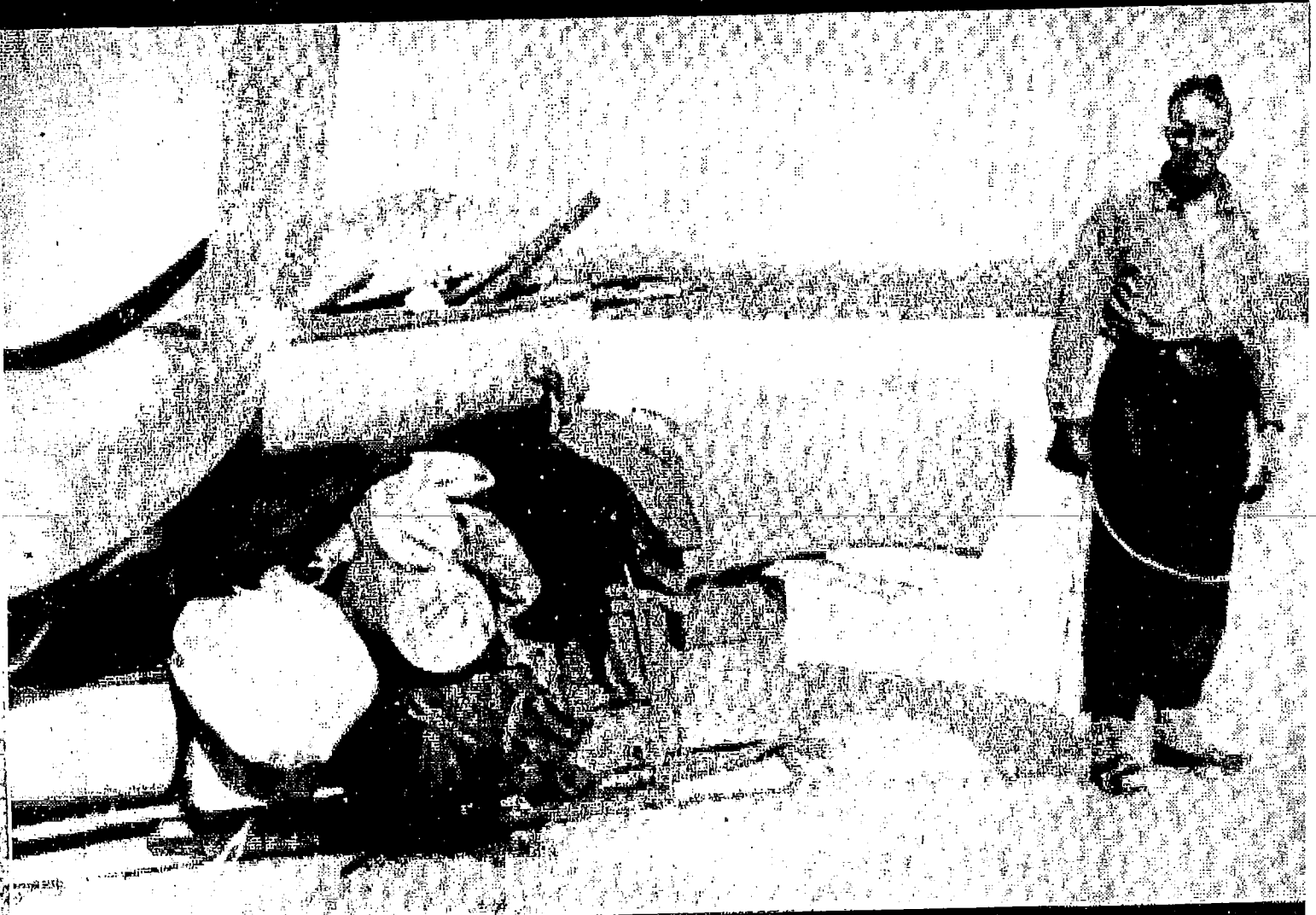


*The Romance of*  
**CANADIAN  
RADIUM**

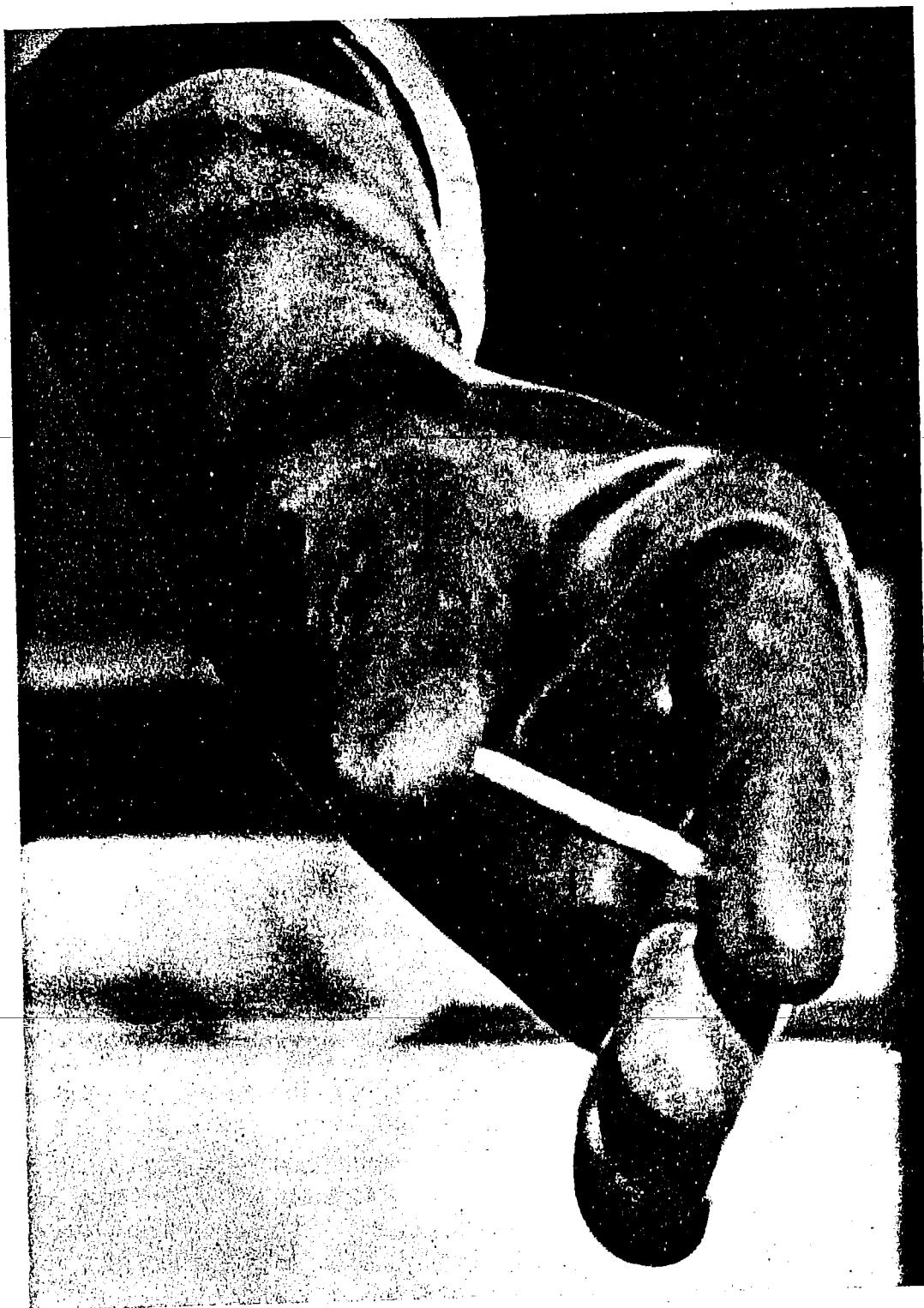


*The Romance of*  
**CANADIAN  
RADIUM**



THIS SERIES  
TO PG 48

PULL ORIGINALS  
OUT OF  
SLEEVE FOR



This picture book about radium contains no picture of radium. Pure radium has never been photographed. Few have ever seen it. In the glass tube, or "needle", are a few thousand dollars worth of radium bromide, a pinch of salt.

# The Magic of RADIUM

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Published by Eldorado Gold Mines, Limited, Toronto, Ontario, Canada.

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**B**ELIEF in magic minerals is as old as history.

Our remote ancestors figured that disease was an attack by evil spirits. Common sense told them that the remedy was to enlist the aid of good spirits.

The way to do so was to provide these disembodied spirits with attractive abodes. Not houses, as for birds, but corporeal bodies, called talismen, —tiny images to wear on the person, like watch charms.

Naturally, the more precious the material, the better chance of landing a high class tenant. Hence, talismen of pre-historic amber, of precious stones and metals.

Long after men ceased to see in spirits the explanation of natural phenomena, the prestige of talismen and magic minerals persisted.

Then evil spirits were discovered to be an actuality. A crystal gazer discovered them with his own eyes. He was a Dutch janitor, named Leeuwenhoek, with a hobby of making micro-

scopes. Earth, water, air, yielded unthinkable myriads of spirits, looking strangely like man's preconceptions of them. Today they are called microbes. The truth is stranger than the myth.

