



1961 ANNUAL REPORT
MONSANTO CHEMICAL COMPANY

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DIRECTORS AND OFFICERS

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Transfer Agent

MORGAN GUARANTY TRUST COMPANY OF NEW YORK

Registrar

THE CHASE MANHATTAN BANK

OFFICERS

CHARLES ALLEN THOMAS.....	Chairman of the Board of Directors
CHARLES H. SOMMER.....	President and Chairman of the Executive Committee
EDGAR M. QUEENY.....	Chairman of the Finance Committee
JOHN L. CHRISTIAN.....	Vice President
JOHN L. GILLIS.....	Vice President
CARROLL A. HOCHWALT.....	Vice President
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J. RUSSELL WILSON.....	Vice President
MARSHALL E. YOUNG.....	Vice President

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EDWIN J. PUTZELL JR.....	Secretary
PATRICK J. DOWD.....	Treasurer

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MARLETTE C. COVERT.....	Assistant Controller
EARL B. MILLS.....	Assistant Controller
WALTER C. THILKING.....	Assistant Controller
EARL J. WIPFLER.....	Assistant Controller
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Regional Vice Presidents

ROY L. BRANDENBURGER	EDWARD W. GAMBLE JR.
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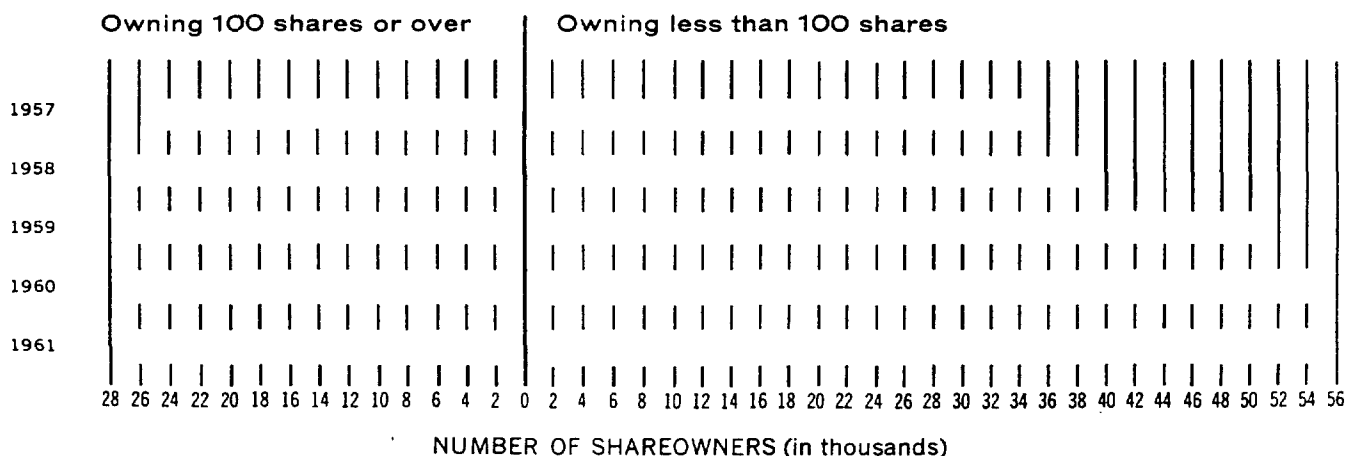
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The next Annual Meeting of the shareowners of the Company is to be held on Thursday, March 22, 1962, at the Company's General Offices, 800 North Lindbergh Boulevard, St. Louis County, Missouri. A formal notice of the meeting, together with a proxy statement and form of proxy, is being mailed to each shareowner.

SHAREOWNERS OF RECORD

	1961		1960		1959		1958		1957	
	Number of Share-owners	Number of Shares	Number of Share-owners	Number of Shares	Number of Share-owners	Number of Shares	Number of Share-owners	Number of Shares	Number of Share-owners	Number of Shares
Men.....	28,722	4,723,196	29,953	4,810,770	28,830	4,856,599	24,990	4,752,196	22,877	4,811,506
Women.....	24,565	3,647,262	24,680	3,682,808	23,629	3,673,086	21,460	3,678,163	20,017	3,799,064
Joint Accounts.....	17,346	852,952	18,173	923,112	16,654	862,573	11,973	724,561	9,756	648,250
Charitable Institutions.....	234	125,849	263	130,699	255	169,421	265	179,961	288	206,025
Educational Institutions.....	111	154,489	107	151,581	106	92,336	114	131,892	139	145,224
Estates and Trusts....	8,191	1,875,843	7,755	1,804,416	6,458	1,666,564	5,260	1,954,219	4,716	2,004,601
Insurance Companies.....	190	859,916	178	782,364	177	722,566	169	772,671	179	767,352
Brokers and Nominees.....	1,120	9,090,762	1,063	8,666,965	1,312	9,953,829	1,126	8,989,736	1,158	8,856,181
All Others.....	1,724	6,693,171	1,637	6,242,474	1,254	1,159,883	1,070	1,073,201	906	988,426
Total.....	<u>82,203</u>	<u>28,023,440</u>	<u>83,809</u>	<u>27,195,189</u>	<u>78,675</u>	<u>23,156,857</u>	<u>66,427</u>	<u>22,256,600</u>	<u>60,036</u>	<u>22,226,629</u>



