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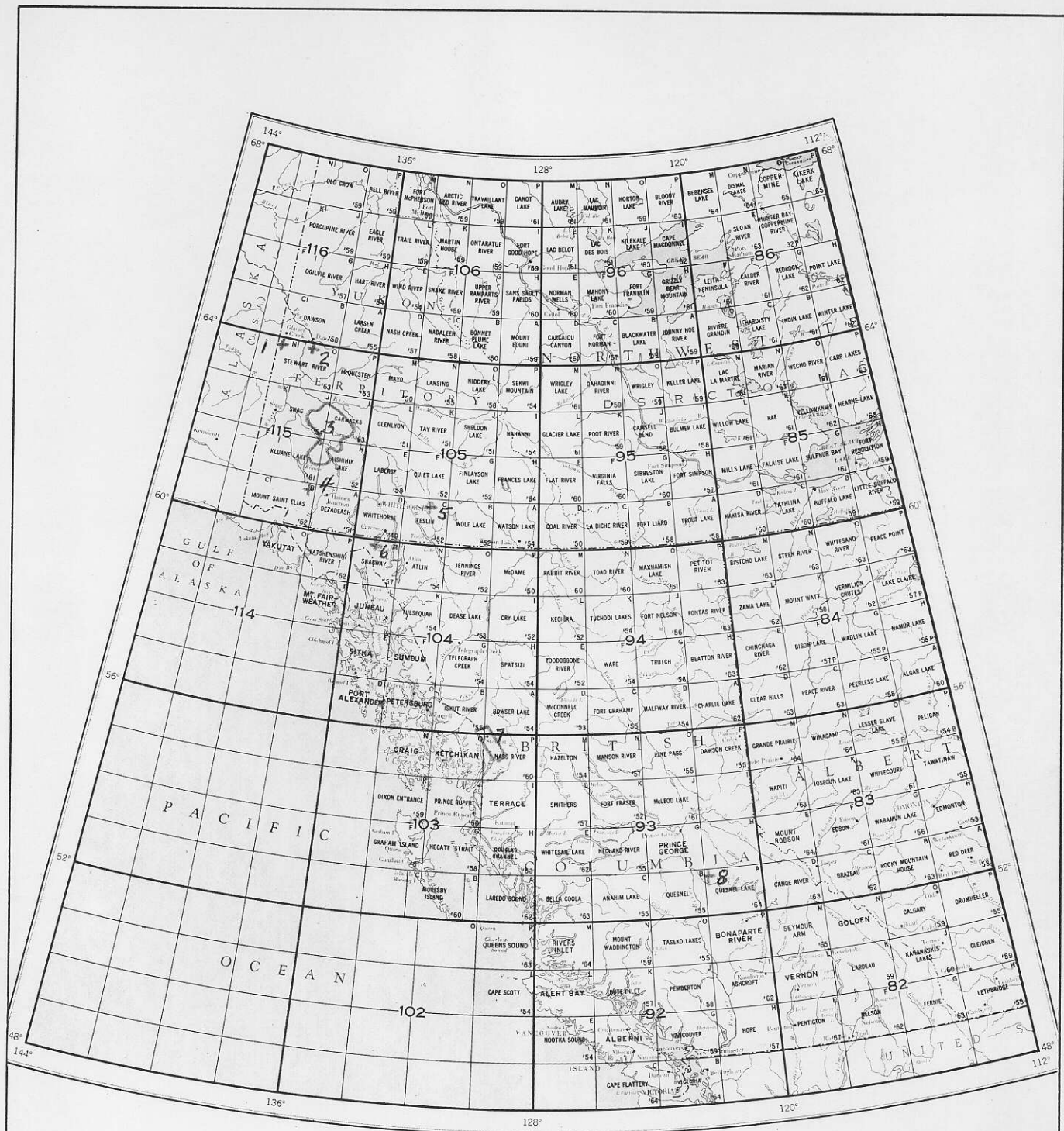
CORANEX PROJECT

ANNUAL REPORT 1965

( J. R. Woodcock )

