateer and a fifty ton one at Spud Valley.

The mines of the area operated continuously until the shortages during the war forced them to close. However, during the winter of 1945-46 Privateer, Prident, Central Zeballos, and Spud Valley resumed operations.

#### Herbert Arm Area

The advantage of the properties in this area is that they are near tide water. The four important properties are Big Boy, Boyeka, Tyee, and Abro. The first staking was done in 1933 and prospecting and development work continued until 1935. In 1938 Premier Gold Mines Ltd. did underground development work on the Abro claims but the results are not known. It may be assumed that since there is little mention of activity in the area since this time, these results were not satisfactory.

#### Tranquil Creek - Wain Bay Area

There were several mining claims staked in the late

1890's. Some of the crown-granted land that had been granted at this time is still in good standing. Most of the work in the area was done before 1904. In the late '30's there were some gold-quartz veins staked and developed.

#### Elk River Area

This is the area lying between Great Central Lake and the west coast. Around 1900 a four-stage mill was put in on the Rose Marie property for a couple of seasons. But there seems little to report about the area since that time.

#### Alberni Canal Area

This was perhaps the first area on the Island in which lode-gold deposits were found. This can be attributed to the placer rushes of 1862. Prospecting for the lode deposits started in 1892. For a period of about eight years there was a good deal of activity but nothing close to a big producing mine came into existence. It was not until 1933 that this area began producing. In this year the Vancouver Island Gold Mines, Ltd. explored veins on the Alberni Consolidated ground on Mineral Creek. This company put in a thirty-five ton pilot mill but they were only in operation for three years closing down in 1936.

In 1936 the Halivilah Gold Mines, Ltd. opened up veins above the King Solomon Basin and shipped a small quantity



of ore between 1936 and 1939.

Between the years 1938 and 1942 there was some high-grade ore shipped from the Thistle property of Franklin River.

#### Bedwell River Area

There are brief reports that the Chinese placer-miners worked the area in the sixties and abandoned it in the late eighties. From 1898 on there was some development of the gold-bearing veins and the copper replacement deposits. It was not until 1938 that any real activity took place in the area. Pioneer Gold Mines of B. C. and Anglo-Huronian Ltd. took an option on seventy-nine percent of the Shamrock and Muskateer groups on Sam Craig Creek. They carried on underground development work until 1939 but there are no reports of any substantial shipments of ore being made.

By the end of the year 550 claims had been recorded as far inland as the north-west slope of Big Interior Mountain, the head of You Creek, and the upper reaches of Ursus Creek. Special interest was taken in the gold-bearing veins that were only a few inches in width.

COPPER

As early as 1790 the Spaniards established a garrison at Nootka Island commanded by Juan San Francisco Elisa. His aides Galiano and Valdez recorded that the \*"Nootka Indians possessed copper bracelets which they engrave with good design." It is doubtful that these Indians obtained their native copper from the surrounding country for no traces of this mineral has been found thus immediate to Nootka Island. It is more probable that they got it farther south for these natives were good boatmen and travelled great distances up and down the west coast. G.M. Dawson states in 1864 that at Sooke, Vancouver Island, copper occurred in the native state as thin leaves transversing green chlorite or diabase rocks. A specimen assayed at the time was only 1.02% copper. About this time a 120 foot shaft was sunk into this deposit but was abandoned without any great recovery of the ore.

The most outstanding copper ore deposit was discovered at Mount Sicker in 1897. This was the Lenora claim, staked on a large showing of copper bearing rock. The fact that the ore occurred in lenses in the schists was not known at this time so when drifting failed to find a vein the British

\*B.F. Townsley, "Mine-finders, The History and Romance of Canadian Mineral Discoveries." 1935; pp 149-150

interests dropped the enterprise. However the following year another company the Lenora - Mount Sicker Copper Mining Company Limited took over and found other lenses. It was reported that during the year 1897-1898 considerable gold-copper ore was shipped.

Another mine on the same mountain was the Tyee. It followed only a few months after the establishment of the Lenora mine. The company sank a shaft only fifty-five feet and hit a body of almost solid chalcopyrite. The Tyee shipped its ore to England until 1902 when they established a smelter at Ladysmith, Here they used some of the surrounding schists as a flux. These schists were a double asset for they contained in themselves approximately two percent copper and small values in gold and silver.

These two mines and another the Richard III produced 253,000 tons of copper ore between 1898 and 1909.