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SUMMARY OF INCOME AND EXPENSES

(In Thousands of Dollars Except Per Share Figures)

Income:	1961	1960
From sale of products.....	\$932,916	\$890,114
From licenses, dividends, interest, etc.....	11,755	10,411
	<u>944,671</u>	<u>900,525</u>
Deductions from Income:		
For raw materials, fuel, supplies, etc.....	480,645	459,459
For wages and salaries to employees.....	223,790	209,683
For depreciation, obsolescence, depletion.....	84,527	76,088
For taxes.....	75,092	73,557
For interest, principally on long term debt.....	11,579	12,362
For minority interests in subsidiaries.....	382	1,569
	<u>876,015</u>	<u>832,718</u>
Which Left as Net Income.....	68,656	67,807
Distributed to Shareowners as Cash Dividends.....	27,316	25,659
Retained for Future Growth.....	<u>\$ 41,340</u>	<u>\$ 42,148</u>
Per Common Share Parent Company:		
Net income.....	\$ 2.45	\$ 2.49
Cash dividends paid.....	1.00	1.00
Book value.....	<u>23.24</u>	<u>22.06</u>
Common Shares Outstanding.....	<u>28,023,440</u>	<u>27,195,189</u>

The above summary includes the operating results of Monsanto Chemical Company and all of its subsidiary companies, including The Chemstrand Corporation and its subsidiaries.

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TO THE SHAREOWNERS

Monsanto achieved record sales of \$932,916,000 in 1961, compared to sales of \$890,114,000 in 1960. The increase, which amounted to \$42.8 millions or 4.8 per cent, was attained despite declining selling prices throughout the U.S. chemical industry. The per cent increase in tonnage of products sold was far greater than the 4.8 per cent gain in dollar sales.

The year's net income was \$68.7 millions, compared to \$67.8 millions for the previous year, a gain of 1.3 per cent.

Due to an increase in shares outstanding, however, per-share earnings declined from \$2.49 in 1960 to \$2.45 in 1961. The share increase resulted mainly from the two per cent stock dividend paid in December, 1961. Adjusted for this stock dividend, 1960 per-share earnings were \$2.44.

Cash flow per share from earnings before depre-

ciation, obsolescence and depletion was \$5.47 in 1961 and \$5.29 in 1960.

Monsanto's leadership in many basic product groups enabled us to maintain our profit level despite the lower prices, which we met to keep our commanding position in the market place. In most cases, industry-wide overcapacity was responsible for price decreases. Helping to offset their effect was Monsanto's strength in such major products as phosphates, nylon, plasticizers, alkyl benzene, ammonia, vinyl butyral film, pesticides and feed chemicals.

Helping also were new processing efficiencies and cost-control methods throughout the company.

The year's achievements went beyond the areas of marketing and production. The Chemstrand Corporation, the nation's second largest manu-

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facturer of chemical fibers, became a wholly owned subsidiary and gave us new scope and new opportunities. We made good headway at Chocolate Bayou, near Alvin, Tex., in the on-schedule construction of a chemical refinery which will shortly provide us with our own hydrocarbon raw materials at a substantial cost saving. Also, we opened our Research Center in St. Louis County, creating an environment which should breed and encourage practical inventiveness. And, in the area of forward integration, we acquired Gering Plastics Company and thus moved closer to the consumer in certain areas where the present is profitable and where the future holds promise.

In 1961, competition from chemical imports was increasingly evident. The volume of such imports still is not great. But their effect on already depressed prices is mounting.

The consequences of the changing complexion of the world markets are apparent. Trade blocs will present problems as well as opportunities. Proposed changes in federal legislation on trade agreements, if adopted, could mean sharp reductions in U.S. chemical tariffs. We deem unwise any legislation not providing for truly reciprocal tariff bargaining and not recognizing the burdens borne by U.S. industry with its high income taxes, with the highest labor rates in the world and with depreciation allowances less favorable than those enjoyed in most industrial countries of the free world. It could be harmful to our nation, our industry, our customers, our employees.

The year's operations are reviewed in the sections of this letter that follow.

CAPITAL INVESTMENT

Our expenditures for new plants and equipment, including property of acquired companies, were at an all-time high in 1961. They totaled \$153,818,000, compared to 1960 expenditures of \$121,253,000. Major 1961 projects will be discussed later in this report.