Vancouver, British Columbia

January 10th, 1966



## WESTERN CANADA — INDEX MAP

### EXPLORATION, 1965

1. Sixtymile
2. Klondike
3. South Dawson Range
4. Cub Creek
5. Teslin Magnetic
6. Bennett Lake
7. Stewart-Alice Arm
8. Rusty Group

## SUMMARY

The geochemical reconnaissance program in the southern part of the Dawson Range, Yukon Territory, resulted in the discovery of one area of disseminated chalcopyrite and pyrrhotite, one area of molybdenite and chalcopyrite, and several areas anomalous in total heavy metals. Assays showed that the pyrrhotite-chalcopyrite dissemination is of no economic importance. The data on the chalcopyrite-molybdenite mineralization will be reviewed again. However the type of molybdenite mineralization is not very favourable. The areas anomalous in total heavy metals could contain silver-gold deposits similar to those at Mount Nansen or Casino Creek. Two of the anomalous areas were selected for investigation -- soil sampling was done in one place south of Big Creek and claims were staked on Hayes Creek. Possible future work would involve bulldozer stripping at Big Creek and soil sampling at Hayes Creek.

The writer made aerial observations on the distribution of rusty zones along the central British Columbia molybdenum belt and then spent two weeks with a helicopter checking some of the brilliant rusty zones in the Alice Arm-Stewart area. Analyses of all silt samples are not complete.

The Coranex crew staked claims to cover the massive sulphide float and the electrical anomaly on Cub Creek, Yukon Territory. An appraisal of the data and past work done on the area indicates that one possible source for this float has not been checked. Recommendations for I.P. work have been made.

A molybdenite deposit 25 miles southeast of Quesnel was examined in October. Because of the suitable type mineralization, the strong geological structures, the widespread overburden, and the molybdenum geochemical anomaly (which was later reduced in size considerably) the writer attempted to option the property. The agreements are not complete and considerable difficulty has arisen.

Additional property examinations made throughout the season resulted in negative decisions. Brief descriptions of these properties are listed herein.

Completion of our permanent laboratory in North Vancouver has been prolonged by numerous unexpected delays. Operation started the beginning of January of 1966. For the 1965 field season and probably in future field seasons, we have a field laboratory which is set up in a camper.

The permanent employees of Coranex Limited include a geologist, a geochemist, a chemist and a part-time secretary. The geochemist is leaving at the beginning of February and a field geologist will take his place.

## FIELD WORK

### SOUTHERN DAWSON RANGE

#### General Program

To the southwest of the Yukon River in the Carmacks map area lies a geologically interesting area characterized by an abundance of intrusions. Particularly interesting is the zone along Big Creek where the Mesozoic and older rock units are cut by intrusions of syenite and monzonite and these are in turn cut by Tertiary (?) intrusions of quartz porphyry. The area of Tertiary stocks extends northwesterly into the Snag map area and southwesterly into the Kluane Lake map area.

Copper mineralization of a disseminated type occurs on Granite Mountain and on Revenue Creek, a small tributary of Big Creek. Gold or silver-gold mineralization occurs on Mount Freegold and at Mount Nansen.

The Carmacks area and the Snag area are unglaciated whereas much of the adjacent Aishihik Lake and the Kluane Lake areas has been glaciated. In the unglaciated areas, shallow overburden is widespread and permafrost conditions prevail.

The interesting geology, the porphyry copper type mineralization west of Carmacks and the extensive overburden indicated that the southern part of the Dawson Range would be a favourable area for reconnaissance geochemistry.

During the season which lasted from early May until the end of August, the work was done from base camps established at the west end of the Freegold Mountain road and at a small lake near the Aishihik airport. The geochemical reconnaissance covered most of the Carmacks area southwest of the Yukon River. This coverage extended about 10 miles westerly into the Snag area. From the camp at Aishihik we extended the coverage southward to Aishihik Lake and westward about 15 miles into the Kluane Lake area.

Geochemical tests on known mineralization at Granite Mountain and Revenue Creek indicated that any anomalies from copper deposits would be subdued relative to those found in the mountainous areas of British Columbia. This is because of the permafrost conditions and because of the dilution of stream sediments by the abundant white ash which covers that part of the Yukon. As a consequence, we did the reconnaissance sampling in greater detail than is normally the case and we investigated some relatively small anomalies.

