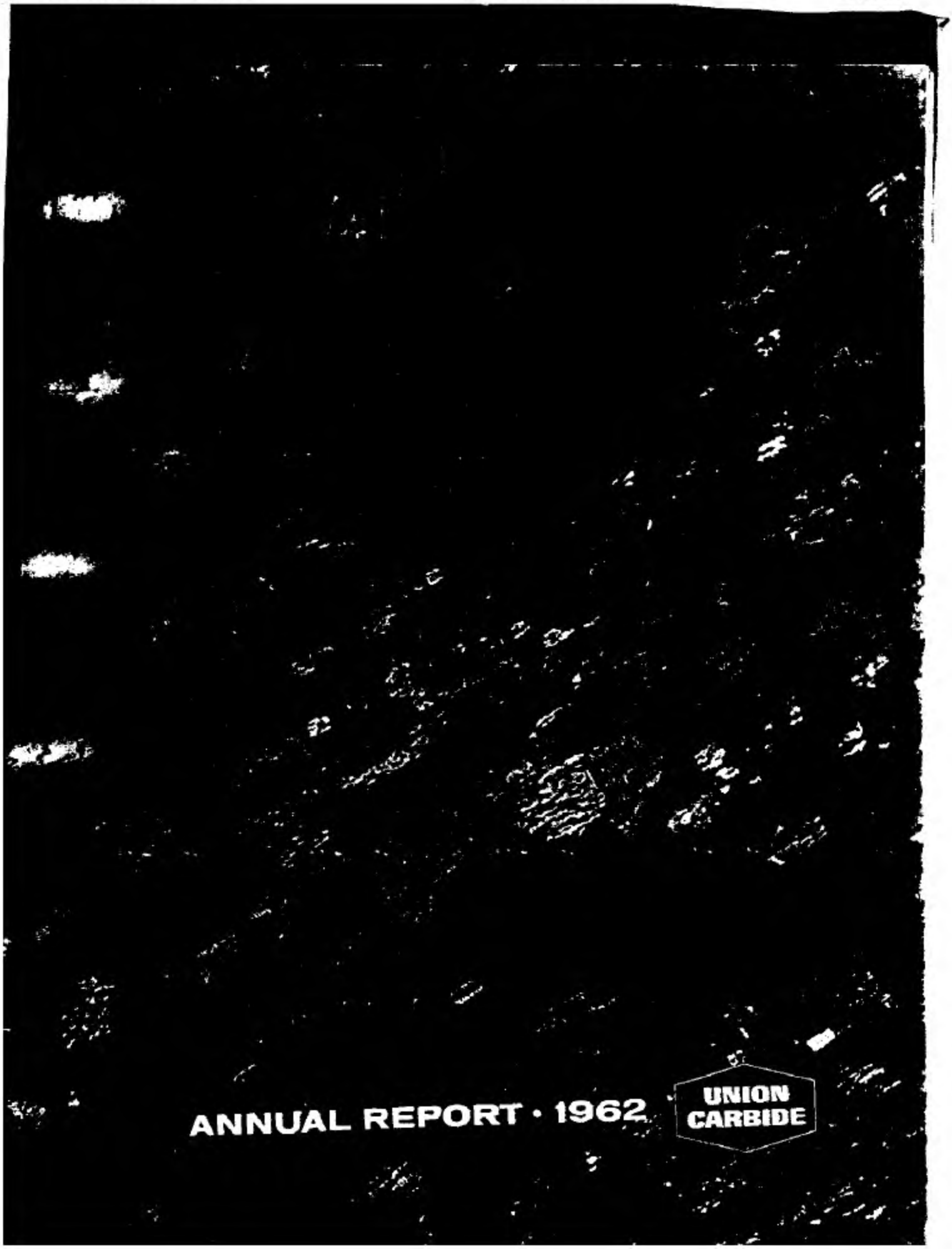
FACSIMILE COVER PAGE

To :	**14256997033**	**From :**	Joseph Joseph
Sent :	10/2/01 at 7:40:20 PM	**Pages :**	20 (including Cover)
Subject :	Union Carbide Asbestos Mine		

David - Here's the fax. Read the entries. Some of them disclose their awareness that the sort of asbestos they were mining was rare. I will take another look at the 1961 and 1960 annual reports. I also included the 1964 Moodys which is the first reference to asbestos. You will find it under metals and minerals. Let me know if the fa transmits properly. The cover pages will be very dark, but the dates are quite legible. - Joe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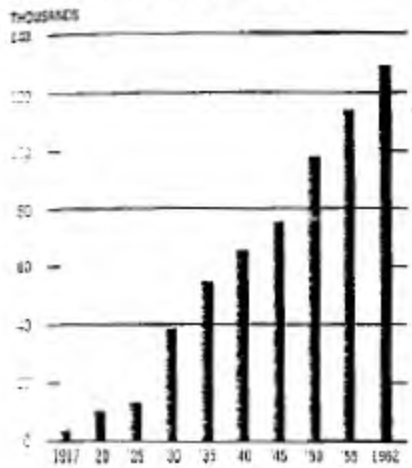
UNION CARBIDE

ANNUAL 1962 REPORT

Number of Stockholders



Classification of Stockholders

	Stock-holders*	Per Cent	Shares	Per Cent
Women	55,247	42.78	5,650,048	18.77
Men	40,657	31.46	4,892,384	16.25
Fiduciaries	15,593	12.07	2,511,786	8.34
Joint Accounts	12,234	9.48	417,851	1.39
Institutions**	1,929	1.49	504,888	1.68
Corporations & Partnerships	1,203	.93	489,661	1.63
Nominees	1,499	1.16	13,481,764	44.80
Brokers	351	.28	1,082,977	3.60
Insurance Companies	344	.27	912,659	3.03
Investment Trusts	149	.12	152,364	.51
	129,216	100.00	30,096,473	100.00

*Union Carbide Stockholders as of November 7, 1962
**Includes Churches, Colleges, Hospitals, Societies, etc.

Digging Into the High Sierras

Mining operations have been conducted as high as two miles above sea level at Union Carbide's tungsten mine in the California mountains. In 1962, a new tunnel was started at the 9,600-foot mill level. Tungsten is used in products for the chemical, aerospace and space and other important high technology

Nuclear—The nuclear reactor in the Corporation's research center near Tuxedo, New York, started production of radioisotopes, which are being sold to a number of companies in the New York metropolitan area for industrial and research purposes. Union Carbide Nuclear Company also has a well-equipped neutron activation analysis laboratory at this center. In this type of research, the substance to be analyzed is made radioactive by bombarding its atoms with neutrons in a nuclear reactor. By analyzing the type of radiation given off, scientists can identify the amounts of various elements in the sample under study. The laboratory is analyzing samples for various divisions of the Corporation, and for other industrial and research organizations, and has a joint development program with the Atomic Energy Commission.

At the uranium-vanadium processing mill at Uravan, Colorado, an on-site sulphuric acid plant was constructed, which has resulted in lower processing costs. Also, development of a unique asbestos deposit in California and associated research and development work resulted in the decision to build a pilot plant there to produce asbestos fiber.

Consumer Products—Sales of Union Carbide Consumer Products Company showed continued strength in the Division's two major product lines—EVEREADY batteries and PRESTONE anti-freezes.

The Company started construction of a new plant for producing flashlight and radio batteries in Greenville, North Carolina, which is scheduled to be completed in the fall of 1963.

Among the EVEREADY products marketed in 1962 was a series of miniature alkaline batteries for use in transistorized electronic equipment. Five new car care products were introduced under the PRESTONE trade mark: a special silicone car polish, a foam upholstery cleaner, a transmission sealer, a spray de-greaser, and a wash and wax concentrate for automatic car washing establishments.

