Clinton Creek

We welcome you

to Clinton Creek

There are not many people in our town—about 450. We could comfortably fill a 747 jumbo jet.

This is one of the main reasons we welcome you. It makes no difference whether you are paying us a short visit or joining us as a new employee.

We like it when new people show up. It adds interest to the patterns of our lives. It keeps things moving. And now that you are here—as a visitor or a new permanent resident—we invite you to look around and get to know us—to see how we work and how we play.

We depend on one another here. This interdependence is really the central theme of our lives, and it applies to us all both on and off the job.

There are a lot of interesting people in Clinton Creek, and there are many interesting things to see and do. While you are here we want you to meet as many Clintonites as possible and enjoy the community's facilities and activities. And we would like you to learn something about our work too—the mining and milling of asbestos, our history, what asbestos is—and where it goes after leaving here.

That is why we prepared this welcome booklet. Indeed, its existence is evidence of our interdependence, for many of us had a hand in its production. We hope that you find it useful.

So, a warm northern welcome to everyone who has just arrived.

From the people of Clinton Creek

Clinton Creek
How we live and what we do

There are about 450 of us at Clinton Creek. We work hard and we play hard too. But working and playing hard is not new to the Yukon. The fact is the Yukon demands both spiritual and physical stamina from us all, for this is a land of unceasing challenge and variety. Its opportunities are as broad as its ample horizons. Some say that living and working in the Yukon is as rewarding as any place on earth.

Others may not agree. But agree or not it cannot be denied that there is a mystique about this land that has a way of getting into your blood. Robert Service, the Bard of the North, called it the spell of the Yukon. Perhaps you will find it while you are here. Hundreds have.

Some have found it here in Clinton Creek. Perhaps this is because our community is so close to Dawson and the Klondike—the historical hub of the Yukon. It could be the long summer nights with a sunset that sets the heavens aflame, or perhaps the snap and crackle of winter when our work is done and the northern lights are blazing in the sky.

Whatever the reason, we hope that you will be comfortable in our community and enjoy it.

One of our cornerstones is the Community Club. We welcome you. Its main purpose is to operate recreational facilities as well as provide Clinton's citizens with an opportunity to become involved in community activities and events.

If curling is your bag the curling club will welcome you. There is a soccer club and others, including ice hockey, fastball, basketball, and an outdoor club that offers you companionship and the challenge of the surrounding hills. If you like badminton there is a badminton club and a place to play.

If it's rest and relaxation you want there is the Malamute Saloon, the snack bar or the library. There are weight lifting facilities, a summer pool for the swimmers, and arts and crafts.

To find out what is going on you only have to look around, keep an eye on the notice board—and read Rock Fluff, the local paper.

Let us take a quick swing around town and point out the town's main features, activities and services.

STORE: Our community store—the Miners' Cash 'N' Carry—stocks groceries and dry goods, drug items and normal home and personal needs. Fresh produce and foodstuffs are trucked in on a regular schedule. It is located in the Cafeteria Building.

POST OFFICE: Located in the Cafeteria Building, the Post Office provides a complete postal service.

BANKING: The Canadian Imperial Bank of Commerce provides a complete banking service.

LAUNDRY AND DRY CLEANING: A laundry and dry cleaning service is available to Clinton residents. It is located on Dawson Street behind the Cafeteria Building.

SCHOOL: The four-room Robert Henderson School is operated by the Yukon Territorial Government. The British Columbia provincial curriculum is followed for all grades from one to nine. The school staff of three teachers—plus one kindergarten teacher provided by the Company—work closely with parents to maintain a high standard of behaviour and scholastic achievement. In addition to normal subjects the school provides a variety of activities including physical education and part time instruction in French and typing. Bursaries, which are provided by the Company, are available to resident employees' children who go "outside" for their grades 10, 11 and 12 education. In addition, the Company provides these students with two return airfares per year.

FIREWEED LOUNGE: A lounge with a touch of Victorian elegance operated by the Community Club. You will find it in the Malamute Saloon.

DINING HALL: Full cafeteria facilities are available at the dining hall which schedules its services to meet all shift requirements.

MEDICAL SERVICES: Clinton Creek is served by a four-bed hospital. It has a resident doctor and staff of four nurses. Being a "Cottage Hospital" its surgery facilities are very limited. Because of this, patients are moved to larger centres for major surgery or treatment. Every two or three months a Dentist spends up to four days in the community. Specialist information and Doctor's office hours may be obtained from the hospital staff.

ALOU SERVICE STATION: Gas, oil and light car maintenance are available at the Alou Service Station, a privately operated establishment.

ALOU BUS LINE: A scheduled free bus service operates between the townsite and the mine, mill and plantsite areas.

HOCKEY AND SKATING: The arena provides a skating area 80'x200'. This area, plus dressing rooms, is open to the public throughout the winter season. The 25'x60' spectator's area is open all year and is available without charge for community social events and meetings.

SKI HILL: Ski Hill and tow facilities are located eleven miles from Clinton Creek on the road to Dawson. It was built by the Outdoor Club and is operated by its members. Except for tow rope gasoline expenses it is available without charge. Cross country ski trails are available near the townsite.

SOCCER AND SOFTBALL: Soccer and softball players will find a football field and a ball diamond one mile out of town near the Forty Mile River Bridge.

LIBRARY: A well stocked rotating library is located in the Robert Henderson School. It offers a selection of approximately 500 hard cover books. A good selection of paperbacks is also available. New books are obtained every three months. Arrangements can be made to accommodate special requests through the central library facilities at Whitehorse.

SNACK BAR AND LOUNGE: The Snack Bar which is operated by the Community Club, provides a normal snack bar "counter service" and a place to meet friends.

MALAMUTE SALOON: On and off premises sales of beer, wine and liquors. It is operated by Clinton Creek's Community Club and is open every day of the week. Guests are always welcome.

AIRSTRIP: Clinton Creek has a licensed airstrip 5,300 feet long. It is situated near the plantsite and accommodates scheduled airline service to and from Whitehorse. A local agent is available to handle all major airline ticketing arrangements.

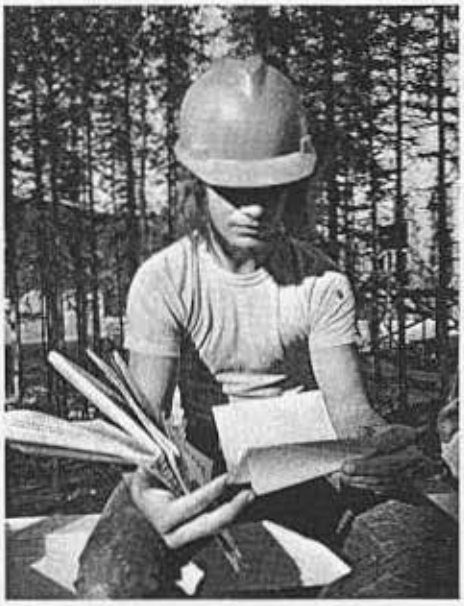
FIRE AND EMERGENCY: The constitution of the Clinton Creek Volunteer Fire Department states that its objective is, "To provide fire protection, fire prevention to save lives, extinguish fires and save property, to the best of our ability at Clinton Creek." This it has done—particularly in the field of fire prevention. Emergency phone numbers are:

FIRE 7222
HOSPITAL 7333
R.C.M.P. 993-5444 (Dawson City)

RECREATION AREA: The recreation area below the Cafeteria is a general meeting spot and it contains a snack bar, pool tables, table tennis facilities, chess, cards and movies.

FILMS: Films are shown in the Recreation Area below the Cafeteria.

CURLING RINK: Clinton Creek hosts the most hospitable annual bonspiel in the Yukon. Need any more be said!



SWIMMING POOL: An outdoor swimming pool is available to all Clinton Creek residents. Change rooms and guard services are available. It is operated by the Community Club.

RADIO AND TELEVISION

RADIO—CBC radio signal is broadcast in Clinton Creek and provides a full schedule of local and network radio programs.

TELEVISION—Clinton Creek receives colour TV programing from Vancouver via Anik satellite.

NEWSPAPER: A local newspaper called Rock Fluff is published on a monthly basis. It is distributed to employees and friends of the community. Local volunteer writers put the paper together and they will welcome your suggestions, news items, photographs, or even cartoons

CHURCHES: While there are no church "buildings" in Clinton Creek, the "church"—as an expression of Christian ideals and knowledge—is active, productive, and visible. Public notices of denominational worship and instruction are posted in the Rock Fluff. All denominations welcome you.

R.C.M.P.: The R.C.M.P. who are stationed in Dawson City, usually make weekly visits to Clinton Creek although they will respond to special requests. They conduct driver tests for licenses.

TELEPHONE AND TELEX—The Community is served by telephone and telex.

And that is not all. The hunting is good in the area, and so is the fishing—as dictated by the seasons. There is a picnic ground and barbecue area on the banks of the Forty Mile River, but still within the townsite boundary. The snowmobilers get together in the winter as do the motorbike riders and the four-wheel drivers when the summer sun arrives.

You might regard the activities and facilities listed above as the "social framework" of our community. They increase or reduce depending on popular interest at any point in time. Whatever is going on there is one thing to remember—and that is that everything is run by "people power." Whatever is available to the community someone or some group has made it happen.

So, this is your invitation to enjoy our community of Clinton Creek.

"There's stuff like that on my trapline!"

In February 1957 Fred Caley, Dawson merchant and inveterate grubstaker, was showing Arthur Anderson some asbestos samples from Cassiar Creek, located some thirty miles northwest of Dawson City in the Yukon. Anderson knew what it was. He and his father had picked up samples of asbestos from Clinton Creek in the 1940's. They even had samples in their trapper's cabin.