Now the magic mineral is equally a reality. In keeping with the myth, this mineral is most rare and most precious. It first appeared in the Land of Bohemia, but it is found in quantities only in equatorial jungles or polar wastes. It must be propitiated, conjured, cajoled —that an ounce be gleaned from ten thousand tons. It is called radium. Radium cures cancer.\*

Furthermore, radium cures by touch. Stranger still, it touches without direct contact. Nothing is observed to happen when radium is brought close to a cancerous growth. But a few days later the growth begins to shrivel; eventually it disappears without a scar, and terribly disfigured parts become normal.

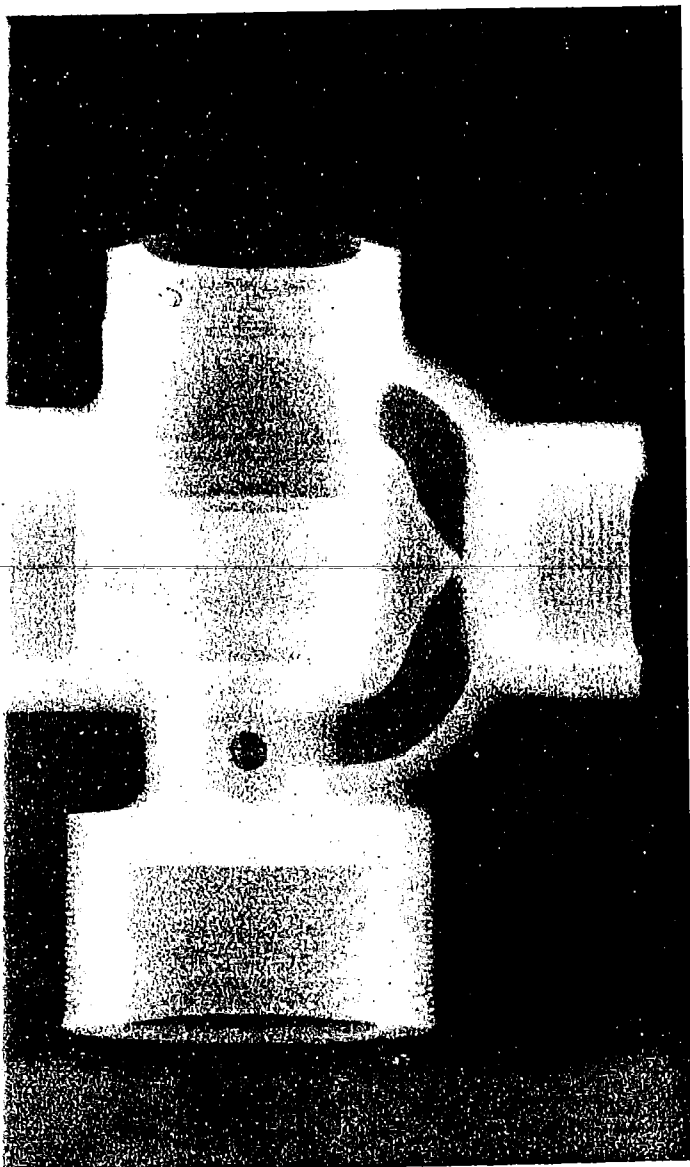
No "false and misleading advertising" could invent a more outlandish claim. Radium is more than a magic mineral. It is a talisman.

\*"Cancer is curable in the early stages in the majority of the cases. At that time we can cure such cases by surgery, by X-ray, or by radium."—Dr. B. T. Simpson, director of the State Institution of the Study of Malignant Diseases, Buffalo, N.Y., Cancer Research. Joint hearings before a subcommittee on Commerce, U.S. Senate, and a subcommittee of the Committee on Interstate and Foreign Commerce, House of Representatives, Seventy-fifth Congress, First Session on S. 2067 and H.R. 6100, July 8, 1937. Page 60.

# Fantastic

## RADIUM SHINES THROUGH BRONZE

Radiograph of a bronze valve casting nine inches high free from flaws. The failure of this important part of a modern high-pressure steam line might result in the loss of tens of thousands of dollars—and possibly of life. Radium prevents such occurrences by disclosing flaws in metal products.



**R**ADIUM is a lustrous white metal about half as heavy as silver, but only a few persons have ever seen it. It corrodes rapidly in air and reacts violently with water, decomposing it, as electrolysis does, into hydrogen and oxygen.

But this behavior, which is chemical, is not extraordinary and has no bearing on the magic of radium.

## A Sober Chemical, But—

As a chemical element, radium is a strict conformer, minding its own business in the calcium, barium, and strontium family. After it was discovered, but before it was isolated, chemists predicted all its properties. Radium, when isolated, merely confirmed their predictions.

Being far too sociable for its own good, radium is ordinarily kept married and settled down with a bromide or sulphide spouse, compounded as a simple metallic salt. As a chloride or bromide, it is a second cousin to calcium chloride, the bleaching powder, but chemically perhaps not so useful.

## A Bewitched Metal

But even in this homely disguise the personality of radium literally shines through. Darken the room and the new salt is seen to be glowing a ghostly blue of unexplainably varying hue.

Expose a photographic plate to radium and it is quickly seen as though it had been exposed to light. Screen the plate with a sheet of lead, so that the glow of radium and all light, as we

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The Radium Corporation  
New York, N. Y.

8 x 15

MADE IN U.S.A.

# as Ancient Alchemy

know it, are completely shut off, and the photographic plate develops just the same. Radium throws its invisible light through the utter blackness of lead.

Screen the plate with eight inches of steel battleship armor and the plate still develops, with a picture of the internal structure of the steel. Radium pierces even armor plate.

## Energy to Burn

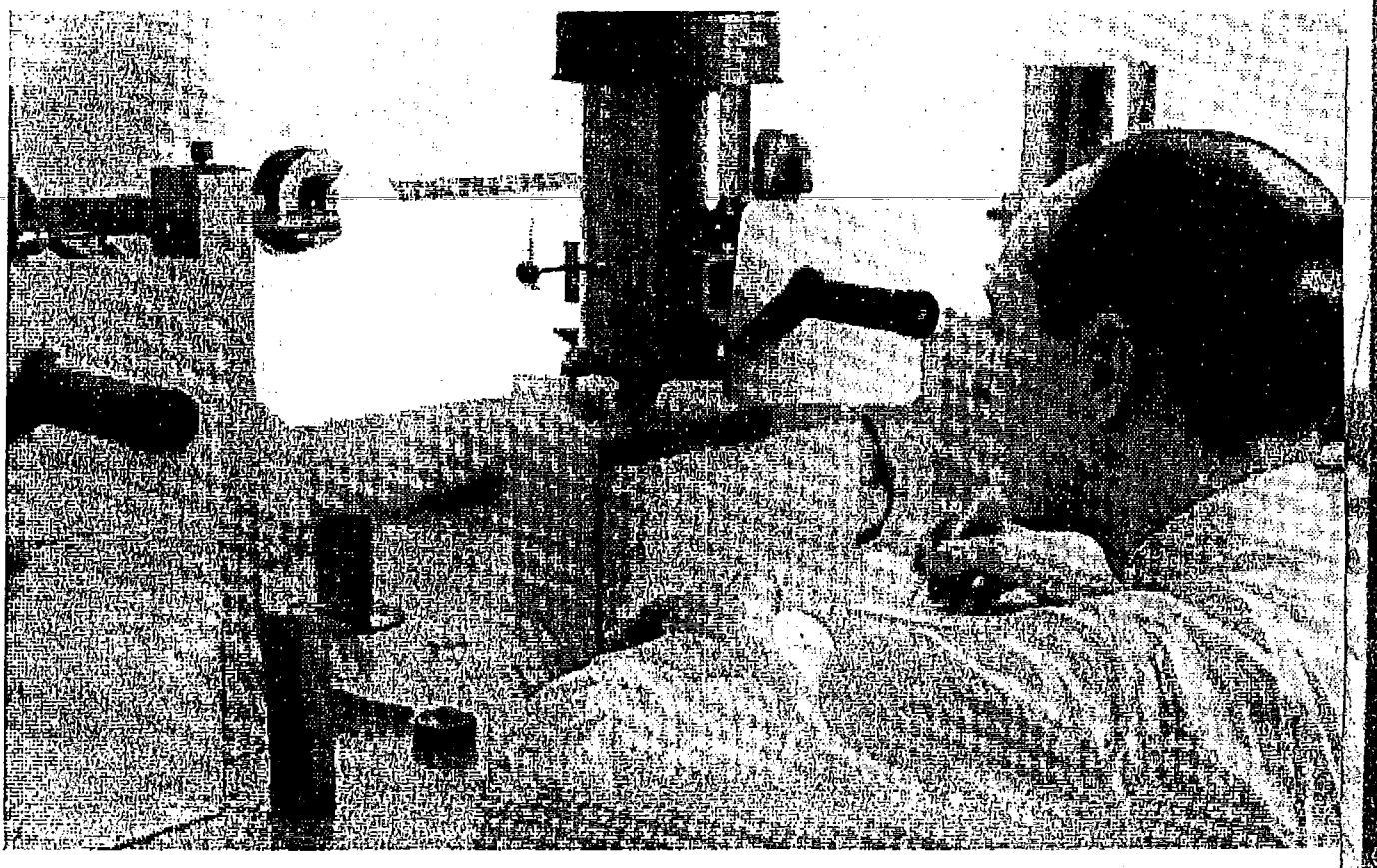
Touch the bulb of a thermometer to a pinch of radium salt, and the mercury rises a few degrees. Radium is eternally running a temperature. A gram gives off 134 calories an hour, regardless of surrounding temperature.

