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Kennecott

COPPER CORPORATION

Annual Report 1956

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Tin



Iron



Silver



Copper



Gold



Platinum



Hafnium



Selenium



Columbium



Palladium



Titanium



Molybdenum



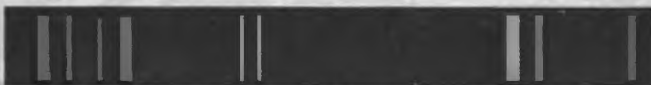
Rhenium



Uranium



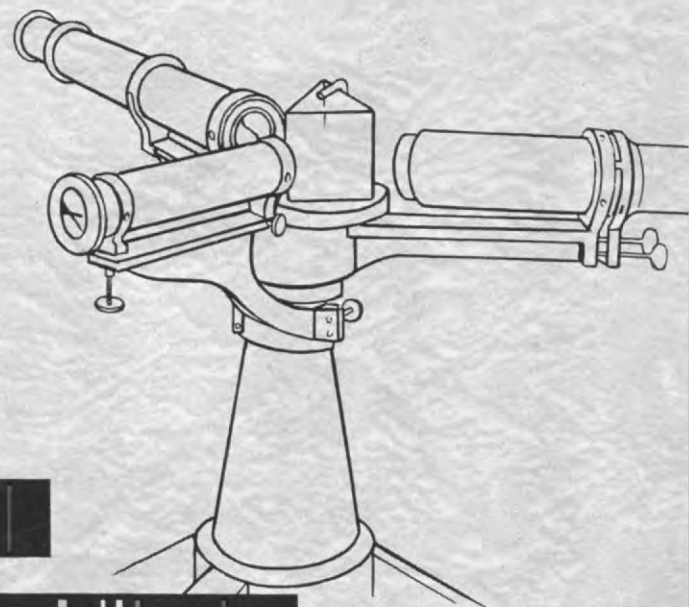
Zirconium



Tantalum



Thorium



SPECTROSCOPIC BANDS
OF KENNECOTT'S METALS

BOARDS
q884.24
K379r

COPPER

IN THE NEWS:

Recent Important Applications of Copper, the Metal of 100,000 Uses



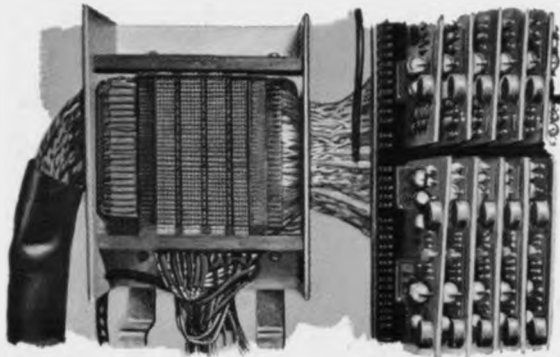
This New York skyscraper has a face of richly beautiful bronze. It took 3,200,000 pounds of Copper's alloy to make the bronze curtain walls.



This scoop-shaped antenna is a link in the Air Force's "White Alice" network in the frozen Arctic. As with all communications systems, Copper is a vital ingredient.



This tail assembly of Army's "Redstone" Missile (Chrysler-made) contains 125,000 feet of Copper wire, with 7,000 soldered connections.



The Mechanical Brain, the uncanny machine that remembers and thinks, has arteries, veins and sinews of Copper. Months of written computation are handled in minutes by this electronic marvel.



The world's most powerful atomic accelerator, now being built at the Brookhaven National Laboratory, will require almost a million pounds of Copper for energizing and cooling its half-mile ring of magnets.



The Heat Pump, new thermal miracle, heats your home in winter and cools it in summer, using only outside air or deep-well water. Indispensable Copper makes it run.



The new transatlantic telephone cable depends on Copper to provide better voice transmission through long years of trouble-free service.

Forty-second Annual Report

Kennecott Copper Corporation

FOR THE YEAR ENDED DECEMBER 31, 1956

GENERAL OFFICES: 161 EAST 42nd ST., NEW YORK 17, N. Y.

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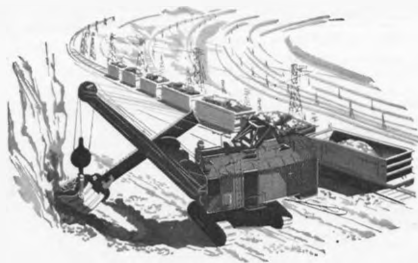
The Cover—Spectroscopic Bands of Kennecott's Metals

When metals are vaporized in an electric arc, they emit characteristic light vibrations which, when observed through the spectroscope, are resolved into various bands of color. The number of vibrations reaching the eye determines the color of the light. For example, red vibrates 400 trillion times a second whereas violet, at the other end of the spectrum, vibrates almost twice as fast.

Each element has its own set of vibrations, as characteristic and individual as the score of a symphony. The measure of these vibrations helps the scientist identify the substances present in a given sample of ore, and the intensities of the various colors determine the amount of each substance present. The metallurgist uses the spectroscope to check the purity and composition of his product. The astronomer uses the spectroscope to ascertain the composition of distant stars.

Since some of the elements—like iron and titanium—actually radiate thousands of color shades, only the most intense and distinctive appear in the bands shown on the cover. The drawings were executed by the well-known scientific artist, Captain Charles Bittinger with the guidance of Donald H. Menzel, Director of the Harvard College Observatory.

President's Letter



To the Stockholders:

IN 1956 YOUR COMPANY EARNED \$143.1 million after taxes, as compared with \$125.5 million in the previous year. Per share earnings for the two years were \$13.23 and \$11.60, respectively. The amount distributed to stockholders in 1956 was \$9.25 a share versus \$7.75 in 1955. The average price received by Kennecott for its copper in 1956 was 41.6 cents a pound, as compared with 36.6 cents in the previous year.

The year opened with the demand for copper exceeding the supply, due partly to the high level of general business activity, and partly to the buying of copper in anticipation of possible strikes in the industry. By the latter part of February the U. S. producers' price had advanced to 46 cents a pound. However, the strikes failed to materialize and by midyear the demand for copper had declined. Moreover, the available supply was augmented as a result of new copper mines brought into production. By the end of October the price had fallen to 36 cents. Currently, the price is 32 cents which we believe will afford stability to the market, and discourage the substitution of other materials.

Production of copper by Kennecott during 1956 amounted to 582,205 tons as compared with sales amounting to 495,219 tons. In the first two months of 1957 our sales were in excess of production.

Our Chilean production was formerly sold as fire refined copper to brass mills in this country and Europe. However, the reduced demand for this product and the relatively strong demand from European wire and cable companies for electrolytically refined copper brought a decision to electrolyze in the United States a portion of our Braden production and offer electrolytic wirebars for sale in Europe. This action proved successful and thus far we have sold the greater proportion of our estimated 1957 Chilean production.

Other developments worthy of note were (1) the start of the program to increase capacity of our Ray Mines Division by 20,000 tons of copper an-

nually and the construction of our own smelter there at a total overall cost estimated at \$40,000,000, (2) the success of the new pre-treatment plant of Quebec Iron and Titanium Corporation and the decision to build three more furnaces, increasing the total to eight, and (3) your company's joint venture with Allied Chemical & Dye Corporation in the building of a \$40,000,000 plant to produce titanium metal. An unfavorable development was the flooding of the mine of Merriespruit (Orange Free State) Gold Mining Company Ltd., in which your company has a substantial investment.

The outlook for this country in 1957 is for further increases in personal incomes and consumer spending for durable and non-durable goods and services. Other factors will be the high rate of industrial plant investment, continued expansion of the public utilities, increased shipbuilding, the start of the Federal multi-billion dollar highway program and increased defense expenditures. All of these indicate a continued demand for the products of Kennecott.

The long term outlook for all metals indicates an increasing demand. We believe we are entering a period when the newer metals, such as titanium, columbium and zirconium, are going to be in important demand and, consequently, your company is increasing its interest in their production. However, the principal product of your company is copper and will continue to be for the foreseeable future. The need is for additional copper deposits, and it is mainly toward their discovery that our exploration program is directed.

By order of the Board of Directors,



President

March 13, 1957

The annual meeting of stockholders of Kennecott Copper Corporation will be held at 11:00 a. m., (Eastern Daylight Time) Tuesday, May 7, 1957 in the Georgian Room of the Statler Hotel, 7th Avenue and 33rd Street, New York City. A formal notice of the meeting and proxy statement, together with a form of proxy, will be mailed to stockholders on or about April 5, 1957, at which time proxies will be solicited by the management.

Results at a Glance

	1956	1955
Total Revenue	\$578,067,000	\$555,939,000
Total Taxes	\$160,972,000	\$143,214,000
Total Taxes—Per Share	\$14.87	\$13.23
Net Income	\$143,154,000	\$125,516,000
Net Income—Per Share	\$13.23	\$11.60
Distributions to Stockholders	\$100,100,000	\$ 83,868,000
Distributions to Stockholders—Per Share	\$9.25	\$7.75
Working Capital	\$328,370,000	\$297,293,000
Ratio Current Assets to Current Liabilities	4.0 to 1	3.7 to 1
Net Worth—Book Value	\$723,200,000	\$679,542,000
Book Value—Per Share	\$66.83	\$62.79
Expenditures for Plant and Equipment	\$ 21,244,000	\$ 16,006,000
Copper Produced (Net Tons)	582,205	526,715
Copper Sold (Net Tons)	495,219	533,820
Average Number of Employees	27,886	27,158
Number of Stockholders	89,596	88,755

Review of Operations

Mining Divisions

ALL DIVISIONS

In 1956 the total copper produced by Kennecott was 10.5 per cent more than in 1955. New labor agreements to replace those expiring in 1956 were successfully negotiated without interruption in production. The table below shows the amounts of copper produced, and of ore mined and milled at the different divisions.