Anderson studied Caley's samples carefully and said "There's stuff like that on my trapline, up on Snowshoe Hill, near Clinton Creek." That was the beginning of Clinton Creek mine—but it was not the start of the story. The Clinton Mine saga really began on Cassiar Creek in the middle fifties.

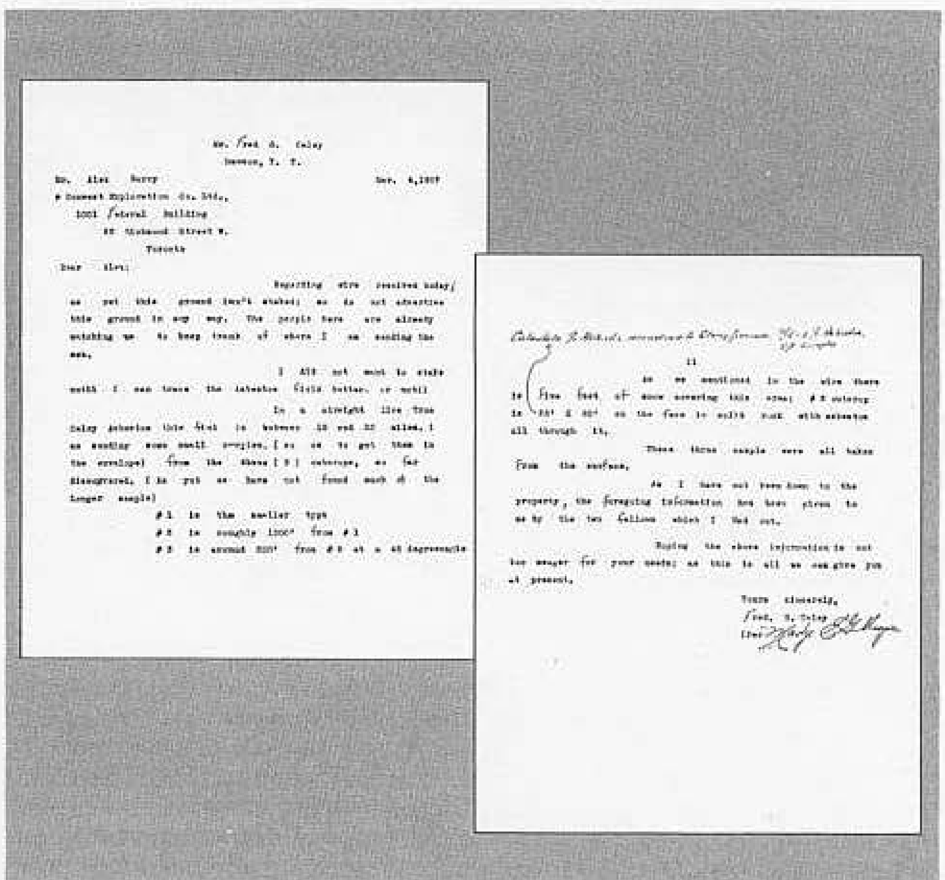
Actually there had always been an interest in the Yukon's Cassiar Creek. In fact it is believed that Cassiar Creek was named by early placer miners who had come north from the Cassiar gold creeks in northern B.C. In the late 1920's this interest was renewed. Gold claims were staked and showings of asbestos were also noted, but they raised little interest at the time. It was not until the middle nineteen fifties that activities of a positive nature began to occur—the casual stirrings that so often trigger enterprise of great worth.

The catalyst on this occasion was two Yukoners, Willie and Walter DeWolfe. Their father, Percy DeWolfe, who was known far and wide as "the iron man of the north", ran the winter mail by dog team between Dawson, Yukon and Eagle, Alaska. His sons had been working in the Cassiar Creek area and it was there that they saw the asbestos. Willie and Walter gathered some samples and took them to their friend Fred Caley in Dawson.

Caley inspected the samples carefully. He knew what asbestos was and its potential value. Without wasting any time Caley, his son Bob, Mitch Negano, Willie and Walter DeWolfe, all from the Dawson area, drove along the Sixtymile road in a land rover and staked on Cassiar Creek about three miles upstream from its confluence with the Yukon river.

It was around this time that the word "asbestos" was being bandied about throughout the north's mining circles. Cassiar's mine in northern British Columbia had been in production since the fall of 1953 and, because of this, interest in the magic mineral was running high throughout the North—particularly in the Yukon.

Alec Berry, who had already been credited with bird-dogging the Cassiar, B.C. property, was now devoting his attention to asbestos in the Yukon. In fact there was not much going on in the Yukon mining scene that was unknown to Conwest Exploration Company's field representative Alec Berry. His mining reports to the members of the Whitehorse Board of Trade were highlights of the meetings and listened to with keen interest by miners and non-miners alike.



Caley told Berry about his group's staking expedition to Cassiar Creek. These two Yukoners, who had been friends since 1925, often exchanged information on mining, a subject of deep and abiding interest to them both. In Berry's view Caley should be regarded as one of the great mining personalities of the north. "There wouldn't be an Alec Berry, or Cassiar Creek or Clinton Creek if it hadn't been for Fred Caley because he grubstaked everybody, and lots of times he lost," Alec Berry said.

Berry investigated the Cassiar Creek property and, as a result of his reports, Dr. William Smitheringale, Western Manager of Conwest Exploration Company Limited, optioned it from the Caley group. After completing a personal examination Conwest then undertook an extensive exploration program.

The results were disappointing. The property looked rich but it was a teaser. It never lived up to its promise or produced the hoped-for results.

After completing a considerable amount of work on the property Conwest abandoned it—as did others who tried later to make something of it.

In late February, 1957, Arthur Anderson and his partner George Walters, who were trappers in the Clinton Creek area, visited Fred Caley in Dawson City. Caley showed them some of the asbestos samples that had been gathered at Cassiar Creek. Both Anderson and Walters recognized the mineral, and it was at this time that Anderson exclaimed, "There's stuff like that on my trapline."

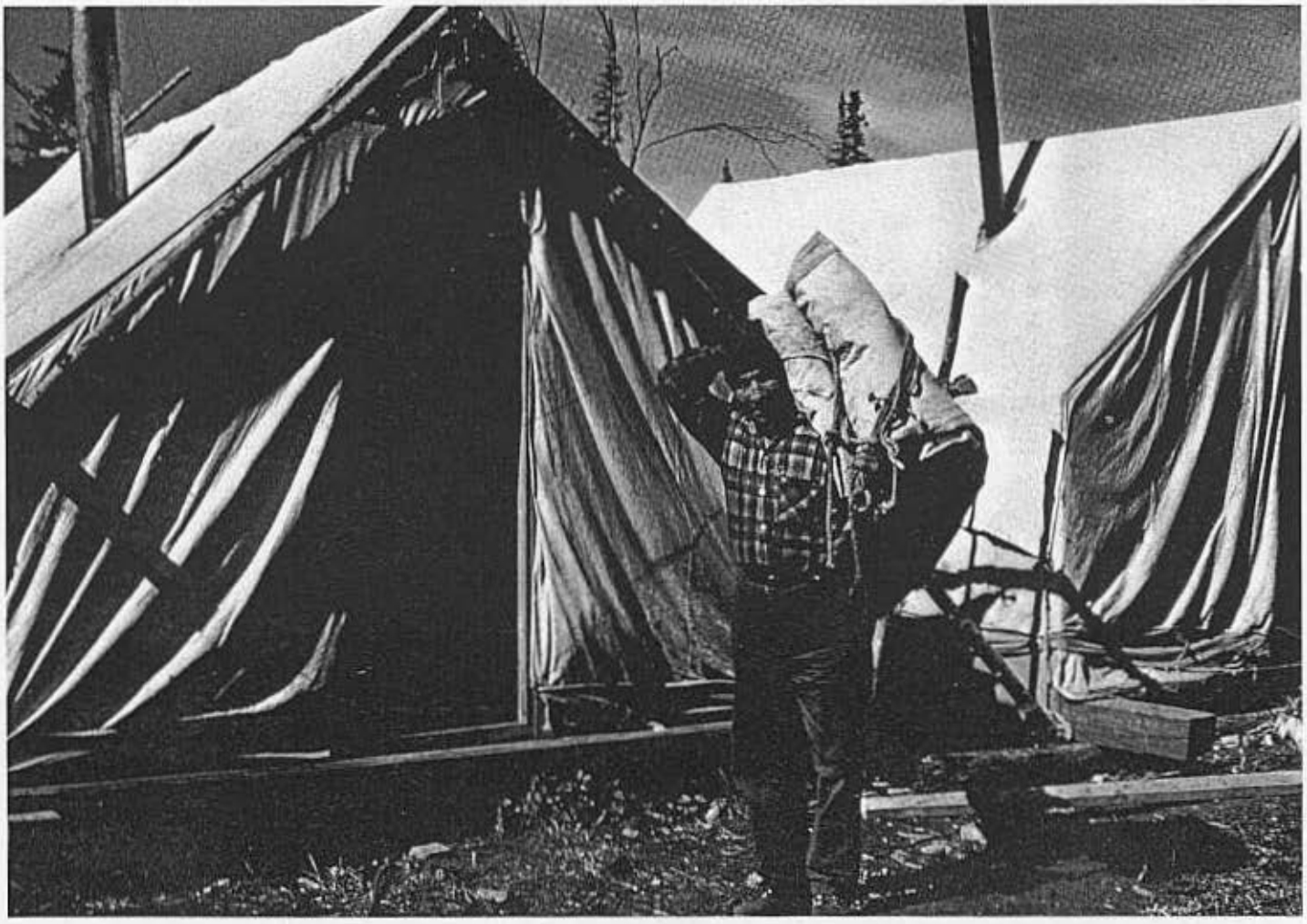
On hearing this Caley grubstaked the two trappers and told them to go to Snowshoe Hill in the Clinton Creek area and obtain samples. With considerable difficulty they eventually located the asbestos showings beneath the snow and obtained the samples Caley required. After examining them Caley advised Anderson and Walters to return to Clinton Creek and stake the maximum number of claims allowed—eight claims each.