In the 12-month period, a total of \$9,810,000 was invested in or advanced to our 50 per cent

COMPARATIVE CONSOLIDATED SALES, INCOME AND EARNINGS A SHARE BY QUARTERS

	1961	1960	Per Cent Increase Decrease
	(In Thousands)		
SALES:			
First quarter.....	\$219,354	\$226,295	3.1
Second quarter..	246,322	234,382	5.1
Third quarter.....	229,338	218,321	5.0
Fourth quarter...	237,902	211,116	12.7
	<u>\$932,916</u>	<u>\$890,114</u>	<u>4.8</u>

INCOME:			
First quarter.....	\$ 15,508	\$ 18,943	18.1
Second quarter..	19,079	19,420	1.8
Third quarter.....	15,545	15,373	1.1
Fourth quarter...	18,524	14,071	31.6
	<u>\$ 68,656</u>	<u>\$ 67,807</u>	<u>1.3</u>

	1961	1960	
			Adjusted for 1961 Stock Dividend
EARNINGS A SHARE:			
First quarter.....	\$.55	\$.70	\$.68
Second quarter.....	.68	.71	.70
Third quarter.....	.56	.57	.56
Fourth quarter.....	.66	.51	.50
	<u>\$2.45</u>	<u>\$2.49</u>	<u>\$2.44</u>

SHARES OUTSTANDING DECEMBER 31:

1961.....	28,023,440
1960.....	27,195,189

owned associate companies and to affiliated companies in which our ownership is less than 50 per cent.

The Agricultural Chemicals Division completed its first full year of operation with sales of farm chemicals up more than 20 per cent.

Successful research and development effort resulted in the introduction of five new products that further broadened our line of fertilizer materials, pesticides and feed supplements. The expanded product base will permit greater future participation in a sophisticated agricultural industry.

Fertilizer Materials

Sales of our plant food materials, which include ammonia, ammonium nitrate, urea and related products, rose to record levels. Sales of ammonia for field application were up about 40 per cent.

To take advantage of the growing midwestern fertilizer market, we added new direct distribution outlets and also began construction of a 15,000-ton storage terminal for agricultural ammonia at Muscatine, Iowa. An ammonia manufacturing plant with a 200-ton-per-day capacity also is being built there, with completion scheduled for fall of 1962.

Pesticides

Sales of weed and insect killers rose more than 30 per cent.

Our wild oat herbicide, *Avadex*, sold well ahead of expectation in its first year of commercial availability in the U.S. The weed control resulting from its use boosted yields as much as 50 per cent in some areas.

Sales rose for *Randox* weed killers, which offer farmers an economical, effective solution to infestation of broadleaf and grassy weeds in corn, soybeans and other field crops.

Vegadex herbicide continued to gain popularity.

Sales of our parathion and methyl parathion insecticides were the highest in our history, as some

agricultural areas battled abnormally heavy insect infestation.

Finding highly active, highly selective weed killers, fungicides and insecticides is one of the most important jobs of the Agricultural Chemicals Division. A major effort was made in 1961 to determine, under controlled laboratory conditions, how each important environmental factor such as rainfall, temperature, soil condition or tilth, affects the performance of all products, new and old. As a result, additional information was acquired as to how to formulate products to take advantage of the climates and the soils where they are sold.

Feed Supplements

Sales of feed chemicals climbed sharply.

Santoquin, an antioxidant that preserves the nutritive value of feeds and dehydrated forage for poultry and livestock, doubled its sales. So did feed-grade urea, a source of protein for ruminants. Sales of *MHA*, a protein feed supplement to boost growth of poultry and livestock, rose 40 per cent.

Blasting Agents

Sales of ammonium nitrate for use in blasting materials rose to a record level, as the trend toward this inexpensive, easy-to-use material continued.

In addition to supplying ammonium nitrate for this purpose, we began marketing the finished blasting agent — a bagged ammonium nitrate-fuel oil formulation sold under the Monsanto trademark directly to the user.

Formation of the Hydrocarbons Division in October was the result of planning which began in 1955 with the acquisition of Lion Oil Company, its facilities, its reserves and its personnel.

The new division's responsibilities include production of chemical raw materials from petroleum sources, as well as all of Lion's activities.

From the refinery it operates at El Dorado, Ark.,

come gasolines, fuel oils, asphalts and other *Lion* branded products. Principal products of the plant at Texas City, Tex., are styrene monomer, vinyl chloride monomer and acrylonitrile, all of which are marketed by or used by our Plastics Division, or used by Chemstrand. The chemical refinery at Chocolate Bayou, near Alvin, Tex., will be on stream late in 1962.

Texas City

Completion of the final phase of a 200-million-pound styrene monomer expansion increased our capacity for that product to 560 million pounds a year. Capacity for vinyl chloride monomer was stepped up to 150 million pounds annually.

Also in 1961, we announced plans to build a 45-million-pounds-per-year unit to produce vinyl acetate monomer for our own needs. Construction is to start early in 1962.

Texas City will be connected by three 23-mile pipelines to the Chocolate Bayou refinery to permit interchange and upgrading of products between the two plants.

Chocolate Bayou

Shareowners will recall the large and unique refinery we are building to convert petroleum into ethylene, propylene, naphthalene, benzene and other important hydrocarbon raw materials to feed Monsanto plants elsewhere.

Ground was broken in March, three months after our initial announcement. Since then, the work has progressed with remarkable speed and efficiency, due largely to advanced construction methods.

