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ANNUAL REPORT OF THE MINISTER OF MINES  
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Part F -- Special Report  
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WRECK BAY. Wreck Bay is an exposed bay a few miles north from Barkley Sound on the West Coast of Vancouver Island. It is north-westerly from Ucluelet, and may be reached from that village by  $7\frac{1}{4}$  miles of automobile road and then by 1 mile of good trail to the seashore; it is understood that most of this trail has been improved to a road.

The beach extends for 3 miles between two rocky headlands and represents a retrograded shore, concave seawards and backed by an escarpment or sea cliff of interglacial superficial deposits designated as the Wreck Bay formation by Dolmage.

The foreshore of the beach, i.e., that width between high and low tides, is approximately 100 feet wide, whereas the backshore, that width between high tide and the base of the sea-cliff, ranges between 25 feet and 50 feet in width. The foreshore is mostly clear and lacking in boulders, but the backshore consists of low boulder ridges and numerous piles of driftwood.

Wreck Bay beach has long been known for its content of gold-bearing black sand; beach claims having been located as early as 1899 and the beach worked intermittently ever since. There is no definite record extant of the total amount of gold obtained, but that it must have amounted to several thousands of dollars is indicated by the report, that in 1920 the Ucluelet Placer Mining Company, the largest to operate, obtained \$9,400 worth of gold from 600 yards of gravel. This company and the other groups apparently worked portions of the beach down to the blue clay, the top of which occurs at depths ranging from the surface of the beach to 20 feet and more below the surface. Concentrations of the black sand appear to have been greatest after severe storms, and some persons have made a practice of working the beach after such periods of extreme agitation and jiggling of the beach sand.

The great number of people who have worked the beach and the general poor reward for efforts during the last few years would indicate that the economically-obtained gold, concentrated by the waves from the sea-cliff since the ocean first started to wash them, had been obtained and, although concentration is still going on, sufficient time has not elapsed for workable deposits to be formed again. As a result, attention has lately been directed towards the material in the sea-cliff.

The sea-cliff is the front of a gravel plain that extends from the beach back north-eastward to Kennedy Lake, a distance of 4 miles, and ranges in height at the beach from 63 feet to 145 feet.

The material of this plain as exposed in the sea-cliff consists of a well-stratified series consisting of a basal clay and overlying sand and gravel. The clay is distinctly blue in colour, and occurs partly as discontinuous lenses a few inches thick in the sands, but mainly as a discontinuous basal layer as much as 20 feet in thickness, and frequently exposed at the base of the cliff. It is reported that pits dug into the beach have

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encountered a similar thickness, but have never penetrated the clay to the expected bed-rock. The sands and gravels occur in alternating layers from a few inches up to 8 feet in thickness. The pebbles and boulders are well-rounded and range in size from small to 6 inches in diameter, a 2-inch size being very common; with the exception of an occasional boulder erratic in the blue clay, no large, glacial erratics were seen amongst the well-stratified sand and gravel.

The stratification, perfect sorting and succession of material in the cliff, indicate that it is a typical inter-glacial deposit. The basal clay--sand-gravel succession, is characteristic of widespread interglacial material known to extend northwards from the Puget Sound area to Duncan and probably beyond on Vancouver Island, and described as the Puyallup inter-glacial deposit. It has been sub-divided into a basal clay member comprising, on southern Vancouver Island, the Maywood clays, and into an upper coarser member comprising the Cordova sands and gravels. The material constituting the sea-cliff at Wreck Bay has been designated as the Wreck Bay formation by Dolmage.

The sea-cliff extends from one end of the beach to the other, a distance of 3 miles, and in this distance it is cut by only one creek, Lost Shoe Creek, entrenched to a maximum depth of 75 feet in the plain forming the sea-cliff, and issuing onto the beach at a point 1 mile south-east from the northwest end of the beach. A profile of the cliff from one end of the beach to the other indicates that a gentle depression ranging from 30 feet to 40 feet in depth exists between points 1000 feet and 3000 feet north-westerly from the mouth of the creek. The elevation of the cliff at this depression is 63 feet, but 1500 feet north-west it is 100 feet high and south-eastward above Lost Shoe Creek it is 75 feet, rising gently as one goes southward from here; 3000 feet south-east it is 75 feet; 6000 feet it is 86 feet; and at 11,000 feet it is 148 feet.