In July 1943 the Twin "J" Mine, Ltd. took over an amalgamation of the Lenora, Tyee, and Richard III and worked under a contract with Wartime Metal Corporation from the beginning of 1944 until the middle of the same year. They ceased operations when the contract expired. They produced 34,893 tons of copper ore between July 1943 and May 1944 which yielded 17,341 pounds of copper and 1,493,604 pounds of zinc.

### ZINC

The discovery and production of zinc on Vancouver Island has only been incidental with that of other associated minerals.

The main producer of zinc was the "Twin "J" Mine which produced 1,493,604 pounds between July 1943 and May 1944 while under contract to Wartime Metal Corporation.

Before this time there was little mention of the zinc recovery from these properties on Mount Sicker. The ore was <sup>s</sup>projected and developed for its gold-copper content.

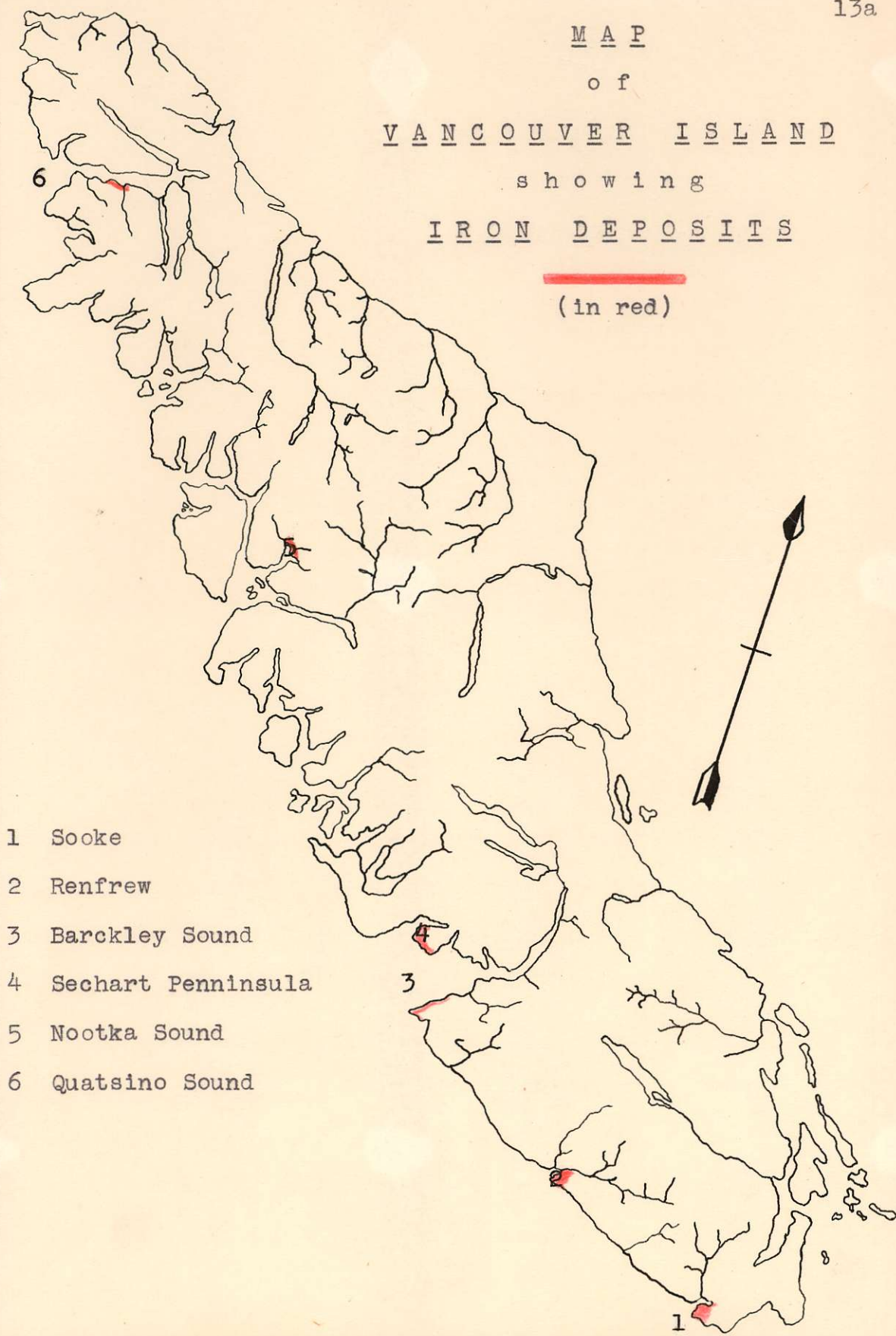
### MERCURY

Mercury was first reported in 1890 in the Geological Survey of Canada report of that year. The property was crown-granted two years afterwards and by 1911 there seems to have been considerable development work done. During this period it was known as the Balm<sup>o</sup>ral group. However the grant lapsed and the ground was re-crown-granted in 1921 under the name of Sechart. It remained idle until 1927 when it was acquired by the Mercury Mines Company Ltd. No official report as to the amount of mercury produced is available. It appears that this property at Sechart and Wreck Bay only went as far as the exploration stage.

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I R O N D E P O S I T S  

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IRON

The presence of iron ore on Vancouver Island has lead to much conjecture as to the possibility of starting an iron and steel industry in Western Canada. The factors hindering such an enterprise are numerous so only the outstanding ones will be mentioned. The nature of the deposits will not allow any large scale mining operation to last any length of time at one location. The iron ore is in relatively small localized deposits which stretch for approximately two hundred miles along the west coast of the Island. Thus the necessity of either moving large equipment when one deposit is exhausted or running several small-scale operations simultaneously with a resultant loss in efficiency. There is not at present any supply of cheap coke readily accessible to the iron deposits. Lastly, in the west, there is not the sufficient market for the products of a large and efficient iron and steel industry so that some of these products would have to be exported. This would increase the price and decrease the chances of the industry competing with the east.

We see by the foregoing that a western iron and steel industry using the iron ore of the west coast of Vancouver Island could not at the present time compete with the established industry in the east. However, when the eastern

industry exhausts its rich supply of high grade ore and finds it necessary to use enrichment processes the estimated twelve million tons of iron ore on Vancouver Island may become of commercial value.