It is becoming necessary to handle larger amounts of material to recover a given amount of copper. At all divisions the grade of ore mined in 1956 was lower than that of the previous year. As a result, in order to increase copper production by 10.5 per cent, it was necessary to mine 18.6 per cent more ore.



Division	Total Copper Production From All Sources (Net Tons)		Ore Mined and Milled (Net Tons)	
	1956	1955	1956	1955
Chino Mines . . .	69,629	63,490	7,945,386	6,992,950
Nevada Mines . . .	31,274	27,177	4,316,148	3,179,784
Ray Mines . . .	53,248	48,983	5,852,742	4,818,358
Utah Copper . . .	248,158	230,837	32,321,100	27,740,600
Total Domestic . . .	402,309	370,487	50,435,376	42,731,692
Chilean	179,896	156,228	10,767,314	8,856,963
Grand Total . . .	582,205	526,715	61,202,690	51,588,655

The KENNECOTT FAMILY...

what it's composed of

CHINO MINES DIVISION

NEW MEXICO



COPPER MINE



CONCENTRATING
MILL



SMELTER



FIRE
REFINERY

UTAH COPPER DIVISION

UTAH



COPPER MINE



2 CONCENTRATING
MILLS



SMELTER*



ELECTROLYTIC
REFINERY



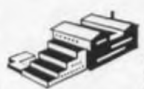
RAILROAD

NEVADA MINES DIVISION

NEVADA



COPPER MINE



CONCENTRATING
MILL



SMELTER



RAILROAD



ELECTROLYTIC REFINERY*

RAY MINES DIVISION

ARIZONA



COPPER MINE



CONCENTRATING
MILL



SMELTER**



RAILROAD



BRADEN COPPER COMPANY

CHILE (100% OWNED)



COPPER
MINE



CONCENTRATING
MILL



SMELTER

FIRE
REFINERY



RAILROAD



CHASE BRASS & COPPER CO. INC.

CONN. & OHIO
(100% OWNED)



3 BRASS MILLS



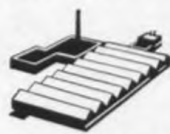
FABRICATING
PLANT



(25 Warehouses throughout the U. S.)

KENNECOTT WIRE AND CABLE COMPANY

RHODE ISLAND (100% OWNED)



FABRICATING PLANT

ALLIED-KENNECOTT TITANIUM CORPORATION

(50% OWNED)



TITANIUM PLANT***

TIN & ASSOCIATED MINERALS LTD.

NIGERIA (52% OWNED)



COLUMBIUM
MINE

2 CONCENTRATING
MILLS



QUEBEC IRON AND TITANIUM CORPORATION

CANADA (66% OWNED)



IRON-TITANIUM
MINE



TREATMENT
PLANT



RAILROAD

VIRGINIA ORANGE FREE STATE GOLD MINING CO. LTD.

UNION OF SOUTH AFRICA

(40% OWNED)†



GOLD MINE



CYANIDE
MILL



URANIUM
OXIDE
RECOVERY
PLANT



SULPHURIC
ACID PLANT

MERRIESPRUIT (ORANGE FREE STATE) GOLD MINING CO. LTD.

UNION OF SOUTH AFRICA

(49% OWNED)††



GOLD MINE



CYANIDE
MILL



URANIUM
OXIDE
CONCENTRATING
PLANT

QUEBEC COLUMBIUM LTD.

CANADA (46% OWNED)



COLUMBIUM
DEPOSIT†††

GARFIELD CHEMICAL AND MANUFACTURING CORP.

UTAH (50% OWNED)



SULPHURIC
ACID PLANT

*Not owned by Kennecott but a substantial part of the output is for Kennecott. (Same refinery serves both Nevada and Ray.)

**Plant under construction.

***Plant under design (Site in area east of Mississippi River presently being selected).

†Assuming conversion of loan stock under present option right.

††Assuming full conversion of loan stock.

†††New treatment method under development

Company railroads are used principally for hauling ore from mine to mill. In addition, in Nevada and Chile they are common carriers.

Products of Kennecott Wire and Cable Company are warehoused by Chase Brass & Copper Co. Inc.

In addition to the above indicated ownership in affiliates, Kennecott holds for investment 13.1% of the common stock of Kaiser Aluminum and Chemical Corporation, 7.3% of the common stock of the Molybdenum Corporation of America, and 25.0% of the common stock of Western Shovelworks Inc.

Production of the important by-products molybdenite, gold, silver and selenium was as follows:

	<i>Molybdenite (Tons)</i>	<i>Gold (Ounces)</i>	<i>Silver (Ounces)</i>	<i>Selenium (Pounds)</i>
1956	16,269	403,381	3,213,559	148,455
1955	15,980	414,444	3,445,762	91,962

DOMESTIC DIVISIONS

The production of copper by the four domestic mining divisions in 1956 was 8.6 per cent greater than in 1955 and the amount of ore mined increased by 18.0 per cent. The grade of ore mined at the different divisions was as follows:

<i>Division</i>	<i>Pounds of Copper Per Ton of Ore Mined</i>	
	<i>1956</i>	<i>1955</i>
Chino Mines	17.4	18.2
Nevada Mines	16.4	18.8
Ray Mines	18.1	21.1
Utah Copper	16.6	17.7

At the domestic divisions it was necessary to increase the amount of waste material removed per ton of ore mined. Whereas in 1955 this ratio of waste to ore was 1.75 to 1, in 1956 it was 1.96 to 1. In other words, in addition to the 50,000,000 tons of ore mined at the domestic divisions there were 100,000,000 tons of waste removed. The total of 150,000,000 tons of ore and waste material handled was the largest in any year in the history of the company.

CHINO MINES DIVISION—Exploratory drilling since 1953 has established extensions of the previously outlined ore body which increase the reserves at this division and consequently the life of the mine. Approximately \$2,250,000 has been appropriated for additional mining equipment necessary to develop the new areas while maintaining the present rate of ore production and the required stripping ratio.

NEVADA MINES DIVISION—While ore reserves at this division are by no means exhausted, they are relatively less than those of the other properties. In addition the irregular nature of the ore body complicates mining procedures and results in comparatively high costs.

RAY MINES DIVISION—The installation begun in December 1955 for increasing by 12 per cent the amount of copper recovered from the ore of this division was completed and is now ready to be placed in operation. The installation consists of facilities for leaching,

R. L. Rowe, Nevada division, and one of the new rotary drills which have made possible greatly increased drilling efficiencies.



precipitating and flotation in the mill, and plants for producing the sponge iron and sulphuric acid needed in the process. The sponge iron is obtained by roasting and reducing pyrite recovered from the mill tailings; in this operation sulphur dioxide gas is generated which is used for producing the sulphuric acid.

Progress has been made on the \$40,000,000 program announced at the last annual meeting of stockholders for increasing the productive capacity of this division by 20,000 tons of copper annually. Plans for relocating the various surface facilities to permit enlarging the pit, and for expanding the capacity of the mill are well advanced. Construction contracts are currently being let. The program also provides for the construction of a smelter to process the copper concentrates and precipitates produced at this division. This work has previously been done by a custom smelter on a cost-plus basis. Construction of the new smelter is under way and is scheduled for completion in 1958.

A record tonnage of copper was produced at this division. The production of low-cost precipitate copper increased from 7,546 tons in 1955 to 14,934 tons as a result of leaching the caved areas of the old underground mine. Mill copper production in 1956 was as great as in 1955 despite the lower grade of ore, because a greater tonnage of ore was handled.



Mill metallurgy was improved by the finer grind made possible by the larger ball mill motors installed during the year.

UTAH COPPER DIVISION—There were a number of important developments during the year at this division. A new record was established in tonnage of ore and waste handled. To permit access to a section of the pit where considerable ore reserves exist, substantial sections of the mine railroad and attendant facilities were relocated.

The mining plan of this division calls for the continued deepening of the pit by developing lower levels as the ore on the upper levels is exhausted. In order to get out the ore from the lower levels without hauling it considerable distances upgrade, two tunnels through the mountain connecting the lower levels with the main ore haulage system have thus far been provided. It is now necessary to drive another tunnel at a level 350 feet below that of the one completed in 1951. The tunnel will be 18,000 feet long and will cost approximately \$12,937,000, including trackage, electrification, railroad yard and rail connections. Work was begun in October and it is estimated it will be completed in about three years.

During the year the vertical casting installation at the refinery, completed late in 1955 to provide the larger shapes now in demand by customers, was placed in commercial operation.

CHILEAN DIVISION (BRADEN COPPER CO.)

Water availability for power generation and milling limits production with present facilities at this division. Each winter freezing weather reduces the amount of water available from melting snows. Moreover, when precipitation is below normal, water available from this source in the late summer is reduced.

In 1956 underground water sources were

developed to augment mill water supply, and power saving installations were made. Thus it was possible to increase the tonnage of ore treated by 21.6 per cent and the amount of copper produced by 15.1 per cent. The ore contained 40.3 pounds of copper per ton as compared with 40.9 pounds in 1955.

At the concentrating plant, replacement of old flotation machines by equipment of modern design was begun. At the year's end about 40 per cent of the work had been completed, and the resultant improvement in the recovery of copper has exceeded expectations.

Work has started on the construction of a contact-type sulphuric acid plant that will replace an old chamber-type plant and produce acid at a substantial reduction in unit cost.

As a result of steps taken by the Government of Chile progress was made in slowing down the inflation which has plagued the country for a number of years. The program inaugurated in 1956 included limiting bank credits, curbing imports and reducing government expenditures. The immediate aim was to slow the inflation through a flexible approach rather than to attempt to halt it by rigid controls. The result during the first year was a 45 per cent increase in the cost of living as compared with increases in 1954 and 1955 of 71 and 84 per cent, respectively.

Exploration

The primary objective of the exploration program is the replacement and expansion of the company's reserves of copper ore. The program is divided into two parts, first, the development of reserves at existing mines and, second, the discovery of new deposits in other areas. Geological work continues at the operating properties and significant expansion of the known ore bodies has resulted.