Caley then wired his friend Berry, who was in Toronto attending a mining convention, and told him of the latest developments. Berry immediately wired back expressing his interest in the venture.

On receipt of Berry's answer Caley wrote him a letter and enclosed some samples of Clinton Creek asbestos. A copy of this famous Caley letter, which has been reproduced here, now rests in the Yukon archives. It was written on an old battered typewriter that had lost its f. After typing the letter Madge Gillespie, Caley's married daughter, inked in each missing f, signed it for her father who was away staking his own eight claims on Clinton Creek, and sent it off. A week later Caley's son Bob staked eight claims—making a total of 32 claims for the four equal partners of the Caley group.

No one thought much about it at the time, but f or no f Caley's letter to Berry, dated March 4, 1957, was the instrument that eventually launched Clinton Creek mine.

Alec Berry examined Caley's asbestos samples in Toronto and turned them over to Joe Rankin, Conwest Exploration Manager. He in turn advised Conwest Chairman F. M. Connell, who had already launched the asbestos mine at Cassiar, British Columbia.



Clinton mine was starting to emerge from a welter of staking, letters, wires, phone calls and on-the-spot examinations. The Conwest executive machinery slipped smoothly into high gear. Berry was sent back from Toronto and during late March, in company with Dr. Smitheringale, he arrived in Dawson City, where a tentative option arrangement was completed between Conwest and the Fred Caley group.

By April, 1957 Dr. Smitheringale, Alec Berry, Al Storey, and Dick Gillespie were flown into the Clinton Creek area by Pat Callison, a well known and much respected Dawson-based flyer. Callison landed his ski-equipped plane on the Fortymile river just below the site of the present bridge. They tented their first night on the riverbank and the following day they snowshoed to Arthur Anderson's trappers cabin on Clinton Creek.

Later that month, Dick Gillespie, Caley's son-in-law, walked in a D6 tractor from a spot near the Sixtymile road and crossed the Fortymile river on the ice. Gillespie carried out the initial trenching on the property and helped set up the spring tent camp.

After the preliminary examination was completed Dr. Smitheringale was sufficiently impressed with the property to complete a formal five-year option on the Caley group's 32 original claims.

By late spring Jack Christian, then president of Cassiar Asbestos Corporation Limited, and Fred Murray, Mine Manager at Cassiar, B.C. inspected the property. This eventually led to an agreement between Cassiar Asbestos and Conwest Exploration on June 1, 1957, in which Cassiar acquired the Clinton Creek property under option from Conwest.

During August of 1957 trenching was started in the vicinity of "discovery" outcrop on Snowshoe Hill and on nearby Porcupine, Wolverine and Trace Hills. Fibre was found in all four locations. Subsequent trenching on Porcupine Hill developed what appeared to be very interesting prospects. These results helped determine the future course of exploration.

By the beginning of September an access road from the Sixtymile at mile 37 was roughly completed by Dick Gillespie. Tractor drawn equipment could now be brought in overland.

By September, 1957 it was decided to continue exploration throughout the winter. A permanent exploration camp was established and during the winter of 1957-'58 adits were driven under outcrops on Snowshoe and Porcupine Hills under the direction of Trevor Horsley. That year the first ice-bridge across the Yukon river at Dawson was constructed. By the end of the year a DC3 airstrip had been constructed and was in use.

The summer of 1958 saw adit work continuing until October 31 when a total of 3,176 feet had been driven and potential orebody of five million tons estimated. Bulk samples from the adits were test-milled at Cassiar, British Columbia. Samples of the milled fibre were sent to Cassiar's customers for their evaluation.

Despite this apparent progress however, the estimated tonnage was not considered adequate to support a mining operation. The huge capital costs required to establish a mine could not be justified unless a greater quantity of ore was discovered. In view of this, the Clinton program was shelved until economic conditions warranted further and more detailed exploration.

In the meantime, during 1959, extensive surface stripping was completed at Cassiar Creek. Two adits were driven totalling 1,180 feet and samples were shipped to Cassiar, B.C. for tests.

In 1963—after waiting five years for economic trends to improve—exploration resumed at Clinton Creek. Equipment was brought in by the barge "Brainstorm" from Dawson during May, and during the summer months a comprehensive exploration program was completed. This included geological mapping and dip needle surveys, staking an additional 61 claims, extensive magnetometer surveys, legal surveys of a total of 93 claims, and magnetometer spot checking of outlying areas. The highlight of the summer's work was the delineation of the Porcupine anomaly extending 2,000 feet long and 900 feet wide, only 900 feet of this overlaying the original potential ore as determined by surface work.

The time had come to seriously consider the development of a mine.

The year 1964 was the year of decision. To go or not to go! Two surface drills and one underground drill were employed that season, and by the end of the year feasibility studies had been completed. It was at this point that the decision was made to proceed to production by early 1968.

The summer of 1965 saw the upgrading of the access road by Dick Gillespie, and during the winter of 1965-'66 the vital bridge across the Fortymile river was constructed in six weeks under the most difficult conditions. When the concrete for the bridge was poured the temperature at times hit sixty below.

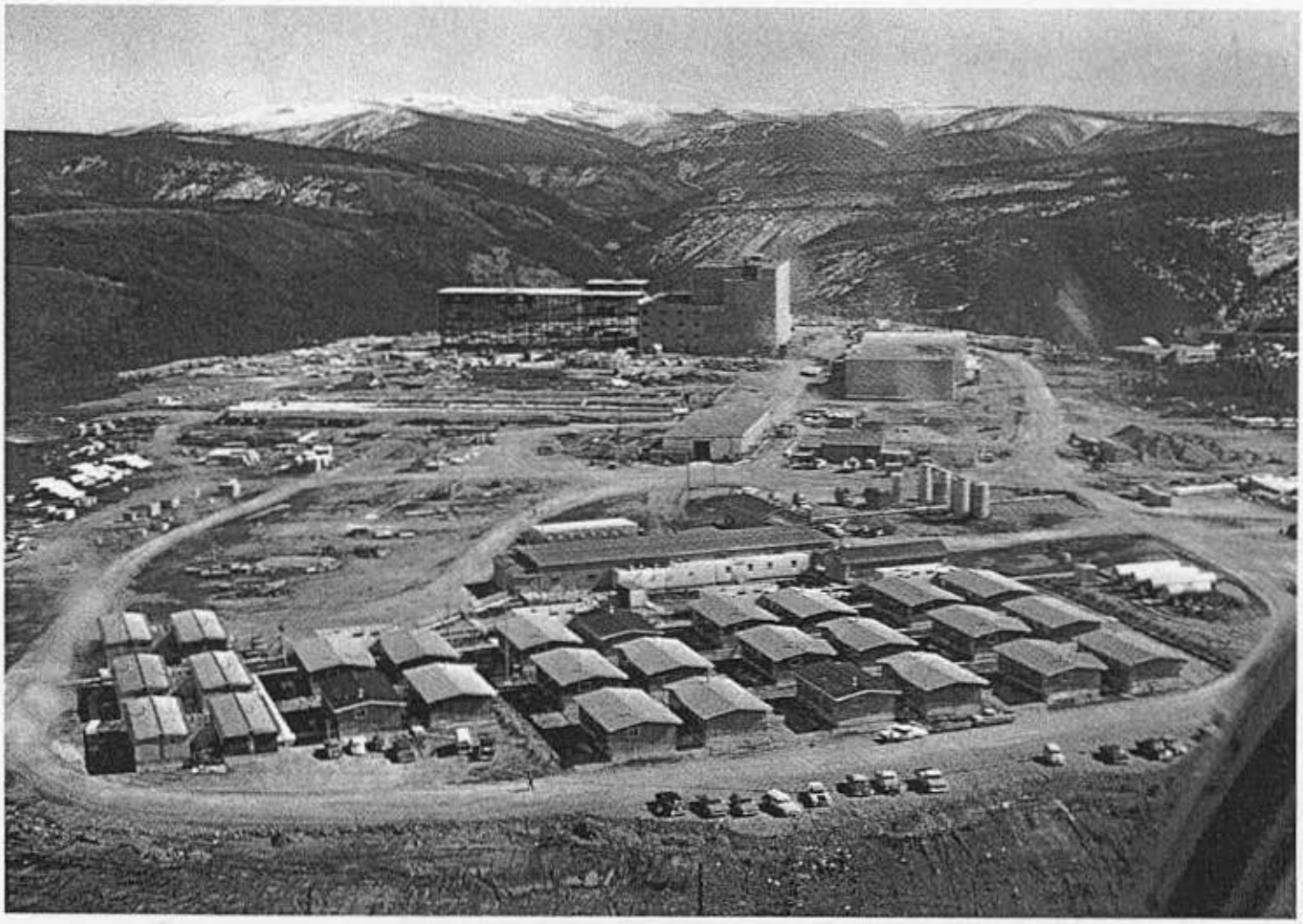
Throughout 1966 and '67 construction of the mine plant continued without letup—Kilborn Engineering acting as consultants, and Humphrey Construction as prime contractor. Preproduction waste stripping was completed by General Enterprises. By November 1, 1967 the first load of fibre was hauled to Whitehorse. But this was only the beginning. Mine and mill construction continued to completion through the cold winter months and, in addition, the construction of the Clinton Creek townsite was launched.

Communications with the outside world was considerably improved in 1967 with the arrival of the telephone and telex. The old workhorse—radio GXD 575—was honourably retired.

