

Ketchikan Prospect
#7

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PRELIMINARY REPORT
ON
SMUGGLERS COVE PROSPECTS
CLEVELAND PENNINSULA
ALASKA
By Frank W. Holzheimer

KETCHIKAN ALASKA
JUNE 1, 1924.

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Index

Introduction	1
Location	3
Geology and Workings	4
Camps, Equipment, etc.	12
General Remarks	13

SMUGGLERS COVE PROSPECTS

INTRODUCTION

The Smugglers Cove Prospects lie on the southeastern coast of Cleveland Peninsula and consist of six claims. Prior to the war in 1914 an English company purchased this property and proposed to actually develop the claims. A considerable sum was spent toward the development and at the closing of activities, due partly to the war, an excellent camp had been built, a power station developed at Smugglers Cove Falls, an air line extended to the workings, and machinery installed. Approximately fifteen hundred feet of tunnel were driven at various places on the claims. Trails were built and surface cuts were made to prospect the ore body on the surface.

The earliest history of activity or location at Smugglers Cove was the placer working of decomposed schist on the top of the mountain; the success of the operation is not known. This work was done by sluicing. Previous to this time however mining had been carried on at the Gold Standard, north of Smugglers Cove, on the west side of Helm Bay. A group of four claims known as the Old Glory group were later staked and afterward purchased by Mr. Martin Bugge of Ketchikan. He installed a two stamp mill and a Pelton Wheel and conducted paying operations on a small scale. Only the free gold content was recovered as there were no facilities at hand for concentrating the sulphides which consisted mainly of pyrite containing gold. Later Mr. Bugge bonded these four claims to the Alaska Venture Company, an English concern, which later forfeited them to the Great Boulder Company of

London in the foreclosure of a mortgage. The greater amount of the work was subsequently done by the Great Boulder Company; they staked a large number of additional claims and proceeded to lay out plans for a complete development of the property. As stated these operations ceased at the beginning of the war and since that time the Great Boulder Company has kept up the assessment work on six of the claims and still retain the title.

The work of the Great Boulder Company has not proved the worth or the extent of the ore bodies. They have accomplished a great deal, as will be later pointed out, toward this end, but they have not removed the claims from the prospect stage of development.

The continuance of future development work on the property would properly be proceeded first by intelligent sampling of the outcrops and of the workings. If this then warranted a survey should be made to determine the exact position of the workings with respect to the orebodies. This would be followed by a continuation of the present workings to tap the ore at depth and drifting on the ore so found. This coupled with a further prospecting of the surface showings would remove the claims from the prospect stage of development by either presenting the extent and richness of the ore necessary for permanent operation or by proving the ore body one that could not be profitably worked. The existence of an excellent water power site at Smugglers Cove Falls and lakes forming natural reservoirs for the water supply present a very economical factor for the working of the mine. As will be later shown the character of the rock is such that a mine here established could be very inexpensively operated. The ore bodies as