At this writing, site preparation is substantially complete. All underground pipelines are installed. Boilers, cracking towers and storage vessels are going up. The bayou itself is dredged, straightened and widened to accommodate regular barge traffic.

The plant will utilize computers being developed especially for our operations.

Production and Exploration

Production and exploration efforts in the Texas-Louisiana Gulf Coast area were intensified. The major quest was for oil and gas reserves to supply our raw material needs at Chocolate Bayou and Texas City. Developmental wells were augmented by additional gas discoveries.

In 1961, we participated in the completion of 56 producing wells, representing a net interest to Monsanto of 32.77 wells. Sixteen wildcat discoveries in the U.S. and Canada included eight oil wells and eight gas wells. An unusual discovery was made on our plant site at Avon, Calif., where, with others, we drilled a successful gas well.

Exploration expenditures were \$11.5 millions, slightly more than those of 1960.

Continued restrictions on allowable production of domestic crude oil, along with pipeline proration, resulted in a six per cent reduction in our production and sale of crude oil. Our total crude production for the year was 8,017,000 barrels, while our natural gas production of 22.6 billion cubic feet was three per cent below the 1960 level.

Lion Oil Company

Record throughput of crude oil was achieved at the El Dorado refinery. Approximately 12.3 million barrels were run to stills, a daily average of 33,800 barrels. The 1960 average was 32,700 barrels a day.

Our gross refinery sales were higher by six per cent. Branded product sales were up five per cent. Jobbers and distributors were established in five new marketing areas.

Phosphorus and Phosphates

Production and sales of phosphorus chemicals exceeded previous records. Virtually every product contributed to the gain.

To meet the demands of expanding and changing

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markets, many capital projects were initiated or completed.

Sodium, calcium and potassium phosphate, and phosphoric acid facilities in the St. Louis area were enlarged. Capacities of the sodium tripolyphosphate and phosphoric acid units at Long Beach, Calif., were doubled.

In the third quarter, we announced plans to build a plant at Augusta, Ga. Its initial products, phosphoric acid and sodium phosphates, will go into production late in 1962.

Detergents

Sales of surface-active agents were higher. Demand for alkyl benzene reached a record high level. Market acceptance of our alkyl phenols for liquid detergents exceeded expectations.

A new type of alkyl benzene was developed and marketed. Four new alkyl phenol-based surface-active agents also were introduced.

Heavy Chemicals

Although sales turned up in the last quarter, they were off slightly for the year.

The year's orders for sulfuric acid plants of Monsanto design set a record in terms of the total capacity they represented. Such units, built by wholly owned Leonard Construction Company, now make 55 per cent of the free world's contact sulfuric acid. A new sulfuric acid catalyst we marketed in 1961 is 30 per cent more active than the product it supersedes.

We introduced two new *Santocel* silica aerogels. One, *Santocel* T, is used as an additive in the manufacture of polyester resins. The other, *Santocel* Z, is an aid in producing certain blueprint papers.

Chemicals for the Electronics Industry

The year was characterized by increased competition and decreased profits for the electronic device manufacturer. At least two-thirds of silicon suppliers either ceased manufacture or refinanced by merger or new ownership.

But in the last quarter there was a significant

upturn in silicon usage and even the most conservative predictions indicate continuing future growth.

Monsanto's silicon project showed continuously lower cost of manufacture and continuously greater sales through the second half of the year.

Sales of III-V compounds, especially gallium arsenide, increased. Monsanto, the first supplier of epitaxial gallium arsenide to the industry, will begin pilot-plant production of the product in the first quarter of 1962.

ORGANIC CHEMICALS

Volume and dollar sales of organic chemicals were the same as those of 1960.

Our vigorous program of cost reduction led to improved processing and materials handling. Centralization of facilities for handling bulk liquids at the John F. Queeny Plant in St. Louis proved a major economy.

In December, our new Delaware River Plant, near Bridgeport, N. J., had an unusually smooth start-up. Its initial products are phthalic anhydride, benzyl chloride and *Santicizer* 160, a plasticizer derived from the first two products.

Functional Fluids and Petroleum Additives

Sales were up slightly, due primarily to gains by gear oil additives. Sales of dielectric fluids, however, were checked by slowness in the electrical industry.

Santolube 801, a detergent additive for motor oils, and *Santolube* 605, an additive for automatic transmission fluids, were introduced successfully. So was a new anti-icer additive for gasoline.