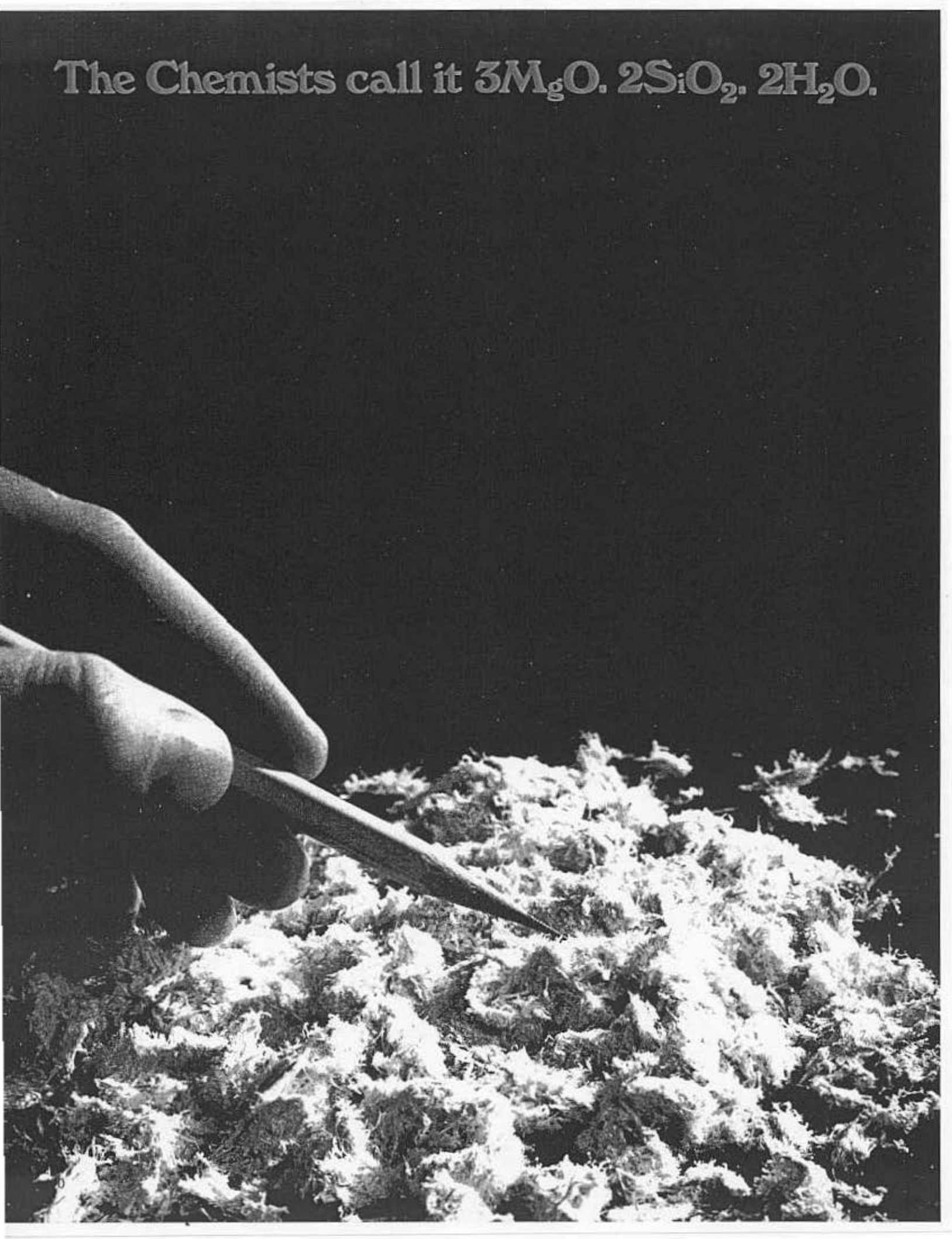
The mine reached official production on April 1, 1968. Gradually the emphasis on construction diminished as the throb of industrial and community activities increased. In two years, what had been a distant and remote area had been transformed into a northern industrial complex fully equipped to produce good quality asbestos, and house 320 employees—many with their families.

From the tentative beginning when Willie and Walter DeWolfe took their Cassiar Creek samples to Fred Caley in the fall of 1954, until the start of official production at Clinton Creek, nearly fourteen eventful years had passed. From the time Art Anderson told Fred Caley "There's stuff like that on my trapline," until the start of production at Clinton Creek, some eleven years had passed.

By 1968, only four years after the year of decision, Clinton Creek was producing fibre, and distributing its products to the markets of the world.



The Chemists call it $3MgO.\ 2SiO_2.\ 2H_2O.$



We call it Chrysotile asbestos

Like all minerals asbestos is a product of nature. Its qualities are unique in that it will neither burn nor decay and it is impervious to water. It is a hydrous magnesium silicate, chemically described as $3MgO.\ 2SiO_2.2H_2O$.

About 95 percent of the commercial asbestos mined in the world is *Chrysotile* which is the type of asbestos we mine at Clinton Creek. *Chrysotile* is a flexible white magnesium silicate and accounts for 97 percent of all the asbestos used in Canada and the United States. The world's leading producers of *Chrysotile* are Canada and Russia. Of the recent annual world production of some 5,200,000 short tons of *Chrysotile*, an estimated 2,000,000 short tons were produced by the Soviet Union and 1,600,000 short tons by Canada.

The four largest asbestos-producing countries are Canada, Russia, the Republic of South Africa and Rhodesia. But it is found in almost every country in the world.

There are six major groups of asbestos which are classified under two headings—*Serpentine* and *Amphibole*. Our Clinton Creek kind—*Chrysotile*—is designated as white asbestos and is the lone member of the *Serpentine* class. Unlike other asbestos minerals *Chrysotile* carries a positive rather than a negative charge in water. It is regarded as the least potentially hazardous of the several types of asbestos, although this is by no means certain.

The remaining five principal groups are recognized as members of the *Amphibole* class of asbestos and include *Crocidolite*—which is known as blue asbestos—*Amosite*, *Anthophyllite*, *Tremolite* and *Actinolite*. The two most important of these are *Crocidolite* and *Amosite*.

Crocidolite is generally recognized by its deep blue colour. It is a ferrous sodium silicate that is acid resistant but not as flexible as *Chrysotile*. Most of the world's supply comes from South Africa. During W.W. II it was regarded as an important strategic material in that it was in heavy demand for gas mask filters. It can be spun and woven into fabrics of various sorts used in acid-resistant packings and heat-resistant protective clothing.

Amosite is mined commercially in the Transvaal district of South Africa. It is described as a brown ferrous magnesium silicate that occurs in iron-rich sedimentary rock. *Amosite* is not as acid resistant as *Crocidolite*. It is mostly used in the manufacture of heat insulating materials.

Each of the six types of asbestos are different from the others, both chemically and physically. To add to the complexity, *Chrysotile* asbestos from one Canadian mine will have different chemical and physical properties than *Chrysotile* from another Canadian mine.

Chemically, asbestos of all types may contain traces of *aluminum, calcium, chromium, iron, magnesium, manganese, nickel, potassium, sodium, benzine* and varying quantities of other elements or compounds.

Technically, the term "asbestos" might be described as the generic name given to a group of hydrated silicate minerals that can be separated into relatively soft, silky fibres which have great tensile strength. To be more simple and direct, the term "asbestos" can be said to apply to all minerals that can be separated from their parent rock in the form of fibre.

The Greeks knew about asbestos four hundred years before the birth of Christ. They wove it into wicks for their temple lamps because it would not burn, thus providing an "everlasting light". They called this magic mineral "Amianthus", meaning that it was indestructible. Marco Polo was astounded when China's Emperor tossed a piece of asbestos cloth into a fire and removed it unharmed. Ben Franklin acquired a "purse of stone" which he described in a letter to a friend in the year 1725. In 1800 Prince Eugene, Viceroy of Italy, gave his lady a priceless necklace as a symbol of his love. As a mark of her own enduring affection, she presented the prince with a pair of asbestos gloves which she had woven for him with her own hands, thus attesting to the value of asbestos in the early part of the 19th century.