As reported last year, work was continued



R. M. Haldeman, General Manager of Chilean division receiving congratulations from President Ibanez on winning award of the Inter-American Safety Council for ninth consecutive year.

at Glacier Peak, north and east of Seattle, Washington. During 1956 sufficient work was completed to warrant the acquisition of this property. This will mean the addition of a moderate-sized copper ore body to your company's reserves.

Combined operations of Kennecott and the Hudson's Bay Company have been concentrated in the region west of Hudson Bay, near Coronation Gulf in the Northwest Territories. The Canadian Government has granted an exclusive minerals concession covering an area of 620 square miles, within which copper mineralization has been discovered in various formations. Drilling of this discovery has been started and will be continued at an increased rate in 1957.

Drilling to delineate the extent of copper



Helicopters save time in reaching inaccessible areas where Kennecott is conducting exploration activities.

showings on the claims acquired in New Brunswick in 1955 resulted in the discovery of a small body of copper ore. Drilling on other groups of claims has led to promising showings of ores which are primarily lead and zinc, with only minor amounts of copper.

A secondary objective of the exploration program is the discovery of minerals other than copper which Kennecott can mine and market at a profit, and thereby increase the diversification of its operations.

Increased demand for long-fiber asbestos, especially in Europe, has resulted in the testing of what may become a source of this material in Greece. Currently an extensive geological and diamond drilling program is under way to determine the extent of this asbestos deposit and the quality of its fiber. The value of asbestos depends upon length of fiber, its tensile strength, and purity; all of these factors must be determined by testing. Preliminary results of the investigation are sufficiently encouraging to warrant further drilling and testing during the ensuing year.

The Greek Government, after three years of negotiation, has entered into an agreement with Kennecott which provides a favorable economic climate under which to develop and operate the deposit if further exploration proves this to be desirable.

The entrance of Kennecott into the field of high-temperature alloy metallurgy prompted the company to investigate with the Molybdenum Corporation of America a columbium deposit discovered by that company at Oka, near Montreal, Canada, as mentioned in the 1955 annual report. Preliminary exploration of this deposit was completed in 1956 and, as a result, Kennecott exercised its option to acquire an interest in the property. A new company, Quebec Columbium Limited, has been formed to investigate the possibilities of this important deposit.

Research

Our Western Research Center is responsible for improving the recovery of metals from Kennecott's ores, and for the study of certain ores from projects under consideration by the company's exploration department. An example of the former is the installation at Ray for increasing the amount of copper recovered from the ore of that division.

Research was completed in 1956 on the development of a method for recovering the rare and valuable metal rhenium, which is contained in the molybdenite concentrate produced from Kennecott's copper ores. The metal is recovered in the form of ammonium perrhenate, which is reduced to metal in powder form and fabricated into strip and wire by Chase Brass and Copper Company.

Work was continued on a process for recovering pyrite from the mill tailings of the Utah Copper Division. The pyrite would be used in the production of sponge iron, and

the latter used instead of detinned scrap in copper precipitation. The results indicate that a good grade of pyrite concentrate can be secured at a reasonable cost and pilot plant testing of the method will be undertaken shortly.

The ore of Quebec Columbium Limited, in which Kennecott recently acquired an interest, is complex in character and contains in addition to columbium, calcite, apatite, mica and magnetite. During 1956 research was conducted on methods of recovering marketable products from this ore.

Studies are under way with respect to the further processing of columbium concentrate produced at the property in Nigeria in which Kennecott holds a majority interest. Also under investigation are the recovery of thorium and the production of a marketable concentrate of zirconium and hafnium, all of which elements are contained in the Nigerian ore. The two latter metals have important applications in the construction of atomic power plants and reactors.

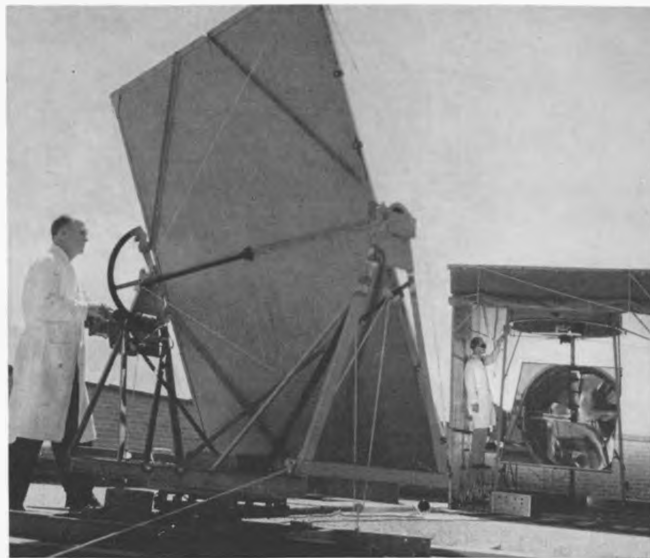
An investigation of the economic production of zirconium by electrolysis from fused salt baths has been initiated. Arrangements have been made with Horizons Titanium Corporation for the use of patent rights and "know-how" for the production of zirconium and hafnium, and a large scale pilot plant is under construction. At the present time there is a scrap loss of about 75 per cent in the melting and fabrication of zirconium alloys. The recovery of zirconium from this scrap is an important phase of the project.

Research at Chase Brass and Copper Company is directed towards the development of new uses of copper and its alloys, improvement in quality of fabricated products, and development of methods of melting, alloying and fabricating the newer metals such as titanium, zirconium, columbium and rhenium in which Kennecott is interested.

Reference was made in last year's annual report to the work done at Chase on the commercial scale fabrication of zirconium and its alloys. As a part of this program many thousands of pounds of zircaloy tubing were extruded, using an improvement in the technique developed in the previous year. This tubing after cold processing to final size will become a vital part of the reactor core of the first civilian nuclear power plant in this country, now being built at Shippingport, Pennsylvania.

In 1956 attention was concentrated on titanium, preparatory to Kennecott's entrance into the field of titanium metal. Studies of the fatigue resistant properties of titanium and titanium alloys at varying temperatures were completed, and the effect of heat treatment and impurities was investigated. Research on the melting and fabricating was continued as part of the program of determining production costs and quality of products. Studies of

Solar furnace built by Kennecott's research staff. Temperatures in excess of 5000° F., capable of melting fire brick, have been produced.



the design of melting and fabricating facilities were undertaken.

The research department's activities in the development of the iodide process for producing high-purity titanium metal, referred to in previous annual reports, have been suspended pending Allied-Kennecott Titanium Corporation's studies as to costs and market potential.

The study of the resistance of copper to corrosion under adverse conditions was continued and new facts brought to light for eliminating specific forms of attack. A series of twenty-year exposure tests of various copper alloys in house flashings and gutters was completed. Study of the strength and stability of copper alloys when stressed for prolonged periods at elevated temperatures brought forth significant results during the year. Valuable information was developed on the effects on internal structure of the metals by the new and extremely fast methods of annealing.

In a joint undertaking Kennecott and American Smelting and Refining Company have recently completed the pilot plant testing of a method for the continuous casting of copper. The new process has possibilities as a means of improving quality and reducing costs.

Orange Free State Gold Mining Companies

VIRGINIA

At the mine of the Virginia Orange Free State Gold Mining Co. Ltd., in which Kennecott has a substantial interest, operations continued throughout the year without interruption and satisfactory progress was made in all departments. This mine began commercial operation in 1954, and a comparison of results is as follows:

	<u>1956</u>	<u>1955</u>	<u>1954</u>
Ore Milled			
(Net Tons) . . .	1,016,000	734,000	148,000
Gold Recovered			
(Ounces) . . .	236,739	156,282	55,729
Uranium Oxide Recovered			
(Pounds) . . .	598,725	129,060	0
		(4 mos.)	

The capacity of the cyanide mill was increased from 75,000 tons a month to 108,000 tons by the middle of 1956, and a further extension in capacity to 125,000 tons is scheduled for completion by the middle of 1958. The plant for recovering uranium oxide from the tailings of the cyanide mill operated satisfactorily throughout the year, making a major contribution to the company's income; the extension of the plant to provide additional capacity was completed in the Fall.

Unaudited earnings figures for 1956 compared with final figures for 1955, are as follows:

	<u>1956</u>	<u>1955</u>
Working Profit		
From Gold £	518,894	£221,465
From Uranium Oxide	1,272,477	199,544
*From Sulphuric Acid	288,092	175,302
Total Working Profit	<u>£2,079,463</u>	<u>£596,311</u>
Less Interest Charges on Gold Loans . . .	£ 266,733†	£245,147
Less Uranium and Sulphuric Acid Loan Repayment Installments	624,229	0
Total	<u>£ 890,962†</u>	<u>£245,147</u>
Net Profit	<u>1,188,501†</u>	<u>351,164</u>

*The company's sulphuric acid plant supplies the acid requirements of uranium precipitation plants of other companies in the Orange Free State as well as its own.

†Estimated

Kennecott received interest payments in 1956 amounting to \$490,080 on its holdings of the company's debentures and loan stock.

Estimated profit for the year plus some local borrowings were appropriated for capital expenditures. Earnings for the next few years will

WHAT WE PRODUCE and WHERE IT COMES FROM

UTAH
Copper, Molybdenite,
Selenium, Gold, Silver,
Tellurium, Platinum,
Palladium, Sulphuric Acid

NEVADA
Copper, Gold, Silver,
Platinum, Palladium

ARIZONA
Copper, Silver

NEW MEXICO
Copper, Molybdenite

RHODE ISLAND
Electrical and Communication
Wire and Cable

CONNECTICUT
Products Fabricated of Copper
and Copper Alloys, also
Bismuth and Products
Fabricated of Bismuth,
Zirconium and Titanium

OHIO
Products Fabricated of Copper
and Copper Alloys

AREA EAST OF MISSISSIPPI RIVER
Titanium Tetrachloride and
Titanium Sponges and Billets

CHILE
Copper, Molybdenite

CANADA
Titanium Slag and Iron
Columbium Bearing Products

NIGERIA
Tin Concentrate, Columbium,
Tantalum Concentrate

UNION OF SOUTH AFRICA
Gold, Uranium Oxide and
Sulphuric Acid

* Plant under design. Site
presently being selected

▲ Ore treatment method
under development.