Canadian Operations—Canadian sales exceeded those of 1961 by a substantial amount. In 1962, Union Carbide Canada Limited started several important construction projects. These included a further expansion of polyethylene resin and compounding facilities at the Montreal East, Quebec, plant; and new industrial gas plants in Alberta and Nova Scotia.

A number of products previously imported into Canada were produced there for the first time during the year, including medium-density polyethylene resins and films, a new ferrosilicon alloy, welding and cutting nozzles, and liquid oxygen cylinders.

Sale of Pyrofax Gas Company—At the end of the year, the Corporation sold its Pyrofax Gas business and assets to Texas Eastern Transmission Corporation, who will operate it as a wholly owned subsidiary. A capital gain of $8,086,000, or 20 cents per share after tax, was realized. Over 40 years ago, we began marketing propane liquefied petroleum gas to consumers under the PYROFAX trade mark as an outlet for this by-product of our chemical production. In recent years, our growing chemical business has required this gas as a raw material, and therefore Pyrofax has had to purchase

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ALISON A. CUMMING

Union Carbide Canada Limited

PRESIDENT: Alison A. Cumming
VICE-PRESIDENTS: J. S. Dewar, G. O. Loach, Harry Taylor, W. S. Wyman
SECRETARY AND TREASURER: R. O. Holditch

This subsidiary of the Corporation has its executive and general offices in Toronto. Its operations are carried on through six divisions, which employ about 4,000 people in 36 plants and 20 sales offices throughout Canada. In addition, it has a subsidiary company engaged in minerals exploration. The products of Union Carbide Canada Limited correspond for the most part with the products of Union Carbide in the United States. They include a wide variety of carbon and graphite products, chemicals, alloys and metals, industrial gases, welding and cutting apparatus, plastics, and food casings. A number of consumer products also are produced, including PRESTONE anti-freeze and other car care products and many different types of EVEREADY batteries and flashlights.

GEORGE C. WELLS

Union Carbide International Company

PRESIDENT: George C. Wells
EXECUTIVE VICE-PRESIDENT: T. R. Ragland
VICE-PRESIDENTS: C. H. Atwood, B. T. Burgoyne, R. V. Farrell, K. G. Kutscher, J. E. Potts, F. H. Rocke, J. H. Ware, F. P. Wilson, W. A. Woodcock

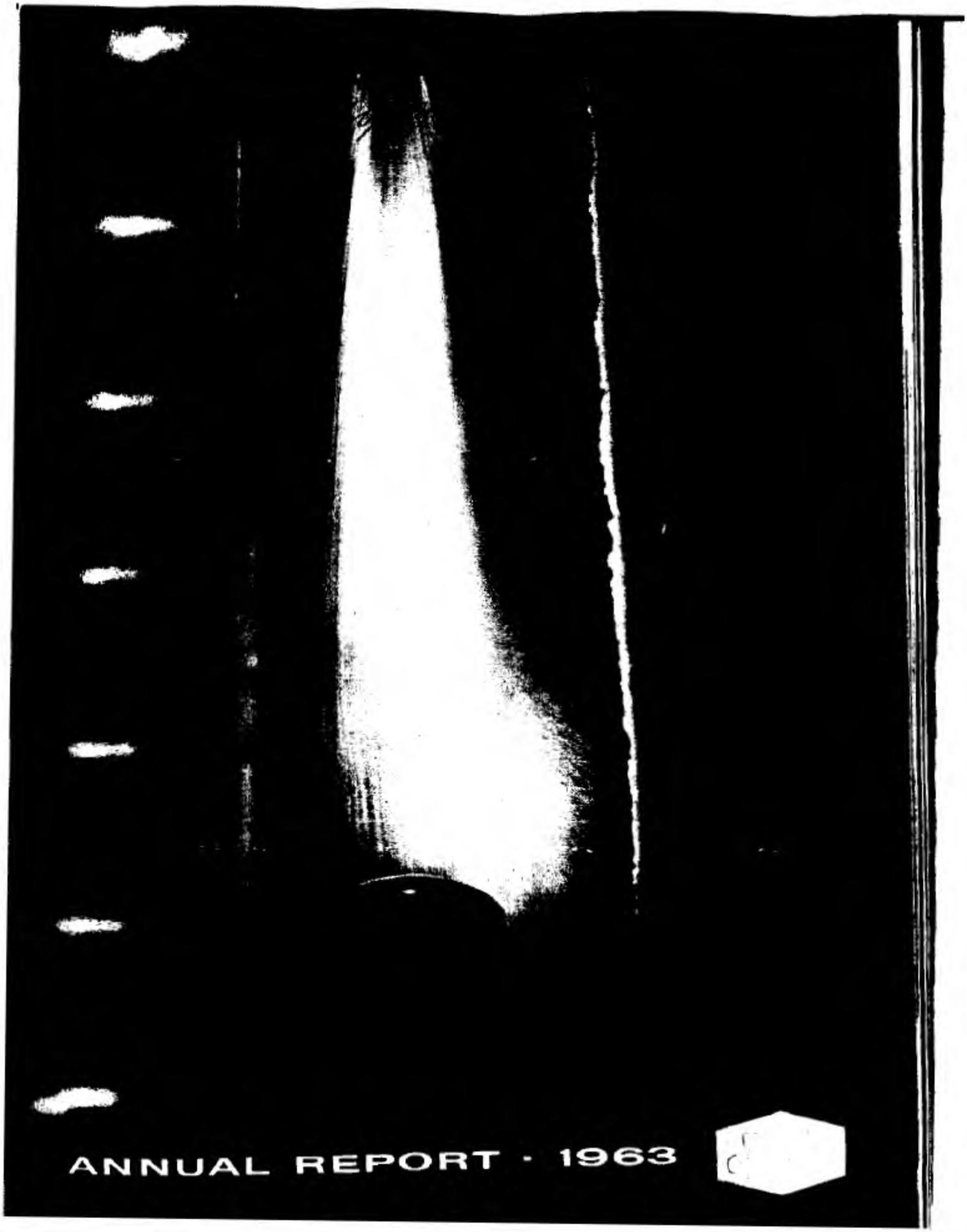
The International Company is responsible for export sales of the Corporation's products. It also represents the Corporation's interests in numerous affiliated manufacturing and sales companies throughout the world. Operations of these associated companies include plants for plastics in Australia, Belgium, Brazil, England, India, Italy, Japan, Mexico, and Scotland; for chemicals in Australia, England, Italy, and Puerto Rico; for carbon and graphite in England, France, Italy, Mexico, and Sweden; for alloys in England, Norway, and the Philippines; for calcium carbide in Brazil, Norway, and the Philippines; for oxygen, acetylene, and apparatus in Brazil; for food casings in Brazil, England, and France; and for batteries and flashlight cases in Argentina, Australia, Brazil, Colombia, Hong Kong, India, Indonesia, Malaya, Mexico, New Zealand, the Philippines, Singapore, Thailand, and Venezuela.

FRED L. SHANKLIN

Union Carbide Ore Company

PRESIDENT: Fred L. Shanklin
VICE-PRESIDENTS: Wilder Beal, W. R. Lewis, Davenport West, Jr.

The Ore Company procures and processes ores used by the Corporation for metallurgical and other purposes, such as battery manufacture. It also sells ores to others. Ores of particular interest are those containing manganese, chromium, columbium, and tantalum. The Ore Company operates jointly with the Nuclear Company an ore and minerals laboratory at Sterling Forest, New York, engaged primarily in developing new methods for locating, mining, and processing ores and in expanding the use of various minerals. The Division has a large ore-processing mill at Newport News, Virginia, which ships processed ore to domestic plants, as well as to plants in Canada and abroad. The Ore Company is the Corporation's representative for numerous affiliated overseas mining companies.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1963

Airlift Shipment to Rocket Sites—This truck trailer containing liquid helium was part of an airlift shipment to missile development sites. The supercold fluid is used for precooling rocket engines prior to ignition. The specially insulated trailer carrying the helium was designed by the Linde Division, which also supplied the liquid helium.

nificantly increase their usefulness for research and commercial application.