These radium emanations, whether light, heat or matter, constitute energy.

A particle of radium gives off one million times as much energy as an equal weight of burning coal. But so perfectly regulated is the diffusion that only half of the energy is released in the first 1690 years. Thereafter the emanations continue at decelerated rate toward the end of time.

## THE ELECTROSCOPE

The scientific instrument in the photograph below is called the electroscope. It is used to measure the strength of radium; also to keep track of the radium, which cannot be seen, throughout the refining process. Bring radium into its vicinity and the electroscope loses its self-control, like a compass needle before a magnet. Screen it from radium and it acts only less violently. Even behind twelve inches of steel armor plate, it still shows emotion. Only behind a heavy screen of lead does it calm down into virtual unconsciousness of the presence of radium. So delicate is its sense for radium, that it can detect the millionth part of a milligram—a close rival to nothingness.



# Chance

**C**ENTURIES ago in Bohemia men sought health in the mineral springs of Carlsbad.

Twelve miles south, in what is now Czechoslovakia, was a little village called Joachimsthal, now Jachymov. Joachimsthal got the first part of its name from St. Joachim, father of the Virgin Mary, and gave the last part to the dollar (thaler or straller).

Here for centuries men mined silver for thalers. It was found interleaved in a pitch black ore called pitchblende, of which the essential characteristic ingredients were uranium compounds. This residue of pitchblende accumulated in huge dumps around the mines.

## Radium Thrown Away

About one hundred years ago uranium compounds were found to be valuable as pigments in the ceramics industry, producing brilliant oranges and yellows and a rich black, in porcelain, enamel, glass, tile, etc. The dumps were then reworked for uranium, while the radium,

Radium when refined is put in a safe, surrounded by 10 inches of lead.



MADAME MARIE CURIE

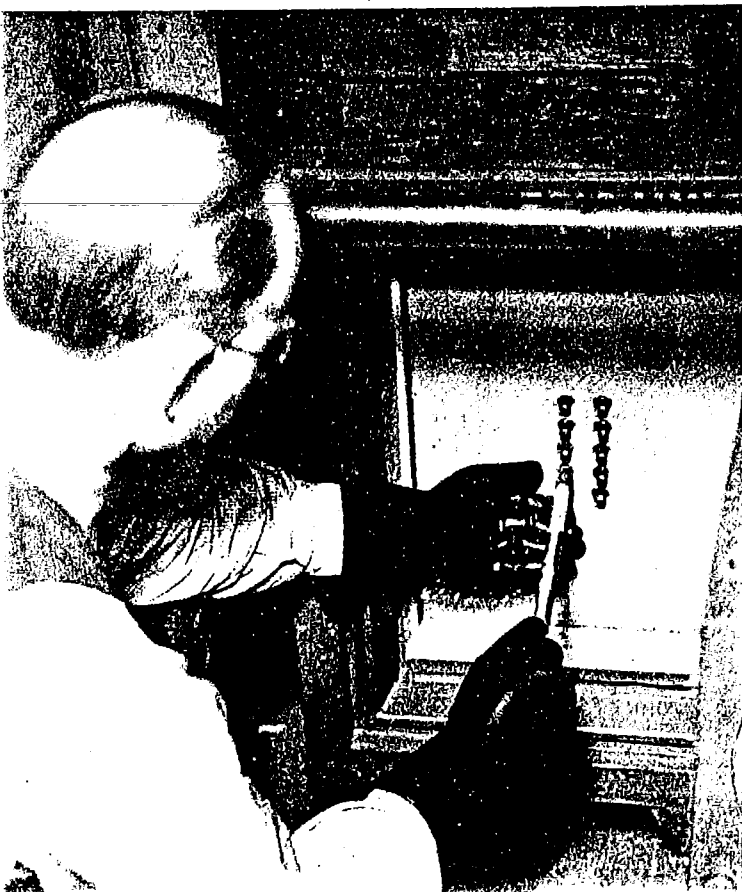
unknown and unsuspected, was again discarded with the residue.

In the 1890's pitchblende was a fascinating novelty. After exposure to sunlight, it could be seen in darkness to glow for a while. This faculty of appearing to collect light, store it, and gradually give it out is called fluorescence.

## Pure Chance, Pure Science

One day a French Scientist, M. Henri Becquerel, took a photographic plate out of a dark cubbyhole and found on it the image of a chunk of pitchblende. Yes, the chunk of pitchblende had been lying on top of the plate. Yet the pitchblende had not been fluorescent when Becquerel carelessly laid it there. Controlled tests showed that pitchblende could repeat the stunt in darkness apparently endlessly without benefit of sunlight or any induced ray.

Then Becquerel discovered that purified uran-





# and the Curies



MONSIEUR PIERRE CURIE

ium compounds had not nearly the same power. Ergo, there was some ingredient in pitchblende other than uranium which was chiefly responsible for affecting the photographic plate.

## "Find Radium, s'il vous plaît"

To the task of discovering the source of this mysterious radiation, M. Becquerel assigned young Madame Marie Curie, Polish refugee and research chemist, collaborating with her French husband, Pierre Curie, electrical engineer and physicist.

To Pierre Curie's primitive electroscope, the X-ray and the radiation from pitchblende — whether light, electricity, emanations, rays, flying particles or whatever—had much in common. The word to cover is radioactivity.

From the government authorities of the Joachimsthal mines, the Curies begged a few tons of residue from the silver-uranium dumps.

Then they began a long series of separations ingeniously contrived. First, say, they removed the uranium and certain impurities with acid. Was the radioactivity in the uranium solution or in the muddy residue? Thus they continued for four arduous years until all the radioactivity was concentrated in a pinch of salt, a compound of radium, practically pure. Thus in 1896 radium was discovered. A few years later, radium was isolated from the saline compound for the fleeting periods necessary to learn the remaining physical facts about the pure element.

## Scientific Second Guessing

Where did the heat, light and energy of radium come from? To answer that question the scientific world had to come to a full stop, face about and take a daring leap.

The practical, working science of chemistry had been built up on the apparent observation and on the reasonable assumption that the basic elements, such as gold, oxygen, etc., were indestructible. The alchemist's dream of transmuting the elements, especially a "baser metal" into gold, had come to be regarded as folly.

But since there was no chemical change in radium disintegration, there must be a physical change. The atom itself must be breaking up!

A long chain of observations and inferences dovetail precisely to solve the mystery. The atom of uranium is a highly complicated solar system losing its satellites as an oversized family loses children at a county fair. An atom thus reduced is no longer uranium; it is ionium. Another particle, or set of particles, is cast off and the atom is radium.

## 1690 Years' Effective Life

At this stage the stripping act becomes sensational. Unthinkable millions of emanations of at least three different types fly out of radium atoms, some with the speed of light, some with sufficient momentum to pierce battleship armor. But so everlastingly many are they that only half will be shed in 1690 years and the remainder will continue to disperse at a progressively decelerating rate for virtually all eternity. The denuded remainder will be the atom of radon, an independent element which, at normal temperatures, is a gas. This lives half its dissipated life in four days. Eight more similar transmutations follow concurrently and progressively through eight unstable elements and the atom finally comes to rest as the element lead. Transmutation is a fact. But the fact is trivial in the face of other implications. When the atom cracked, Science had to begin all over again.



# The Saga of

## Radium Hunger

As radium has been mined and refined in only a few places by only a few people, it is striking commentary on the haphazards of history that no one knows how much has been mined and how much is now held or by whom. A government survey in the United States uncovered holdings by a few hundred hospitals and physicians, but accounted for less than half the radium expected from production and import-export records.

### Only a Two-Inch Cube

A sizeable percentage of radium has been used in luminous paint, especially during the World War for clock dials, compass dials, gun sights, etc., but no one knows just how much.

The concensus seems to be that there may be about 600 grams of radium in man's possession, of which about one-third is in the United States. At 28 grams to an ounce, and 16 ounces to a pound, 600 grams is considerably less than a pound and a half and not enough to make a two-inch cube.

### \$56,000,000 Per Pound

Until about 1912 the world's supply of radium was practically limited to the total of the few grains a year grudgingly yielded by the Czecho-Slovakian mines. Then radium in greater quantities was found in carnotite ores in Colorado and Utah. About 75,000 tons of ore yielded one whole ounce. At \$125,000 a gram, or \$3,500,000 an ounce, the radium could be refined and, at that price, there was an unsatisfied market for it.

Then in a most inaccessible corner of the Belgian Congo pitchblende was found in a copper mine. New refining methods were developed and the price fell to \$70,000 a gram, eliminating American competition.

IN 1930 Gilbert LaBine, then entrepreneur of the Eldorado Gold Mines, Ltd., of Canada, hurried from the mines to a "welcome home" dinner tended by the stockholders in his honor. He acknowledged their reception with an announcement that the mine was a disappointment but that the bulk of their investment was still good and in cash. He astonished them with a request to back him in search of a new mine and they amazed him by accepting.

In the archives of the Canadian Bureau of Mines, he read a report by an eminent geologist of cobalt-bloom staining the rocks on the east shore of Great Bear Lake, Canadian North West Territories, on the Arctic Circle, 500 miles east of the Klondike. To Mr. LaBine whose home was the Cobalt country, cobalt meant silver.