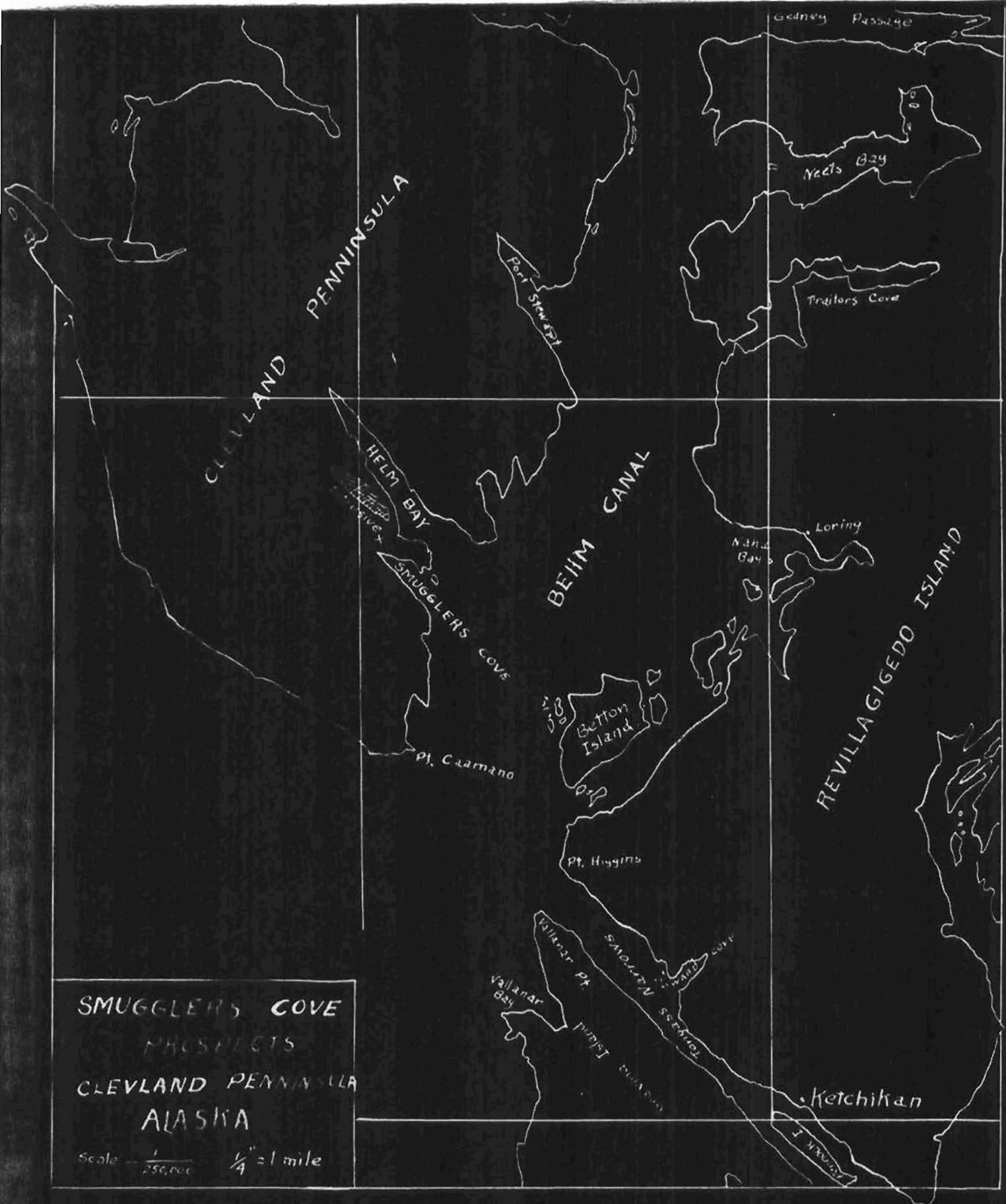
seen from present examinations are low grade and apparently extensive. It is therefore necessary that the further work be done to prove the consistency of the deposit.

The bonding of the property to a company at this time would depend on the policy of that company. If it be their policy to bond a property that presents fair showings and to place men on the workings to investigate the orebodies by further development, Smugglers Cove could well be recommended. The proving of an extensive low grade deposit with the economical power situation would establish a mine at Smugglers Cove. The tenor of the ore would obviously have to be proven high enough to warrant the investment.

A company with this policy of investigation could well afford to spend time at Smugglers Cove. The expense would not be great to accomplish the work previously mentioned. A satisfactory agreement regarding this could be made in the taking of the bond.