Metals—The tonnage of alloys sold by the Metals Division increased in 1963 over the previous year, keeping pace with the increase in the production of iron, steel, and aluminum. Dollar sales, however, continued to be affected by lower prices in all areas of the business and also by foreign competition—particularly in the manganese and chromium product groups. To adjust to this situation, the Division is currently making further significant cost reductions by consolidating its manufacturing operations into three major plants.

Among the new alloy products introduced during 1963 were high-purity ferrocolumbium and nickel-columbium alloys for making aerospace metals, and low-silicon ferromanganese alloys used to improve the qualities of special steels that are machined automatically into small component parts.

A new coal mine, with a capacity of approximately 300,000 tons of coal a year, was opened to take care of the increasing requirements of the Corporation and for the sale of coal to other companies.

New production facilities installed by the Stellite Division resulted in a fourfold increase in melting capacity for producing special alloy metals for the space, missile, and aircraft industries. The Division is currently supplying to the U.S. Air Force and aerospace manufacturers a new metal based on columbium, which has high-temperature properties that make it a promising material for spacecraft. Stellite also has a new tantalum-base alloy that is proving useful in the development of rocket motors and nuclear weapons systems.

Nuclear—The U.S. Atomic Energy Commission extended its contract with Union Carbide for operating four of the A.E.C.'s major nuclear installations until June 30, 1967. Negotiations are under way to modify and extend the Corporation's contract with the A.E.C. for the sale of uranium concentrates from December, 1966, to December, 1970.

In addition to selling radioisotopes, the Nuclear Division is furnishing industrial nuclear technology services—neutron activation analysis (a highly sensitive analysis technique), gamma irradiations, and neutron irradiations.

The Division's pilot plant for processing asbestos ore was completed, and several new grades of asbestos fiber were introduced.

Consumer Products—Continued strength in the sales of the two major product lines of the Consumer Products Division—EVEREADY batteries and PRESTONE anti-freeze—resulted in an increase in the Division's sales in 1963.

To broaden the market for battery-operated devices, the Division launched a new marketing approach that will enable it to offer both product and technical assistance not only on batteries, but also on motors and chargers. The Division is now marketing high-efficiency low-voltage motors. These are used in cameras, tape recorders, and other cordless devices.

Facilities are being completed for producing nickel-cadmium rechargeable batteries at the Cleveland, Ohio, plant, and a new battery plant providing increased capacity for miniature round cell batteries was also placed in operation in Greenville, North Carolina.

Major hearing aid manufacturers are now designing instruments around EVEREADY silver oxide batteries, and the majority of battery-operated TV sets on the market are designed around EVEREADY alkaline batteries. The Division also began the expansion into national

1963

CONDENSED SUMMARY OF PRODUCTS

Carbon Products—Electric Furnace Electrodes • Electrolytic Cell Anodes • Furnace Linings • Electric Motor and Generator Brushes • Products for Electrical, Mechanical, and Metallurgical Applications • Structural Shapes • Chemical Processing Equipment • Projector, Photographic, Searchlight, and Spectroscopic Carbons • Nuclear and Aerospace Graphite • Carbon and Graphite Fibers, Fabrics, and Foil

Chemical Products—Synthetic Organic Chemicals: Including Solvents, Intermediates, Monomers, Plasticizers, Lubricants, Humectants, and Surface-Active Agents • Agricultural Pesticides • Automotive Chemicals • Corrosion Inhibitors • Detergent Alkylates and Biodegradable Detergent Intermediates • Rocket Propellants • Fluorocarbon Propellants and Refrigerants • Fungistats for Food Products • Industrial Fumigants • Latexes • Metal Chemicals • Molecular Sieves • Silicone Chemicals, Oils, Resins, and Elastomers • Synthetic Crystals • Urethane Foam Chemicals • Water-Soluble Resins

Gases and Equipment—Oxygen, Nitrogen, Hydrogen, Argon, Helium, and Other Atmospheric Gases • Calcium Carbide and Acetylene • Apparatus for Electric and Gas Cutting, Welding, and Surfacing of Metals • Flame-Plating Service • Steel-Conditioning Machines and Rock-Piercing and Shaping Equipment • Cryogenic Fluids and Equipment • Lasers, Barium Getters, Tantalum Capacitors, and Other Electronic Equipment

Metals and Minerals—Ferroalloys, Alloying Metals, and Refractory Metals and Compounds Produced From the Elements Boron, Calcium, Chromium, Columbium, Manganese, Silicon, Tantalum, Titanium, Tungsten, Vanadium, and Zirconium • Titanium Master Alloys and Titanium Diboride and Composites • Zirconium Diboride • Special Alloys to Resist Heat, Corrosion, and Wear • Metal Ceramics • Boron and Silicon Nitrides • Grid Wire • Chromium, Manganese, Molybdenum, Tungsten, and Vanadium Ores and Concentrates • Asbestos

Plastics—Epoxy, Phenolic, Phenoxy, Polyethylene, Polypropylene, Polystyrene, and Vinyl Resins and Compounds • Vinyl Film and Flexible and Rigid Sheeting • Vinyl-Coated Paper • Vinyl Foam • Food Casings • Phenoxy, Polyethylene, Polyethylene Oxide, Polypropylene, and Polystyrene Films • Beverage Cases • Bottles and Containers • Truck Bodies

Nuclear Products—Radioisotopes and Stable Isotopes • Uranium Ores and Concentrates

Consumer Products—EVEREADY Batteries for Flashlights, Photoflash Units, Portable Radios and Television Sets, Hearing Aids, and Toys • EVEREADY Flashlight Cases • EVEREADY Miniature Lamps • PRESTONE, WINTER FLO, PRIME, and TREK Anti-Freezes • PRESTONE Car Care Products • LINDE Medical Oxygen • LINDE Synthetic Star Rubies and Star Sapphires • "6-12" Insect Repellent • DYNEL Modacrylic Fibers and Yarns • BAKELITE and KRENE Plastics • UNION CARBIDE Baby and Juvenile Plastic Products • GLAD Wrap and Bags

UNION CARBIDE

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1964

In last year's report I noted our commitment projects with strong growth potential over the nger term while, at the same time, maintaing a vigorous cost reduction program aimed at iproving current earnings. We believe that the esults achieved in 1964 justify this approach, nd we intend to continue with it.

In recognition of the growing size and comlexity of our business and its worldwide scope, he Corporation's management structure was odified during the past year to provide inreased unification and improved administraion of our many business enterprises. A Presient's Office—which includes our three Execuive Vice-Presidents, William M. Haile, Kenneth . Hannan, and Kenneth Rush—was established as the central point of management authority with responsibility for overall Corporate policy and business planning under the Board of Directors. Our principal operating groups report to the President's Office through Vice-Presidents Donald B. Benedict, William B. Humes, Adger S. Johnson, and William B. Nicholson. These executives, with the Division Presidents who report to them, make up four Operating Committees. These committees are responsible for technical expenditures, business plans and budgets, and the allocation of capital resources and manpower for the operating divisions in their respective groups. As part of the reorganization, the former Appropriations and Operating Committees were dissolved and a new Capital Projects Committee —consisting of the members of the President's Office and the Group Vice-Presidents—was formed. Also formed was the Financial Planning Committee, which under the chairmanship of the Treasurer, William S. Sneath, includes Vice-Presidents Farnsworth L. Jennings and George C. Wells and the Controller, John A. Willis.