With this knowledge, Gilbert LaBine chartered an airplane for the uncharted route. He debarked alone on Great Bear Lake. Within a few weeks he had seen enough to warrant outfitting an expedition. For what happened, when he later returned with a partner, we have his own story as told at the dinner given the Department of Mines and National Research Council in November, 1936:

### Looking for the Silver Lining

"I went in by airplane and took in a sectional canoe, and I was fully equipped to remain all that summer. I would say that in the area we had in mind for prospecting, the shore line would probably cover 500 miles. We had about 1,600 pounds of supplies, including this sectional canoe, and we took in two pieces of iron so that we could make a sled.

"After landing at the Camsell river we started in to do reconnaissance work across sections of the country in order to get a picture of the geology. We landed at Point 56, which is just the western entrance of Echo Bay, on the night of the 14th of May. On the 15th of May we relayed our supplies over by sled in water up to our knees, across Echo Bay and finally found a place to land, where there was timber. We

# Canadian Radium

made our headquarters there for some time and went back to get our second load of supplies, and after we had brought up the balance of our supplies, my associate or assistant, Charles St. Paul, went snowblind.

"So he remained in camp for a few days, until he recovered, and I started in doing some prospecting in that vicinity. On the morning of the 16th of May, about half a mile from where we were camped, I was following around the shore of an island and I discovered what I considered a beautiful looking vein. I started out and followed it up, and felt sure investigation would prove it to be silver. As I looked over to the shore, a distance of about 300 feet or possibly 400 feet, I noticed a great wall there that was stained with cobalt-bloom and copper-green. I walked over to this place and investigated it carefully, and found all the associated ores of cobalt, including some silver. Following along, I found a tiny dark piece of ore, probably the size of a large plum. Looking more closely I found the vein. I chipped it off with my hammer, and here it was pitchblende."

## An Expert Remarks

In the March, 1937, issue of the Canadian Geographical Journal, Dr.

Charles Camsell, Deputy Minister of Mines, made the following statement with reference to this discovery:

"The radium content of the pitchblende discovered in that area (LaBine Point—Eldorado) was unusually high, being estimated at one gram per 6½ tons, whereas concentrates formerly treated in the United States averaged one gram in 128 tons, and the best grade ore from the Belgian Congo averaged one gram per 10 tons, dropping in recent years to one gram in 30 or 40 tons. The occurrence of native silver, often in large amounts, with the pitchblende from LaBine Point adds materially to its value."

## \$85 a Ton

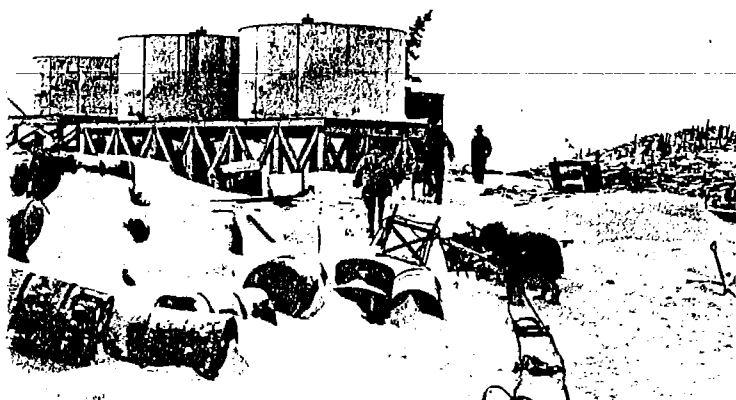
Seven years of strenuous development work and mining, has barely scratched this tremendous ore body. Today one sees rich veins split the hills and cliffs, the islands and even the lake bottom, and sink to depths still undetermined, but known to be great. In these veins, radium, silver, uranium and copper—rock worth \$85 a ton.

Gilbert LaBine on his trip of discovery. Accompanied by one man he dragged this 1600 pound load for 200 miles.

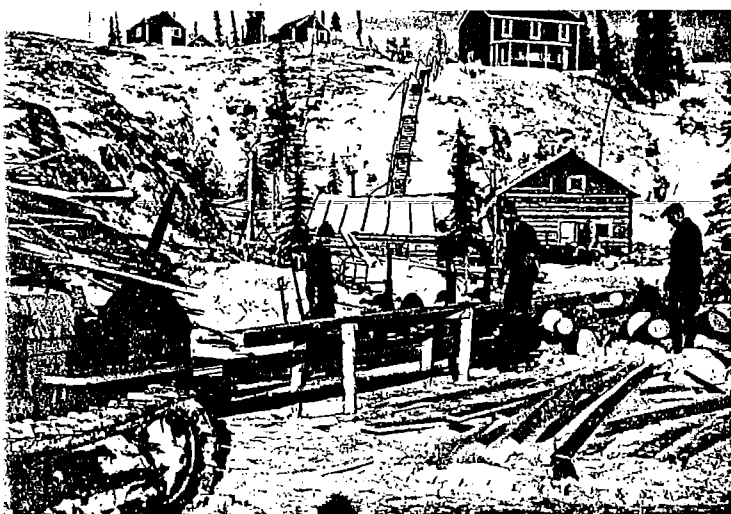




Eldorado, LaBine Point, N.W.T., looking into Echo Bay.



Oil from Imperial Oil Company Wells at Fort Norman.



The Arctic provides its own timber from which lumber is sawn for Eldorado's building requirements.

**T**HE discovery of pitchblende was not the end of the saga of Canadian radium, but the beginning. Paradoxically, the problem was not to get the ore out of the Arctic, but to get equipment and supplies in.

From Waterways, Alberta, the Mackenzie River system meanders 1,500 miles with rapids, swamps, muskeg and mountains. Only for a few weeks in summer is it open. During such a period the first machinery went by canoe. During winters that hit 70 below, airplanes carried freight cargo, like mad humming-birds building a nest on a glacier.

### The Arctic Capitulates

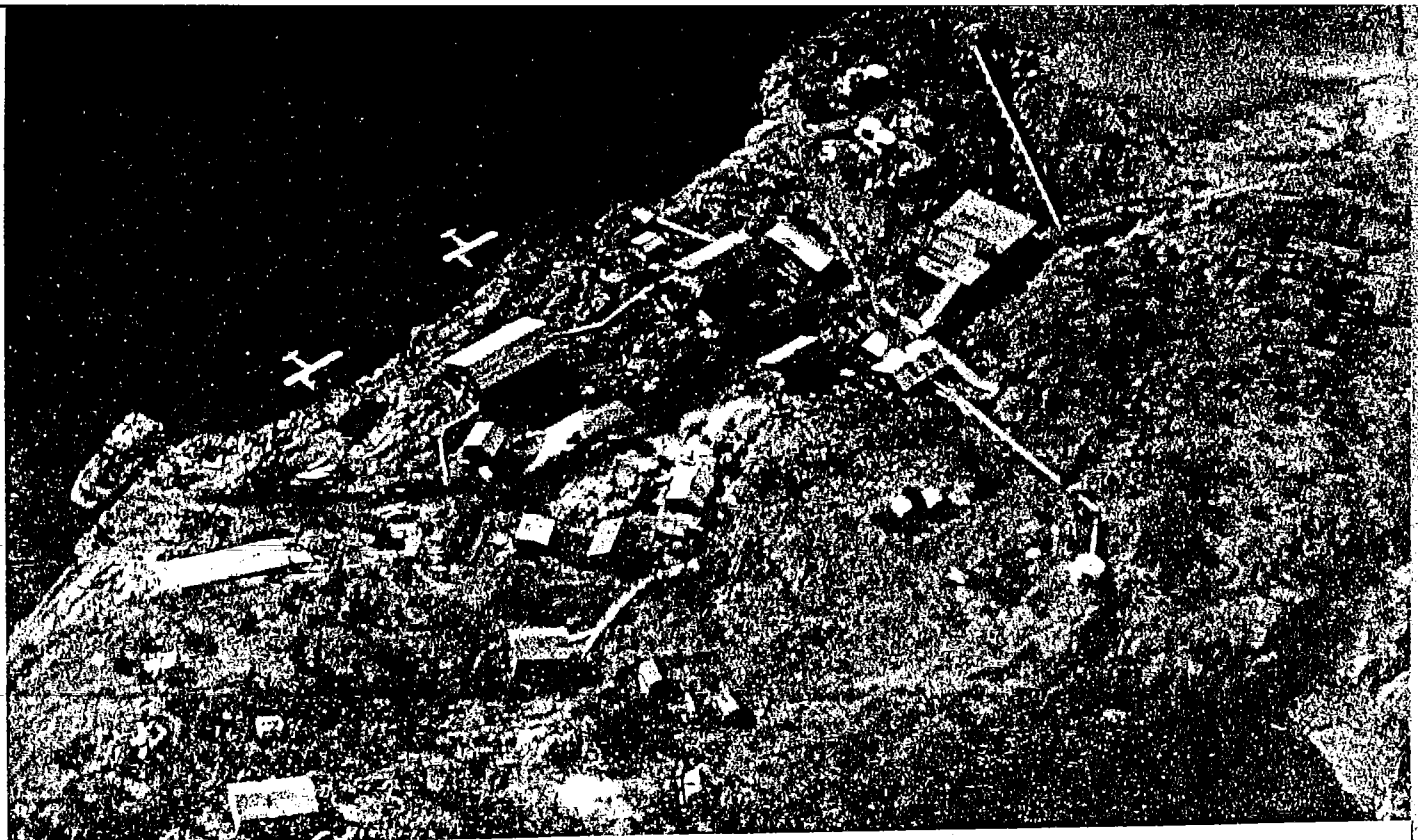
But those years of waiting on the seasons are now pioneer history. Last year the refinery of the Eldorado Gold Mines, Ltd., at Port Hope, on Lake Ontario, completed the refining of the first ounce (twenty-eight grams) of radium from pitchblende concentrates mined and concentrated at Eldorado.