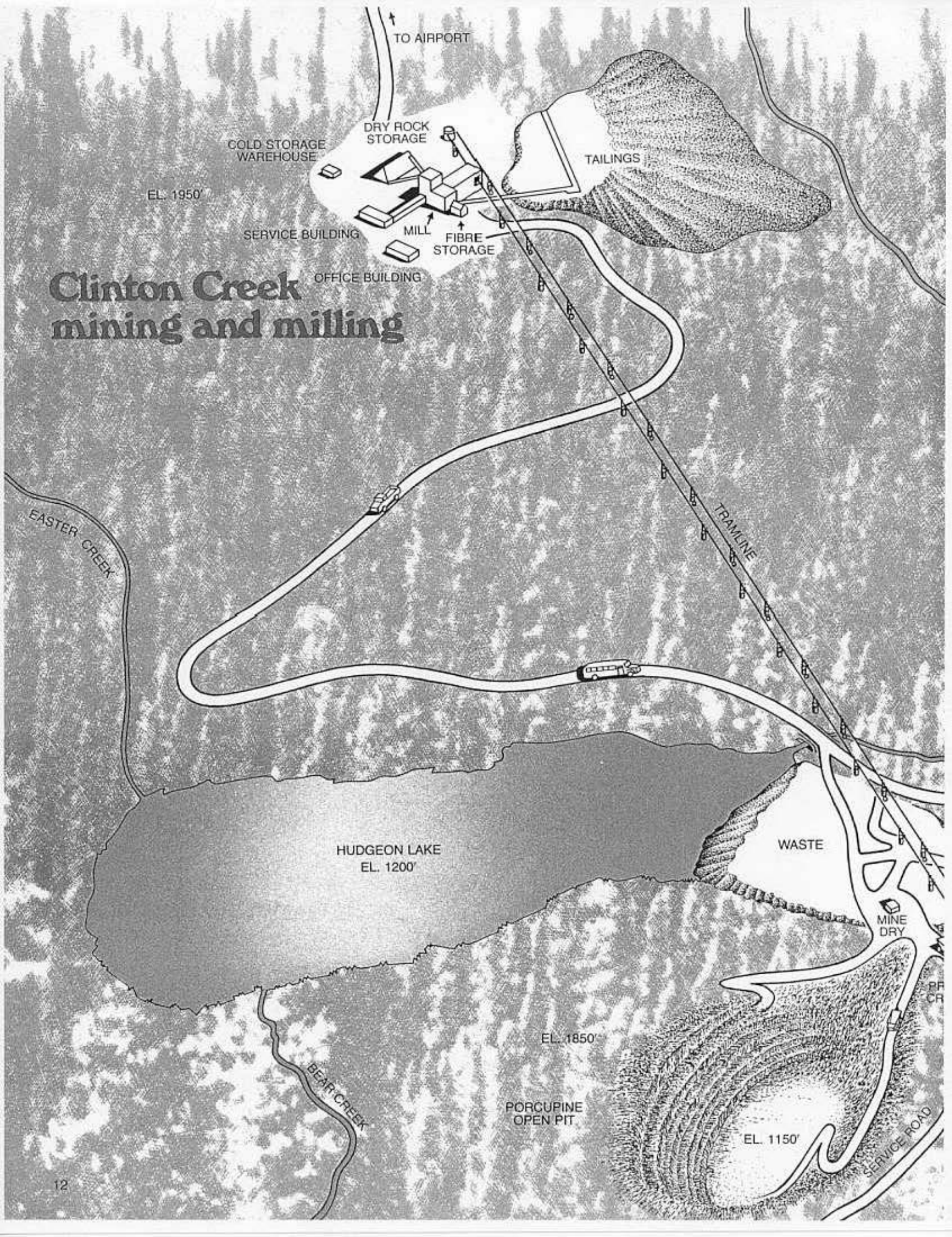
It was not until 1873 that science and industry began to seriously examine the unique properties of asbestos and apply its virtues to the service of mankind. Today, Italy is recognized as the "Cradle of the Asbestos Industry" because it was there that the mining and milling of asbestos and the manufacture of asbestos products began on an industrial scale.

The term "asbestos" is not the name of a distinct species of mineral. Rather it is the commercial name given to the several varieties of fibrous minerals that differ widely in chemical composition as well as fibre length, fibre strength and fibre flexibility. As a consequence of these differences manufacturers select the type of asbestos best suited to the design and end use of their products.

It is estimated that as many as 3,000 different products in use throughout the world contain a portion of asbestos. While certain manufactured items may only contain minimal amounts, the special qualities of asbestos are often responsible for the designed performance of the product. Indeed the uses of asbestos throughout the spectrum of human activity seem almost endless.

It can be spun into thread and woven into cloth. Some grades can be made into paper. It can stand high temperatures and heavy pressures. It resists weather, corrosion, vermin and fungi. It insulates and filters, binds and fills. Indeed its universal application has saved countless lives and has prevented billions of dollars of property damage.

That is why asbestos is called the magic mineral.


TO AIRPORT
DRY ROCK STORAGE
COLD STORAGE WAREHOUSE
TAILINGS
EL. 1950'
SERVICE BUILDING
MILL
FIBRE STORAGE
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Clinton Creek mining and milling
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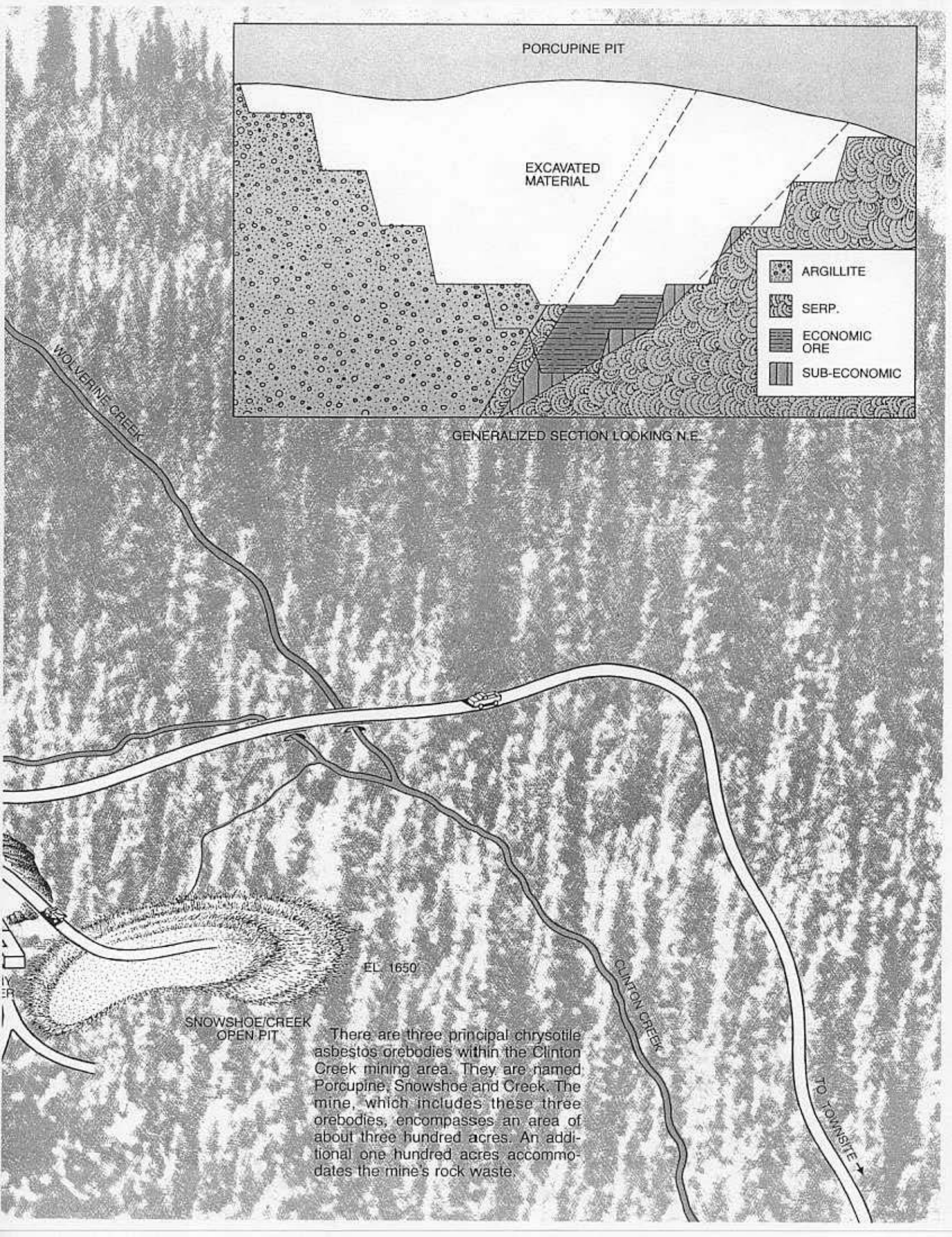


There are three principal chrysotile asbestos orebodies within the Clinton Creek mining area. They are named Porcupine, Snowshoe and Creek. The mine, which includes these three orebodies, encompasses an area of about three hundred acres. An additional one hundred acres accommodates the mine's rock waste.

The Mine

Porcupine is the mine's main pit. It extends some 600 feet below the original surface and will eventually reach a maximum depth of 800 feet. The Porcupine orebody, which is 80 to 250 feet wide, 800 feet deep, and 2,000 feet long, contains good quality ore with a recoverable factor of five and one half percent of chrysotile asbestos fibre.

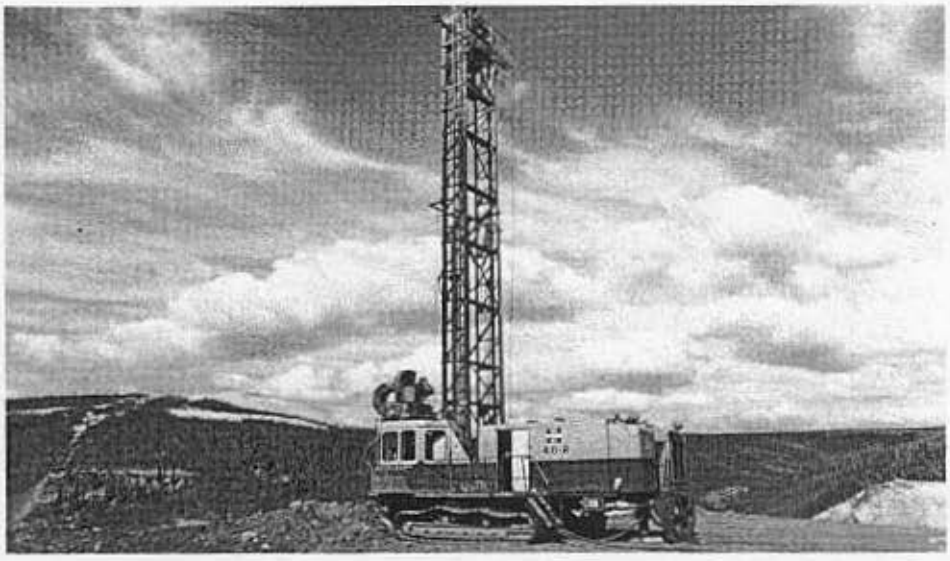
The second, or Snowshoe pit, shown on opposite page, is located about 1,800 feet east of Porcupine. It is a sidehill operation and extends 200 feet down the north slope of Snowshoe Hill. The ore is similar to that of Porcupine.