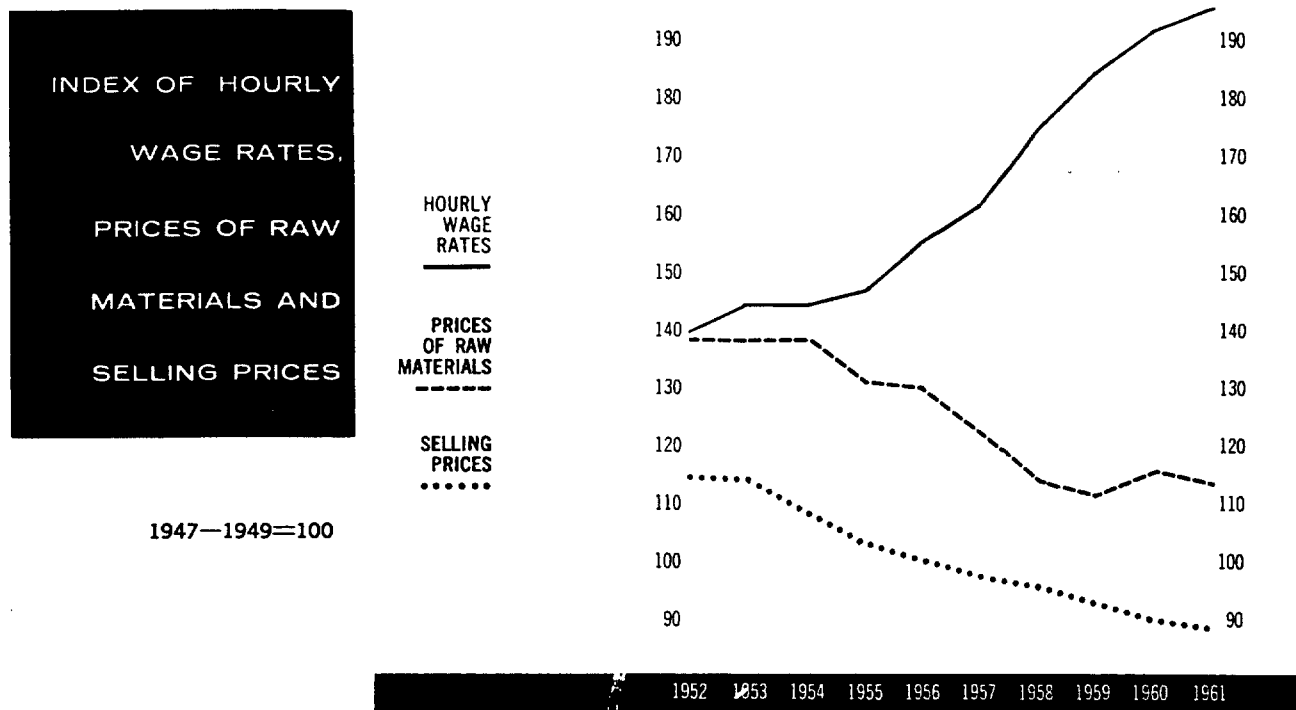
At Anniston, Ala., our manufacturing capacity for biphenyl was increased 20 per cent with the installation of a new reactor of Monsanto design.

Intermediates

Sales for this group were up slightly.

Extensive modernization at the Monsanto, Ill., plant resulted in a 10 per cent phenol capacity increase as well as improved efficiency and by-product recovery. Production of phenolsulfonic acid got under way at Avon, Calif. Capacity for

PARENT COMPANY AND DOMESTIC SUBSIDIARIES



paranitrochlorobenzene was increased at Monsanto, Ill.

Among three intermediate chemicals recently introduced was a special acid used exclusively in an aluminum anodizing process licensed nationally by Kaiser Aluminum and Chemical Corporation.

Paper Chemicals and Wood Preservatives

Sales of *Mersize* fortified rosin sizes were above those of 1960. Sales of pentachlorophenol and *Santobrite*, industrial preservatives, were down.

In July, we consolidated our applied research, development and sales efforts on chemicals for the pulp and paper industry to streamline and strengthen our services to this major chemical consumer.

Pharmaceuticals, Flavors and Condiments

Bulk aspirin and our new food-grade adipic acid led this product group to a higher sales level. Higher selling prices on saccharin and caffeine also helped.

New and expanded facilities for *Santophen* 1, an important germicide, began operating at Monsanto, Ill. At St. Louis, we tripled our capacity to make aspirin starch granulations.

Plasticizers

Despite a short supply of phthalate esters during the year's first half and depressed prices later, sales exceeded those of 1960.

We strengthened our position in "permanent-

type" (polymeric) plasticizers with the successful introduction of two more which give long-lasting flexibility to vinyl plastics. They are *Santicizer* 405, a specialty product of extremely low volatility, and *Santicizer* 411, a low-cost product for general-purpose use.

At mid-year, we began making phthalate esters at Long Beach, Calif. This enhanced our stake in and service to the fast-growing West Coast plastics industry and increased our total capacity for these products.

Resin Materials

The continuing shortage of naphthalene (raw material for phthalic anhydride) and the increased competition for maleic anhydride markets combined to hold sales below 1960 levels.

New *Phosgard* flame retardants for such materials as wood, synthetic fibers and plastics underwent intensive market development. *Phosgard* C-22-R, used as a flame retardant for foamed-in-place urethane insulation, was introduced commercially.

Rubber Chemicals

Increased activity in the automotive and rubber industries helped us improve our sales.