Today all Canada recognizes the development of this mine near the Arctic Circle, and the establishment of economical routine transportation, as a stupendous, successful, mining achievement. The answer to years of questioning is, now in the summer of 1937, production of four grams of radium a month.

### Radium City, N.W.T.

Today a visitor flies deluxe in an Eldorado-owned Bellanca plane, perhaps with a load of fresh eggs and vegetables in the cargo, for these are a part of the excellent varied and healthful meals served at the mine. He lands on

# Eldorado, Home of



ELDORADO MINE AS SEEN FROM THE AIR

the lake with a close-up of the Radium City post office, and general store, climbs out and proceeds by motor tractor and heated trailer in the winter and boat in the summer across an arm of the lake to the mines at Eldorado.

And he finds a modern mine equipped with electric lights, steam heat and latest mine machinery and equipment. The mine power and lighting is electric, provided by huge Diesel engines operated on oil which Providence supplied at nearby Fort Norman and Imperial Oil Company Limited co-operatively has made available. The comforts and good health of the miners and staff have been carefully considered with comfortable steam heated living quarters, shower baths and recreation rooms. Everything expresses efficiency and permanency.



Number 2 open cut. Over \$500,000 worth of ore was taken from here by hand drilling.

# Canadian Radium

# 500 Tons



In a stope far below ground—drilling holes for blasting to break down ore.



Crystal? No. Ice in vein, unthawed for millions of years.

## Pre-Cambrian Jewelry

**A**T the end of a tunnel one gazes upon a treasure the like of which no pirate, no rajah, no Croesus ever saw. There on the wall is the vein inlaid with heavy traceries of pitchblende interlaced with silver. This is just a bit of cross

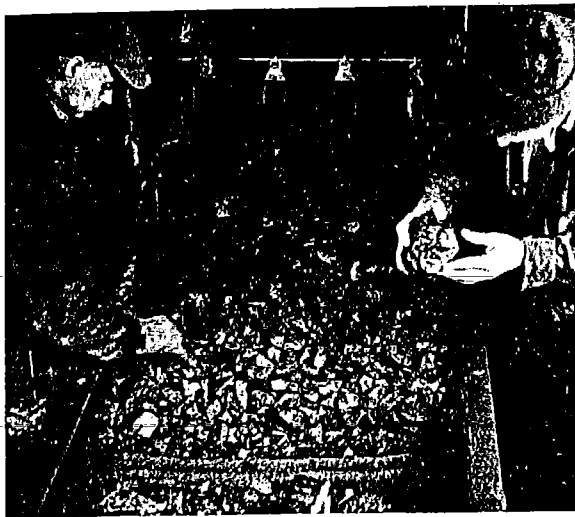
Recovering silver-copper by flotation—bubbles are metallic in appearance due to presence of metals.



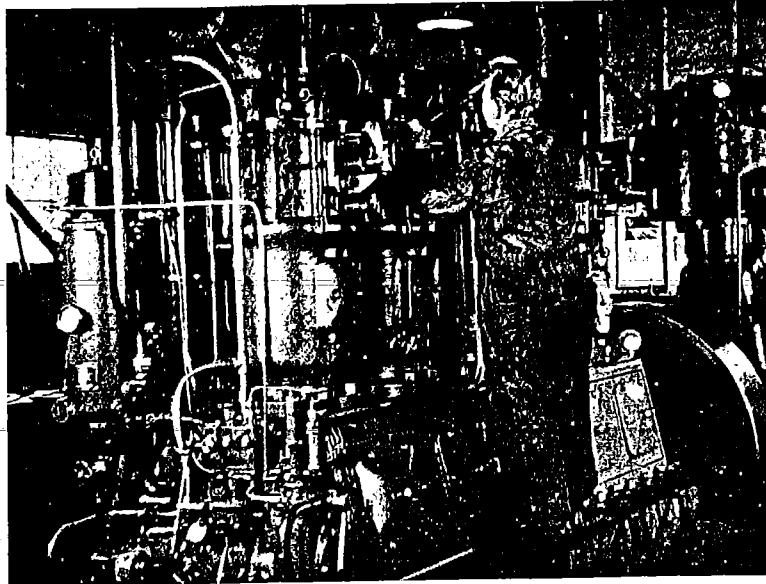
section, 590 feet underground, of one of many surface veins that sink through the rocky hills.

At this and similar sites, the ore is blasted down at 100 tons a day. To mine this ore and coax out the resulting two tons of concentrated radium-uranium-silver ore is the single purpose of the hundred men who constitute this Arctic mining camp. Out of the two tons of pitchblende concentrates, the refinery will rescue 200 milligrams of radium, 1,800 pounds of uranium and 2,000 ounces of silver—the Arctic generously compensates its conquerors.

# to make One Gram



A nugget of pitchblende,  
almost pure.

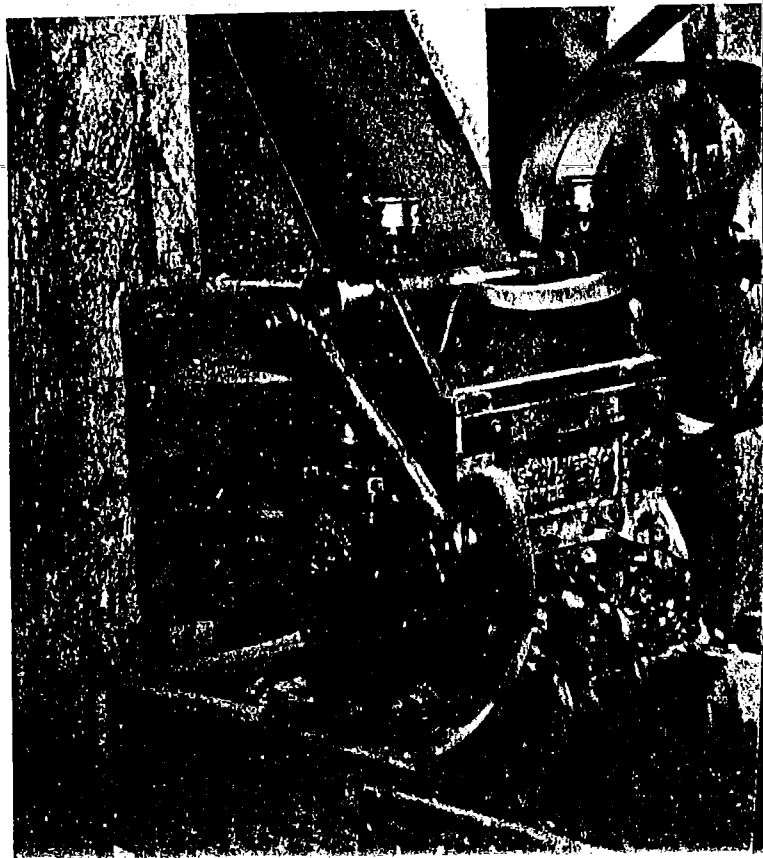


Diesel engine driven by oil produced  
in the Arctic, at Fort Norman.

Bagging pitchblende concentrates  
in 120-lb. sacks.



Crunch, crunch, crunch. Crushing the ore  
before being concentrated.



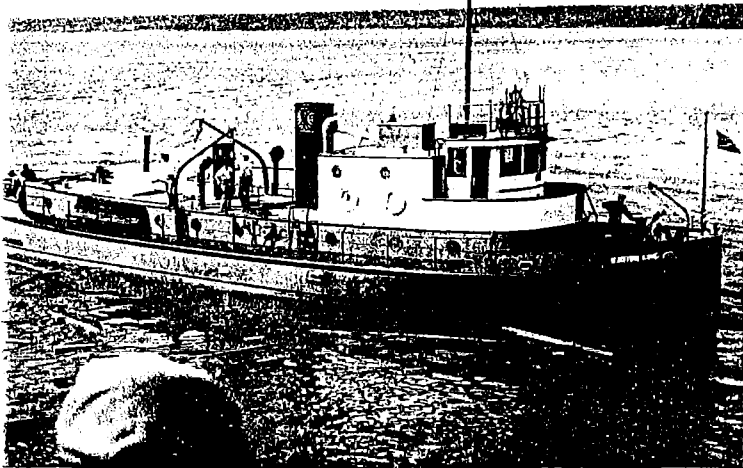


# The Mountain

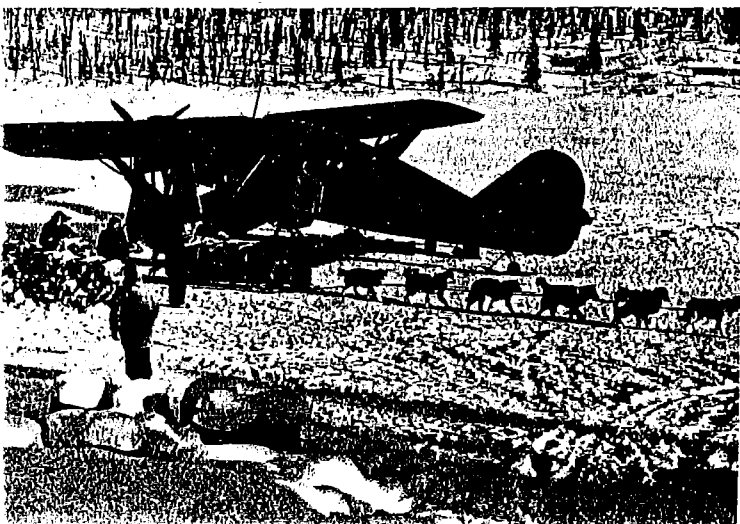
Undaunted by the competition of airplanes and motor tractors, Eskimo dogs still carry on.