The depression continues north-eastward across the swampy gravel plain and crosses the Ucluelet-Tofino road about  $1\frac{1}{2}$  miles north-westward from the bridge on Lost Shoe Creek; at the crossing the depression is about 1000 feet wide and has a maximum depth of 30 feet. Although there is no evidence available in the nature of the gravel or sands as seen in the sea-cliff, yet the topography of the depression would indicate that it may have been the bed of a stream, not old but yet not that of a stream of active erosion, that issued from the mountainous country inland, previous to coastal elevation and the diversion of drainage to the site of Lost Shoe Creek which has since actively eroded a deep course in this elevated plain. The material for the Wreck Bay

formation was undoubtedly obtained by the interglacial waters from the mountains situated inland from Kennedy Lake, and a little gold would be obtained by the erosion of the local, narrow, quartz veins carrying gold in small amounts; but the large amount of ground through which the gold, necessarily quite fine, is now dispersed, would make for a low unit content in gold, unless the gold had been concentrated into pay-streaks. A search for these pay-streaks would be difficult, inasmuch as the whole areal extent and depth of the plain would have to be prospected for the course of the main stream, at the time when it was forming placer bars in the short distance, 4 miles, between Kennedy Lake and the beach. Such a course is now undoubtedly buried; the main surface depression existing, at present not necessarily being that of the stream when depositing placer gold.

The black sand and gold found on the beach itself has been immediately derived from the sea-cliff; a pan anywhere from the cliff will show a small amount of gold; but the concentration ratio as between cliff sand and the black sand of the beach, effected by the jiggling action of the waves, has been so great that the black sands do carry appreciable amounts of very fine gold.

To obtain an approximate idea of the amount of recoverable gold both in the Wreck Bay formation and the beach sand, several samples were carefully taken from various places. Except where otherwise indicated, all the samples of gravels and sands were one-quarter cubic-foot samples taken in a container specially designed for the purpose. These were carefully panned down to concentrates ranging between two and five pounds in weight; all panning was done entirely under water to prevent aeration of the material and a consequent loss of fine gold. These two to five-pound samples were then further carefully panned to much smaller samples and then assayed for the total gold content of each sample.

Sample No.	Cents per cubic yard.	General Description.
"a"	122.10	Beach sands.
"b"	26.90	" "
"c"	1.67	" "
"d"	33.50	" "
"e"	5.87	" "
"f"	.84	Gravel samples from cliff sections.
"g"	.84	" " " "
"h"	Trace.	" " " "
"i"	.67	" " " "

"j"	3.35	Gravel samples from cliff sections.
"k"	1.67	" " " "
"l"	Trace.	" " " "
"m"	Trace.	Gravels from pits on top of and behind the cliffs.
"n"	Trace.	" " " "
"o"	Trace.	" " " "
"p"	.33	" " " "
"q"	.84	Gravels from recent bed of Lost Shoe Creek.

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Description of Samples.

Beach Sands--Samples "a" and "b". These were taken from strips down the side of a pit 4 feet deep and one foot in diameter, dug in beach sand and at a place where some previous operators had their sluices, etc. for obtaining gold from black sand collected along the beach.

This place is 1400 feet north-west along the beach from the camp cabin, (located on the south-east bank of Lost Shoe Creek) and at the foot of the trail which leads up the cliff to an old log cabin referred to as the "Dumais' cabin".

Sample "c". Represents the gold contained in a pan-sample (1/150 cubic yard) of beach sand where some surface concentration of black sand had been performed by spring water flowing down the beach.

Sample "d". This was fine beach sand taken from the sides of three pits each 2 feet deep and dug down to the Blue Clay. They were spaced 25, 50 and 75 feet from the shore along a line normal to the shore line at a point 1600 feet north-west from the camp cabin.

Sample "e". Similar to the last, but the pits were at a point on the beach 150 feet north-east from the camp cabin.

Gravel Samples from Cliff Sections.

Sample "f". This is a sample consisting of fine sand and a few pebbles (up to 2 inches diameter) taken along a 4-foot cut on the wall of a prospect adit driven into the base of the cliffs for 10 feet from a point on the beach 500 feet north-west from the camp cabin.