Elastopar rubber modifier, which we developed in 1956 and which made possible the successful commercialization of the butyl rubber tire, was found to impart both added resilience and heat stability to natural and synthetic rubbers. Disclosure of this discovery made *Elastopar* the subject of intensive evaluation by all major rubber companies for potential use in tires and mechanical goods. Manufacturing capacity for the product was doubled at Monsanto, Ill., to accommodate large-scale testing and expected commercial requirements.

In plastics, sales volume was the same as that of 1960, while dollar sales declined.

In 1961, we achieved significant yield and quality

improvements and substantial manufacturing economies. We also stepped up efforts to give customers better products and service. More products, for instance, were shipped in railroad hopper cars (of which we own the industry's largest fleet) at substantial savings to customers.

New or improved Monsanto plastics met specific needs in such large end uses as floor covering, wire and cable, packaging, automobiles and refrigerators. Our new materials and our market development support helped customers establish new uses for plastics, mostly in industrial engineering applications where other materials were displaced. This progressive marketing opened new sales opportunities both for Monsanto and the plastics industry.

Noteworthy new products include four *Opalon* vinyl chloride polymers — a plastisol resin and three resins for extrusion, molding and calendering; a patented, liquid-modified phenolic resin binder for producing heat-resistant thermal insulation; 60-inch widths of *Shadowlite Saflex* polyvinyl butyral, a special interlayer used in laminated architectural safety glass to lessen the amount of light and heat passing through windows; a high-gloss, high-impact polystyrene for refrigerator components; two polyethylenes for extrusion coating and laminating at high speeds and low temperatures; a general-purpose polystyrene with improved heat resistance for specialized packaging film, battery cases and radio cabinets; and a polyethylene from which films are made at a strength 40 per cent greater than that obtained with general-purpose resins.

Two major products introduced in 1960 showed additional promise. They are *Santofome* styrene foam film and *Lustran* styrene-based molding and extrusion compounds. A new unit to make *Santofome* tripled our output of this "plastic paper," which is already used in insulated cups, packages and decorative displays.

Lustran, an unusually tough and durable plastic, made progress in its first year. Interim production

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facilities at Springfield, Mass., were taxed to supply the material for such uses as luggage, refrigerator components, appliance housings and a new chair for children. Early in 1962, at Ad-dyston, Ohio, we will start making the product in a plant designed to produce 40 million pounds annually. The largest potential uses are for metal and wood replacement in furniture, appliances, automobiles and refrigerators.

The complex technology required to make *Lustran* came from fundamental research and engineering studies into the mechanism and control of polymer formation. These studies paid off not only in better materials but in the acquisition of new knowledge that gives us important competitive advantages.

GERING PLASTICS COMPANY

In December, we purchased the Gering Plastics Division of Studebaker-Packard Corporation, re-named it the Gering Plastics Company and made it a department of Monsanto.

Gering, a 35-year-old company, now markets a broad line of plastics for industrial and consumer use. To the plastics industry it sells molding and extrusion compounds. Its consumer plastics products include garden hose, bags, floor mats, furniture coverings and closet accessories.

Gering's headquarters and plant are at Kenil-worth, N. J. Its employes number about 700.

In its first year as a wholly owned subsidiary, Chemstrand bettered its sales. Its shipments of fiber and yarn increased 12 per cent.

The gains were made in the face of mounting competition from foreign and domestic producers. *Acrilan* acrylic fiber competed with unbranded acrylics produced domestically and sold at prices below market. Nylon met stepped-up competition in quality and in price, as capacities were increased domestically and abroad.

In 1961, Chemstrand began a 200 per cent expansion of its nylon yarn capacity at Greenwood, S. C.

Strong demand again helped increase sales of nylon yarns. Tire cord volume expanded, with nylon cord tires winning a record 58 per cent of the automobile replacement-tire market. Nylon also made material gains in truck and bus tires.

Cumuloft continuous filament textured nylon carpet yarn continued to make good headway in the carpet market. *Cadon* multilobal continuous filament yarn continued to show promise in the upholstery field, as well as in outerwear and other apparel uses.

Elsewhere, other textured nylon yarns pushed forward in growing end uses. One such use was woven fabrics for undergarments, a field in which stretch yarns showed important promise.

Another market of considerable interest is that of molded fabrics, involving both nylon and *Acrilan*. This is a new development to which Chemstrand technology contributed substantially. Initial success was achieved with this new fabric by brassiere manufacturers.

Acrilan improved its position in a number of major uses. These include jersey fabrics for sports shirts, blouses and dresses; blankets; broadwoven fabrics for apparel; and fiberfill applications. A new tufted blanket material was introduced. Solution-dyed *Acrilan* attracted interest in deep-pile fabrics for liners, outerwear and certain home furnishings. *Acrilan* and nylon gained prominent positions in the field of foam-laminated garments.

A new step was taken to develop *Acrilan* in the sweater field when Chemstrand bought a 50 per cent interest in Blume Knitwear, Inc., maker of "Helen Harper" sweaters and coordinates. This move effectively provides a means of further developing and displaying *Acrilan* in the acrylic-fiber sweater field.