About \$50,000 worth of pitchblende concentrates awaiting shipment.



Radium King, flagship of Eldorado-owned Northern Transportation Co., operating on the Mackenzie River system.



The trailer reaches the Arctic. This heated caboose makes transportation comfortable.

Air freighting is now as commonplace to the far-northerner as the Aurora Borealis, but Eldorado has its own dog teams for local express service.



# Comes to Mahomet

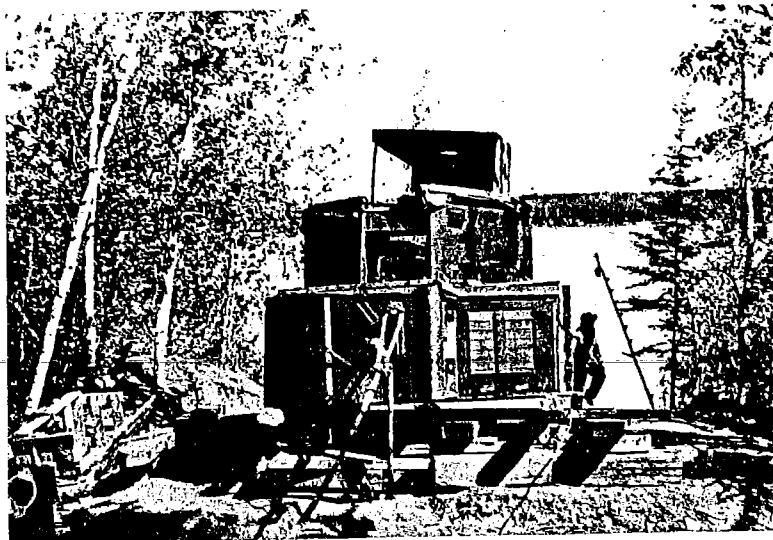
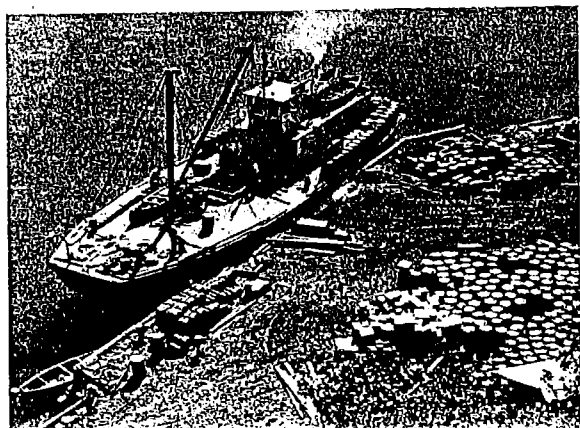
**S**INCE it requires 500 tons of ore to produce one gram of radium, the question is often asked why Eldorado does not refine at the mines instead of shipping the concentrates 4,000 miles to Port Hope.

In the first place, the 500 tons of ore is concentrated to ten tons of pitchblende at the mine and only this is shipped to Port Hope, Ontario, at the yearly rate of two tons a day.

Moreover, to treat a ton of pitchblende concentrates requires seven tons of chemicals, and it is far more economical to ship a ton of concentrates to the refinery than seven tons of chemicals to the mines.

Also, and most important, transportation is no longer a problem. Today Eldorado Gold Mines, Limited, with its own boat and aeroplane service has a relatively low and practical transportation cost. Eldorado is no longer back of the North Wind but a component part of Canada.

Loading pitchblende at Eldorado dock, 100 yards from the mine shaft, for transport to Port Hope.

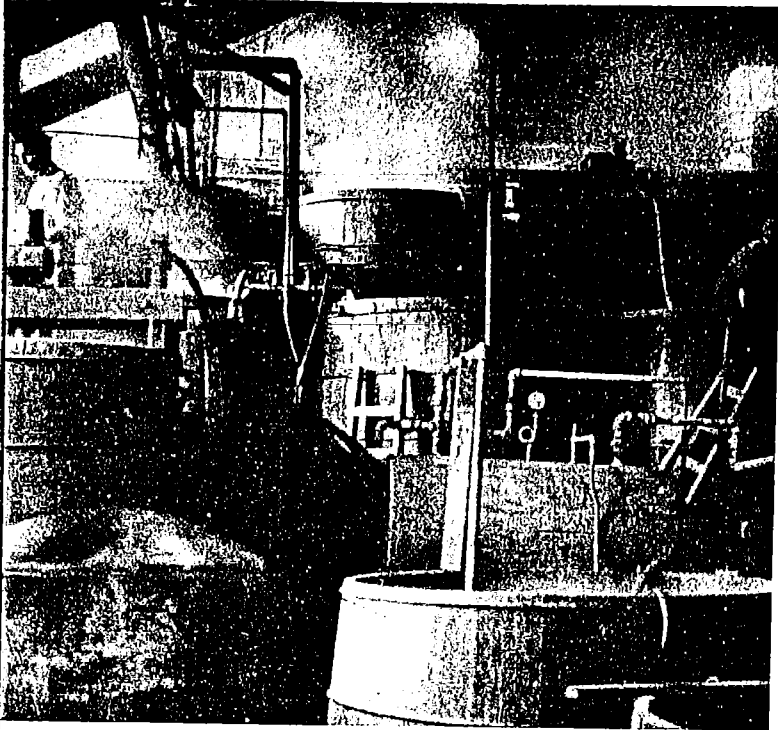


Landing a section of the Radium King for portage around the Slave River rapids, at the end of which it was welded together and put in service from Fort Smith to Fort Norman.

A man-made dragonfly shedding its skin. Idle engines must be kept covered in the Arctic.



# They can't get the radium out of the ore ~



The first step in refining.  
Roasting out the sulphur.

**T**HE dominant problem of extracting radium begins after the pitchblende concentrates, carried some 4,000 miles by airplane, river steamer, portage and railroad, reaches the refinery at Port Hope. Here Marcel Pochon, who studied under the Curies, applies their fundamental principles on a mass production basis.

Refining the one part of radium from the 3,000,000 parts of uranium has been likened to finding the needle in a haystack. But this comparison is absurdly belittling. It is like recovering a pinch of salt, dissolved and thoroughly mixed with ten tons of earth—but requiring more ingenuity.

There is no way known of taking the radium out of the ore, so the ore is taken out of the radium.

## Bubble, Toil and Trouble

First the sulphur is burned out. Then various other ingredients are progressively dissolved out, precipitated out and filtered out. Every ton of ore requires seven tons of chemicals and, say thirty days of wheedling.

Were this all to the process, however, the pinch of radium might leak away with solutions and precipitates. Lack of bulk is taken care of by adding barium until the barium content is 500,000 times that of the radium.

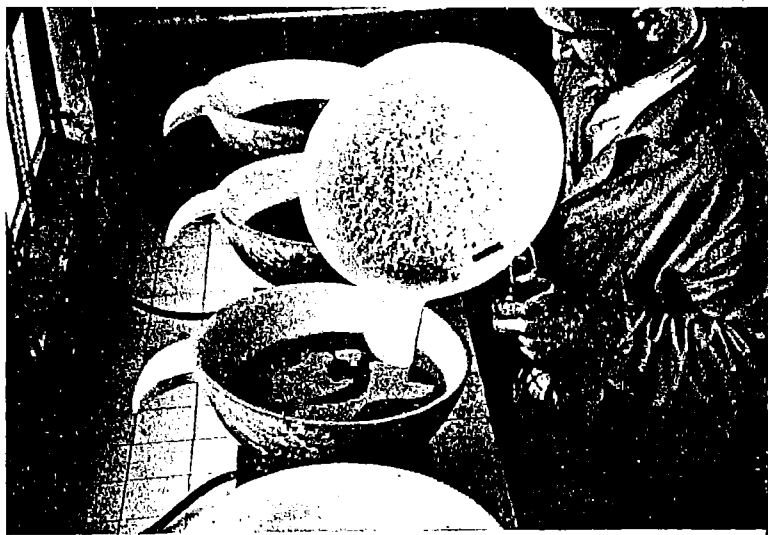
Barium, having a powerful physical affinity for radium, gathers into its bosom every last atom of radium and hugs it tight. When all is gone but the barium and the radium in its custody, an odd new problem presents itself. Barium and radium, so much alike chemically, cannot be separated by chemical means. Even in building crystals, they act jointly. It so happens, however, that radium salts are somewhat less soluble than barium. And so,

Devil's Kitchen: stews of acid  
and alkali—the uranium refinery.





A fortune in a flask: crystals of radium—barium bromide during the final stages of fractional crystallization.



Fractional crystallization. Washing barium-radium bromide crystals in a crystal bowl.