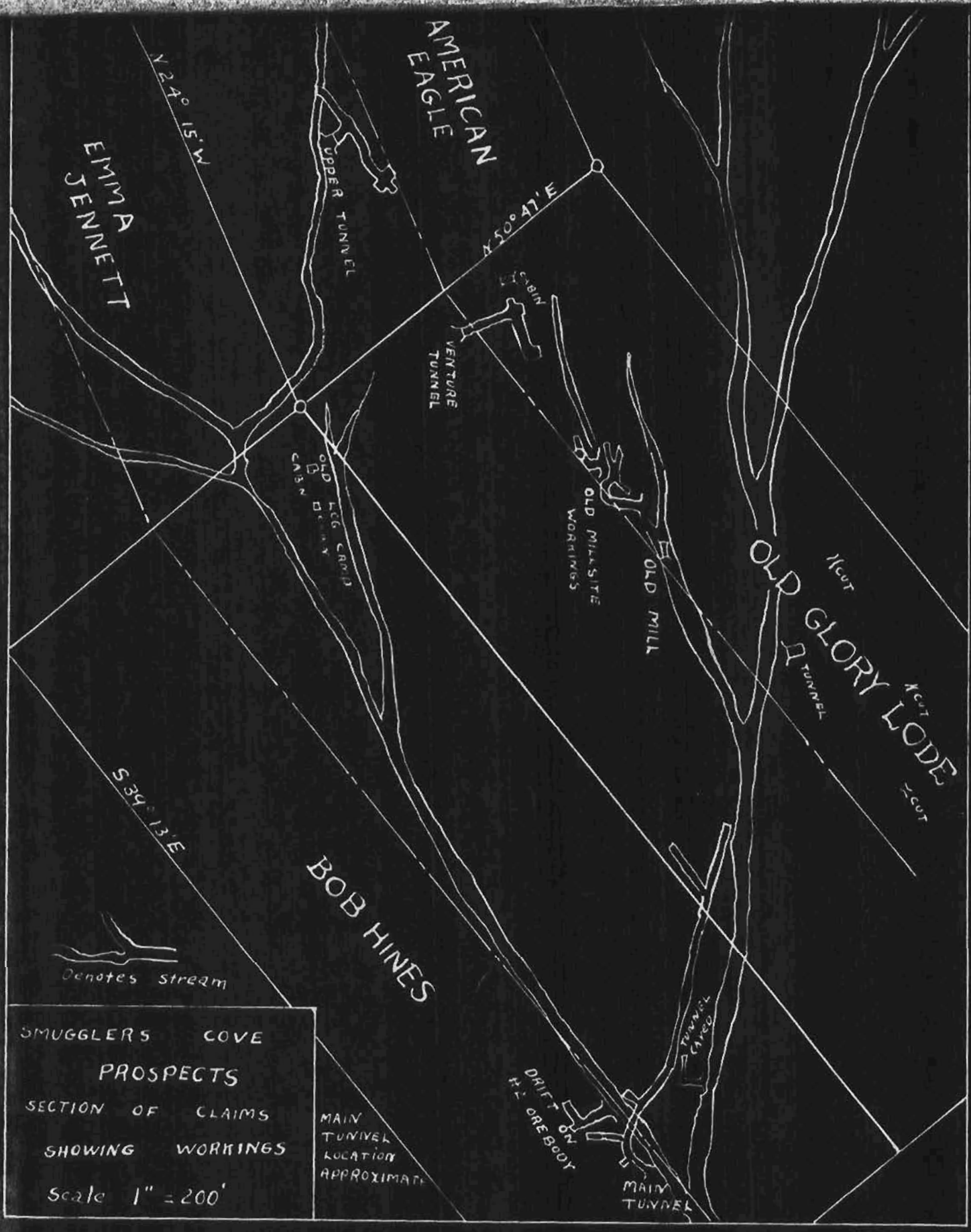
LOCATION

Smugglers Cove is located on the southeastern coast of Cleveland Peninsula about twenty five miles northwest of Ketchikan. North of Smugglers Cove lies Helm Bay. The mining activities of Cleveland Peninsula in the past have been chiefly confined to the west side of Helm Bay and at the head of Smugglers Cove. Smugglers Cove and Helm Bay form indentations in the coast of Cleveland Peninsula from Behm Canal. Smugglers Cove is navigable for a short distance by the larger vessels and permits the passage of gas boats to its head only at high tide. The building of a wharf at deep water in Smugglers Cove would afford a landing for the larger vessels and would be but a few miles from the regular steamship lane from Ketchikan northward.