#### Results

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#### Results

Numerous T.H.M. (total heavy metal) anomalies occur west of Carmacks; two of the better ones received some attention. The

anomalous areas, one south of Big Creek and one on Hayes Creek, are characterized by porphyry stocks and by T.H.M. anomalies with associated arsenic and copper anomalies.

### Big Creek

To cover an area of anomalous T.H.M. values south of Big Creek, a group of claims called the Klazan Group was staked but never recorded. The anomalous area was detailed to some extent by soil-sampling. This work indicated a linear T.H.M. anomaly and also some pyrite-rich zones with anomalous values in T.H.M., arsenic, and molybdenum. Samples from shallow trenches in the pyritic material showed only traces of gold. Because of a backlog of samples in our field laboratory, analyses of all soil samples is not yet complete. The analyses for heavy metals, arsenic, and copper will be completed and samples from the linear T.H.M. anomaly will be analyzed for antimony. When these results are complete, a separate report will be made in which there will be recommendations as to whether we should abandon the area or stake it and do some bulldozer stripping.

### Hayes Creek

At Hayes Creek, some disseminated copper occurs in gneisses near a porphyry stock. The material is highly oxidized and, although some disseminated chalcopyrite is present, most of the copper is in the form of malschite and azurite. Samples of the rock with disseminated copper yielded an assay of 1.5 ozs. of silver. This was apparently a mistake because subsequent assays failed to confirm the silver values.

One soil profile along the high bank of the creek revealed a place that is anomalous in arsenic and copper. A few scattered disseminations of tetrahedrite (?) occur in this rusty rock.

Stream silt samples showed copper anomalies coming from the areas above the exposed mineralization.

Because low silver values were reported with the disseminated copper; because unexplained copper anomalies occur further up small creeks; because this area is an old gold placer camp; and because there was some interest and activity within the region in the late summer, the writer flew into the area in early September and staked 22 claims. According to Mr. C. H. Brown, geologist for White Pass and Yukon Route, claims were at one time held by a prospector who had discovered a quartz vein carrying some galena. The activity at Casino Creek, 20 miles further west, renewed interest in the area so the same prospector returned to Hayes Creek and staked some claims along the north side of the Hayes claim group (Coranex Limited).

When analyses for all our silt and soil samples from the area are complete a separate report will be submitted with recommendations for additional soil-sampling if justified.

### Rhyolite Creek

The work out of the Aishihik camp turned up two areas of interest in the Kluane Lake area. Follow-up work on a copper anomaly on Rhyolite Creek in the Nisling Range led to a rusty zone which contained some disseminated pyrrhotite, chalcopyrite and a few specks of scheelite. Assays for copper, tungsten and tin, proved that the mineralization was of no further interest.

### Alaskite Creek

The extensive zone of brownish rust in the Ruby Range has related copper-molybdenum mineralization in a cirque at the headwaters of Alaskite Creek. The molybdenite occurs as scattered disseminated rosettes within a granitic rock; the chalcopyrite occurs in narrow alteration zones formed by replacement along widely spaced fractures in the granite. Most of the observed mineralization is float on a terminal moraine on the lip of the cirque. It probably came from the bottom of the basin within the cirque and was pushed into its present position by a cirque glacier. The type of mineralization is not particularly interesting, however the data on hand will receive some further consideration.

### Conclusions

Because of an apparent desire for exploration work in the molybdenum belt of British Columbia, the work in the Aishihik area was terminated at the end of August and the helicopter was taken to central British Columbia to check some rusty zones in the vicinity of Alice Arm and Stewart. Analyses for some of the silt samples collected at the end of the Dawson Range program are needed. These will be completed and included in the final maps and report that are being prepared by W. T. Meyer.

The Dawson Range and part of the Klondike Plateau to the northwest are characterized by porphyry stocks possibly of Tertiary age and by camps of silver and/or gold mineralization that are, in places, related to the stocks. The camps presently known include Mount Nansen, Freegold Mountain, Casine Creek and Sixtymile River. Similar mineralization may occur at the Hayes Creek and the Big Creek geochemically anomalous areas.