† One also contains Zirconium,
Hafnium and Thorium

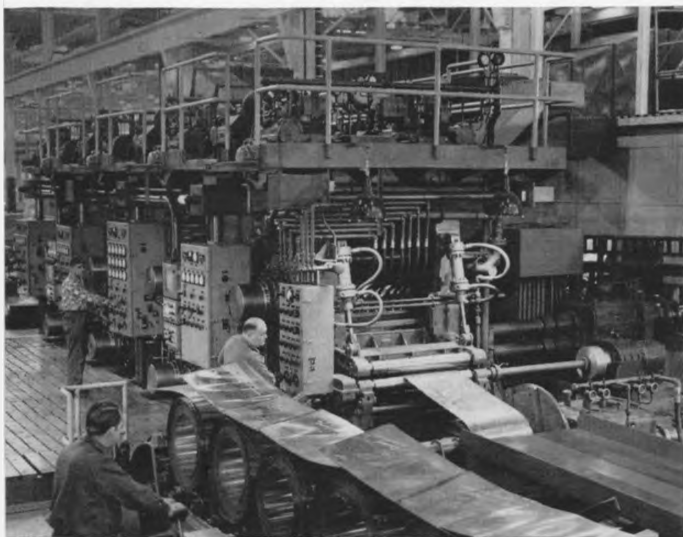
also be appropriated for capital expenditures to bring the mine and mill to planned capacity, to develop adequate ore reserves, and to provide necessary pumping equipment and auxiliary facilities for water problems.

In considering the results of these operations, the following points should be kept in mind:

1. Provision for capital expenditures must be made from net profit, and only if there is a balance remaining may such balance be utilized for redemption of bonds and payment of dividends.
2. Inasmuch as profit from uranium operations constitutes a major portion of the total net profit, it is important to note that the contract with the Union of South Africa Atomic Energy Commission for delivery of uranium oxide expires June 30, 1966.
3. Under the present taxation laws in

South Africa, pre-production and post-production capital expenditures are allowed to be redeemed from profits before any income tax is payable. In consequence, capital expenditures may be treated as costs for tax purposes and losses are carried forward until the cumulative profit exceeds the total expenditure.

Pumping and surface disposal of underground water has assumed great significance in this area. Evidence indicates that numerous underground fissures in which water is impounded are interconnected over considerable distances making mines vulnerable to sudden inrushes of water which could occur without warning. Thus far Virginia has been fortunate in this regard and no major difficulties have been encountered. However, the mine's installed pumping capacity of 6,250,000 gallons a day is believed to be insufficient to afford



New electronically controlled 4-stand tandem mill for cold rolling copper or copper alloy strip at Chase's Cleveland plant. Mill takes strip in 10,000 pound coils and rolls it to gauges as fine as three one-thousandths of an inch at top speed of 2000 feet per minute, producing the highest quality finish.

full protection against an emergency condition, and additional equipment to provide a total pumping capacity of 15,000,000 gallons a day is being installed.

An associated problem common to all gold mines in Orange Free State is the disposal on the surface of the underground water pumped from the mine. This water is salty and unfit for human or livestock consumption, or agricultural purposes and, consequently, cannot be released into the nearby river because of its polluting effects. The Virginia company has therefore been obliged to acquire considerable land areas to which the water is pumped for evaporation.

MERRIESPRUIT

At the Merriespruit (Orange Free State) Gold Mining Co. Ltd. in which Kennecott has made a substantial investment, mine de-

velopment and the construction of the mill were completed late in 1955, and commercial production was begun in March 1956. From then until November 571,000 tons of ore were milled and 140,545 ounces of gold produced, resulting in a working profit of £272,207 on the gold and an additional £45,971 on the by-product uranium oxide. Kennecott received interest payments in 1956 from the Merriespruit company amounting to \$523,502 on its holdings of the company's debentures and loan stock.

In November all operations were brought to a standstill by the flooding of the mine by underground water. A decision as to future action will depend on the results of an engineering study now in progress. As soon as the decision is reached, stockholders will be informed by a special letter.

Tin & Associated Minerals Ltd.

This company, in which Kennecott acquired a 52 per cent interest in September 1955, operates a columbium and tin property at Odegi on the northern plateau of Nigeria, Africa.

In 1956 production amounted to 654,920 pounds of columbium concentrate and 259,400 pounds of tin concentrate, compared with 827,942 pounds and 486,552 pounds, respectively, in 1955. Although 1955 fiscal year operations were profitable, a loss will occur for the 1956 fiscal year (ending March 31, 1957). Whereas in 1955 the price received for columbite per pound of contained metal oxides averaged over \$4.00, the termination of United States Government columbite stockpiling and purchase programs resulted in a price decrease in 1956 to about \$1.25 a pound.

Since the termination of Tin and Associated Minerals' contracts with the United States Government, Kennecott has been developing

columbite sales through regular commercial channels. It is expected that markets will be developed which will permit profitable operation of this company in the future.

Columbium is used in certain stainless steels and as a constituent of alloys for withstanding high temperatures, such as those required in the manufacture of jet engines and gas turbines.

The tin concentrate from this property is marketed in England. The ore also contains zirconium, thorium and hafnium, and development of markets for these ingredients is progressing.

Fabricating Subsidiaries

CHASE BRASS & COPPER CO. INC.

On February 1, 1956 a nine-week strike began at Chase-Waterbury involving two mills and about 3500 employees. During this period the demand for mill products was at a high level. The strike was settled on March 31st. Following the strike settlement, the demand for brass mill products gradually declined, and prices of the products also fell off reflecting the reductions in the price of copper. As a result of the lower prices and the ability of the mills to make prompt delivery, customers reduced their inventories, causing a substantial reduction in brass mill activity. However, by the turn of the year the demand was improving.

In April 1956, the new mill at the Cleveland plant for producing small tube was placed in operation. The basic equipment in this addition consists of a 400-foot drawbench, capable of drawing five tubes simultaneously to lengths of 200 feet and auxiliary equipment for drawing tube of small diameter in coils to lengths in excess of 4000 feet. The wisdom of the investment in these small tube facilities was immediately evident from the reduced production costs which resulted.

The installation of the new 4-stand tandem mill for rolling wide strip was completed late in 1956. The earliest production trials have indicated that the goals of tolerance, gauge and per cent of reduction will be achieved. On a trial basis strip 25 inches wide has been reduced from a gauge of .150 to less than .003 in two passes through the mill.

KENNECOTT WIRE AND CABLE CO.

The demand for the products of this subsidiary continued at a high level throughout most of the year and an excellent distribution of products manufactured permitted utilizing the plant's equipment with a maximum of efficiency.

Facilities added during the year include a new reel assembly shop, additional materials handling equipment, and a 33 per cent increase in capacity of equipment for producing paper insulated telephone cable. These will aid the company in meeting the growing demands for its products.

A factor in the strong demand for wire and cable products is the continuing growth of this country's electric power and telephone companies, which look ahead to a long period of expansion.

Quebec Iron and Titanium Corporation

1956 marked the turning point in the affairs of this two-thirds owned Kennecott subsidiary. Improved operating methods and the completion of a plant for upgrading and pre-treating the ore before introduction into the electric furnaces have resulted in smoother operation and a substantial reduction in costs. In addition, the demand for the company's products, titanium slag and a special grade of pig iron, has been steadily increasing. Construction of



Aerial view of Q.I.T. operation at Sorel, Quebec. The electric furnace plant appears in the background and the new pre-treatment plant in the foreground.

the pre-treatment plant was finished in May, and by June, production from all five furnaces reached capacity for the first time.

The company's mining property was deemed to have begun commercial production for purposes of Canadian income tax on July 1, 1956 in accordance with certification received from the Canadian National Department of Revenue. In the six months ended December 31st the operation resulted in a profit. Since Q.I.T. is not a wholly-owned subsidiary of Kennecott, the financial results are not reflected in the latter's consolidated statements.

The production figures in gross tons for the last three years are as follows:

<i>Year</i>	<i>Titanium Slag Produced</i>	<i>Iron Produced</i>	<i>Ore Treated</i>
1954 . . .	109,786	80,859	252,457
1955 . . .	145,343	103,531	323,680
1956 . . .	195,156	142,745	464,651

At present the demand for titanium slag from the pigment industry exceeds the capacity

of the present five furnaces, and the demand for slag for production of titanium metal continues to develop. Engineering of three additional furnaces has been completed and construction work has been started. Engineering of a new prototype furnace of advanced design is in progress in anticipation of further plant expansion.

As previously pointed out this company produces a high quality pig iron, known in the trade as Sorelmetal, which contains only very small amounts of phosphorus and silicon and virtually no manganese. During 1956 marketing activities were concentrated on obtaining wider application by foundries, and as a result more than 50 in the United States and Canada are now using the metal. It has been found to be particularly suitable for use in the manufacture of ductile iron.

In the upgrading of the ore prior to electric furnace treatment about 10 per cent is removed in the form of tailings. These tailings may find acceptance as a substitute for fluorspar

for fluxing purposes in open-hearth or electric steel operation. Mill trials are being conducted which show promise of developing a sizable market for this product.

Allied-Kennecott Titanium Corporation

In December announcement was made of the plans of Kennecott Copper Corporation and Allied Chemical & Dye Corporation to form an equally owned company to produce and sell titanium metal. This company has now been formed under the name of Allied-Kennecott Titanium Corporation. The plant investment will be in the neighborhood of \$40,000,000 and production of titanium in the form of billets is scheduled to begin late in 1958.