SMUGGLERS COVE
PROSPECTS
CLEVELAND PENINSULA
ALASKA

Scale — $\frac{1}{250,000}$ $\frac{1}{4}$ " = 1 mile



SMUGGLERS COVE
PROSPECTS
SECTION OF CLAIMS
SHOWING WORKINGS
Scale 1" = 200'

MAIN
TUNNEL
LOCATION
APPROXIMATE

Smugglers Cove Falls lie at the head of Smugglers Cove.

GEOLOGY AND WORKINGS

In 1907 F.E. and C.W. Wright made a reconnaissance of the Ketchikan mining district. The results of their work, with a geologic reconnaissance map, have been published in Bulletin 347 of the United States Geological Survey. This report gave brief mention of the Old Glory Group on Cleveland Peninsula. "The Mineral Resources of Alaska, 1913," discusses very briefly the vicinity around Smugglers Cove. (Bulletin 592, United States Geological Survey, Lode Mining in the Ketchikan District, pages 85-86.)

The geologic map classifies "the predominating rock as greenstone lava flows interstratified with volcanic tuft and black slate, of the Upper Carboniferous." The later report generally classifies the rock as greenstone schist. These classifications are of course very general and specifically apply to the vicinity of Smugglers Cove only in part.

The predominating rock of the claims is the greenstone schist. This schist extends over the northwest portion of the group and southerly past the main tunnel which is the lowest working. The rock is very schistose in character and is interstratified with slates and with graphite schist. On the eastern portion of the claims, where the ore was previously worked by the two stamp mill, the greenstone schist is underlain by a much softer schist probably sedimentary in origin and belonging to the same series that lies on the eastern side of Helm Bay. This series has been classified as undifferentiated Carboniferous schists. These are older than the

greenstone schist. At the extreme head of Smugglers Cove, below the falls, is found another phase of this softer schist. This latter rock is very soft and highly schistose in character.

There seem to be two main ore bodies on the claims. The first of these formed the basis of operations for the two stamp mill. It consists of quartz stringers in the schist along the contact of the greenstone and the softer schist. The mineralization extends in both of the schists and consists mainly of pyrite. This mineralization is found in both the quartz and the schist in the mineral area. Decomposed and oxidized stringers readily yield free gold in the pan. Free gold can be panned from several places in the workings. The mineral area varies in width from seven feet in the lower working to a distance of twenty five feet in the highest tunnel. From the statement of the mill operator this ore had an average of six dollars a ton. This was based on assay returns and it is not known how these samples were taken. His recovery in the mill was limited to the free gold content in the ore.

The milling operation was simple. A penstock took the water from two small creeks and ample fall was obtained to furnish power for the mill. The water supply for milling was adequate. There are two tunnels with drifts above the mill. There are a few small stopes in connection with these drifts. A very small tonnage has been removed; this being the work of one man with the single jack. The best showing on the property is located at this point. The elevation of these workings is about nine hundred fifty feet. The lead trends N 20° W and dips steeply west. This can be traced to the tunnel which is the highest working on the property, a distance of over six hundred feet.

The highest working, known locally as the upper tunnel, consists of a cross cut with drifts on the ore. These drifts are over a hundred feet long and show the ore body to be, at this elevation, about twenty five feet in average width. A sample across a thirty foot face ran five dollars and twenty five cents per ton for the first fifteen feet and four dollars and thirty cents for the last fifteen feet. The percentage of sulphides in these workings is relatively small. At an elevation of nine hundred feet on the creek as shown on the accompanying map, is an old logging camp. There are two buildings here in a good state of preservation. About thirty feet above this camp an attempt was made to tap the ore with a tunnel through the hill. This tunnel did not reach the ore. The results of a survey are here shown and the inference is that the tunnel was not extended far enough to tap the vein. This tunnel is known locally as the Venture Tunnel. All of the fore mentioned workings were driven by hand mining.

The trend of this ore body can be traced by outcrops to the top of the mountain, elevation approximately two thousand feet. It must be understood that there is no indication on the surface that this body is continuous for that distance, nor is it proven that the outcrops on the trend of this ore body belong to the one orebody. However there are outcrops along the general trend of the ore body. Some of these yield gold readily in the pan; it is thought that in the past the existence of free gold in these outcrops incited the interest that has been taken in the property. The free gold presumably comes from the existence of free gold in the ore as well as from the residue left in the oxidation of the sulphides. The highest outcrop shows a

large mass of quartz apparently free of sulphides. It is about twelve feet in width; no work has been done on it.