Some geologists have compared the deposits with the epithermal or bonanza-type deposits that were so important in the western United States about 100 years ago. However, although there are many similarities in mineralogy, there are important differences. In the Dawson Range much of the silver is associated with galena; the gold is free or is associated with arsenopyrite and electrum is not reported. The deposits found thus far are narrow and not particularly rich.

Only two camps, Mount Nansen and Freegold Mountain have been explored and the results would not interest many mining companies.

Whether or not the other mineralized areas will also be small is not known.

Although the exploration in the southern Dawson Range for copper met with little success, it did disclose anomalous areas which could lead to silver-gold mineralization. A decision about further work in these areas will be made when all the samples and data are analyzed. Possible future work would involve bulldozer stripping at Big Creek and soil-sampling at Hayes Creek.

Should one of the known camps prove important, there are several guides to rapidly finding additional potential camps. The camps are characterized by some of the following features:

- 1) Presence of old placer workings
- 2) Presence of porphyry stocks
- 3) Heavy metal anomalies in silts
- 4) Soil with anomalous values in Zn, Cu, As, Sb, Mo.

#### COLOUR ANOMALY WORK IN BRITISH COLUMBIA

##### Reconnaissance Observations

In anticipation of a geochemical program in the central British Columbia molybdenum belt in the 1966 field season, the writer spent a week in Smithers accumulating pertinent data. The work included eight hours of flying in a light plane along the eastern margin of the Coast Crystalline Belt in order to observe the type and extent of rusty zones associated with known molybdenum deposits. The writer made return flights from Smithers to the area around Tezla Lake (about 100 miles to the south) and to Bowser Lake (about 150 miles to the northwest). The writer plotted rusty areas along the flight lines on topographical maps and classified them according to intensity. The results show a broad area of rusty rock lying along the east side of the batholith between Tezla Lake and Aiyansh with numerous extremely bright rusty zones of more limited extent within this belt. In the Alice Arm-Stewart area the broad belt of rusty rock is less obvious but the bright, more restricted zones are present. All of the molybdenum or copper-molybdenum deposits (except Morice Lake and Huckleberry Mountain) within this zone are associated with bright rusty areas.

Limited observations made during the helicopter flights between Stewart and Whitehorse indicate that the Coast Crystalline Belt is probably flanked by broad rusty bands in the Iskut-Stikine and in the Tatsamenie Lake areas. The broad rusty zone appears to be missing in the Atlin Lake-Bennett Lake areas. It will be noted that most of the copper exploration in recent years has taken place in the Iskut-Stikine and the Tatsamenie Lake areas.



A report with maps outlining the data on which these conclusions are based will be submitted in conjunction with the proposals for the 1966 reconnaissance.

#### Colour Anomaly Checks at Stewart, British Columbia

In view of the abundance of exploration work being carried on along the central parts of the Coast Crystalline Belt (between Morice Lake on the south and Alice Arm on the north) the extreme ends of the belt were picked as places for possible further work. Because it was too late (early September) to set up a main base camp and because there were hotel facilities at Stewart, the area between Bowser Lake and Alice Arm was chosen as a place to check some of the colour anomalies. The writer, accompanied by the helicopter pilot and engineer and by the chemist, spent two weeks working out of Stewart. Silt samples and some rock samples were collected from many of the rusty zones and the silt samples were analyzed for molybdenum in the hotel room by field techniques.

Most of the rusty zones are carbonatized and pyritized volcanic rocks and some contain anomalous molybdenum. Several molybdenum anomalies were found but no molybdenum mineralization was seen to account for them. Possibly the small anomalies are from a gold-type mineralization as most gold deposits in British Columbia do have a slightly anomalous molybdenum content. The silt samples collected in this two-week program will be analyzed in the laboratory for copper, molybdenum and heavy metals and the data synthesized in a report.

The brief program indicated that this hasty technique of geochemical reconnaissance has several drawbacks:

- 1) In many cases it is impossible to land at the mouth of a stream which drains a colour anomaly so collecting a silt sample might involve a half-day or more of walking.
- 2) Important deposits are often only adjacent to an intensely rusty zone, not right in the middle of it and therefore might not be sampled by drainage from the zone itself.
- 3) There is not enough coverage to obtain background values or to determine the merits of a single anomaly.
- 4) The field test for molybdenum is not very satisfactory. Therefore the colour anomaly maps should only be used as guides for choosing worthwhile areas for detailed reconnaissance silt-sampling. The areas of interest should be completely sampled by a crew of silt samplers based at or supplied by a main camp.

