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STIBNITE DEPOSITS AT CAAMANO POINT

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by

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Territory of Alaska
Department of Mines

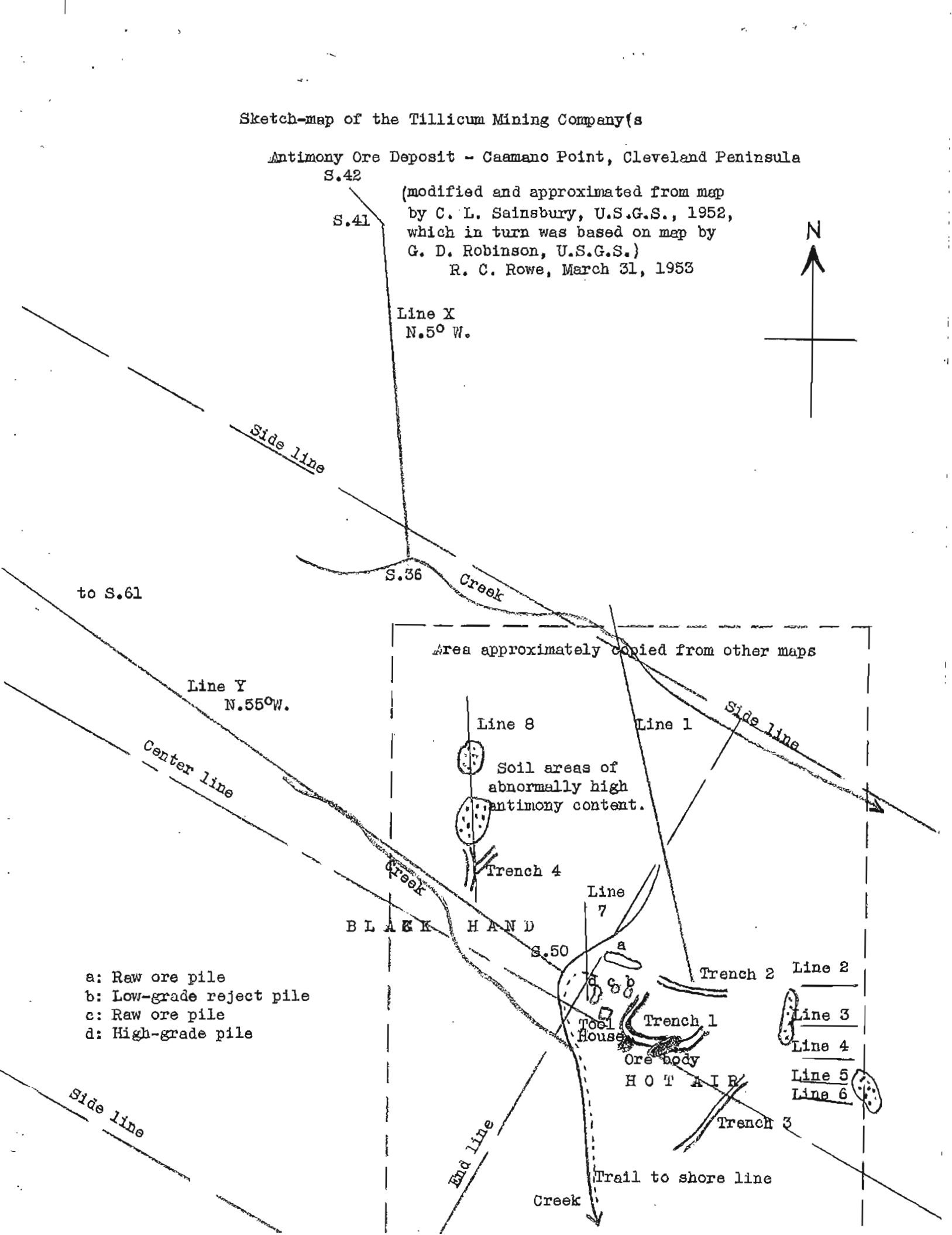
Ketchikan, Alaska
March 31, 1953

Sketch-map of the Tillicum Mining Company's

Antimony Ore Deposit - Caamano Point, Cleveland Peninsula

(modified and approximated from map by C. L. Sainsbury, U.S.G.S., 1952, which in turn was based on map by G. D. Robinson, U.S.G.S.)