Directly above the upper tunnel, in a draw, can be found an outcrop containing a large mass of pyrite. Float picked up in the creek below the upper tunnel has, in some cases, shown free gold along the cleavage planes of the schist. There is much pyrite present along this creek.

One of the best places to prospect this orebody would be from a continuation of the workings in the upper tunnel. A definite relationship could be established with these workings and the workings above the old mill site, together with the following of the trend of the orebody toward the top of the mountain.

The ore in these cases seems to follow distinct fissures in the country rock. Near the contact of the softer schist with the greenstone schist the more values lie in the softer schist. It is probable that the fissuring was more pronounced in the softer schist. In general the values in the greenstone schist are less than those in the softer schist; the second ore body mentioned lies wholly in the greenstone schist. On the top of the mountain a granitic intrusion can be traced. The location of this intrusion, according to Wright, is shown on the accompanying map. This is given as a part of the Coast Range intrusives that are so widespread in the Ketchikan mining district. They are of Mesozoic age. It will be noted that the ore deposition in the Ketchikan mining district follows to a large extent these intrusives; specifically one might point out the ore deposits around Kasan Bay though they are of a different nature. Pieces of

this granite are found as float in the creek below the upper tunnel. The general trend of the ore body changes toward the top of the mountain. The trend of the ore in the upper tunnel is N 35° W and the dip is south; this ore is entirely in the greenstone. The ore in the softer schist which dips west is limited to the old mill site workings.

Following down the creek from the upper tunnel outcrops belonging to the second ore body may be seen. This ore body differs from the first in that it ^{lies} ~~lays~~ entirely in the greenstone and contains a larger variety of sulphides. Here, as before the outcrops follow the general trend of the orebody and presumably belong to it. There is a definite outcrop near the creek below the old logging camp. Further down the creek an old assessment work tunnel cross cuts the ore body showing it to consist of quartz stringers in the greenstone schist with the mineralization extending into both the quartz and schist. Just below this assessment work tunnel is a tunnel and a drift on the orebody. In the face of this drift which has recently been extended the width shows about seven feet and the nature of the ore is excellently shown. The quartz stringers are more in the nature of parallel bands; the mineral is pyrite and chalcopyrite with the pyrite predominating. A sample taken across the face ran four dollars a ton in gold. Attention should be called to the fact that these assays are of the gold content only; silver being present only in traces. Separate samples of pyrite and of chalcopyrite show them to both contain gold. There is an absence of the high grade oxidized stringers that were noted in the first ore body and gold is not found

so readily in the pan. This drift has been extended along the vein for a distance of seventeen feet; the vein is slightly wider in the face of the drift. Further prospecting of this ore body would merely mean extending the drift along the ore. The small assessment work tunnel is about three hundred feet up the creek at a slightly higher elevation. This vein outcrops on the hill above the creek sixty feet directly above the tunnel; the outcrop formed the reason for the tunnel. Work was progressing on this tunnel when activities ceased on the property. Several powder boxes were filled with rock from various places on the dump in front of the tunnel. The sample thus obtained ran three dollars and eighty five cents a ton in gold. The rock on the dump has been broken up very fine suggesting that coarse crushing might be eliminated in milling the ore. There is a great deal of quartz in this broken rock. The crystallization of the pyrite, for the most part, is coarse, the pyrite existing in cubes. However there is a large amount of fine pyrite disseminated through the schist. The mineralization of the chalcopyrite is more amorphous. There has been extensive mineralization along the cleavage planes of the schist and along the contact of the quartz bands with the schist, this mineralization consists of fine pyrite and chalcopyrite with the pyrite predominating. In the case of this second ore body the quartz carries more mineralization than the quartz of the first ore body which quartz is rather lacking in sulphides.