#### MISCELLANEOUS GEOCHEMICAL PROSPECTING

In the 1965 season, the writer visited three areas to do

some geochemical sampling with a specific target or object in mind. No obvious mineralization of importance was noted in any of the areas and so the analytical work on the silt samples has been postponed and will probably be done late in the winter.

#### Klondike

Silt samples were taken from several streams in the Klondike area. The object was to gain data on arsenic geochemistry and to check the possibility of other types of mineralization. Copper has been reported in some of the stream placers.

#### Teslin Magnetic Anomaly

Aeromagnetic maps of the Yukon show two interesting ring-shaped anomalies in the Wolf Lake map sheet. The geological map shows these to coincide with syenites. One day was spent in visiting, examining and silt-sampling the smaller of these two anomalies (about 40 miles due north of Teslin). The rock exposed contains abundant mafic minerals and negligible sulphides of any type. Silt samples were taken from three creeks draining the magnetic anomaly. Panning in a couple of places in one creek yielded only very small amounts of heavy minerals.

#### Bennett Lake

Because of an oral report on molybdenite associated with a large rusty zone on the east side of Bennett Lake, the writer spent one day in this area. Most of the time was occupied in getting down a canyon to the rusty zone. No molybdenite mineralization was observed but silt samples were collected from the rusty zone in question and from several other streams that drain rusty zones and enter Bennett Lake.

#### CUB CREEK, YUKON TERRITORY

The claims on the Cub Creek massive sulphide float lapsed in the middle of July and the Coranex crew re-staked the ground covering the area of float and also covering a resistivity anomaly which has never been tested by drill holes. Subsequently, the writer gained information on the distribution of the sulphide float and on the extent of previous geophysical work and decided to stake an additional eight claims. There are three possible sources for the float:

- 1) It came down from the cirque on a rock glacier;
- 2) It was gouged up from the bed of Cub Creek by glacial action
- 3) It was moved parallel to the Shakwak Valley by the main glacier flowing northwesterly.

The last possibility appears to be the best bet but it has not been tested.

Some I.P. work is recommended to test this possibility and to also retest the known resistivity anomaly. A separate report on the property has been submitted.

#### THE RUSTY GROUP, British Columbia

In early October the writer examined a molybdenum prospect 25 miles southeast of Quesnel, British Columbia. The type of mineralization looked interesting but the showings themselves were very restricted in size. A field geochemical molybdenum anomaly about one mile north of the showings and apparently on the same north-south structure made the area appear interesting enough to option.

The property had been optioned by George Gorlich from a prospector, Eugene Crotteau. Mr. Peter Schwerdt, representative for Gorlich, granted Coranex permission to renegotiate an option with Crotteau. After this was done Schwerdt and Gorlich reneged on their verbal agreements and on their written field agreements and have caused us needless expense without completing their agreement.

Subsequent work in the laboratory on a few samples collected showed that the molybdenum anomaly is considerably lower than field tests indicated, being only about four-times background rather than twelve-times background. These disappointing results, combined with the exasperating and time-consuming unsuccessful negotiations with Schwerdt and Gorlich have shown that the property did not warrant the expense of optioning it. However, studies of the available geological and magnetic data and the known mineralization indicate that the general area would warrant a detailed geochemical prospecting program.

#### PROPERTY EXAMINATION

At the request of various prospectors, three mineralized areas were investigated briefly with a view to a possible option. The molybdenite mineralization reported by Mr. C. E. Burns and the copper mineralization reported by Mr. H. Harrison were reportedly on open ground and so the would-be owners requested agreements before examinations could be made.

#### Mush Lake Copper

Harrison's copper prospect is near Mush Lake in the Dezadeash area of the Yukon Territory. The writer visited this area briefly with a helicopter and found that the amount of copper mineralization present did not even warrant a report. Mr. Harrison has been notified that Coranex is not interested in the property.