A new continuous process developed by Allied Chemical will be employed in which sodium is used to reduce titanium tetrachloride to titanium sponge. Allied Chemical has also developed an improved process for manufacturing the titanium tetrachloride that permits the use of titanium slag as the raw material. Production facilities will include equipment for melting the titanium sponge to ingots and forging equipment for conversion of ingots to billets. The experience in melting and forging titanium developed by the Chase Brass and Copper Company will be utilized by the new company.

Titanium can be produced by the sodium process at relatively low cost and of a purity that meets commercial requirements. The metal obtained by Kennecott's iodide process is higher in purity but costs somewhat more to produce and at present has a limited market.

The market for titanium is expanding rapidly. Sponge production in 1956 was double that of 1955, and a similar rate of increase is anticipated in 1957.

Industrial and Public Relations

LABOR RELATIONS

Labor contracts at the domestic mining divisions expired during the year and were replaced by three-year agreements. This was accomplished without stoppages at any of the locations. The new contracts provide for wage increases of 10 cents per hour in 1956, 7 cents in 1957 and 7 cents in 1958. Other benefits, including improvements in the Hospital and Surgical, Group Insurance, and Pension Plans, will add approximately 9 cents per hour to the cost of the settlements over the three-year period.

Labor agreements at our Chilean subsidiary, Braden Copper Company, do not expire until March 31, 1957. There were no further interruptions of operations during the year after the employees' return to work on January 7, 1956 following a short strike protesting proposed labor legislation. The company is presently negotiating new contracts with the unions.

The Waterbury plant of Chase Brass and Copper Company was closed by a strike on February 1st. The strike was settled on March 31st. Terms provided by the labor contracts were substantially the same as had been offered by the company prior to the calling of the strike. The new agreements will remain in effect until September 15, 1958.

At Chase's Cleveland plant, contracts expired during the month of August. New two-year agreements were signed providing wage increases and improvements in fringe benefits. No work stoppages were encountered at this plant.

At Kennecott Wire and Cable Company, three-year contracts were negotiated. These contracts run until July 1, 1959.

The contract covering Quebec Iron and Titanium Corporation mine employees expired in April, and a new one-year contract was

signed. Later in the year, the company reached agreement on a two-year contract, expiring December 5, 1958, with the union representing employees at the treatment plant.

COMMUNICATION

The scope and effectiveness of intra-company communication were studied during the year. As a result of the study, communication training programs have been instituted. The strengthening of communication tools, such as staff meetings, employee magazines, management letters to employees, supervisory newsletters and bulletin board announcements, has also been undertaken.

TRAINING

Training programs are in effect to assist employees in developing their skills and abilities, and their knowledge of the company, the industry, and the American economy.

Apprentice training, on-the-job refresher

training, and accident prevention courses are provided to help improve individual job efficiencies. A broader educational course entitled "In Business with Kennecott" explains company operation and financial results through a detailed analysis of the annual report.

SAFETY

Efforts by the company and its employees to make our mines and plants safer places to work resulted in improvements in the accident frequency rates in 1956.

Braden Copper Company, for the ninth successive year, won the first-place award of the Inter-American Safety Council. Merit awards from the National Safety Council were again earned by several units of our domestic mining and fabricating divisions.

Company safety training is not confined to industrial activities. Emphasis is also placed on highway safety and safety in the home. Company personnel take an active part in support of community, state and national safety programs, often serving in roles of leadership on special safety committees.

SUGGESTION SYSTEM AND

PATENT PLAN

An Employee Suggestion System and Patent Plan has been adopted to enable the company to benefit to a greater extent from the experience, knowledge and ingenuity of its employees. The plan is designed to encourage active interest and participation of employees in the development and submission of ideas which lead to improved practices.

The plan provides cash awards for suggestions and patentable ideas which result in reduced costs and or improved working conditions. Such awards are equal to 25 per cent of the estimated first year's net savings, with a maximum of \$25,000 for adopted sugges-

Sale of housing, formerly owned by Kennecott, brought a wave of home improvement and remodeling among the employees who bought the houses. This home at the China division is being given a second story.



tions and \$50,000 for patented ideas. All employees are eligible to participate in the program. However, cash awards for suggestions by salaried personnel will be limited to suggestions outside the scope of their immediately assigned responsibilities. Employees whose suggestions demonstrate unusual creative ability and interest in company activities will receive added recognition in salary and promotion consideration.

It is expected that the company will realize important benefits from the plan.

HOUSING

The sale of company housing to employees at our Western mining locations was substantially completed in 1956. This move has brought about the development of former company communities into municipalities in which there exist the same civic opportunities and responsibilities as elsewhere in this country. Gratifying results are already noticeable. Pride of personal ownership is being evidenced by additions and renovations to many of the homes. Participation by employees in community affairs has been substantially increased.

EMPLOYEES

During 1956 the average number of employees at Kennecott and its wholly-owned subsidiaries was 27,886. This figure does not include the employees of partially owned subsidiaries or of companies performing contract services for any of the divisions or subsidiaries.

Kennecott is proud of the number of fathers and their sons who work for the company. At the Utah division alone there are over 1300 employees, members of father and son teams. Among such combinations is Gene Fullmer, the newly-crowned world's middleweight boxing champion, who has been an employee since 1949 and his father, who has a 32-year record with Kennecott.



Employees' children receiving their awards as winners of Prize Essay Contest sponsored by Utah division.

In 1956 the Braden Company made available Salk vaccine to children of employees in Chile. The vaccine was obtained from the United States and was administered by the company's medical staff at no cost to employees.

PUBLIC RELATIONS

It is a major objective of the company to be a good citizen and neighbor in the communities in which it operates. During 1956 in furtherance of this policy the company increased its support of charitable and service organizations. Members of management assumed prominent roles in civic affairs and encouraged employees to become more closely identified with such activities.

The company continued to utilize all available media in its public relations program. State-wide newspaper and magazine advertisements were regularly used to present facts about the divisions and subsidiaries. Radio

broadcasts have become accepted facets of the company's public communications efforts. One of the divisions presents a weekly television show, and all divisions offer plant tours as a means of getting the company better and more favorably known.

On the national level the company sponsored two advertising programs designed to promote the use of copper. A "No Substitute Can Do What Copper Does" theme was carried in leading consumer publications throughout the country. An "Adequate Wiring" series of advertisements appeared primarily in technical and trade publications. A product publicity campaign has also been developed to lend support to the advertising programs.

AID TO EDUCATION

For a number of years Kennecott has sponsored a program of scholarships and fellowships at schools in the United States and Canada with the following objectives: (1) to encourage the study of methods for discovering, producing and using minerals and metals; (2) to aid in the development of management personnel; and (3) to help deserving students who do not have adequate financial resources. The program has been set up in the belief that a reservoir of able and intelligent men in training at both undergraduate and graduate levels is essential to the mining industry and to the industrial welfare of the country.

Under the present program 37 scholarships and fellowships are granted each year. Scholarship grants amount to \$1,000 each and fellowship grants to \$2,000. Each time an award is made to a student, a similar grant is made to the college in recognition of the fact that tuition fees cover only a part of the school's costs of education.

In addition to the aid extended under the above program, aid to education is given lo-

cally by the various Kennecott divisions and subsidiaries. Such aid includes over 25 scholarships to deserving students, and awards for special projects to colleges and universities located in plant community areas.

It is proposed that some enlargement of the program be made in 1957, and the necessary recommendations are being presented to the Board of Directors.

Organization Changes

In February 1957 Robert M. Haldeman, General Manager and the chief executive officer of Braden Copper Company in Chile, was appointed Vice President of that company.

Also in February Glenn P. Bakken, formerly Executive Vice President of Chase Brass & Copper Co. Inc., was elected President, vice R. C. Diehl resigned. John H. Gilbert, Treasurer of the company for many years, retired August 31, 1956 and Robert C. Smith, formerly Assistant Treasurer, was appointed in his place.

Daniel Cowan Jackling

On March 13, 1956 Daniel Cowan Jackling, "the father of modern porphyry copper mining," died at his home near San Francisco at the age of 86. He proved that low grade copper deposits could be mined profitably by large scale methods, thereby making available needed new reserves to replace the nation's dwindling supply of high grade ore. He was instrumental in forming the companies that later became Kennecott's western divisions and served for many years as a director of this company, and Managing Director of Mining Operations, retiring in 1942.

Financial Review

INCOME and DIVIDENDS

Operations for the year 1956 resulted in consolidated net income of \$143,154,210 or \$13.23 per share, compared with 1955 consolidated net income of \$125,516,291 or \$11.60 per share.

The increase in net income was due primarily to the higher average price received for copper in 1956.