Changes in management during the past year included the following: Allen T. Lambert, Chairman of the Board and President of The Toronto-Dominion Bank, was elected a Director of the Corporation in May. George C. Wells was elected a Vice-President of the Corporation in April. He was succeeded as President of Union Carbide International Company by F. Perry Wilson. In September, William H. Feathers and William B. Humes were elected Vice-Presidents of Union Carbide Corporation. In May, Ronald E. Wishart, Jr. was appointed President of the Silicones Division, having served as General Manager of that Division. In September, Glenn L. Pitzer, who had been President of the Food Products Division (formerly the Visking Division), was appointed President of the Plastics Division succeeding Mr. Humes. Richard S. Abrams succeeded Mr. Pitzer as President of the Food Products Division. Also in September, John R. Hulten became President of the newly formed Fibers and Fabrics Division, and Burton R. Buck was appointed President of the Metals Division succeeding Mr. Feathers. In January, 1965, the Metals and Ore Divisions and part of the Nuclear Division were consolidated as the Mining and Metals Division, and Mr. Buck was appointed as its President. Clarence E. Larson was appointed President of the Nuclear Division, which is now responsible for our government-owned, privately operated facilities at Oak Ridge and Paducah. Also in January, Edward J. Fox, formerly an Assistant Vice-President of the Corporation, was appointed Regional Vice-President with headquarters in Washington, D.C.; and Fred L. Shanklin, formerly President of the Ore Division, was appointed Regional Vice-President with headquarters in Chicago.

Finally, I should like to comment on certain of the actions taken by our Board of Directors at their January, 1965, meeting. The Board decided to increase the quarterly dividend from $0.90 per share to $1.00 per share and, subject to stockholder approval at the Annual Meeting, to split the Corporation's stock on a 2-for-1 basis. The $0.90 quarterly dividend has represented a payment to stockholders of 70 per cent of net earnings during the past eight years. The Directors' decision to raise the dividend and split the stock at this time reflects their confidence that we have achieved a new level of earnings that can form a broader base for further growth. The Board has also recommended for stockholder approval the adoption of an incentive compensation program for a large group of managerial employees. This program ties a significant part of the total compensation of these employees to the earnings of the Corporation. It, therefore, identifies employee goals with stockholder goals, the achievement of which will continue to challenge the best efforts of all of us.

The Annual Meeting of stockholders will be held on Thursday morning, April 22, at 11 A.M., at the Hunter College Assembly Hall in New York City. I hope that many of you will be able to attend in person, but that, if you cannot, you will send in your proxies for this meeting at which so many important actions will be taken.

Respectfully submitted,

Birny Mason, Jr.

March 2, 1965 President

The large wheel mold being removed from the casting oath (left picture on opposite page) was cast in the Kokomo, Indiana, plant of Union Carbide for the gas turbine engine of a power unit. Radioisotopes for medical and industrial use are processed in Union Carbide's radioactive materials laboratory (right-hand picture) at Sterling Forest, New York. Shown entering a vacuum furnace (lower picture) is a flat car carrying pellets of the Corporation's CARVAN vanadium, a new alloy for strengthening steel.

The New York City Transit Authority placed in operation in 1964 the first of a fleet of new subway cars fabricated of a special weight-saving stainless steel developed by Union Carbide metallurgists.

poration engineers are also being offered to industry—including highly effective distillation units, cryogenic gas upgrading plants, palladium diffusion units, air separation plants, and equipment to obtain ultrahigh and very clean vacuums such as are required in space simulation chambers. An example is a cryogenic pump that contains no moving parts and removes gases by condensation, adsorption, or both.

In addition, the Corporation is supplying a variety of cryogenic equipment to the government's space agency—including helium reliquefiers, vacuum-insulated pipelines, railroad tank cars, semitrailers, and other specially designed tank units.

The Corporation expanded its activities in the electronics field with the start-up of new facilities to produce transistors in California and capacitors in South Carolina and the development of a commercial laser-welder.

Mining and Metals—In keeping with the record production levels in the iron, steel, and aluminum industries during the year, the tonnage of ferroalloys and alloying metals sold by Union Carbide in 1964 rose to an all-time high. Dollar sales showed a smaller gain because they reflected a five-year decline in prices, from which there was some relief in the final quarter of the year. Significant cost reduction measures taken during late 1963 and early 1964 helped to improve the profitability of the business.

Outstanding among the products introduced during the year was CARVAN vanadium, an alloy for strengthening low-alloy and carbon steels. All major steel companies have adopted the alloy because it is more economical to use and is of higher purity than alloys previously used as vanadium additives to steel. Because of the demand for the alloy, the Corporation reactivated its vanadium mine at Rifle, Colorado, which is the largest in the United States.

New vacuum melting facilities at the Corporation's Stellite plant in Indiana have increased capacity threefold for producing high-purity metals. Control systems now in use represent the closest approach to date toward complete furnace automation. A multimillion dollar expansion program is now under way at this plant that will appreciably increase the production of nickel-base and cobalt base alloys in sheet form. The equipment being installed will permit the rolling of thinner sheets to closer tolerances.

Several promising new alloy metals were introduced during the year, including one for hot sulphuric acid service. Tests have indicated its particular usefulness in equipment for processing chemicals, pulp and paper, and synthetic fibers.

Sales of tungsten ores showed a marked increase over 1963, and prices were slightly higher. The ore processing mill at Bishop, California, is being modified so that an upgraded molybdenum product can be produced, rather than the concentrate form that has been marketed in the past.

The first year's operation of the Corporation's asbestos pilot plant in California was very successful, and the highly purified asbestos produced is finding use in several areas—principally the paper industry.

In 1964, Union Carbide signed contracts with the U. S. Atomic Energy Commission that assure the production and sale of uranium concentrates obtained from ore mined in the Colorado Plateau area through 1970.

During the year, the Corporation substantially increased sales of radioisotopes produced in its nuclear reactor. Also, it greatly extended its nuclear technology services—including the irradiation of various materials for industrial research and development purposes.

1964


ROBERT F. FLOOD

Linde Division

PRESIDENT: Robert F. Flood
EXECUTIVE VICE-PRESIDENT: J. G. Benson
VICE-PRESIDENTS: A. L. Bayes, E. G. Hickling, R. W. King, T. J. Milhaupt, W. F. Moeller, G. A. Murray

The production of purified atmospheric gases—principally oxygen, nitrogen, and argon—is the major activity of the Linde Division. These products are sold in both gaseous and liquid form. The Division also supplies industry with liquefied and gaseous hydrogen and helium and gaseous acetylene. It manufactures equipment for cryogenic (low-temperature) operations, chemical and petroleum processing, and metalworking. Increasing quantities of the Linde Division's gases are being employed for the production of steel and for aerospace operations, the synthesis of chemicals, medical treatments, and many cryogenic uses—such as cryosurgery and in-transit refrigeration of foods. To the electronics industry, the Linde Division furnishes transistors, capacitors, lasers, and crystal materials. It provides Molecular Sieve adsorbents and a Flame-Plating service.


BURTON R. BUCK

Mining and Metals Division

PRESIDENT: Burton R. Buck
VICE-PRESIDENTS: C. J. Chapman, J. C. Douglas, L. B. Emlet, W. R. Lewis

This Division carries on worldwide geological investigation and exploration and it mines and processes ores containing most of the major metal elements. It consolidates the activities of the former Metals and Ore Divisions and the mining and processing operations of the Nuclear Division. The Division produces ore concentrates, alloying metals, ferroalloys, and commercially pure forms of a number of key metals. Most of the Division's products are used in making both steel and nonferrous metals. They remove impurities and impart strength and other desirable properties. The uranium concentrates that the Division produces are sold to the U. S. Atomic Energy Commission. This Division also operates the Corporation's ore and nuclear research laboratory at Sterling Forest, New York. It has a nuclear reactor that produces radioisotopes for medical and industrial use.