R. C. Rowe, March 31, 1953



a: Raw ore pile
b: Low-grade reject pile
c: Raw ore pile
d: High-grade pile

STIBNITE DEPOSITS AT CAAMANO POINT

About three fourths of a mile northward and inland from Caamano Point on the Cleveland Peninsula of Revillagigedo Island, in southeastern Alaska, a deposit of stibnite, or antimony sulfide, has been known to exist for many years. At the present time (March, 1953) extended development work is being started by a group of about ten individuals, mostly from Ketchikan, who have entered into a financial partnership aided by a Federal Development Loan. Mr. George Roberts of Ketchikan and Mr. William Hibberd of Craig will be on the ground with machinery and supplies soon, and will do or supervise most of the work.

The writer was afforded an opportunity within the month to spend three days visiting this area for general observation of the present status of the site, and of experimental work in soil sampling for later analysis of antimony content being done by the United States Geological Survey. The samples were first taken in August-September, 1952, by Mr. C. L. (Pete) Sainsbury, and the analytical work done by Mr. H. E. Crewe. This generalized report is merely a factual description of these activities, based on data gathered personally, and aided by information from others in the party.

Discovery and Development

This deposit of antimony ore was discovered in 1914 by Mr. Val Klemm, of Ketchikan, who built a small windowless cabin about a quarter mile from the shore line, and a small tool house half a mile farther inland at the discovery. A somewhat larger cabin of log supports and cedar shakes was also built on the shore line of Caamano Point in 1934, after twenty years' occupancy of the former one. (See Photo 1.) Aided by grubstakes from local

friends, he carried on exploratory operations, digging four fairly extensive trenches into the bed rock,- the discovery one being perhaps 80 feet in winding length, about 5 feet wide, and perhaps 6 to 8 feet in depth where it cuts through a topographic ridge. It is said that at one time he was tendered an offer in five figures for the property, but preferred not to sell, in the hope of developing it successfully himself. This never came to pass, and Mr. Klemm died in 1950 without marked financial achievement. Mr. George Roberts and others of the local group purchased the property from the administrator of the estate a year later, and several tons of ore were dug from the two pits, piled near the tool house, and partially sorted for assaying and shipment. Their present operations are carried on under the name of the Tillicum Mining Company. (See Photo No. 2.)

Literature

Among early references to this ore body the following may be cited. U.S.G.S. Bulletin No. 810-A, "Mineral Industry in Alaska in 1927", by Philip S. Smith says (p. 62):

> "A considerable body of high-grade antimony ore was reported to have been discovered in the fall on claims in the Cleveland Peninsula, in the Ketchikan District, southeastern Alaska. Rich antimony ore has been known in this same general region for several years...."

It is similarly mentioned in U.S.G.S. Bulletin No. 836, "Mineral Resources of Alaska, 1930", on p. 80. A more detailed report was written by Mr. G. D. Robinson on "The Caamino Point Antimony Deposits" in later years, and released as an open paper on the subject. This was used as a basic reference by Mr. Sainsbury when he ran eight lines of soil sampling tests in the fall of 1952, and returned to continue the work on this current trip. The sketch-map prepared for this report is based largely on Mr. Sainsbury's map as sent to Mr. Roberts, which in turn was credited to the original mapping by Mr. Robinson; the writer has made some approximate additions from his notes. The complete Robinson report, however, is not locally available.

Regional Geology

The generalized Areal Geology map of Alaska (1938) shows the Cleveland Peninsula as being composed mainly of undifferentiated Paleozoic rocks, with Mesozoic extrusives nearer Caamano Point, and scattered, unclassified igneous intrusions. At the landing area in front of the cabin the rocky shores are of the steeply dipping greenstone schist common to southeastern Alaska, with additional highly contorted reefs of the same exposed at low tide beyond a tidal flat of perhaps two hundred yards length, which thus presents somewhat of a problem in landing heavy machinery, probably requiring a barge runway. (See Photos 3 and 4.)

The stibnite deposit occurs about three fourths of a mile inland, although still in the rolling muskeg area rather than in the region of higher relief. The ore is found in intimate association with dark gray,- almost black,- limestones, highly brecciated by faulting and recementation, and locally folded into a small plunging anticline at the discovery site. Various strike and dip readings occur within the limits of the trench outcrop, but the average significant reading might be something like: strike, N.60° W.,, dip 70° N.30° E. The writer's guess would be to place these limestones in age as Devonian, from similar color and lithology in the northwestern states, with Mesozoic mineralization, but no verification of such a conjecture from stratigraphic or paleontologic evidence, nor prior and more authentic literature can be cited. Elsewhere the limestone becomes more slaty or siliceous. It occupies a general zone several hundred feet wide extending in a NW-SE direction; no distinct contact between it and the barren schists was noted, and the boundary of the ore body itself is rather indefinite.