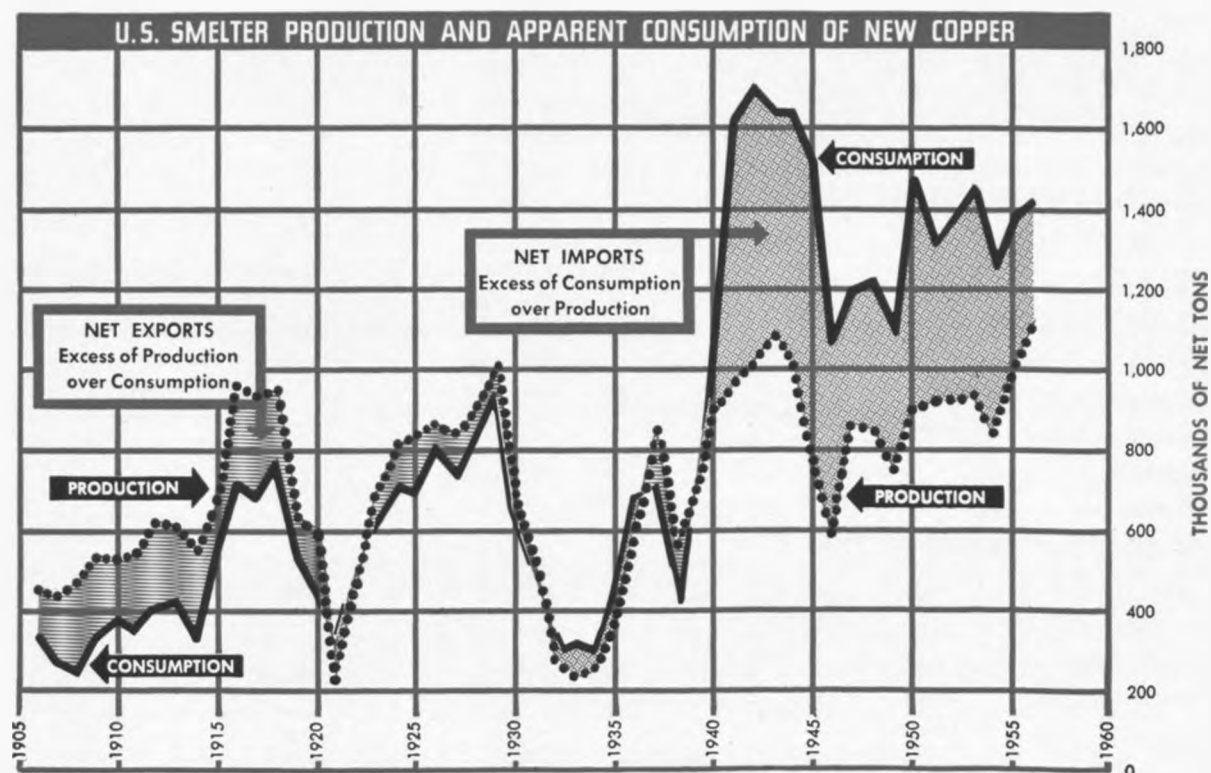
Cash distributions to stockholders during 1956 amounted to \$9.25 per share, an increase of \$1.50 over the amount distributed in the prior year.



COPPER PRICES

During the last two years the U. S. producers' price has fluctuated as indicated in the following table:

	Cents Per Pound		Cents Per Pound
1955 Jan.	1—30	1956 Feb.	21—46
Feb.	1—33	Jul.	11—40
Mar.	31—36	Oct.	29—36
Aug.	24—40		
Sep.	1—43	1957 Feb.	1—34
		Feb.	19—32

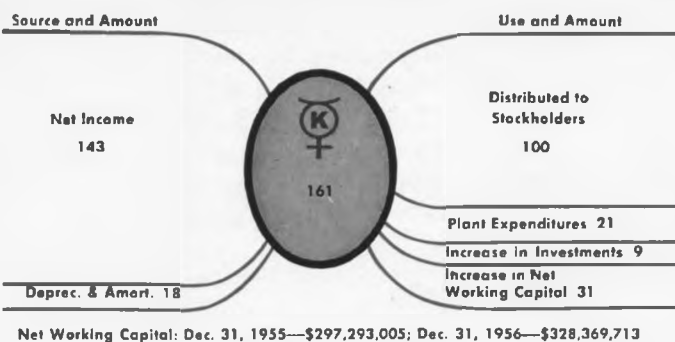


With the growth in domestic consumption of copper, the United States has changed from an exporter of copper to an importer. Since 1940 the country has been depending on imports for a substantial part of its copper needs.

The 1955 price increases occurred because of the excess of demand over supply, aggravated by the strikes at U. S. and African copper mines. The increase early in 1956 was the result of a high level of business activity plus buying by copper consumers in anticipation of possible strikes. The price decreases later in 1956 and early in 1957 were due to a decline in U. S. demand, and improved availability of copper both in the United States and Europe.

Kennecott Copper Corporation SOURCE and USE OF FUNDS—1956

(Amounts in Millions of Dollars)



RIISING COSTS

Mining of lower grade ore and the greater amount of stripping handled were major factors in the increase. Wage increases and higher prices for goods and services purchased also contributed to rising costs.

CHILEAN EXCHANGE RATES

During the year the company purchased its required pesos at rates which averaged 374 pesos to the dollar. This compares with the average rate during the previous year of 157 pesos to the dollar. The more favorable rate enabled the company to meet the rising costs in Chile caused by inflationary trends.

In 1956 the Chilean division accounted for

26 per cent of Kennecott's total deliveries of copper and 17 per cent of the consolidated net income.

TAXES

The combined U. S. and foreign taxes on income amounted to approximately 49 per cent of earnings before taxes.

The company's Utah franchise tax controversy covering the years 1942 through 1950 was settled during the year. The settlement was based on an interpretation of a decision of the Supreme Court of Utah. The principles of the decision were also applied to the years 1951 through 1955. Adequate provision had previously been made in the accounts to take care of the cost of the settlement for the years 1942 through 1955, which amounted to \$1,198,700 after allowance for Federal income taxes.

The audit by the Internal Revenue Service of the parent company's U. S. income tax returns has been completed through the year 1950.

The provision for all taxes in 1956 and 1955 is summarized as follows:

	1956	1955
U. S. and foreign taxes on income	\$138,072,046	\$122,429,231
Other taxes included in operating costs or other accounts	22,899,942	20,784,344
	<u>\$160,971,988</u>	<u>\$143,213,575</u>
Taxes—Per Share	\$14.87	\$13.23

GOVERNMENT SECURITIES

At the year-end our holdings in U. S. and Municipal Government Securities, shown at cost on the balance sheet, amounted to \$248,766,596. This is made up of \$1,000,000 Chicago, Illinois, PHA notes and the balance U. S. government securities. The market value of these securities at the same date was \$247,-

318,616. The company has maintained its policy of investing primarily in short-term securities.

INVESTMENTS

A statement which shows details of principal investments of the company at the year-end is presented herewith. The total investments of \$119,181,534 represents an increase over the balance at the end of 1955 of \$9,548,104. Major changes which occurred during 1956 are as follows:

A further advance of \$3,900,000 was made to Quebec Iron and Titanium Corporation during the year.

An additional £1,500,000 registered unsecured loan stock (19.7 per cent convertible) of Merriespruit (Orange Free State) Gold Mining Company Limited was acquired in July 1956.

An investment of \$594,527 was made in the stock of Quebec Columbium Limited. This

acquisition represents Kennecott ownership (45.9 per cent) in this company organized during the year to investigate the possibilities of the columbium deposit at Oka, Quebec, as described in the exploration section of this report.

Our interest in Kennecott-Anglovaal Exploration Company, Limited was disposed of during the year for a nominal consideration. Other than a small amount of cash and receivables there were no assets of current value remaining at the time of disposal.

PROPERTY, PLANT and EQUIPMENT EXPENDITURES

Total capital expenditures for replacement and modernization of equipment and increased plant facilities during 1956 were \$21,244,275 as compared to \$16,006,374 in 1955. Of the total amount \$17,152,141 was spent by the mining divisions and \$4,092,134 by the fabricating divisions. Authorized expenditures

Schedule of Investments

(Excluding U. S. and Municipal Government Securities)

Quebec Iron and Titanium Corporation—stock and advances	\$ 41,400,000
Merriespruit (O.F.S.) Gold Mining Co. Ltd.—stock and debentures	25,251,243
Virginia O.F.S. Gold Mining Co. Ltd.—stock and debentures	21,159,116
Kaiser Aluminum & Chemical Corporation—stock	18,800,000
J. W. Galbreath & Co.—notes receivable	3,821,187
Molybdenum Corporation of America—stock	2,831,250
Western Phosphates, Inc.—stock and advances	1,580,000
Tin & Associated Minerals Ltd.—stock	1,158,820
Garfield Chemical & Manufacturing Corporation— stock and advances	740,000
Quebec Columbium Limited—stock	594,527
Compania de Acero del Pacifico—stock	350,000
Other miscellaneous investments	1,495,391
Balance—December 31, 1956	<u>\$119,181,534</u>

yet to be completed are \$79,835,000.

Depreciation and retirement of plant and equipment amounted to \$8,120,221 of which \$1,637,732 was for accelerated amortization of facilities covered by certificates of necessity.

PENSION TRUSTS

A total of 21,427 employees in the United States are now covered by pension plans, and 1,247 former employees received pension benefits approximating \$871,300 in 1956. During the year the company deposited \$6,-893,000 into five pension trusts to pay for pension benefits.

EXECUTIVE INCENTIVE-COMPENSATION PLAN

Awards aggregating \$535,000 were made to 36 key executive employees of the company and its subsidiaries who contributed in a notable degree to the success of the enterprise in 1956. These awards were made pursuant to the Executive Incentive-Compensation Plan approved by the stockholders at the annual meeting held May 1, 1956.

The maximum amount available for awards for the year 1956 was \$1,029,167 determined as prescribed in the plan. The difference between the amount awarded and the amount

available was not charged against profits and consequently is not available for awards in subsequent years.

STOCKHOLDERS

On November 30, 1956 the 10,821,653 shares of Kennecott stock outstanding were held by 89,596 stockholders, as compared with 88,755 on the same date the previous year. The actual number of Kennecott stockholders is greater than appears on the record because many holders register their stock in the names of nominees, the number of which is far less than the number of stockholders represented. In addition to the stockholders whose stock is registered in their own names or in the names of nominees, there are many thousands of other people indirectly interested in the company through equity holdings in enterprises owning Kennecott stock.

Kennecott stock is widely distributed. Its owners reside in every state and in many foreign countries. There are 714 foreign resident stockholders of record, holding 315,191 shares equal to about 3 per cent of the total stock outstanding. Seventy-seven per cent of the stockholders own less than one hundred shares each, and ninety-nine per cent own less than one thousand shares.

Summary of Results

PER SHARE OF CAPITAL STOCK OUTSTANDING

	1956	1955
Sales and Other Income	\$53.42	\$51.37
Consolidated Net Income before Taxes . . .	25.99	22.91
Provision for U. S. and Foreign Taxes on Income .	12.76	11.31
Consolidated Net Income after Taxes	13.23*	11.60
Distributed to Stockholders	9.25	7.75
Capital Expenditures	1.96	1.48
Depreciation and Retirements	0.75	0.82
Book Value	66.83	62.79

	Net Income Per Share — by Quarters			
	1st	2nd	3rd	4th
*1956	\$4.08	\$4.16	\$2.48	\$2.51
1955	2.68	3.37	1.53	4.02

*Before Surplus Adjustments.