## — so they take the ore out of the radium!

by long series of fractional crystallizations, starting in an open-pan elevator and ending in a thimble-sized vessel, the radium is eased out ninety per cent pure, that is, nine parts of radium salt to one part of neutral barium salt.

### A Pinch of Salt

The salt is then radium bromide, which is soluble and ready for use in making radon gas. For medical use, however, an insoluble salt is preferred and the bromide is converted by chemical reaction into the insoluble sulphate.

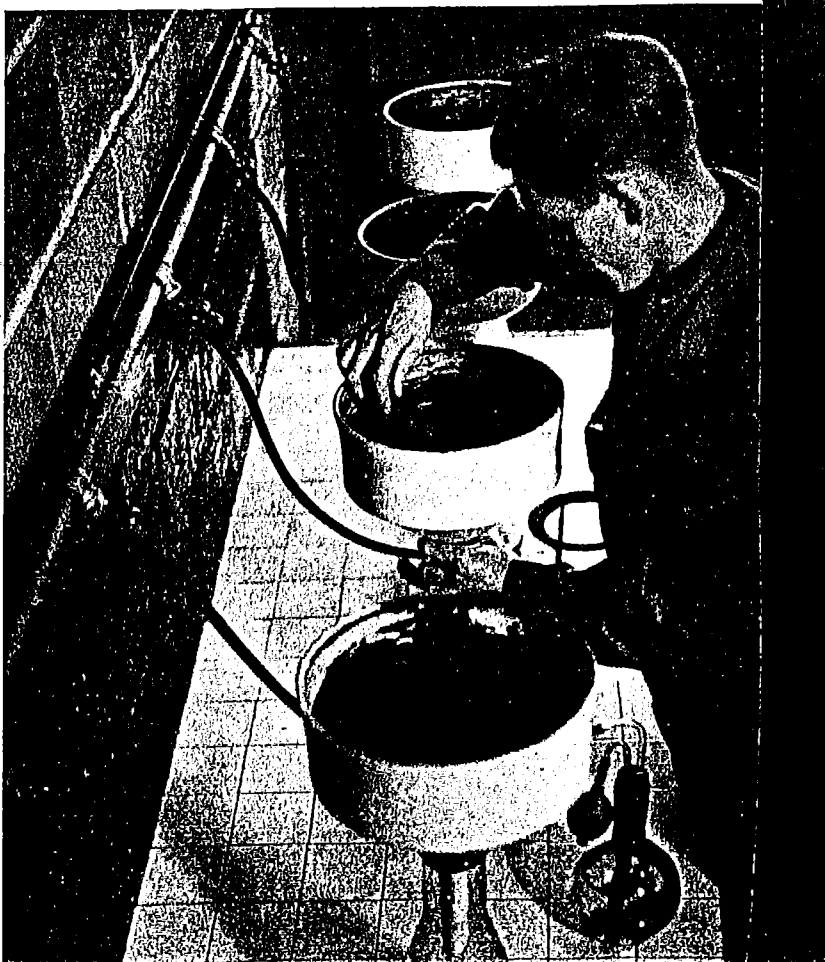
The final operations of weighing, testing for radiation strength, dusting into gold or platinum tubes or "needles," sealing the tubes, etc., cost nearly \$500 a gram. Even to transfer radium from one tube to another takes experience and skill. No telling when some tiny particle may be shot out like a stone from under an automobile tire.

### Harvesting Wild Atoms

After radium is handled all accessories are washed, and the liquor saved for refining. Even washrags and filter papers are burned and refined. The laboratory clean-up may yield as much as fifty milligrams, more than a thousand

and dollars worth, of radium. But, thanks to the electroscope and the Geiger counter, all radium can be recovered.

Filtering the chocolate-colored radium mud after the recovery of uranium and silver.



July 8<sup>th</sup> 1937

# Medicine and Industry

**M**OST available radium is used in treating cancer. A current unfinished survey of hospitals in cities of eastern and mid-western United States located holdings of only seventy grams. Most hospitals have no radium at all; those which own the seventy grams are at present contemplating the purchase of additional quantities. The same conditions exist throughout the world. Production facilities will be strained for many years to provide the radium required for this use.

## World-Wide Interest

In such a vast field for the use of radium the additional production of four grams a month by Eldorado Gold Mines, Ltd., is only a trifle. But to those who work with radium in units of one-thousandth of a gram, i.e., the milligram, four grams a month is a veritable flood. Hence the romance of Canadian radium, the excitement over its discovery, and the intent, world-wide interest in the successful operations and bright future of Eldorado Gold Mines, Limited.

## Medical Uses

Many malconditions other than cancer are successfully treated by radium and cancer does not make up half the cases treated, according to an article by H. W. Van Allen in *Hygeia*, a publication of the American Medical Association. Radium is used in treating birth-marks, eczema, ringworm, psoriasis, acne, warts, neuralgia, etc. Radium affects the enlarged thymus, dangerous to young infants, and the thyroid gland, or goitre in adults. Radium can be used to cause the menopause to be prompt and not distressing and to influence the action of the pituitary gland.