ROBERT M. BRINEY

Stellite Division

PRESIDENT: Robert M. Briney
EXECUTIVE VICE-PRESIDENT: F. C. Krott, Jr.
VICE-PRESIDENT: C. G. Chisholm

The Stellite Division produces special alloys and metal-ceramics that are used where there are extreme conditions of heat, corrosion, or wear. The alloys are composed chiefly of the metallic elements cobalt, columbium, chromium, molybdenum, nickel, tantalum, and tungsten. They are supplied to industry in the form of castings, sheet, plate, bar, wire, and powders. Special high-temperature alloys made by the Stellite Division have important uses in aircraft and space equipment. They will withstand severe stress and corrosion at temperatures in the red-heat range. The Division's alloys also are used by the chemical and nuclear industries in equipment for handling such severely corrosive materials as boiling hydrochloric acid, hot sulphuric acid, and wet chlorine. Cutting tools and machinery parts benefit from the unusual wear resistance provided by the Stellite Division's alloys.

C964

CONDENSED SUMMARY OF PRODUCTS

Carbon Products — Activated Carbon • Aerospace Graphite • Anodes for Electrolytic Cells • Brushes for Electric Motors and Generators • Chemical Processing Equipment • Electrical and Mechanical Specialties • Fabrics, Fibers, and Foil • Furnace Electrodes and Linings • Lighting Carbons • Molten Metal Processing Equipment • Nuclear Graphite and Fuel Elements • Pipe Slides • Pyrolytic Graphite • Spectroscopic Electrodes and Powders • Structural Shapes

Chemical Products — Agricultural Pesticides • Automotive Chemicals • Chemical Monomers and Intermediates • Coatings Chemicals • Corrosion Inhibitors • Detergent Alkylates and Intermediates • Fluorocarbon Propellants and Refrigerants • Fumigants • Fungistats for Food Products • Humectants • Latexes for Paints • Lubricants • Metal Chemicals • Molecular Sieves • Plasticizers • Silicone Chemicals, Elastomers, Oils, Resins, and Surfactants • Solvents • Surface-Active Agents • Synthetic Crystals • Urethane Foam Chemicals • Water-Soluble Resins

Consumer Products — CAPTAIN Swim Products • ENGLANDER Mattresses and Sofa Beds • EVEREADY Batteries for Clocks, Flashlights, Hearing Aids, Photoflash Units, Portable Radios and Television Sets, and Toys • EVEREADY Flashlight Cases and Miniature Lamps • GLAD Bags, Straws, and Wrap • LINDE Medical Oxygen • LINDE Synthetic Star Rubies and Sapphires • PRESTONE, PRIME, TREK and WINTER FLO Anti-Freezes • PRESTONE Specialty Car Care Products • "6-12" Insect Repellent • UNION CARBIDE Baby and Juvenile Plastic Products

Food Products — Food Casings • Specialty Films for the Food Industry

Gases and Equipment — Apparatus for Cutting, Surfacing, and Welding of Metals • Atmospheric Gases—Including Argon, Helium, Hydrogen, Oxygen, and Nitrogen • Calcium Carbide and Acetylene • Cryogenic Fluids and Equipment • Electronic Components—Including Capacitors, Crystals, Getters, Lasers, and Transistors • Flame-Plating Service • Rock-Piercing and Shaping Equipment • Steel-Conditioning Machines • POLARSTREAM In-Transit Refrigeration of Food

Metals and Minerals — Alloying Metals, Ferroalloys, and Refractory Metals and Compounds Produced from the Elements Boron, Calcium, Chromium, Columbium, Manganese, Silicon, Tantalum, Titanium, Tungsten, Vanadium, and Zirconium • Asbestos • Boron and Silicon Nitrides • Grid Wire • Metal Ceramics • Ores and Concentrates—Including Chromium, Manganese, Molybdenum, Tungsten, Uranium, and Vanadium • Special Alloys to Resist Corrosion, Heat, and Wear • Titanium Master Alloys and Titanium Diboride and Composites • Zirconium Diboride

Nuclear Products — Irradiation and Other Nuclear Services • Radioisotopes and Stable Isotopes • Uranium Ores and Concentrates

Plastics — Beverage Cases • Bottles and Other Containers • Film and Sheeting—Including Polyethylene, Polyethylene Oxide, Polypropylene, Polystyrene, and Vinyl • Resins and Compounds—Including Epoxy, Phenolic, Phenoxy, Polyethylene, Polypropylene, Polystyrene, and Vinyl • Vinyl Foam • Vinyl-Coated Paper

Textile Materials — DYNEL Modacrylic Fibers • Nonwoven Materials • VILEAU Vinyl Fabrics

annual report 1965

UNION CARBIDE

1965

A new submerged arc electric furnace, which ranks among the world's largest alloy units, was commissioned at Ashtabula, Ohio, in the second quarter to meet substantially increased requirements for silicon alloys in the iron foundry and steel industries.

A group of ultra-pure alloys introduced during the year for use in vacuum melting of metals was also well received. Vacuum melting is becoming more and more important to ensure the extreme purity needed to meet the strict engineering requirements of today's high performance metals. Typical applications include deep-diving submarines and high-altitude jet aircraft.

New building projects under way in the metals group include new facilities at Alloy, West Virginia, for sizing, storing, and shipping alloys, which will contribute to better service to customers, better control over the quality of products, and reduced operating costs.

To assist in meeting expanding sales of the Corporation's highly successful vanadium alloy, CARVAN vanadium, a large mill is being built at Wilson Springs, Arkansas, to process vanadium ore from a newly discovered deposit nearby, which is owned by Union Carbide. This represents the largest known United States deposit mined for vanadium alone.

An addition to the tungsten mill at Bishop, California, was completed during the fourth quarter of 1965. It is being used to recover high-purity by-product molybdenum and copper metals by newly developed Union Carbide processes that are of significant technical importance.

Tin from the Corporation's subsidiary in Thailand began to reach the market in November. Since tin has been in short supply, the Corporation is now exploring offshore areas of western Thailand for new ore reserves.

Several other business areas also showed greater activity in 1965. The Corporation's high-capacity lime kiln design was further perfected, and during the year six kilns were sold—four in the United States and two overseas. Increased sales of asbestos to the tile and paper industries made it necessary to expand the plant at King City, California.

The Corporation expanded its own vacuum-melting facilities at the Stellite Division's specialty metals plant in Kokomo, Indiana, by the addition of another furnace unit. A previous expansion in 1964 had already resulted in a threefold increase in the plant's production of high-purity metals. Because of their superior resistance to extreme heat and corrosion, the metals produced at the Kokomo plant have important uses in aircraft, space, and chemical processing. A significant factor in increased sales of these products in 1965 was a step-up in the rate of jet aircraft engine production. Late in the year, a multimillion dollar expansion of sheet-producing facilities went into operation, and a new fabricating shop for making heat exchangers, distillation towers, and other equipment went into full-scale operation.