The air line from the compressor at Smugglers Cove Falls has been extended to this point, This airline, untouched for over ten years, is badly in need of repair

Five hundred feet down the creek from the latter mentioned

tunnel, and seventy five feet lower in elevation, is the main tunnel. The main tunnel is about four hundred feet above sea level and one and one quarter miles from the head of Smugglers Cove.

There is no trace of the second ore body on the surface between these two tunnels. The general trend of the second ore body is north and south. The second ore body has not been touched by the main tunnel and its position in regard to same is unknown. It is said that the existence of the second ore body was unknown at the time of driving the main tunnel.

It is evident that the main purpose of the main tunnel was to tap the ore of the old mill site workings at depth. From observation one comes to the conclusion that they have not gone far enough and are headed slightly in the wrong direction. This latter conclusion is based on the results of a rough survey. This tunnel is over six hundred feet long and an extension of the same would tap the ore of the old mill site workings if it existed at that depth. However were any move of this kind to be made it would have to be proceeded by a complete survey of the ground. It is also said that this main tunnel was driven with the assumption that the orebody followed the creek, that the mineral in the rock made it less resistant to wearing away, thus formed a natural course for drainage; hence the creek. The main tunnel horse-shoes around and crosses under the creek. If the main tunnel was driven with the foregoing assumption, such was definately proved not to be the case. The course of the main tunnel and its relationship to the other workings can be traced on the accompanying map. It seems that if this main tunnel were driven to tap the old mill site workings at depth it might better have been driven on the hill side below these workings.

The main tunnel as it now stands will serve the purpose, by its extension, of prospecting both the first and second ore bodies at depth.

The main tunnel shows different phases of the greenstone schist. Bands of black slate are exposed in the tunnel. The first cross cut to the left shows no sign of ore but its relation to the second ore body is shown on the map. This cross cut, near its end, cross cuts a small area of graphite schist. The cross cut is over a hundred feet in length. The main tunnel cross cuts a vein sixty feet from the face of the tunnel. A drift to the left follows this vein for nearly two hundred feet. Just what the relationship of this vein to the ore bodies is not determined. There are a few places along the drift that yield a small amount of gold in the pan; the mineralization is all pyrite. The main portion of the vein consists of quartz bands in the schist with the pyrite in both the quartz and schist but mainly in the schist. It is reported that samples of free gold were found at the juncture of the drift and the main tunnel. Small cubes of pyrite are well distributed through the schist for fifty feet; there is no quartz in this area.

Chlorite is widespread in the greenstone schist and accompanys the deposition in both ore bodys. There are several occurrences of fine grained basic dikes in this section of Cleveland Penninsula,

There has been no underground water of any consequence encountered in the workings with the exception of a few feet from the mouth of the Upper Tunnel.

CAMPS, EQUIPMENT, ETC.

The old logging camp near the upper workings is in an excellent state of preservation. With but little work the two cabins could be made to accommodate eight men; this would include bunk house and mess house. In the past sufficient water supply has been piped from the creek.

The old two stamp mill and the penstock are in complete ruin. The same may be said of the two blacksmith shops, the upper cabin, the bellows, and other material in the upper workings. There is an ore car and track that may still be used in the Venture tunnel. In the upper tunnel there is a quantity of hand steel.

Nearly everything of value has been removed from the lower tunnels. There is one rusted water liner and two bars in the old blacksmith shop together with a quantity of steel. The track in the two lower tunnels is in good condition. The bodies of two remaining ore cars are beyond repair but the trucks may be used. An anvil is the only article of any value in the old blacksmith shop. In front of the lower tunnel is the receiver for the air line. It is in good condition.

The air line from the compressor at Smugglers Cove Falls is in need of repair and complete overhauling. Most of the pipe can still be used. There is a good receiver at the compressor. The compressor is an Ingersoll-Rand five drill compressor and is in excellent condition. The compressor shed is still standing. Part of the airline lies on trestle work; it would be an easy matter to replace the trestle.

Below the main tunnel is located the old camp site. During the activities on the property this served as an excellent camp. At

present time all of the buildings have ^Utimbled in and the camp is quite overgrown with brush. The brush has lately been cleared away in the immediate vicinity of the buildings. A good deal of the lumber from these buildings is available for future use.