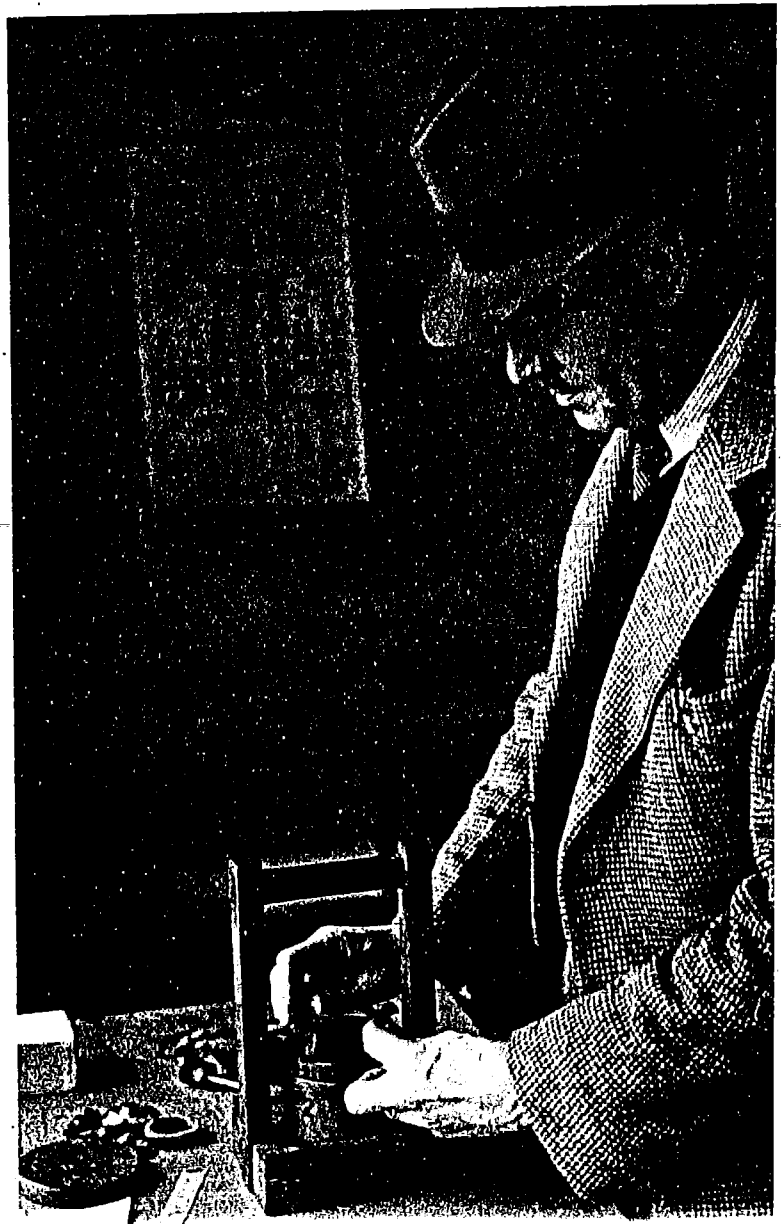
## Industrial Possibilities

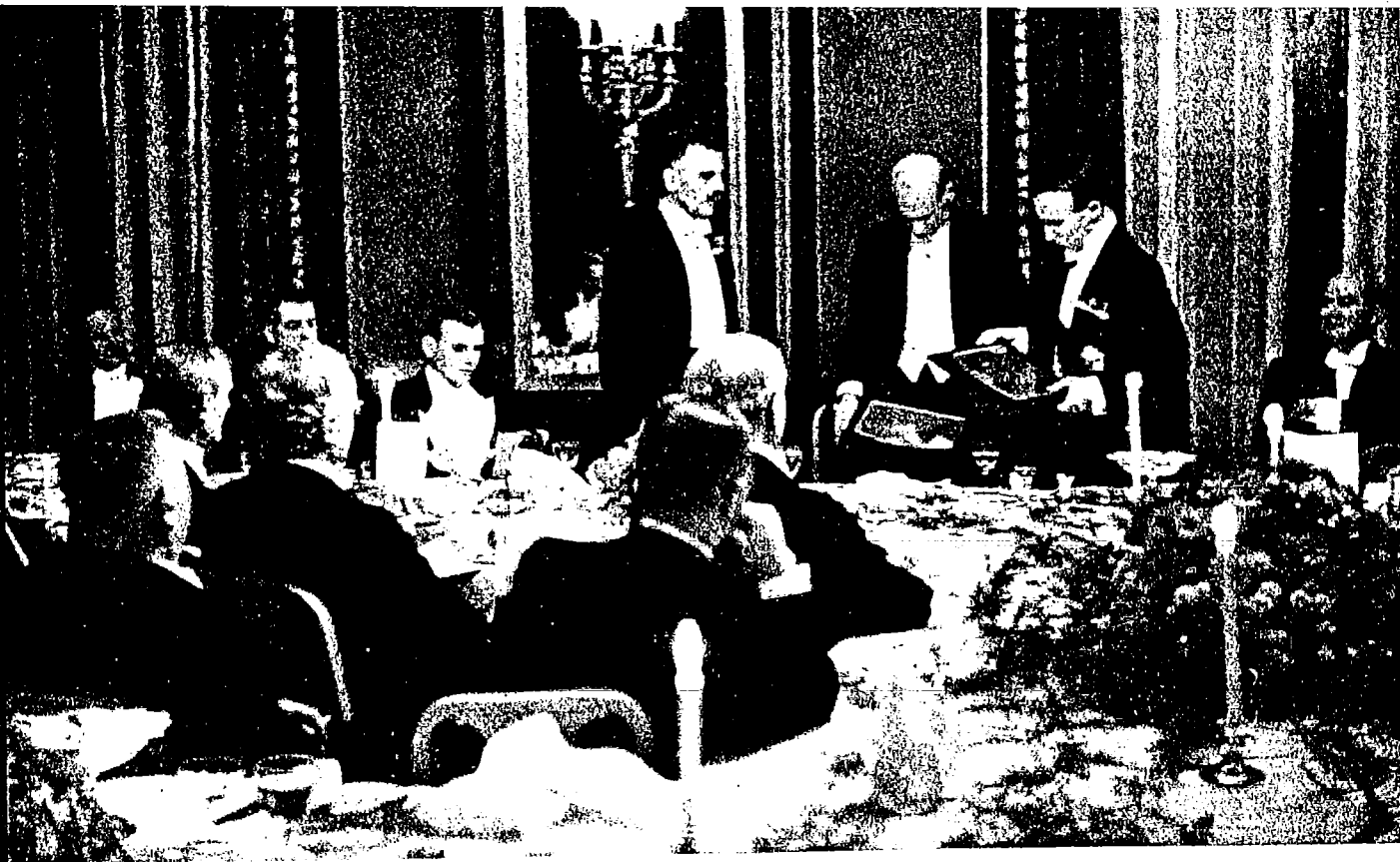
In industry radium is used principally in luminous paint and in photographing the internal structure of metal parts. In contrast to the supply of radium, the luminous paint market for radium is virtually inexhaustible. The same is true of the potential demand for radium to make radiographs of metal parts. Were we to have public safety laws to require such examination of vital machine parts, such as shafts of steamships, all the radium in the world, working continuously, could hardly begin to do the job.

## Research

Laboratory experiments are continuously revealing exciting possibilities in other industrial uses, especially in working silk and glass, in canning foods, and in stimulating plant growth. The unusual, almost magic physical qualities of radium hold great possibilities for the development of many other varied and wide practical uses for this magic mineral.

Marcel Pochon, chief chemist,  
Eldorado Gold Mines, Ltd.





The Lord Tweedsmuir presenting plaques of appreciation to Dr. Charles Camsell, Deputy Minister of Mines, and General McNaughton, director of the National Research Council.

**I**T was an historic occasion when in November, 1936, Eldorado Gold Mines, Ltd., celebrated the production of the first ounce of Canadian radium with a dinner in honour of the staff of the Canadian Department of Mines and of the staff of the National Research Laboratories. It marked the coming of age of a new Canadian industry, with its problems of mining in the Arctic, transportation, and refining, worked out and solved, with mass production on a

profit-making basis, and a bright future ahead.

The dinner was honoured by the presence of His Excellency, the Lord Tweedsmuir, Governor-General of Canada and the Hon. William Lyon Mackenzie King, Prime Minister of Canada. On behalf of the Eldorado Gold Mines, Ltd., the Governor-General presented plaques of appreciation to Dr. Charles Camsell, as trustee for the Department of Mines, and to General

# The First Ounce of

McNaughton as trustee for the National Research Laboratories.

In making the presentation, the Governor-General stated:

"Mr. Chairman, Mr. Prime Minister and gentlemen: I am very proud of the privilege of being here tonight on this memorable occasion. We are not met to celebrate the success of a commercial company. In that case perhaps my presence would not have been entirely in order. We are met to commemorate a great scientific and philanthropic achievement and to do honour to some of those who have helped in that achievement.

"Canada has been given a new industry. The medical profession throughout the world have been given a new producing ground for what Mr. Pochon (chief chemist of Eldorado Gold Mines, Limited) has called one of their indispensable materials. That result has been achieved by the co-operation of the prospector, the mining engineer, the metallurgist and the chemist. Pioneering and science have walked hand in hand, and it is a thing which we are right to commemorate.

"Gentlemen, tonight we have surely heard a most wonderful story, a story told from different angles by those who are the best authority to tell it. We have the old report of Dr. Camsell (Deputy Minister of Mines) and his party which, after thirty years, gave Mr. Gilbert LaBine his cue. Six years ago he began his work and now, on the shores of the greatest lake which is wholly in Cana-



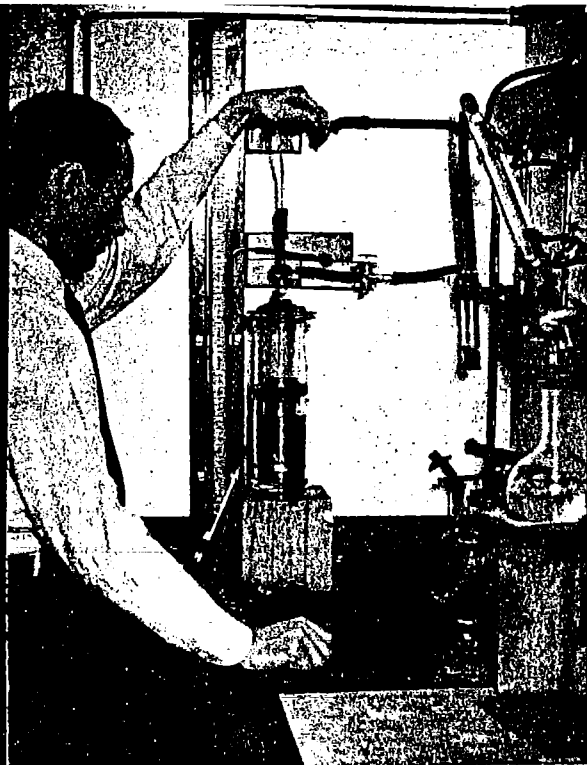
Left to right: Gilbert LaBine, discoverer of Canadian radium deposits; Harry Snyder, treasurer of Eldorado Gold Mines, Ltd.; The Lord Tweedsmuir, Governor-General of Canada.

dian territory, there is a flourishing industry in spite of climate, great distances and every difficulty in regard to transportation, at a place where until a few years ago there were no visitors except a wandering Indian. Today we have there an outpost of civilization and industry. In that great northland I believe a large part of Canada's future lies. Gentlemen, can you beat that for real romance?

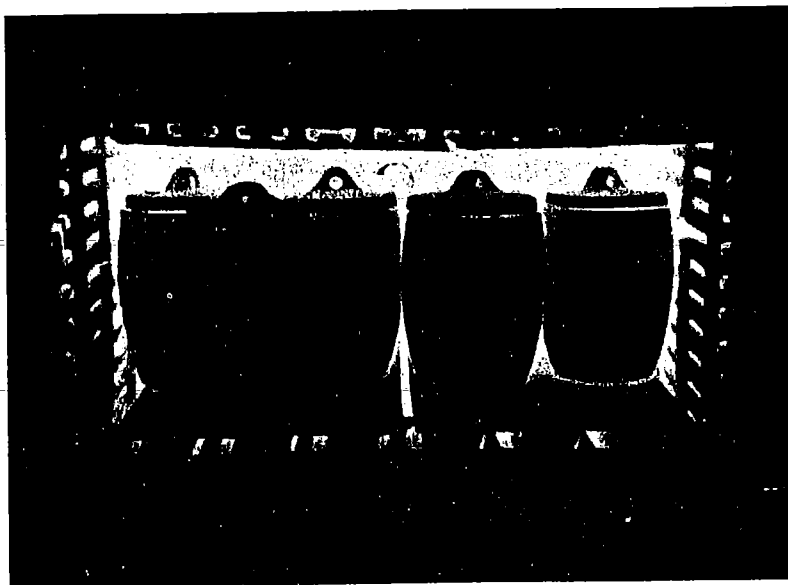
"Radium at this moment, as we have heard, is an indispensable weapon for the medical fraternity in the treatment of that most terrible of modern scourges, cancer; but as Sir Frederick Banting (co-discoverer of insulin) has said, with a greater supply of radium goodness knows what may be the limits of its use."

# Canadian Radium

# Radium in



Extracting radium emanation  
for measuring a sample.



Making black uranium oxide for pigment  
at 2000 degrees Fahrenheit.

No camera made this picture. A piece of  
Eldorado's pitchblende reproduced on a  
photographic plate by its own rays.

BUREAU OF MINES, OTTAWA