Creek pit, the third of Clinton Creek's mineable ore zones, lies between Porcupine and Snowshoe pits. It contains a relatively small tonnage of good quality ore and it is mined as part of Snowshoe pit.

The amount of waste and ore handled at the mine in any given year can vary a good deal. Mine records reveal, however, that since its inception Clinton mine has removed four tons of waste for every ton of ore it has produced. Presently available mining equipment is capable of handling in excess of 10,000 tons of waste per day and 7,000 tons of ore.

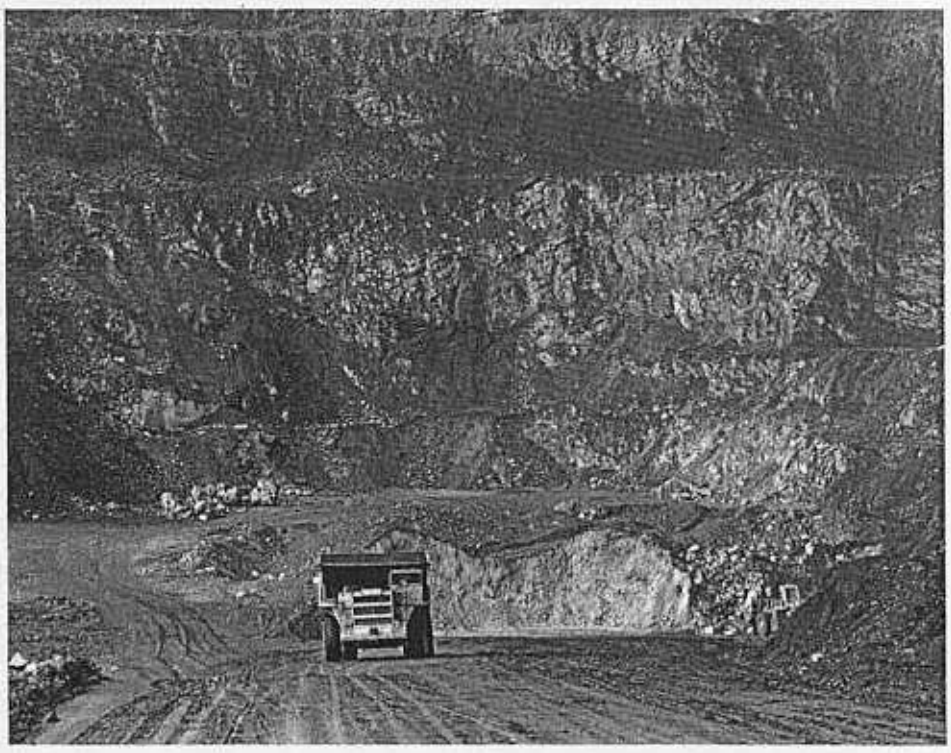
The waste and ore are prepared for blasting by three electric powered rotary drills capable of drilling 9" and 9⅞" blast holes at a rate of 480 feet per eight hour shift. Diesel powered 10 cubic yard front end loaders and an electric powered 5 cubic yard shovel, plus a standby diesel powered 2½ cubic yard shovel, load the waste and ore into 65 ton rear dump trucks.

The waste is hauled to the waste rock and overburden dumps and the ore is trucked to the primary crusher which is centrally located near Creek pit. Here an apron feeder at the bottom of the dumping bin carries the ore over a grizzly with four inch openings. Ore greater than four inches drops into an overhead eccentric jaw crusher. A belt conveyor with a capacity of 400 tons per hour carries the ore from the primary crusher to a 6'x14' tyrock screen with five inch openings. Oversize is redirected for additional crushing and eventual discharge into a 60" conveyor belt leading to the tramline feeder.



THE TRAMLINE

The 5,281 foot long tramline receives the ore from the primary crusher and raises it 500 feet to the plantsite. The 2½" track cable reaches a height of 250 feet above the ground and crosses one unsupported span of 2,200 feet. It delivers ore to the plant at an average rate of 380 tons an hour in 84 buckets which are spaced 143 feet apart. Each bucket weighs 1,260 pounds and is capable of carrying 1⅔ tons of ore.



THE PRIMARY CONCENTRATOR AND DRYER

The ore is automatically dumped from the tramline buckets into the hopper of the mill's primary concentrator. Here a series of screens and an impact crusher separate the waste rock which is transported to the tailings pile. The remaining ore, which contains most of the free asbestos fibre, is subjected to further screenings where the "throughs" are efficiently separated from the "overs".

The "throughs" are delivered to two large eighty inch diameter sixty foot long rotary kiln dryers which, by the application of intense heat, reduce the moisture content of the ore to a maximum of three percent.

On leaving the dryer the dried ore is carried by the conveyor to the dry rock storage building. This ore is now regarded as mill feed.

The "overs" are then further screened. The "throughs" from these secondary screenings are dispatched by conveyor to the dry rock storage building via the dryer. The screened "overs" are then subjected to further impaction by a Hazemag Crusher. After this impaction the "fines" are screened out and transported to the dry rock storage building, while the remaining barren rock, or waste, which amounts to approximately thirty percent of the ore delivered, is conveyed to the tailings pile.

THE DRY ROCK STORAGE BUILDING

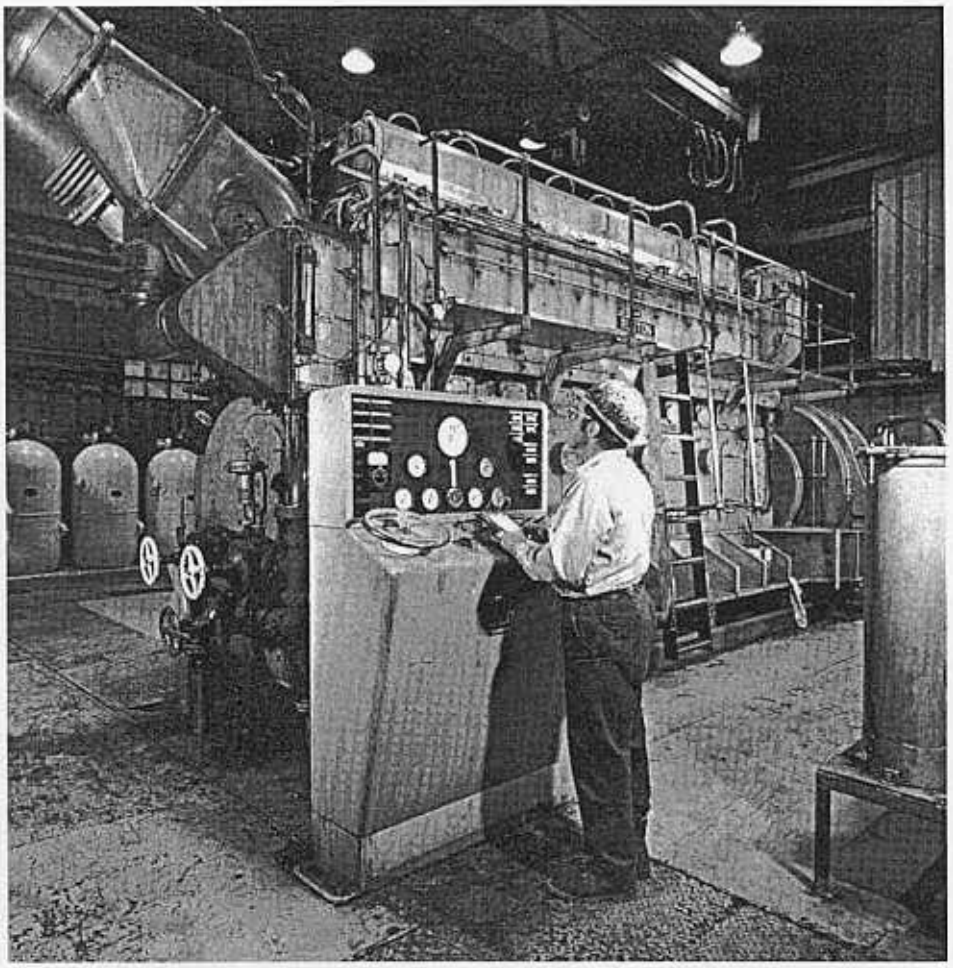
On leaving the dryer building the ore is conveyed to the dry rock building which is capable of storing 40,000 tons of mill feed. An elevated shuttle belt conveyor within the building distributes the ore into predetermined piles, according to grade. Thus, for production purposes, mill feed can be "blended" as required. A large five cubic yard Payloader moves the blended ore to the conveyor system that supplies the mill.