CONSUMER AND RELATED PRODUCTS

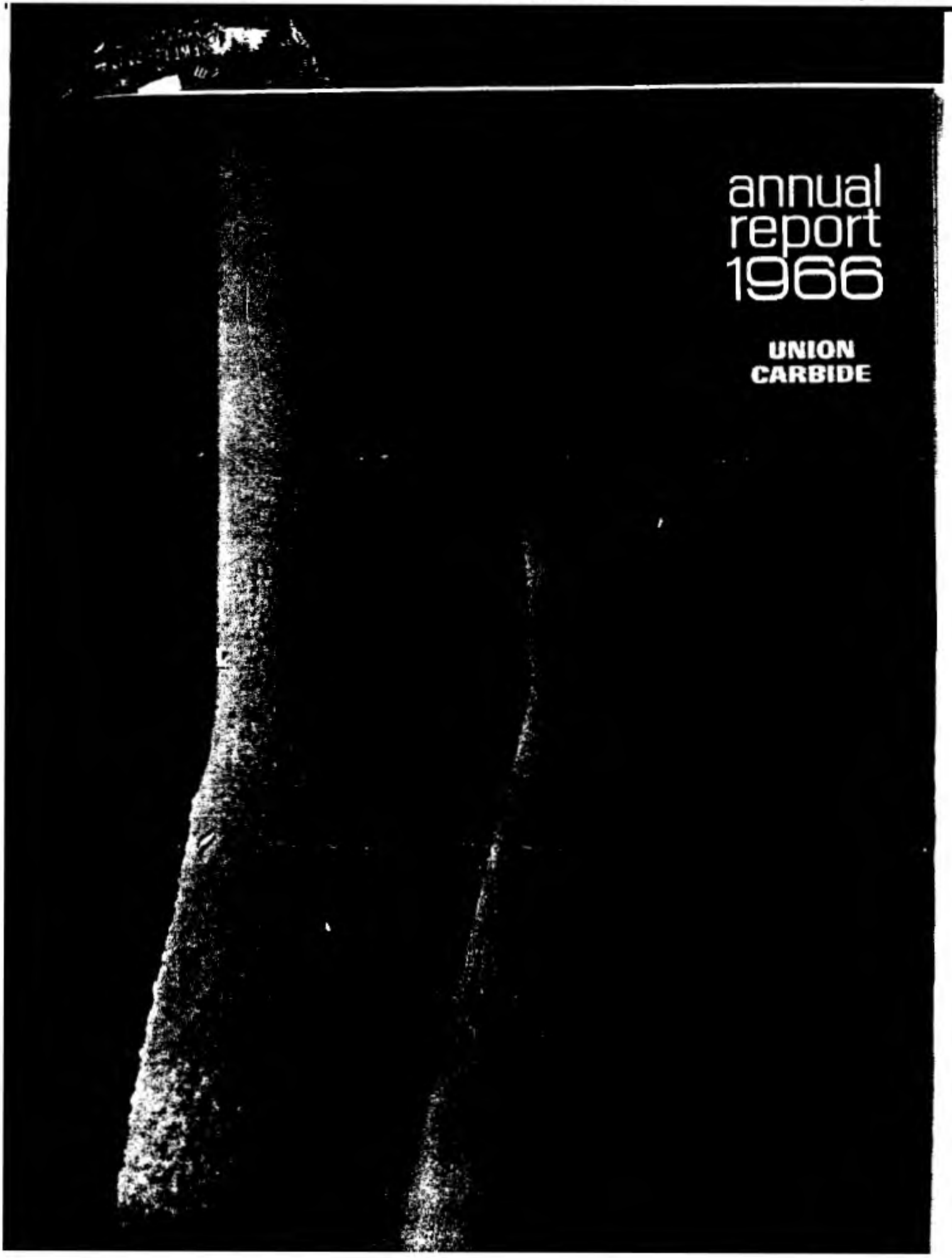
Consumer Products—There were significant gains in sales of EVEREADY, PRESTONE, and GLAD products in 1965.

Among the consumer products introduced was an improved PRESTONE spray de-icer to help motorists keep their car windows clear during difficult winter driving days. The top of the de-icer container has a scraper blade and scoring teeth for quick removal of snow and ice. The de-icing fluid itself is specially formulated so that it will not smear the windshield.

The most popular anti-freeze coolant, Union Carbide's PRESTONE brand, made its appearance last fall in several new packages. It became available in specially designed cans, which are reusable as gasoline containers. Also, since most car owners buy two gallons of anti-freeze protection each fall, a handy "two-pack" was introduced.

During the year, Union Carbide's EVEREADY batteries sparked the development of a variety of new cordless appliances as powerful as their plug-in counterparts. Rechargeable batteries were supplied for the first cordless vacuum cleaner on the market, as well as for the cordless carving knives introduced in 1965.

new phase of biological research as recently launched by Union arbide—determining whether ood plants will germinate and row under water. Studies such s these could eventually lead to he development of hybrid plants hat might be grown and harvested on the ocean floor.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1966

GROUP 2—CARBONS, ELECTRONICS, GASES, METALS

WILLIAM S. NICHOLSON, GROUP VICE-PRESIDENT

Carbon Products Division PRESIDENT: F. B. O'Mara. EXECUTIVE VICE-PRESIDENT: [illegible] Kroft, Jr. VICE-PRESIDENTS: C. E. Ford, M. M. Rand, O. B. Rendahl, F. B. Vernon.

Both carbon and graphite (highly refined carbon) are produced by this Division in thousands of shapes and forms—ranging from flexible tape for strengthening missile components to mammoth blocks for lining blast furnaces. The Division's most important products are furnace electrodes. These very large cylinders of carbon or graphite, some weighing 14 tons, "fire" electric furnaces used for smelting ore to make alloys, for melting scrap metal and other raw materials to produce steels, and for making abrasives, phosphorus, and other products requiring great heat. Arc carbons produced by this Division are used for a variety of lighting purposes, including motion picture projection and studio lighting, solar simulation, and spectroscopic analysis. The Division also manufactures carbon and graphite in many forms for electrical, mechanical, and metallurgical uses—as anodes for electrolytic production of chemicals, as corrosion-resistant chemical processing equipment, as brushes for electric motors and generators, and as activated carbon for adsorption processes. Specialty products are made for the aerospace and nuclear industries.

Electronics Division PRESIDENT: [illegible] VICE-PRESIDENTS: [illegible] Moore, [illegible]

The Electronics Division was formed in June, 1966, to consolidate all the [illegible] in the electronics industry, many of which had previously [illegible] Linde Division and the [illegible] [illegible] high efficiency.

Linde Division [illegible]

[illegible]

Mining and Metals Division PRESIDENT: [illegible] Buck. EXECUTIVE VICE-PRESIDENT: [illegible] Chapman. VICE-PRESIDENTS: J. C. Douglas, W. R. Lewis, F. J. Shortsleeve, [illegible]

This Division is engaged in mining, ore processing, and metalmaking operations. To obtain source materials for its products, it carries on extensive geological investigation and exploration throughout the world. The Division markets ore concentrates, ferroalloys, alloying metals, and commercially pure forms of a number of key metal elements. It is a major supplier of chromium, [illegible] manganese, silicon, vanadium, tungsten, tantalum, and columbium. A major activity of this Division is the production of ferroalloys and metals used in making steel, iron, and various nonferrous metals. These materials remove

GROUP 3—CONSUMER AND RELATED PRODUCTS





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Group 2—Carbons, Electronics, Gases, Metals

WILLIAM B. NICHOLSON, GROUP VICE-PRESIDENT


Fred B. O'Mara

Carbon Products Division *President:* F. B. O'Mara. *Executive Vice-President:* F. C. Kroft, Jr. *Vice-Presidents:* J. B. Browning, M. M. Rand, O. S. Kendahl, F. B. Vernon.

Carbon and graphite are produced by this Division in thousands of shapes and forms. The Division's most important products are electrodes used in making steel, iron, alloys, abrasives, and phosphorus. Arc carbons are produced for such purposes as motion picture projection and studio lighting, solar simulation, and spectroscopic analysis. Special carbon and graphite products are made for aerospace, chemical, electrical, mechanical, metallurgical, and nuclear use. In addition, the Division produces high-temperature refractory materials.


Robert A. Charpie

Electronics Division *President:* R. A. Charpie. *Vice-Presidents:* C. R. Castor, W. F. Moore.

The activities of this Division include the manufacture of solid tantalum and plastic film capacitors, barium getters for radio and television tubes, miniaturized active electronic components such as field-effect transistors and integrated circuits, synthetic crystals for industrial and research use, lasers and laser systems, and a line of electronic instruments for monitoring environmental contamination.