AUDITORS' CERTIFICATE

LOOMIS, SUFFERN & FERNALD
Certified Public Accountants
80 BROAD STREET
NEW YORK 4

February 21, 1957.

To the Directors and Stockholders of

KENNECOTT COPPER CORPORATION:

We have examined the Consolidated Balance Sheet of Kennecott Copper Corporation and its consolidated subsidiaries as of December 31, 1956 and the related Statements of Income and Surplus for the year then ended. We had previously made a similar examination for the year 1955. Our examinations were made in accordance with generally accepted auditing standards and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the accompanying Consolidated Balance Sheet and Statements of Income and Surplus, and the Notes thereto, present fairly the consolidated financial position of Kennecott Copper Corporation and its consolidated subsidiaries at December 31, 1956 and December 31, 1955 and the results of their operations for the years then ended, in conformity with generally accepted accounting principles applied for each year on a basis consistent with that of the preceding year.

LOOMIS, SUFFERN & FERNALD
Certified Public Accountants.



Consolidated Statements of Income and Earned Surplus

FOR THE YEARS ENDED DECEMBER 31, 1956 AND 1955

CONSOLIDATED STATEMENT OF INCOME

Sales and other income:

Sales of metals and metal products	\$567,004,258	\$548,265,990
Dividends, interest and miscellaneous	11,062,994	7,672,610
	<u>\$578,067,252</u>	<u>\$555,938,600</u>

Costs and expenses:

Cost of goods sold and other operating expenses	\$273,335,227	\$273,176,136
Depreciation and retirements	8,120,221	8,904,750
General administrative and corporate expenses not included in operating or other expenses	4,707,145	2,788,063
Shut-down expenses during strikes	2,347,031	5,976,182
Flood and rehabilitation expenses—Waterbury	—	11,903,585
Interest on tax settlements	1,230,383	280,022
Sundry charges for research, exploration and other deductions not included in operating or other expenses	7,100,989	4,964,340
	<u>\$296,840,996</u>	<u>\$307,993,078</u>

Net income before taxes separately
stated below

\$281,226,256 \$247,945,522

Provision for U. S. and foreign taxes on income

138,072,046 122,429,231

Net income (without deduction for
depletion of mines)

\$143,154,210 \$125,516,291

CONSOLIDATED EARNED SURPLUS

Balance at beginning of year	\$435,226,106	\$393,577,626
Net income for year	143,154,210	125,516,291
Exploration expenses previously written off now capitalized	603,903	—
	<u>\$578,984,219</u>	<u>\$519,093,917</u>
Distributions to stockholders	100,100,290	83,867,811
Balance at end of year	<u>\$478,883,929</u>	<u>\$435,226,106</u>

See "Notes" on page 28.



Consolidated Balance Sheet

DECEMBER 31, 1956 AND DECEMBER 31, 1955

ASSETS

Current Assets:

	1956	1955
Cash	\$ 26,095,971	\$ 24,220,377
U. S. and municipal government securities	248,766,596	249,807,553
Accounts receivable, less reserves	36,102,302	49,485,270
Metals and metal products on hand and receivable	88,528,741	54,541,412
Ore and concentrates on hand and in transit—at cost	4,428,514	2,267,200
Materials and supplies	32,714,934	29,059,109
	<u>\$436,637,058</u>	<u>\$409,380,921</u>
Investments in partly-owned affiliated corporations and other investments—at or below cost	119,181,534	109,633,430
Deferred charges for stripping and mine development	10,363,040	15,734,836
Other deferred charges, prepayments, refund claims, etc.	4,665,913	7,117,605
Mining and other properties, plants and equipment	458,398,356	438,431,537
Reserves for depreciation	(195,248,304)	(187,077,482)
	<u>\$833,997,597</u>	<u>\$793,220,847</u>

LIABILITIES

Current Liabilities:

Accounts payable	\$ 20,223,825	\$ 21,069,936
Treatment, refining and delivery charges accrued	6,114,612	4,484,242
Taxes accrued	81,928,908	86,533,738
	<u>\$108,267,345</u>	<u>\$112,087,916</u>
Sundry reserves and deferred credits	2,530,559	1,591,061
Capital—Kennecott Copper Corporation—10,821,653 shares of no par value outstanding (12,000,000 shares authorized):		
Stated capital	53,199,636	53,199,636
Consolidated capital surplus	191,116,128	191,116,128
Consolidated earned surplus (without deduction for depletion of now-operating mines)	478,883,929	435,226,106
	<u>\$833,997,597</u>	<u>\$793,220,847</u>

See "Notes" on page 28.



Notes To Financial Statements

Basis of Consolidation:

In consolidation, the accounts of Kennecott Copper Corporation and all of its wholly-owned subsidiaries have been included, after appropriate elimination or adjustment of intercompany accounts, in accordance with the accounts of the corporations consolidated except as to certain property accounts which have been adjusted to the basis of the Kennecott stock issued or cash paid to acquire the securities of the corporations which now own or heretofore owned such properties. The securities of corporations not wholly-owned are included as "Investments". This is the same basis which has been applied in the consolidated statements for prior years.

The accounting basis here used for mines and other properties and investments is not intended as a representation of actual present values or prospective future values thereof.

Foreign Currency Amounts:

Foreign currency amounts are included at their U. S. dollar equivalents based on appropriate exchange rates. In no case was there any excess of funds or receivables in foreign currency beyond current requirements.

Inventories:

Inventories of metals and metal products at the beginning and end of the year are carried at cost or market value, whichever is lower. In general, cost is computed on a "first-in, first-out" method, however certain inventories of the fabricating divisions are computed on a "last-in, first-out" method.

Materials and supplies are valued at cost except for certain items which, because of expected limited value for use, are carried at less than cost.

Investments:

The investment of \$25,251,243 in securities of

Merriespruit (Orange Free State) Gold Mining Co. Ltd. is carried at cost in the balance sheet. No reduction or reserve has been recorded in connection with the flooding of the mine, since decision as to its future awaits the results of engineering study.

Stripping and Development:

Deferred charges for stripping and mine development represent expenditures heretofore made which are being charged off ratably against appropriate tonages. Similar expenditures in recent years have been included currently in operating costs.

Mining and Other Properties, Plants and Equipment:

The amounts for mining properties and income and surplus from their operations are stated without deduction for depletion of now-operating mines (for which mines depletion for Federal income tax purposes is allowable on a percentage of income basis).

Facilities fully amortized under emergency certificates but unretired are carried at cost in plant and equipment accounts, offset by amortization included in depreciation reserves. The charge in income account for depreciation and retirements includes amortization of emergency facilities of \$1,637,732 for 1956 and \$1,749,656 for 1955.

Contingent Liabilities:

The known contingent liabilities at December 31, 1956 were for commitments under leases, for purchases and sales, contracts for services and construction, pension obligations, uninsured liabilities, taxes and claims, all of which arose in the ordinary course of business. Certain matters in litigation have not yet reached the stage which enables statement to be made as to what liability, if any, may exist. No substantial loss is anticipated as the result of contingent liabilities.

Kennecott Copper Corporation



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Springs; *President*, Broadmoor Hotel, Inc.
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CHARLES D. DICKEY	ALFRED P. SLOAN, JR.	MEDLEY G. B. WHELPLEY
EDMOND A. GUGGENHEIM	CHARLES L. TUTT	GEORGE WHITNEY

TRANSFER AGENTS

J. P. MORGAN & CO. INCORPORATED, New York, N. Y.
BOSTON SAFE DEPOSIT AND TRUST COMPANY, Boston, Mass.

REGISTRARS

BANKERS TRUST COMPANY, New York, N. Y.
FIRST NATIONAL BANK OF BOSTON, Boston, Mass.



Historical Table

KENNECOTT COPPER CORPORATION AND CONSOLIDATED SUBSIDIARIES

OPERATING INFORMATION

Year	Copper Ore Mined and Milled (000 Net Tons)	Material Removed to Dumps (000 Net Tons)	Copper Produced			Total Copper Sold (Net Tons)
			In the U.S. (Net Tons)	In Chile (Net Tons)	Total (Net Tons)	
1940	43,785	46,551	360,883	120,358	481,241	473,776
1941	52,025	51,181	409,825	145,179	555,004	583,290
1942	56,458	49,261	470,581	161,800	632,381	649,475
1943	59,515	48,902	472,913	164,276	637,189	640,810
1944	51,023	40,865	406,107	174,688	580,795	601,721
1945	42,421	41,858	329,239	164,899	494,138	485,226
1946	27,502	30,137	203,489	93,725	297,214	280,330
1947	48,154	48,468	369,256	138,472	507,728	509,829
1948	46,971	58,467	350,330	164,252	514,582	538,345
1949	39,816	56,158	296,649	139,592	436,241	407,999
1950	55,018	78,612	418,123	157,910	576,033	589,694
1951	56,168	87,318	430,187	171,247	601,434	605,473
1952	59,015	81,673	444,582	184,813	629,395	634,360
1953	56,147	79,746	429,052	140,347	569,399	524,322
1954	44,611	66,715	338,749	108,330	447,079	509,754
1955	51,589	74,641	370,487	156,228	526,715	533,820
1956	61,203	98,955	402,309	179,896	582,205	495,219

1940-1956

FINANCIAL INFORMATION

Year	Total Revenue (000 Dollars)	Operating Costs Excl. Taxes (000 Dollars)	Depreciation and Retirements (000 Dollars)	U. S. and Foreign Income Taxes (000 Dollars)	Taxes Other Than U. S. and Foreign Inc. (000 Dollars)	Other Costs (000 Dollars)	Net Income (000 Dollars)
1940	\$178,585	\$ 98,894	\$ 5,395	\$ 18,919	\$ 6,146	\$ 5,394	\$ 43,837
1941	239,708	135,855	7,449	34,268	7,757	5,127	49,252
1942	261,043	151,591	6,680	43,071	7,669	3,211	48,821
1943	266,589	158,039	8,774	41,312	8,051	5,447	44,966
1944	253,651	157,569	8,513	35,481	7,712	5,512	38,864
1945	211,217	143,567	14,685	13,512	6,507	2,692	30,254
1946	157,025	104,503	4,132	11,163	5,586	8,594	23,047
1947	318,820	159,804	4,958	49,723	8,719	3,734	91,882
1948	351,100	185,181	5,230	52,344	10,346	4,192	93,807
1949	249,438	157,798	5,234	24,247	10,591	3,458	48,110
1950	400,153	231,206	6,815	58,726	12,825	2,420	88,161
1951	455,485	254,708	7,268	83,036	15,144	3,982	91,347
1952	476,740	287,957	8,509	73,580	14,716	5,827	86,151
1953	482,808	269,416	9,244	90,069	18,798	6,527	88,754
1954	429,131	261,429	8,734	54,323	16,976	9,763	77,906
1955	555,939	252,392	8,905	122,429	20,785	25,912	125,516
1956	578,067	250,435	8,120	138,072	22,900	15,386	143,154

NOTES:

Gold produced does not include production of mines of Orange Free State companies.