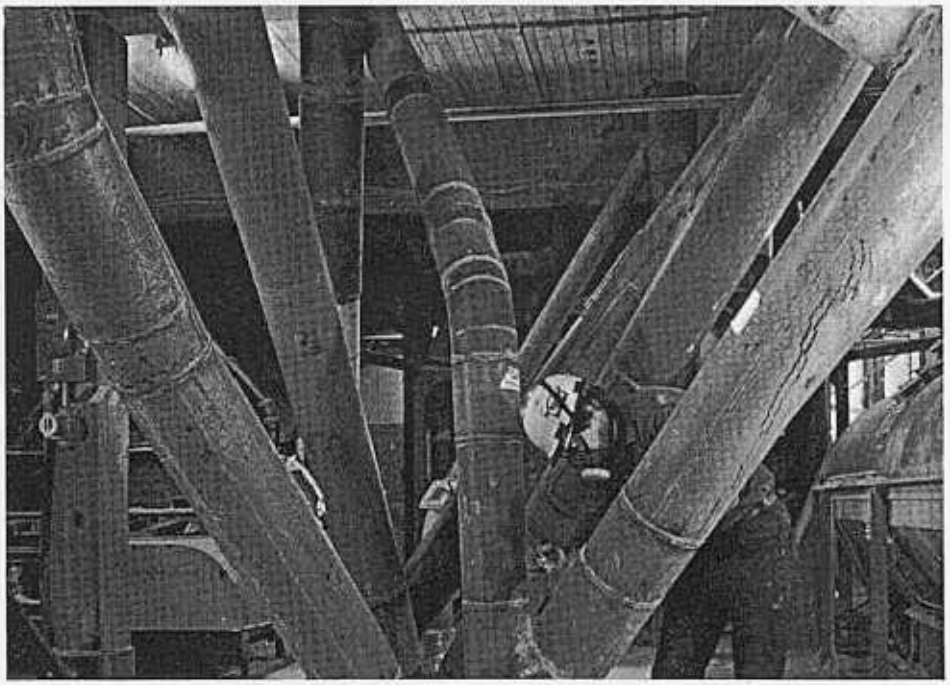
The Mill

The 102 foot high mill is capable of producing 100,000 tons of asbestos fibre per year, although this figure has been exceeded.

The asbestos milling process at Clinton Creek consists of five stages of fiberization and screening and is based on the knowledge that asbestos fibre "fluffs up" when it is separated from its host rock. As the fibre and rock pass from screen to screen the fibre tends to "float" on the surface of the rock. As the rock and fibre are shaken down to the end of the screen the rock waste drops away by gravity and then the fibre is drawn off by suction.

The mill employs one rockline and four fibrelines in its milling process. The rocklines consists of successive stages of screening, fibre lifting, and fiberizing in which the longest fibre is lifted off by suction in the early stages of production. The long fibre is then collected and subjected to the CP grade cleaning process. Intermediate length fibre is lifted from the second, third, fourth, and fifth stages of screening. It is collected for grading and cleaning in the CT grade fibre circuit. The short fibre is lifted from the fifth, sixth, and seventh stages of screening and collected for grading and cleaning in the CY and CZ grade circuit.





The entire process involves an integrated system of air ducts, screens, cyclones, collectors, specific gravity separators, dedusters and fans, all designed to move the asbestos fibre from stage to stage in the milling process until it is finally deposited—cleaned and graded—in one of the plant's storage bins.

This takes a lot of air. Five fans provide it. Four of them produce 125,000 cubic feet per minute each, or a total of 500,000 cubic feet of air per minute. A fifth fan provides an additional 100,000 feet per minute for a total of 600,000 cubic feet per minute for mill production purposes including air for plant dust control.

BAGGING

The three main grades of fibre products are fed to pressure packers and bagged under 1,500 pounds per square inch pressure into 100 pound coated woven polyethylene bags. The filled bags are then moved to a palletizing machine where they are combined into 20 bag units for storage and shipping.

The mine's palletized fibre storage facilities, which forms part of the mill building, has a storage capacity of 1,400 tons and a three bay truck loading area. It is from here that Clinton Creek asbestos fibre starts its long journey from the mine to Vancouver and the markets of the world.

The mine and its market

Selling asbestos is one of our jobs.

Unless someone sells the product we produce, it would not take long for our warehouses along our distribution system to become glutted with unsold fibre. Keeping the product moving from Clinton Creek to customer's plants and factories is, therefore, part of the total Clinton Creek picture.

Most of Clinton Creek is highly visible—the mine, the trucks, the mill, the houses, the people. We see them day in and day out and take them for granted. But the selling job is largely out of sight—and often out of mind.

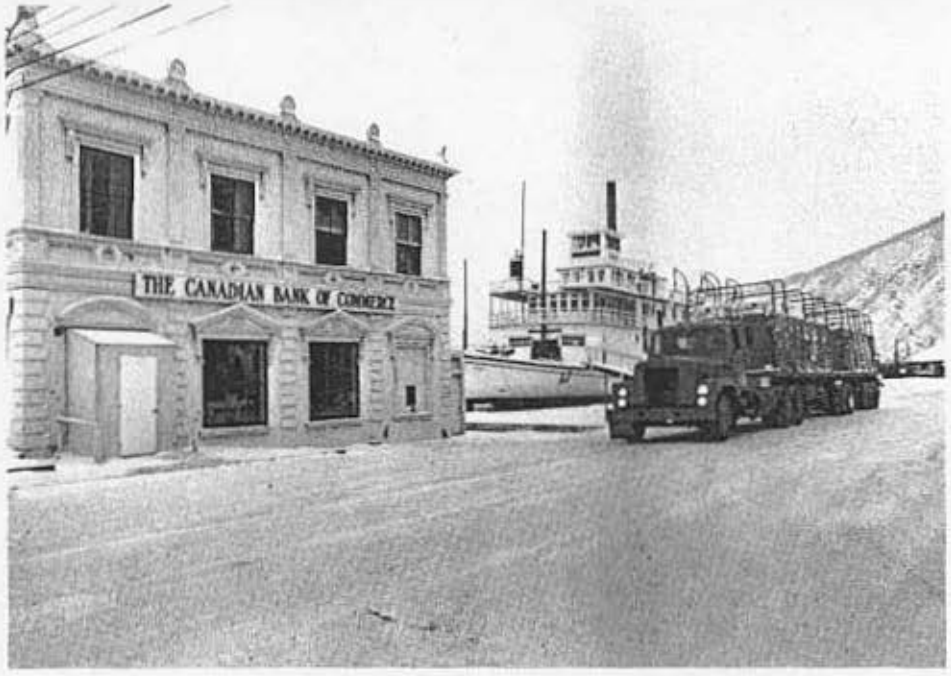
Selling Clinton Creek asbestos is not an automatic process. In fact it is a highly competitive business. That is why our sales representatives and agencies make a determined effort to maintain contact with the end users of our fibre. This in itself is a major undertaking, for our customers are located throughout the world, from Australia to Germany, Britain to Peru—and dozens of countries in between.

Other asbestos mines have their representative covering the same markets and we must compete successfully with them. Often they are located closer to the major world markets, which give them an advantage in that their transportation costs are often lower than ours. In transportation, miles mean dollars.

But the most important factor that keeps us competitive is our fibre grade and quality. Clinton fibre is highly regarded, not only for its grade but for its cleanliness and its suitability as a component in a variety of manufactured products.

To produce high quality fibre, great care must be taken to ensure it meets the meticulous grade standards set by the asbestos industry itself. This is what our customers want, need and deserve — clean, high quality fibre that meets undeviating standards.

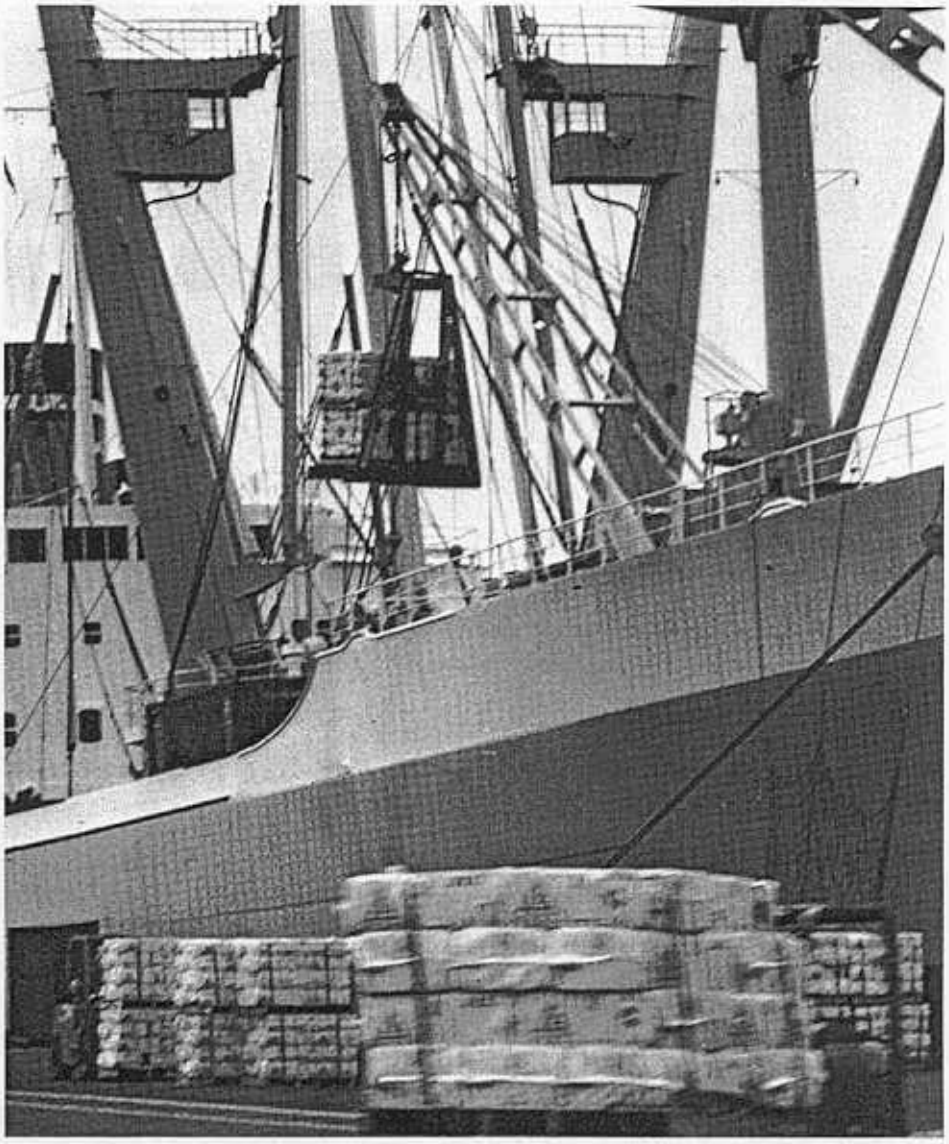
Cassiar Asbestos' Marketing Department is responsible for our asbestos sales. It is located in Vancouver, British Columbia and it is staffed by people who know and understand the transportation, sales and distribution of asbestos. They employ the latest computer techniques to produce the required sales and customer documentation, as well as for sales statistical data and inventory control.