Interest in the iron deposits started in 1874 when three Americans Goodall, Perkins, and Prescott of San Francisco engaged W. H. Lee to examine the magnetite on the west coast of Texada Island. This trio subsequently purchased the properties the following year and the Puget Sound Iron Company was formed to start the manufacture of charcoal pig-iron. A blast furnace was erected at Irondale near Port Townsend, Washington. The magnetite from Texada Island was mixed with bog-ore from Hamilton, Washington.

Up until 1907 great interest was taken in the deposits along the west coast of Vancouver Island in the hope of finding sufficient ore to maintain a B. C. industry. The most serious efforts to put an iron and steel industry on Vancouver Island on a commercial basis was made by Homer Swaney. Unfortunately he was drowned in a coast shipping accident in 1904 at a time when he had been promised sufficient financial backing to proceed. Other attempts were made but these only to procure British Columbian ore for smelting at Irondale. Unfortunately this company failed for financial reasons.

The most important deposits are at several points along the west coast of Vancouver Island. "The most usual ore

is magnetite found near the contact between the crystalline limestone and the eruptives of the Vancouver Series. The average assay runs between fifty-five and seventy percent in iron and has percentage of phosphorous below the "Bessemer Limit".<sup>1</sup> The deposits on the west coast of the Island are on the coast or not exceeding a line ten miles inland. This line drawn up the island from Sooke in the south to Quatsino Sound in the north generally conforms to the contact between the sediments and the general igneous batholith that forms the central part of the island.

#### Properties and Deposits

Sooke: The Sooke properties were first mentioned by G. M. Dawson in 1887. Some exploration work was done here around the turn of the century but little interest has been shown since.

Renfrew District: Prespecting for iron ore was very active in 1898 and the next few years during which time a large number of claims were located. On some of these con-

<sup>1</sup>

W.M. Brewer, M. E., "Iron-ore Deposits of Vancouver and Texada Islands"; B. C. Dept. of Mines Bulletin #3, 1917.



siderable development work was done, namely the Gordon River Group and the Bugaboo Group owned by the Gordon River Iron Company and the Conqueror Group owned by a Victoria mining syndicate. However, work was suspended around 1907 and little interest in these deposits has been shown in the following years. These deposits of iron ore are magnetite and occur on the contact between the Nitinat Marble and the igneous intrusive.

Barkley Sound District: There are no reports as to when this deposit was found but apparently no work has been done here since 1903. The deposit is situated on the Sarita River and is the contact-metamorphic type with ore between crystalline limestone and diorite.