Sample "g". This was taken along a strip  $7\frac{1}{2}$  feet long across material consisting of approximately 50 per cent pebbles, the remainder intermixed sand and small pebbles; no marked stratification of the sand was evident. The strip was half-way up the cliff face opposite a point on the beach 650 feet north-west of the camp cabin.

Sample "h". This was a quarter cubic foot sample taken along a strip 9 feet long across well-stratified pebbles (3 inches, average diameter), fine sand and a 4-inch clay seam. Pebbles represented approximately 10 per cent of the material.

The strip was from the upper 9 feet of the gravel cliff opposite a point on the beach 750 feet north-west of the camp cabin.

Sample "i". This was taken along two parallel 3-foot cuts in the stratified sand and pebbles (2-inch diameter and representing approximately 10 per cent of the sample) immediately above some blue clay at the base of the gravel cliffs, some 800 feet north-west along the beach from the camp cabin.

The following three samples, "j", "k", and "l", were taken from various small pits dug along the trail leading from the camp cabin to the Ucluelet-Long Beach road. They were taken along that portion of the trail which ascends the bank on the north-west side of Lost Shoe Creek; all distances given are those measured on the trail, zero distance being at the creek.

Sample "j". This sample consists of rusty sand and 25 per cent of pebbles (averaging 4 inches in diameter); it was taken between 385 and 390 feet from the creek and represents a strip 5 feet long between elevations 52 feet and 48 feet.

Sample "k". This represents rusty sand containing a few pebbles and small boulders. The material was stripped from four small pits dug at distances of 280, 320, 350 and 370 feet from the creek and at elevations of 30, 34, 40 and 43 feet respectively.

Sample "l". This represented a 5-foot section across sand and 2-inch pebbles, well stratified and approximately of equal amounts. The sample was taken at the top of the trail, which is 120 feet from the creek and at an elevation of 75 feet.

Gravels from Pits on Top of and  
Behind the Cliffs.

Sample "m". This was taken from a strip 10 feet long across well-stratified sand and gravel as exposed in a dry well referred to as the "Swede's well". This is some 1800 feet north-west from the camp cabin and is 65 feet above the beach.

Sample "n". This was taken from a shallow pit, 2 feet deep, dug in the black muck and gravel of a slight depression which lies east of the Swede's well and strikes northerly from the beach. The small pit was approximately 300 feet north-east from the Swede's well.

Sample "o". Represents a 1/2 cubic foot sample of sand and gravel taken from an old pit 8 feet by 8 feet by 4 feet deep, located at the south-west corner of Lot 63; this is approximately 1/2 mile north from the location of sample lettered "n". At the time of examination the pit was full of water and since no sample could be taken from the pit itself, one was taken from the nearby pile of gravel, which had undoubtedly come from the pit.

Sample "p". This is a sample taken from a gravel pit on the north-east side of the Ucluelet-Long Beach road at a point 5 1/2 miles from Ucluelet. The material was from a 7-foot strip across roughly sorted pebbles (up to 4 inches in diameter) and sand.

Gravels from Recent Bed of  
Lost Shoe Creek.

Sample "q". This is a sample taken across 4 feet of well-sorted and stratified gravel and sand in the valley of Lost Shoe Creek and immediately above the present creek level; the material represents creek gravels laid down by the creek in the stage immediately preceding the present one. The point selected was approximately 1/2 mile from the mouth of the creek.

Several samples were taken of the blue clay for purposes of a general study. This material underlies both the beach sands and the well-stratified sands and gravels of the cliffs.

It is to be noted that although the blue clay contained a small percentage of very fine black sand, no gold could be found in it.

The author was shown over the ground by one of the company's employees, reputed to have knowledge of the location of all recent digging on the property. The only pit deeper than 2 feet was the one described under sample "o"; at the time of the examination the pit was filled with water, and it is therefore evident that the pit must have been dug the previous summer or earlier. The only other work of recent date was the caved adit (sample "f") and small strippings at the base of the cliff.

At the present time, A. Williams and associates of the Wreck Bay Placer Mining Company are installing recently developed,

fine-gold-saving machinery, at the base of the sea-cliff, in an attempt to obtain the fine gold disseminated in the Wreck Bay formation.

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