Total Revenue includes Sales and Other Income.

Depreciation and Retirements include amortization of emergency facilities.

<i>Molybdenite Produced (000 Pounds)</i>	<i>Gold Produced (Fine Ounces)</i>	<i>Silver Produced (Fine Ounces)</i>	<i>Average Number of Employees</i>	<i>Grade of Copper Ore Mined</i>		<i>Capital Expenditures (000 Dollars)</i>	<i>Year</i>
				<i>In the U.S. (Per Cent)</i>	<i>In Chile (Per Cent)</i>		
18,105	260,341	2,227,420	28,872	1.062	2.135	6,543	1940
19,285	284,089	2,335,819	31,175	1.044	2.105	6,559	1941
23,818	333,158	2,650,206	28,797	1.042	2.179	8,164	1942
24,572	344,357	3,059,286	29,005	.996	2.079	9,768	1943
25,071	313,386	2,693,558	27,143	1.005	2.269	6,370	1944
21,437	258,556	2,183,964	24,526	.995	2.203	2,990	1945
12,335	155,749	1,305,283	23,483	.965	2.133	9,900	1946
25,777	391,497	3,128,766	25,887	.960	2.110	12,037	1947
22,253	338,228	2,823,068	26,210	.946	2.220	10,329	1948
19,895	296,818	2,384,043	24,807	.955	2.140	18,023	1949
29,407	450,174	3,586,763	26,152	.958	2.090	13,960	1950
30,837	430,515	3,441,549	26,594	.987	2.110	13,126	1951
34,480	430,139	3,679,035	26,898	.952	2.151	14,908	1952
35,224	487,335	3,911,928	28,024	.942	2.106	16,170	1953
28,200	387,039	2,852,744	25,474	.943	2.110	8,748	1954
31,960	414,444	3,445,762	27,158	.914	2.046	16,006	1955
32,538	403,381	3,213,559	27,886	.843	2.014	21,244	1956

<i>Distributed to Stockholders (000 Dollars)</i>	<i>Net Income Per Share</i>	<i>Distributed to Stockholders Per Share</i>	<i>Total Assets (000 Dollars)</i>	<i>Cash and Government Securities (000 Dollars)</i>	<i>Current Assets (000 Dollars)</i>	<i>Current Liabilities (000 Dollars)</i>	<i>Capital and Surplus (000 Dollars)</i>	<i>Book Value Per Share</i>	<i>Year</i>
\$ 29,760	\$ 4.05	\$2.75	\$394,647	\$ 86,809	\$149,182	\$ 33,490	\$353,682	32.68	1940
35,170	4.55	3.25	436,083	126,469	194,424	50,990	369,288	34.12	1941
32,465	4.51	3.00	469,550	155,932	220,973	61,631	385,644	35.64	1942
32,465	4.15	3.00	489,774	174,879	241,489	66,850	398,145	36.79	1943
27,054	3.59	2.50	490,270	194,398	248,243	53,432	409,955	37.88	1944
27,054	2.79	2.50	464,800	187,502	246,061	30,212	412,875	38.15	1945
27,054	2.13	2.50	459,670	173,786	240,328	30,370	408,868	37.78	1946
43,287	8.49	4.00	540,612	240,281	315,081	62,696	457,463	42.27	1947
54,108	8.67	5.00	575,420	254,318	335,767	56,993	497,683	45.99	1948
43,287	4.45	4.00	560,283	194,654	284,847	37,306	502,507	46.44	1949
59,519	8.15	5.50	631,487	224,831	325,507	76,885	551,667	50.98	1950
64,930	8.44	6.00	687,473	253,734	368,037	105,728	578,084	53.42	1951
64,930	7.96	6.00	703,532	253,991	368,175	99,310	600,567	55.50	1952
64,930	8.20	6.00	747,630	250,763	385,298	123,425	620,593	57.35	1953
64,930	7.20	6.00	730,867	248,785	358,379	88,631	637,893	58.95	1954
83,868	11.60	7.75	793,221	274,028	409,381	112,088	679,542	62.79	1955
100,100	13.23	9.25	833,998	274,863	436,637	108,267	723,200	66.83	1956

Other Costs include provisions for Reserve for Contingencies as follows: 1940—\$4,000,000; 1941—\$4,000,000; 1942—\$2,000,000; 1943—\$4,000,000; 1944—\$4,000,000. In 1950 the \$17,633,060 balance of Reserve for Contingencies was returned to Earned Surplus.

Net Income figures are as reported annually to stockholders, without adjustment for surplus charges and credits.



Kennecott Copper Corporation

OFFICERS AND EXECUTIVES OF PARENT COMPANY

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ROBERT C. SULLIVAN, <i>Assistant Counsel</i>	

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J. C. KINNEAR, JR., <i>General Manager</i> Nevada Mines Division	L. F. PETT, <i>General Manager</i> Utah Copper Division

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C. N. WHITAKER, *Assistant Sales Manager*

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RODNEY CHASE, *Vice President* (Public and Industrial Relations)
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W. G. BARNEY, *Vice President*
E. S. RISING, *Vice President and Sales Manager*
J. A. THORNTON, *Secretary and Treasurer*

Quebec Iron and Titanium Corporation

(Two-thirds owned by Kennecott Copper Corp. and one-third by The New Jersey Zinc Co.)
WILLIAM L. WALSH, *President*
C. HOWARD GEORGE, *Vice President*
ROY B. YOUNG, *General Manager*

KENNECOTT ADVERTISING

The two advertisements at the right, above and below, are typical of those of the new campaign, which Kennecott started last fall in a number of national magazines. The aim is to impress the general public, as well as industrial users, with the unmatched qualities of copper as a time-tested, indispensable metal in today's world. The campaign is planned also to help counteract certain trends toward the use of substitute materials.

Another Kennecott campaign is designed to tell millions of homeowners to look to their wiring for happy electrical living. This adequate wiring campaign is rendering a real service to the electrical industry. Also it is good business because bringing America's 35,000,000 under-wired homes up to par will require millions of pounds of copper.

MEET SKIMPY WIRING



The Electrical Selfingest
Spaced in 25,000,000 hours!

[illegible]

Das FBI's Bookings ("On Air")
 About "Wrong" explains how the show is
 recorded. See also our story by David
 Gribble, *Behind the Scenes: The
 Making of the TV Series*, *TV*,
 March 1998, pp. 10-11.

 Kennecott Copper Corporation

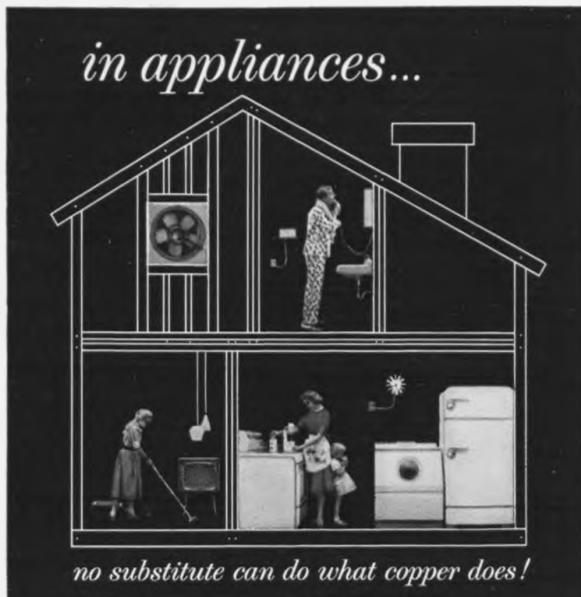
in lighting...
no substitute
can do
what copper
does!



Neither non-precious metal carries electricity as well as copper. No other conducts heat as well and at the same time is more resistant to rust, corrosion and wear. In the manufacturing of electrical equipment, copper or copper alloys combine, better than other metals, the vital properties of malleability, ductility, and machinability. In lighting, as in so many other fields, there is no substitute with all the qualities of copper—most versatile of metals!

Kennecott Copper Corporation
 Polymers, Solenoids, Chain Brms & Conns Co. • Kennecott Wire and Cable Co.

in appliances...



no substitute can do what copper does!

Copper carries the electricity that powers electrical appliances better than any other commercial metal. Copper, too, conducts heat faster than any other commercial metal. No other precious metal lends itself so readily to such a variety of manufacturing operations as drawing, forming, shaping or stamping. There is no substitute with all the qualities of copper as it allows in electrical appliances or in thousands of other products for modern living.

Kennecott Copper Corporation
 Schenectady, New York • Chicago, Illinois • Phoenix, Arizona • San Francisco, California • London, England • Tokyo, Japan



KENNECOTT COPPER CORPORATION • 1956

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ALASKA
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