The soil covering varies greatly in thickness, from three feet or more in depth in the muskeg areas of the valley bottoms, to only a few inches on the ridges. Outcrops of bed rock are comparatively scarce, however; an occasional protrusion of limestone could be noted in guiding the sampling lines,

and the creek beds usually expose the schist in steeply dipping layers.

According to Mr. Sainsbury, some argument continues as to whether the soil hereabouts is residual or recently transported by glacial or alluvial action. In his opinion, with which the writer fully agrees, the former is correct. Where vertical sections could be observed, the soil lies directly against the bed rock, with absolute lack of fragmental till, and shows the typical gradation from barren gray or tawny soil adjacent to the bed rock, to the rich black humus at the top. A picture was taken at Station 42 to illustrate this. The bed rock here is a sandy schist, with calcareous content and carrying quartzitic pebble inclusions which sometimes show the distortional stretch from diastrophic forces involved, with the soil demarcation distinctly visible in color gradations. (See Photo No. 5.)

Ore Deposits

The accompanying sketch-map shows the known ore body, also several locations where the antimony content in the soil analyses seems abnormally high, from chemical results on samples taken last fall. As heretofore stated, the stibnite occurs in a massive, brecciated dark gray limestone, highly folded and faulted. Small selected hand specimens of almost pure stibnite can be obtained; a larger specimen is on display at the Alaska Sportsman in Ketchikan, with the labelled information of "45% Antimony", which is probably typical of the better ore. A portion of the ore removed from the pits by Mr. Roberts in 1951-2 was diligently hand-sorted into a high-grade and a reject pile, of approximately equal size, and the assay on the high-grade pile barely made the minimum preferred shipping content, showing 45.1% antimony. An accurate prediction as to how much of such ore exists in the area would be difficult at the present stage of development, but the present owners obviously feel confidant that it has commercial possibilities.

Photo No. 6 shows a typical piece of the ore, with the cleavable stibnite extending centrally through the dark limestone. Photo No. 7 shows a portion of the trench as it passes through the ridge and beneath the roots of an old stump. Ore is present here, but in lesser proportion. Photo No. 8 shows the farther and deeper of the two pits, which was once timbered, but will require cleaning out and new timbering. It is about six feet deep, and four or five feet square. The other pit is just out of view, near the right foreground.

The two claims originally filed by Mr. Klemm are the "Hot Air", which includes the discovery site, and the "Black Hand", adjacent to the northwest, with coincident end line and corresponding side lines. The center line of both claims extends approximately N. 60° W., passing practically through the discovery, which is only a short distance - perhaps a hundred feet - southeast of the end line separating the two claims. (See sketch-map.) Both claims are the usual 600' x 1500' size. On the last day of the recent trip, Mr. Roberts was pleased at finding additional evidence of stibnite on the "Black Hand" claim, consisting of some pieces of limestone, surficially weathered, but in place, with stibnite contained in the central cavities. This was found about 700' inward along the sampling line "Y" extending up the creek on a N. 55° W. course, or at nearly the center of the claim. Two small pieces of this, according to the assay made locally by the writer, showed 10% content of antimony, which accorded with the visual estimation. Time did not permit digging deeper into the outcrop for more thorough exploration and sampling.

Method of Soil Sampling

According to Mr. Salisbury, location of ore bodies concealed by surficial soil and vegetation is meeting with some success with regard to certain other chemical elements, but this work is the first attempt to use such a method for discovery of antimony ores.

In August and September of 1952 he spent some time in the region, running eight lines of samples in varying length and locations, as indicated on the sketch map. These were analyzed by H. E. Crowe, also of the U.S.G.S., by a method of color comparison with standard strength solutions. During the current trip, Mr. Sainsbury collected more samples on extensions and grid patterns of these lines, and also ran a few more lines extended to greater distances from the previous work. The writer accompanied him on two of these, herewith designated as Lines "X" and "Y", for lack of Mr. Sainsbury's officially assigned numbers. Line X began at a previously designated Station 36 (which may or may not be related to Line 8, as shown) and followed a course of approximately N. 5° W. Samples were taken at points 50 to 100 feet apart, as convenient. At Station 41 the line was swung to N. 45°W., "to avoid a previous line of sampling", which is not indicated on the sketch-map; the exact location and relationship of these lines is not clear to the writer. *

Line Y began at Station 50, just across the creek from the tool house, and followed a course more or less up the creek of about N. 55° W., for 1200-1300' to Station 61 (off map). Here, on a ridge, Stations 62 and 63 were extended at right angles to the left, and Station 64 likewise to the right, in a steeply sided creek bottom, which was then followed northwestward to Station 72, the end of the run.