Sechart Peninsula: There are magnetite deposits on the southern slope of the Broughton Range at an elevation of 700 feet. They were discovered in 1890 by a Capt. Anderson who subsequently sold some of his claims to the Pacific Steel Company of

Washington and others to the Tacoma Steel Company of the same state.

Nootka Sound Area: The deposits of this area are at Head Bay on Tlupana Inlet and by all reports seem to be the most favourable of the island deposits. The topography is such that there could be cheap mining and shipping of ore. Estimates made in 1917 by W. M. Brewer and recorded in Bulletin No. 3 of the B. C. Dept. of Mines were 250,000 tons of ore available for quarrying with a possible or probable 100,000 tons underground. This latter estimate cannot be considered as accurate because at the time it was made there had not been sufficient development work done to determine the depth of the body or its continuity. In 1917 one-third of the property was held by Clarence Dawley of Clayoquot and the other two-thirds held by the Canadian Collieries (Dunsmuir) Limited.

Quatsino Sound: The iron ore deposits in this area are bog-iron, a form of limonite. Some ore was shipped to Irondale, Washington in 1907 but there is no evidence of any more work being done since.

Estimates for all the iron ore on Vancouver Island including both magnetite and limonite as made by Brewer in 1917, B. C. Dept. of Mines Bulletin No. 3; are as follows.

Actual	470,000	Tons
Probable	4,537,000	Tons
Possible	7,880,000	Tons
Total	12,887,000	Tons

It must be remembered that this tonnage estimate may be inaccurate because of the state of development of some of the properties at the time it was made. Also this tonnage is stretched over a line of approximately 260 miles in length along the west coast of Vancouver Island segregated in eight definite areas.

## BIBLIOGRAPHY

Annual Report of the British Columbia Minister of Mines,  
Victoria, 1894-1898, pp. 553-554 1131-1146.

Annual Report of the British Columbia Minister of Mines,  
Victoria, 1897-1898, pp. 566-568.

Annual Report of the British Columbia Minister of Mines,  
Victoria, 1901, pp. 1095-1123.

Annual Report of the British Columbia Minister of Mines,  
Victoria, 1909, pp. 146-149.

Annual Report of the British Columbia Minister of Mines,  
Victoria, 1910, pp. 151-163.

Annual Report of the British Columbia Minister of Mines,  
Victoria, 1941, pp. A 69-74.

Annual Report of the British Columbia Minister of Mines,  
Victoria, 1944, p. A 67.

Annual Report of the British Columbia Minister of Mines,  
Victoria, 1945, pp. 116-115.

Brewer, W. M., Iron-Ore Deposits of Vancouver and Texada  
Islands, Victoria, Printed by C. F. Banfield, 1917,  
Canada, British Columbia Department of Mines, Bulletin  
no. 3.

Dawson, G. M., Report on a Reconnaissance of Leech River and  
Vicinity, Ottawa, King's Printer, 1877, Geological  
Surrvey of Canada Report of Progress, pp. 95-102.

BIBLIOGRAPHY

(con't.)

Dawson, G. M., Report on a Geological Examination of the Northern Part of Vancouver Island and Adjacent Coasts, Ottawa, King's Printer, 1886, Geological Surrvey of Canada Summary Report, pp. B 1-107.

Dawson, G. M., Mineral Wealth of B. C., 1889, p. 141.

Lode-gold Developments in B. C. During 1932, Victoria, Printed by C. F. Banfield, 1933, Canada, British Columbia Department of Mines, Bulletin no. 3, pp. 36-37.

Notes on Placer-Mining in B. C., Victoria, Printed by C. F. Banfield, 1946, British Columbia Department of Mines Bulletin no. 21.

Sargent, H., Notes on Certain Properties in the Bedwell River Area, V. I. (as originally printed in Bulletin no. 8 1940), Victoria, Printed by C. F. Banfield, 1942, British Columbia Department of Mines.

Stevenson, J. S., Lode-gold Deposits of Vancouver Island, Victoria, Printed by C. F. Banfield, 1936, British Columbia Department of Mines, Bulletin no. 20, part 5.

BIBLIOGRAPHY

(con't. )

Stevenson, J. S., Mercury Deposits of British Columbia,  
Victoria, Printed by C. F. Banfield, 1940, British  
Columbia Department of Mines, Bulletin no. 5, pp. 85-95.

Townsley, B. F., Mine-finders, The History and Romance of  
Canadian Mineral Discoveries, New York, MacMillan,  
1935, pp. 149-150 175-176.