Smugglers Cove Falls are seventy eight feet high. Five hundred feet from this fall is a second fall twenty five feet high. There is an excellent log dam across the stream and a flume from this point to the penstock above the compressor house. The flume has been broken in places by uprooted trees and minor cave-ins. This flume could be repaired with very little difficulty. The penstock is in good condition. A twenty four inch pipe leads from the penstock to the water wheel. This wheel has been loaned to the Kassan Gold Company of Hollis, Alaska. It may be advisable to move the compressor to the mine in the event of the building of a tram and establish an electric power station at this point. There are two small cabins at the head of Smugglers Cove that still may be utilized. The amount of power available at these falls may be estimated at two hundred horsepower. The stream at Smugglers Cove Falls flows from Lake Waugh, a mile distant.

GENERAL REMARKS

The scope of a preliminary report is somewhat limited. An attempt has been made to present the observable facts from a visit to the property. Only a few samples were taken which necessarily limits a definite conclusion being reached regarding the true value of the ore. The situation at Smugglers Cove may be further supplemented by the following observations.

Should a mine be established at Smugglers Cove no mining

below the main tunnel would need be considered for an indefinite period. There is nothing to indicate what may lie below this tunnel. The mining operations would proceed by raising from the main tunnel. The approximate difference in elevation between the highest outcrop and the main tunnel is fifteen hundred feet. An assessment work tunnel has been driven in the soft schist just below Smugglers Cove Falls but indicates nothing of interest; this tunnel is thirty feet long.

No timbering of any consequence has been required in any of the workings. There is excellent standing timber on all of the claims that would be suitable for any purpose. Various sizes of spruce, hemlock, red cedar, and yellow cedar are available in quantity. Large alder is also present.

An excellent trail, part of which has been an old skid road, leads from the falls to the main tunnel. Trails from this point lead to all of the upper workings. The underbrush in the country is not thick nor difficult to get through. The ground underfoot is covered with moss and vegetation that retains considerable water. There are large flat areas on the hill above the falls that extend to the lake. Several trenches have been dug on the property as well as short tunnels to prospect the claims. These, for the most part, have caved and are overgrown with brush.

The most apparent mill site lies below the main tunnel at an elevation of seventy five feet below the tunnel. Sufficient water for milling purposes could be obtained from the creek. To insure adequate supply two smaller creeks may be turned into the main creek

in the upper workings. It is said that winter conditions do not materially affect the creeks. Tailings disposal would follow the creek channel below the mill. The rise from the head of Smugglers Cove to the main tunnel is very gradual.

The bonding of this group of claims to a company should be followed by the staking of at least three adjoining claims that are now vacant. The ground between the head of Smugglers Cove over which the three inch air line passes and the area between the main tunnel and deep water should be located. One half mile west of the American Eagle is located workings known as the Bradley property. Free gold is said to be present on this property and the claim has been prospected by tunnels and open cuts; it is now vacant.

The area between the main tunnel and deep water is the logical location for a tram. It would be necessary to locate a wharf site on the beach. The proposed tram would be a little over a mile and a quarter in length and could be built complete at an estimated cost of six thousand dollars. The cedar on the property could be utilized in the building of the tram.

During the activities at Smugglers Cove material and supplies were dragged to the mine and to the camp over the skid road. The expense and inefficiency of this method was well demonstrated. The old camp site, though excellent, would perhaps be done away with entirely in the event of building the tram. A suggested site for the main camp would be near the wharf on the beach.

The claims held by the Great Boulder Company at the present time are; American Eagle, Emma Jennett, Bob Hines, Old Glory Lode, Old Glory No. 6 which joins the southeastern end of the Bob

Hines, and the waterfall which does not touch any of the fore-mentioned claims but is located across the stream at Smugglers Cove Falls.

Mr. Bugge has reported the existence of a very large ore body between the falls at Smugglers Cove and Lake Waugh. He states that a series of samples taken at various places over the outcrop averaged two dollars and a half a ton in gold. This is located on vacant ground.

Frank H. Hines,
June 1924.