J. Goble Benson

Linde Division *President:* J. G. Benson. *Executive Vice-President:* W. S. Gray, Jr. *Vice-Presidents:* A. L. Bayes, R. J. Conkling, P. P. Hulfard, Jr., R. W. King, T. J. Milhaupt, R. W. Pressing, J. C. Stephenson.

A major activity of the Linde Division is the production of purified gases—including oxygen, nitrogen, argon, hydrogen, helium, and acetylene—used in the production and fabrication of steel and other metals, in the aerospace program, and in chemical and petroleum processing operations. The Division manufactures equipment for using these gases in various industrial processes, such as electric arc welding, flame cutting, and POLARSTREAM liquid nitrogen refrigeration for the in-transit preservation of food. Molecular Sieve adsorbents are produced for use in separating and drying liquids and gases. Through an affiliate—Ocean Systems, Inc.—underwater diving services and equipment are provided.


Richard S. Abrams

Materials Systems Division *President:* R. S. Abrams. *Executive Vice-President:* C. R. Benrke. *Vice-President:* W. L. Donnelly.

The Materials Systems Division was formed in March, 1967, in order to consolidate the Corporation's capabilities in providing high-performance products—both materials and composite systems—for operating in stress environments where unusual corrosive conditions exist or high strength must be maintained at extremes of temperature. Applications for such products include components for aircraft jet engines and other gas turbines, equipment used in the chemical and nuclear industries, and machinery parts requiring unusual wear resistance.


Burton R. Buck

Mining and Metals Division *President:* B. R. Buck. *Executive Vice-President:* C. J. Chapman. *Vice-Presidents:* J. C. Douglas, W. M. Kelly, W. R. Lewis, F. J. Shortsleeve, G. H. Wagner.

This Division carries on extensive minerals exploration throughout the world and is engaged in mining and processing ores and in metalmaking. Among its products are ore concentrates, ferroalloys, alloying metals, and commercially pure forms of a number of key metal elements. The Division is a major supplier of chromium, manganese, silicon, vanadium, tungsten, tantalum, and columbium. Its alloys are used in making steel, iron, and various nonferrous metals such as aluminum and titanium. Uranium concentrates are produced for nuclear energy operations. Other concentrates are provided for use in making batteries, electronic components, and chemical analysis.


Clarence E. Larson

Nuclear Division *President:* C. E. Larson. *Vice-Presidents:* R. F. Hibbs, A. M. Weinberg.

The Nuclear Division is responsible for operation of the nuclear energy facilities at Oak Ridge, Tennessee, and Paducah, Kentucky, which are owned by the U.S. Government. These facilities include two gaseous diffusion plants for separating uranium isotopes; special production and research units that fabricate components for nuclear weapons and other products vital to the country's defense; and Oak Ridge National Laboratory—the nation's largest nuclear research center.

rock-piercing and shaping equipment, cryogenic fluids, lasers, barium getters, tantalum capacitors and other electronic equipment.

Metals: Ferro alloys, alloying metals, refractory metals, and metal compounds all stemming from following elements; boron, calcium, chromium, columbium, manganese, silicon, tantalum, titanium, tungsten, vanadium and zirconium; titanium master alloys; titanium boride and composites; special alloys to resist heat, corrosion and wear; metal ceramics; boron and silicon nitrides; grid wire; chromium, manganese, molybdenum, tungsten and vanadium ores and concentrates, zirconium diboride, asbestos.

Plastics: Epoxy, phenolic, polyethylene, polypropylene and polystyrene, vinyl resins and compounds. Vinyl film and flexible and rigid sheeting, vinyl-coated paper and vinyl foam. Food casings, polyethylene, polyethylene oxide, polypropylene, phenoxy and polystyrene film. Plastic bottles and beverage cases, truck bodies.

Nuclear Products: Radioisotopes and stable isotopes and uranium ores and concentrates.

Consumer Products: Eveready batteries for flashlights, photoflash units, portable radios and television sets, hearing aids, and toys, Eveready flashlight cases, Eveready miniature lamps, Prestone, Winter Flo, Prime, and Trek anti-freezes, Prestone car care products, Linde Medical Oxygen, Linde synthetic star rubies and sapphires, "6-12" insect repellent, Dynel modacrylic fibers and yarns, Bakelite and Krene plastics, Union Carbide baby and juvenile plastic products, Glad wrap and bags.

PRINCIPAL PLANTS & PROPERTIES

In 1963, companies comprising the groups listed above operated about 350 plants in U. S., Canada and Puerto Rico. In addition, maintained sales offices and warehouse stocks in principal industrial centers. Additional plants, sales offices and warehouse stocks are located in many foreign countries.

Metals: Principal plants of this group are located at Alloy, W. Va.; Kokomo, Ind.; Niagara Falls, N. Y.; Sheffield, Ala.; Ashtabula and Marietta, Ohio; Portland, Ore.

Foreign plants are located at Welland, Ont.; Beauharnois, Que.; Sauda Falls and Meraker, Norway.

Company also owns and operates large power properties including a hydro-electric development and a steam-electric plant in West Virginia; steam-electric plants at Ashtabula and Marietta, Ohio and hydro-electric power facilities in Norway. In addition, substantial quantities of electric power are purchased under contract for operations at Niagara Falls, N. Y.; Sheffield, Ala.; Portland, Ore. and Welland, Ont., plants.

Part of the power produced and purchased is used in the manufacture of calcium carbide, the manufacturing plants for which are given under the chemicals group.

Industrial Gases: Over 125 plants for producing oxygen and other gases are located in principal industrial centers of the United States. Plants for manufacture of apparatus are at Los Angeles, Cal.; Indianapolis, Ind.; Newark, N. J.; Tonawanda, N. Y. and Essington, Pa. A crystal products plant is at East Chicago, Ind. Flame-Plating plants are at Los Angeles, Cal.; North Haven, Conn. and Indianapolis, Ind. A Molecular Sieves plant is at Tonawanda, N. Y. In Canada, there are over 20 oxygen and acetylene plants from coast to coast.

Carbon Products: Chief manufacturing plants of this group are situated at Cleveland and Fostoria, O.; Niagara Falls, N. Y.; Clarksburg, W. Va.; Columbia and Lawrenceburg, Tenn. and Welland, Ont.

Chemicals and Plastics: Principal plants are located at Anaheim and Torrance, Cal.; Cartersville, Ga.; Chicago, Ottawa and Steamwood, Ill.; Whiting, Ind.; Centerville, Ia.; Bound Brook, Bridgewater, Carteret, East Paterson, Fairlawn, Morristown, Newark, and Wayne, N. J.; Niagara Falls, N. Y.; Marietta, Ohio; Loudon, Tenn.; Brownsville, Seadrift and Texas City, Tex.; Diamond, Hastings, Institute, Long Reach and South Charleston, W. Va.

Plants for the manufacture of calcium carbide are located at Sheffield, Ala.; Niagara Falls, N. Y.; Portland, Ore.; Ashtabula, Ohio and Meraker, Norway.

Consumer Products: Battery plants are located at Red Oak, Ia.; Asheboro, Charlotte and Greenville, N. C.; Cleveland and Fremont, O.; Bennington and St. Albans, Vt. (flashlights); Toronto and Walkerton, Ont.

Nuclear: Mills at Maybell, Rifle and Uravan, Colo. and Gas Hills, Wyo. for processing uranium and vanadium ores; at Bishop, Cal., for tungsten ores and at King City, Calif. for asbestos.

Ore up-grading plant is located at Slick Rock, Colo. Operates for the government atomic energy installations at Oak Ridge, Tenn. and Paducah, Ky.