This creek was clearly situated in a fault valley. The southwestward ridge was topped by large limestone blocks tumbled over each other in every direction, too sharply edged to have been thus transported by glacial action. Its dip slope seemed to be about 30°, while its face plunged steeply downward at about 60° to the creek bottom. To the writer, it seemed indicative

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*The writer was shown Mr. Sainsbury's map (1952) at the home of Mr. Roberts, subsequent to the trip, and permitted to make a quick approximate tracing of the portion showing discovery area on an 8½x11 sheet, which was then reduced on half-scale for better showing of Lines X and Y, which may thus be located erroneously. Station 36 was said to be "about 150 yards N.20°W. of the main trench" and was on a creek which is assumed to be the one shown. At any rate, it is not within the province of this paper to reproduce the exact U.S.G.S. data on lines, sample stations, or chemical results obtained.

of the southwestward wall, on the left as the valley was ascended, being the foot wall, with the right portion being the normally dropped block, perhaps with some rotational effect on both blocks. Mr. Sainsbury seemed to feel, nevertheless, that this would not necessarily correlate with the regional thrust direction, and no definite conclusion was drawn by the party, except that it was stated that an aerial survey or view clearly showed a fault line visible here, which apparently lined up with and extended approximately through the ore body at the discovery. This might be related to the origin of the ore, and indicative as to extensions of the deposit. It was not certain which of the two creeks shown on the map was the lower continuance of this one, as neither stream was followed exactly for any great distance.

All stations from the survey of last fall, as well as the present one, were indicated for future reference by pieces of red cloth tied to a live tree branch of convenient eye-height; this year the numbers were also pencilled on the cloth strips. This last Line Y was perhaps the most accurately run, as Mr. Hibberd, carrying the compass, paced as accurately as possible over the muskeg and underbrush, followed by the writer, who held each station until the arrival of Mr. Sainsbury. Stations were selected as nearly to 40 paces, or 120 feet apart, as possible. In the meantime, Mr. Roberts was engaged in taking other samples in a grid-pattern over the encouraging areas exposed by Line 8, and thereabouts.

The method of taking soil samples was as follows: Last year Mr. Sainsbury had used the more laborious method of digging down 18 inches or so with a shovel or spoon, taking soil from the bottom of the hole. This year an easier and more speedy method was tried, using a pipe and rod. A piece of 3/4" (inside diameter) iron pipe with a 1/2" iron rod in place was shoved or pounded into the soil as far as possible, to reach the harder clay layers or gravel. Holes probably averaged two feet in depth, with a variation of one foot either way. Depth was not recorded except in extreme cases. The

iron rod was then withdrawn, and the pipe pushed a few inches farther down, then removed, and the soil sample was forced into the paper sack with the rod. Three or four portions were usually required for a proper quantity, although it was remarked that for subsequent sampling a 1" or 1¼" pipe, somewhat sharpened, would probably get enough soil with only one insertion. Also, last year Mr. Sainsbury took only a single sample per location, and this year he decided to take the three or four portions within a spread of one foot or so per station, to avoid chance of picking up an abnormally rich sample from a "hot spot". Sacks were numbered in several places, using indelible pencil as the work proceeded, and were given a preliminary drying at the camp stove before being packed. (See Photo 9.)

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As stated previously, this paper is thus merely a factual report on the observations of a brief trip into a geological area and type of work quite new to the writer, and does not attempt to formulate any important conclusions. Perhaps its greatest value may be in the photographic effort to portray the mine site and ore body, and the obvious topographic and vegetational difficulties handicapping such mineral discoveries in south-eastern Alaska. (See Photo 10.)

R.C.R.

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Tillicum Mining Co., Ketchikan, " George Roberts
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extra

1. View of inlet, Caamano Point, at low tide; also Val Klemm cabin.

2. Path to No. 1 trench, tool house, and high-grade ore piles on boards.

3. Inlet at Caamano Point, Cleveland Peninsula - Low tide.

4. Inlet at Caamano Point, Cleveland Peninsula - High tide.

5. Soil, apparently residual, overlying schist at Station 42.

6. Specimen of typical antimony ore - stibnite in limestone.

7. No. 1 trench at discovery site, toward pits.

8. Main antimony ore pit in No. 1 trench, discovery site.

9. Pete Sainsbury (U.S.G.S.)
taking soil sample at Station 41.
(Note red rag marker, upper right)

10. Alaska Muskeg - Cleveland Peninsula.