The asbestos we produce at Clinton Creek is transported to railhead by Cassiar's own Transport Division which is based at Whitehorse. From there it is moved south by a variety of means which can involve ships, trains and trucks operating along the well established transportation avenues between the Yukon and the port of Vancouver.

Transporting asbestos fibre is an ongoing process. Indeed, at any given time Cassiar Asbestos may be using the services of some twenty-five ocean-going steamship lines, railroads and trucking companies to discharge its world-wide transportation responsibilities.

It is the "balance" between mining, milling, transportation and sales that makes the system work. We are part of the system. We produce and ship Clinton fibre to almost every country in the free world. That speaks for itself. It not only attests to the wide acceptance of our fibre, but it demonstrates our ability to sell and deliver the proper quantity and quality of fibre wherever—and whenever—it is required.



Asbestos and your life

People have been asking a lot of questions about asbestos during the past few years. They want to know if it is a danger to health, and they want straight answers—not double talk.

The problem is that honest answers often *sound* like double talk. As an example take the first and most important question: is asbestos a danger to health? The answer is *yes*, and it can also be *no*. It all depends on what measures are taken to protect our health.

In recent years research has clearly shown that asbestos can be a hazard to health if people are exposed to it in high concentrations. Under certain circumstances, depending on personal health, or the amount a person smokes, or the type of asbestos inhaled, it is possible that even low concentrations of asbestos could be a hazard. But when you think about it a lot of things have the capacity to be harmful to health. Alcohol can be harmful. So can automobiles. Overeating has contributed its share to the poor health and eventual demise of many. Certainly cigarettes have caused many health problems for smokers—and for many people who do not smoke.

Water can do you in. It has many virtues, but if used improperly you can drown in it. Fire is essential to us, but improperly handled it can snuff out your life in seconds or leave you injured or scarred. Motorcycles, planes, drugs, even sunlight can cause serious health problems. All of these things have virtues—but improperly used they have the potential to do harm.

In this sense, if improperly handled, asbestos can be a danger to your health. You should think about this and learn as much as you can about asbestos and its possible effect on the human body if reasonable precautions are not observed, at all times.

Introducing a wide range of potential killers is not meant to draw attention away from the dangers attributed to asbestos. But it does demonstrate that there are hazards associated with almost every activity in which we humans become involved, be it overeating, overdrinking, smoking, high speed driving, or even simply taking too much medicine to cure a cold. Do any of these things to excess and we can expect trouble down the road.

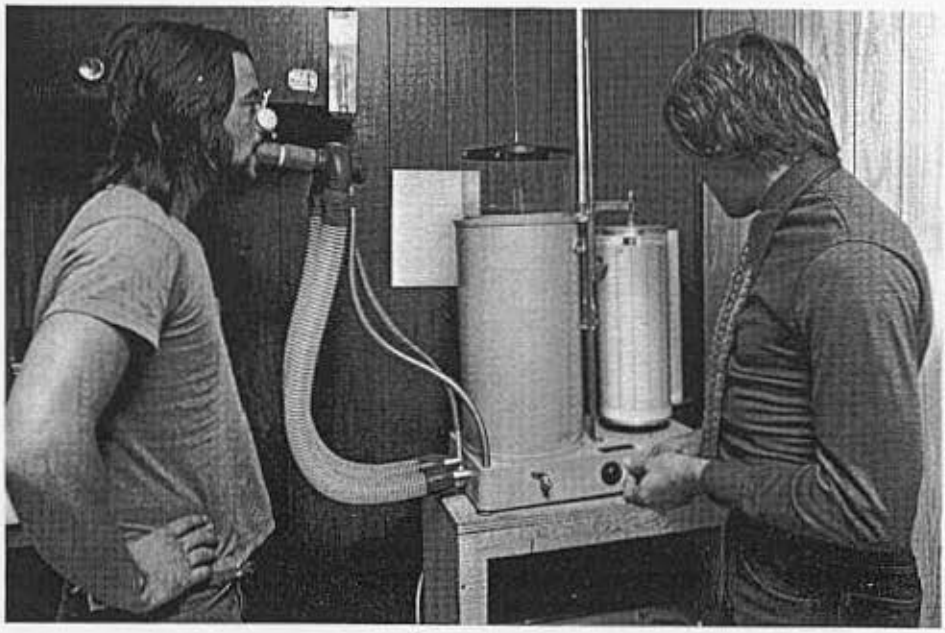
And now back to the original question: Can asbestos be a danger to health? The answer to that question is *yes, the exposure to asbestos can lead to health problems*.

On the other hand, if the proper precautions are taken, if dust masks are worn in areas that do not conform to standards, if smoking is eliminated altogether, and if exposure to asbestos dust is kept within the levels considered safe by medical authorities, then normal health patterns can be expected, provided persons exposed are in good health.

Our job at Clinton Creek, therefore, is clear. We must mine, mill and transport asbestos in a way that ensures there is *no* excessive exposure to asbestos by people on the job. To this end a local Environmental Committee has been in effective operation since 1975. Through this committee, co-operative environmental work involving the Yukon Territorial Government, Canadian Mine Workers Union, Local 1, and mine management, has been vital and productive. Indeed, ever since the formation of the committee, representatives of government, the union and management have demonstrated a high degree of responsibility in matters related to the health and safety of Clinton Creek employees.

Through the contributions of union, government and management, a co-operative and constructive safety and health forum has focussed attention on serious problem areas, made recommendations, raised questions, and found practical solutions to safety and environmental problems.

This committee is still on the job and will remain so until the mine closes and Clinton Creek passes into history.



Fast facts about Clinton Creek:

1. Clinton Creek is Canada's most westerly mining community.
2. Clinton Creek mine is 140 miles south of the Arctic Circle, making it the most northerly open pit mine in Canada.
3. The community of Clinton Creek is located at the junction of the Forty Mile River and Clinton Creek, in hilly, unglaciated terrain, about ten miles east of the Alaska-Yukon border and 400 road miles northwest of Whitehorse, the Yukon's capital city.
4. Clinton Creek townsite and powerhouse are located on the Forty Mile River, three miles upstream from its confluence with the Yukon River, and six miles southeast of the minesite.
5. Road access to Clinton Creek is by a twenty-two mile all-weather gravel road that joins the Sixty Mile Highway thirty-seven miles northwest of Dawson City.
6. Mill and plantsite elevation is 1,950 feet.
7. Townsite elevation is 1,200 feet.
8. Snowfall accounts for one-third of Clinton's annual twelve inches of precipitation. Snow cover reaches a maximum thickness of three feet in March.
9. Temperatures at the minesite range from a mid-winter low of minus fifty-two degrees to a summer high of 30 degrees celsius.
10. Clinton Creek has four frost-free months per year.
11. Clinton Creek mine is owned by Cassiar Asbestos Corporation Limited. It started official production on April 1, 1968. The original "start-up"investment totalled $36.5 million. Of this amount $8.5 million was spent on preproduction and development, $24.2 million for plant and equipment, and $3.8 million for automotive and heavy duty equipment.
12. Townsite water is pumped from the Forty Mile River, upstream from the powerhouse, to an insulated 350,000 gallon storage tank.
13. Townsite sewage is discharged into a sewage treatment plant below the townsite—the first such plant in the Yukon.
14. There are 252 rooms in 8 residences to accommodate Clinton's single people. In addition there is a four-room nurse's residence.
15. Families are accommodated in 58 houses and 18 dwelling trailers.
16. All townsite buildings are on piles which are set into 21 foot holes.
17. The Clinton powerhouse is located in a steel building beside the Forty Mile River and below the townsite. It is equipped with five 1,400 kilowatt Ruston and Hornsby diesel generators and one 500 kilowatt Caterpillar diesel generator. The plant generates 4,160 volts and transmits at 33,000 volts to transformers at the plantsite where it is stepped-down to required voltages. Waste heat boilers supplemented by two oil fired boilers at the powerhouse, produce heat for the larger buildings in the town. Fuel for the powerhouse is stored in a 350,000 gallon steel tank, located near the powerhouse.
18. Utilidors, above and below ground, carry all community steam and water lines.

Well, that's Clinton Creek.

But it's not the whole story. It would take a five foot shelf of books to tell the whole story and—believe us—you still wouldn't have it all.

That's understandable.

As you write about Clinton, it's changing. People come and go and so do the seasons. Baseball gives way to curling. The blazing summer sun is nudged aside by the sub-arctic night. And then the northern lights race across the blue black winter sky like a horde of demented green demons.

How do you put all these things in a twenty-four page booklet? You can't. But you try. You reach for the essence, the flavour, the overall thrust of the mine, the mill and the community—and the things we do here. We hope that we have succeeded.

If you are here for a short visit we offer you this booklet as a memento of Clinton Creek. Perhaps some day you will come again.

If you have come to live and work in Clinton we hope it has helped you feel at home during your first few days.

It is possible that someone from Clinton sent it to you and you are reading it in some far off place—Britain perhaps—or Australia, Germany, Seattle, Toronto, Tokyo, who knows! Should this have happened, you will know more about us than we know about you. Why not drop a card to the Editor of Rock Fluff—our community newspaper—and tell how far away our booklet wandered to tell you the story of Clinton Creek, Yukon, Canada. We look forward to hearing from you.

"Cheers" from Clinton Creek.