Overseas, Chemstrand fibers and yarns from the U.S. were sold in more than 30 countries. Chemstrand Limited, the corporation's wholly owned British subsidiary, increased its *Acrilan* sales. A 50 per cent expansion of its plant at Coleraine, Northern Ireland, began in 1961 and is scheduled for early 1962 completion.

Another subsidiary, Chemstrand Overseas S. A.,

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type" (polymeric) plasticizers with the successful introduction of two more which give long-lasting flexibility to vinyl plastics. They are *Santicizer* 405, a specialty product of extremely low volatility, and *Santicizer* 411, a low-cost product for general-purpose use.

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Rubber Chemicals

Increased activity in the automotive and rubber industries helped us improve our sales.

Elastopar rubber modifier, which we developed in 1956 and which made possible the successful commercialization of the butyl rubber tire, was found to impart both added resilience and heat stability to natural and synthetic rubbers. Disclosure of this discovery made *Elastopar* the subject of intensive evaluation by all major rubber companies for potential use in tires and mechanical goods. Manufacturing capacity for the product was doubled at Monsanto, Ill., to accommodate large-scale testing and expected commercial requirements.

In plastics, sales volume was the same as that of 1960, while dollar sales declined.

In 1961, we achieved significant yield and quality

improvements and substantial manufacturing economies. We also stepped up efforts to give customers better products and service. More products, for instance, were shipped in railroad hopper cars (of which we own the industry's largest fleet) at substantial savings to customers.

New or improved Monsanto plastics met specific needs in such large end uses as floor covering, wire and cable, packaging, automobiles and refrigerators. Our new materials and our market development support helped customers establish new uses for plastics, mostly in industrial engineering applications where other materials were displaced. This progressive marketing opened new sales opportunities both for Monsanto and the plastics industry.

Noteworthy new products include four *Opalon* vinyl chloride polymers — a plastisol resin and three resins for extrusion, molding and calendaring; a patented, liquid-modified phenolic resin binder for producing heat-resistant thermal insulation; 60-inch widths of *Shadowlite Saflex* polyvinyl butyral, a special interlayer used in laminated architectural safety glass to lessen the amount of light and heat passing through windows; a high-gloss, high-impact polystyrene for refrigerator components; two polyethylenes for extrusion coating and laminating at high speeds and low temperatures; a general-purpose polystyrene with improved heat resistance for specialized packaging film, battery cases and radio cabinets; and a polyethylene from which films are made at a strength 40 per cent greater than that obtained with general-purpose resins.

Two major products introduced in 1960 showed additional promise. They are *Santofome* styrene foam film and *Lustran* styrene-based molding and extrusion compounds. A new unit to make *Santofome* tripled our output of this "plastic paper," which is already used in insulated cups, packages and decorative displays.

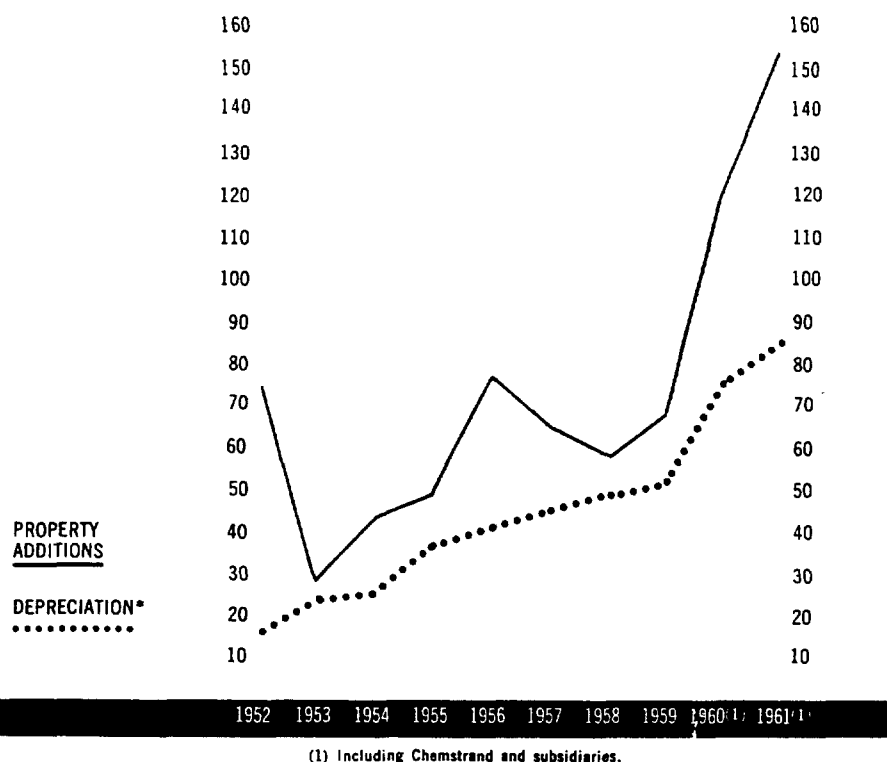
Lustran, an unusually tough and durable plastic, made progress in its first year. Interim production

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**GROSS ADDITIONS
TO PROPERTY
AND DEPRECIATION***
(in \$ millions)

*Depreciation includes:
depreciation, obsolescence,
amortization and depletion.



will participate in the manufacture and sale of nylon in a new company at Montevideo, Uruguay, in which it will have a 45 per cent equity.