#### Burns' Molybdenum

After much quibbling, Mr. C. E. Burns gave Coranex Limited a

very rough sketch of the location of his molybdenite mineralization. The molybdenite mineralization plots on top of a known lead occurrence a few miles from the Grizzly Tip lead deposit and south of mile 708 on the Alaska Highway. Bill Plum, geologist for Cassiar Asbestos Corporation, informed the writer that the deposit consists of several large quartz veins carrying scattered rosettes of molybdenite and occurring at the contact of the Cassiar batholith. In addition to the quartz veins there is a shear zone which carries some disseminated molybdenite. The property is held by a prospector but the writer has not checked the ownership. As the type of mineralization does not sound to be very favourable and as the property is a well known one and has been examined many times the writer did not make a specific effort to visit it. If a convenient opportunity arises in the future the writer will visit the property and submit a short report.

#### Sixtymile River

In late September, Mr. Andrew Moisey phoned the writer to grant Coranex Limited first look at a new silver-lead deposit west of Dawson City. Mineralization is widespread on the property but the few veins exposed are very narrow. The data gathered in the brief visit to the property has been submitted under a separate report.

#### Miscellaneous Visits

Throughout the season the writer visited molybdenum properties under investigation by other exploration companies when he was in the vicinity. For some of these properties brief reports were submitted. The molybdenum properties included the Dak River deposit (Newmount Mining Corporation), Roundy Creek property (Silurian Chieftain), the Gem Explorations property (Utah Construction and Mining Company), a molybdenum prospect north of Endako (United Buff Addison), a molybdenum prospect near Bralorne, some molybdenum prospects on the Nass River (Gabriel-Helday Syndicate) and the Hurley River prospect east of Stewart.

#### LABORATORY

The construction and the initial performance of a geochemical laboratory involves considerable time, expense and difficulties that one never anticipates. Because of the numerous zoning, building and health restrictions prevalent in our city and because of demands that the present boom has placed upon electrical, plumbing, and building contractors the completion of the laboratory has taken a little longer than expected. However, it is now in order and the chemical tests are being set up.

Within the large warehouse at the back of the two offices, a laboratory, a small weighing room and adjacent chemist's office, and a drafting room have been constructed. The laboratory is well planned and is an asset to Coranex Limited. Certainly any large company anticipating extensive exploration in British Columbia would desire such a laboratory

and so it could probably be disposed of, if necessary, in the future. In order to reduce overhead in maintaining a laboratory and chemical staff, analytical work for a limited number of other companies will be done.

Samples from the first season of work were analyzed in a camper costing about \$1500. Considerable interest has been expressed by geologists of other companies in this type of field laboratory and enquiries about purchasing it have been made. The camper will be kept for a field laboratory for future work.


In this first year of work Coranex was fortunate in having a chemist and a geochemist both of whom have had considerable experience in the analytical work involved in geochemistry and in setting up a laboratory. As a consequence few difficulties in the laboratory techniques arose during this first season of work.

Rock geochemistry is the most prevalent type of geochemistry used in the exploration work in the western United States. It is generally used on mineralized zones and is especially applicable where there is oxidation and possible leaching. Very little of this has been tried in Western Canada; Amax appears to be the only company making extensive use of this possible tool. In order to complete the geochemical laboratory, it will be necessary to install a small crusher and pulverizer. The equipment and the building of the room to contain it, plus a room to do the silt sifting in would come to approximately \$2500. If installation is made, the laboratory could do assay type work for molybdenum and low grade copper.

#### EMPLOYMENT

The permanent employees with Coranex Limited include the managing geologist (J. R. Woodcock), a geochemist (W. T. Meyer), a chemist (Conway Chun) and a secretary who is employed half-time, (Mrs. M. Brooks). Mr. Meyer will be leaving in February to accept employment with Brinco in eastern Canada. His new job will apparently involve more research work and his new employer will finance his PhD education at the Imperial School of Mines in England.

For the summer program eight university students were employed for the silt-sampling work, one student for an assistant in the field laboratory, and a cook. This is an ideal sized crew for a silt-sampling program. However, if extensive work is to be done in any anomalous areas encountered, the crew should include one or two undergraduate geological students.

  
J. R. Woodcock

January 10th, 1966