Research, etc. Laboratories: Major laboratories are located at Chicago, Ill.; Indianapolis and Kokomo, Ind.; Lawrenceburg, Tenn.; Clayton, N. C.; Niagara Falls, Sterling Forest, Tarrytown and Tonawanda, N. Y.; South Charleston, W. Va.; Cleveland, Fostoria and Parma, Ohio; Bound Brook and Newark, N. J. and Montreal East, Que.

Technical center at South Charleston, W. Va. conducts research, development and engineering activities for Chemicals, Olefins and Plastics Divisions. Union Carbide Research Institute, a basic research activity, is located at Tarrytown, N. Y.

Research and development expenditures amounted to $85,000,000 in 1963 (1962, $81,000,000).

Other: 52-story home office building is at 270 Park Ave., New York. Company also owns office buildings in other principal cities in United States including a Canadian headquarters building in Toronto, Ont.

Plant Expansion: In 1963 Chemicals Division placed in operation a latex plant and an isocyanate plant. Among the new projects it launched in 1963 were an expansion of facilities for producing acetic acid; a new styrene plant; additional facilities for ethyl and isopropyl alcohols; ascorbic acid plant; a motor oil additives plant; and additional textile fiber facilities. Olefins Division completed an acetylene black plant.

Plastics Division began four major plant expansions; a plant to produce plastic bottles; additional facilities for low-density polyethylene; new units for producing high-density polyethylene resins; and new phenolic resin facilities. It is completing an expansion of facilities for making Glad Wrap, a new household product. Visking Division opened a new food casings plant.

Carbon Products Division completed a large-scale plant for making graphite cloth and additional activated carbon facilities. It started a pilot plant for making graphite yarn.

Linde Division installed seven on-site plants for producing oxygen and nitrogen to serve individual steel and chemical plant needs. It completed substantial expansions of two major liquid oxygen-nitrogen plants and placed in operation a carbon steel welding rod production plant.

Metals Division opened a new coal [illegible] and Stellite Division installed new production facilities for melting special alloy metals for the space, missile, and aircraft industries. Nuclear Division completed a pilot plant for processing asbestos ore.

Consumer Products Division placed in operation a new battery plant providing increased capacity for miniature round cell batteries, and is completing facilities for producing nickel-cadmium rechargeable batteries.

CONSTRUCTION EXPENDITURES

Construction expenditures in United States, Canada, and Puerto Rico totaled $[illegible] million in 1963, compared with $145.0 million in 19[illegible]. Overseas companies spent $25 million on construction, compared with 1962 expenditures of $37 million. Major overseas building projects completed during 1963 were a new plastics plant in Sweden and a substantial addition to the plastics plant in Australia; new chemicals units in England and in Italy; chemicals expansions in France and Mexico; and substantial expansion of dry battery facilities in a number of locations.

	1963 Amt. (in Mil.)	1963 % of Tot.	19[illegible] Amt. (in Mil.)	19[illegible] % of Tot.
Chem. & plastics...	$103.4	61	$79[illegible]	[illegible]
Carbon products ..	14.5	9	11[illegible]	[illegible]
Industrial gases	40.9	24	41[illegible]	[illegible]
Metals	10.7	6	12[illegible]	[illegible]
Total	$169.5	100	$145[illegible]	[illegible]

MANAGEMENT

Officers

Birny Mason, Jr., President
W. M. Haile, Exec. Vice-President
K. H. Hannan, Executive Vice-Pres
Kenneth Rush, Exec. Vice-President
D. B. Benedict, Vice-President
E. E. Fogle, Vice-President
A. L. Fosque, Vice-President
C. H. Hageman, Vice-President
H. K. Intemann, Vice-President
F. L. Jennings, Vice-President
A. S. Johnson, Vice-President
H. D. Kinsey, Vice-President
A. B. Kinzel, Vice-Pres. (Research)
W. B. Nicholson, Vice-President
John F. Shanklin, Vice-President & Sec
I. M. Stewart, Vice-President
W. S. Sneath, Treasurer

Directors

[1]Morse G. Dial, New York
[1]John W. Drye, Jr., New York
[1]William S. Gray, New York
William M. Haile, New York
Kenneth H. Hannan, New York
J. Victor Herd, New York
James M. Hester, New York
George H. Love, Pittsburgh
[1]Birny Mason, Jr., New York
Kenneth Rush, New York
J. Harris Ward, Chicago.
[1]Member of Executive Committee.

General Counsel: John W. Drye, Jr.
Dir. of Purchases: Albert J. D'Arcy
Auditors: Hurdman and Cranstoun.
Annual Meeting: Last Friday in Apr.
No. of Stockholders: Dec. 31, 19[illegible]
No. of Employees: Dec. 31, 19[illegible]
General Offices: Union Carbide Bldg., 270 Park Ave., New York 17, N. Y.

INCOME ACCOUNTS

COMPARATIVE CONSOLIDATED INCOME ACCOUNT, YEARS ENDED DEC. 31
(Taken from reports filed with Securities and Exchange Commission)

	1963	1962	1961	1960	1959	1958
Sales, less discts., returns, etc.	$1,968,187,991	$1,630,689,751	$1,563,397,573	$1,548,168,000	$1,531,343,824	$1,296,532,373
[1]Cost of goods sold	1,233,734,243	1,196,253,098	1,160,789,068	1,130,439,000	1,073,971,337	941,520,364
[1]Selling, general & admin. expenses	154,118,628	148,829,317	146,307,520	141,328,000	129,483,547	117,507,590
Provision for doubtful accounts	1,614,040	846,036	900,841	960,000	1,300,205	420,002
Net profit from sales	278,721,074	284,752,306	255,360,144	275,441,000	326,588,735	237,084,417
Dividends	15,553,428	15,969,434	14,128,269	19,977,000	12,927,771	14,028,088
Interest on securities	4,245,425	2,942,788	2,389,954	3,180,000	2,910,495	1,222,744
Miscellaneous other income	10,759,199	11,277,765	11,734,023	9,363,000	11,909,422	7,406,367
Total income	309,279,127	314,342,293	283,612,390	307,961,000	354,336,423	259,751,626
Miscellaneous income deductions	3,985,330	2,289,293	3,630,364	2,772,000	2,035,918	2,617,607
Interest and debt discount and exp.	17,930,374	17,797,169	17,834,341	16,636,000	17,123,015	15,198,886
Balance	287,363,417	294,255,831	282,147,685	288,551,000	335,177,490	241,935,333
[2]Federal income taxes	112,124,329	125,847,865	112,280,314	121,770,000	153,188,759	109,994,761
Deferred income tax	4,441,346					
Other income taxes	10,625,396	8,583,179	7,555,965	8,801,000	10,351,666	7,003,716
Net income	160,172,346	159,824,787	142,298,406	157,980,000	171,637,065	124,936,856
Earned surplus, beginning of year	820,487,441	769,039,657	735,113,660	685,484,000	622,201,752	605,530,928
Dividend	108,387,352	108,377,003	108,372,409	108,350,000	108,344,828	106,265,932
Earned surplus, end of year	$872,272,435	$820,487,441	$769,039,657	$735,114,000	$685,493,989	$622,201,752
SUPPLEMENTARY P. & L. DATA						
Maintenance and repairs	109,847,698	$106,913,630	$100,996,904	$86,624,000	$80,558,834	$58,349,332
Deprec., depletion & amortization	155,116,819	153,239,059	144,183,280	129,251,000	121,613,616	124,588,632
[3]Taxes other than income taxes	38,922,559	38,007,548	34,904,517	34,439,000	31,234,702	23,813,250
Rents	6,013,168	5,872,286	5,655,545	5,779,000	5,120,889	4,538,971
Royalties	2,487,485	2,720,043	1,762,759	1,757,000	1,727,004	1,152,146