Monsanto technology contributed substantially to the year's gains.

In 1961, following an eight-year period in which 327 parent-company products were introduced, 230 of these products contributed 26.0 per cent of total sales for our four chemical divisions and 28.2 per cent of gross profits. Forty-nine new products survived screening tests in 1961 and were sold commercially.

Also in 1961, our parent company was granted 249 U.S. patents and 383 foreign patents.

Expenditures for research, development, patent work and basic engineering amounted to \$46.7 millions in 1961. The comparable 1960 figure, adjusted for certain Chemstrand expenses which had been included in cost of goods sold but which are more appropriately classified as research expenses, was \$46.4 millions.

Our new Research Center in St. Louis County was completed and staffed on schedule. The multi-million-dollar complex has about 13 acres of enclosed floor space.

Even though the Research Center was not substantially staffed until last summer and, indeed, not dedicated until October 27, evidence already exists that its principal objectives will be realized. Many advantages result from placing under one

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roof research groups in varying fields of activity and with varying goals. Specific efficiencies in centralized services are among these advantages.

Work at the Research Center represents only about a third of our total research effort. Divisional research projects are undertaken here and at laboratories from Springfield, Mass., to Seattle, Wash.

All Monsanto research departments now use digital and analog computers. For example, in the Agricultural Chemicals Division, the structural formulas of tens of thousands of chemicals and the results of nearly a million tests on these compounds are stored in a computer's giant memory for instant retrieval. Since the machine does its own cross-indexing of data, our scientists need only feed in their laboratory results and the computer periodically prepares well-organized reports for their use and guidance. This materially shortens the research time to convert an interesting lead into a marketable product.

Research projects handled under government contract are the responsibility of Monsanto Research Corporation, a wholly owned subsidiary with laboratories at Dayton, Ohio, and Everett, Mass. Monsanto Research Corporation's current investigations include the desalting of sea water, and the development of fuel cells, atomic power devices for generators in satellites, and high-energy fuels for supersonic aircraft, among other projects. The subsidiary's scientists occupy approximately one-half of our Dayton laboratories, following the transfer to St. Louis of Research & Engineering Division personnel last summer.

FOREIGN OPERATIONS

Export sales were less than those of 1960's record year. The drop was expected in view of the increased capacity for many standard chemicals throughout the world, including the increased capacities of some of our overseas companies.

Generally, our exports of heavy chemicals have leveled off, while those of chemical specialties have increased. For example, exports of weed killers and exports of hydraulic fluids for aircraft have been growing.

Subsidiaries

Companies in which our common stock interest exceeds 50 per cent are called subsidiaries. All such companies are included in our consolidation.

Monsanto Chemicals Limited, our subsidiary in the United Kingdom, had sales about equal to those of 1960. More pounds of material were sold. But increased competition, both domestic and foreign, pushed selling prices lower and caused a sharp drop in earnings. Among 1961 highlights were the successful introduction of *Avadex* weed killer, the completion of a new maleic anhydride plant and the start-up of a unit to make ultra-pure silicon for the electronics industry. The main problem before British industry today is how to adjust to Great Britain's expected entry into the European Common Market. Should Britain enter this economic community, short-term readjustments in price structures and productivity rates will be required. On a long-term basis, however, such entry should mean a stronger economic climate and consequent gains by our subsidiary.

Monsanto Canada Limited, wholly owned, showed slightly higher sales but lower profits. The profit drop was largely due to fixed charges on new plants still operating at less than capacity. High Canadian unemployment and generally depressed conditions also created problems. At year end, the economy showed signs of recovery.

Monsanto Chemicals (Australia) Limited was caught in the downswing of the Australian economy. Changes in government policies on imports and credit contributed to a major recession in Australia. Purchases of consumer durables fell sharply. And MC(A)L's sales to manufacturers of such products dropped. The styrene monomer plant of Australian Petrochemicals Pty. Ltd. had a successful start-up. Monsanto has a 55 per cent equity in this company.

The shifting fortunes of foreign ventures were well illustrated by the success of our Argentine company, Monsanto Argentina S.A.I.C. For 1960, we could merely note that new units had begun making vinyl compounds, phthalic anhydride and plasticizers. For 1961, we can report that these

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operations were eminently successful with respect to sales and profits.

Wholly owned Monsanto Mexicana S.A. had lower sales and profits. Sharply increased competition hurt sales of its two main products: polystyrene and sodium tripolyphosphate. New facilities for high-impact polystyrene strengthened the company's market position.

At Ghent, Belgium, our subsidiary, Monsanto Belgium S.A., started production of *Saflex* polyvinyl butyral interlayer for laminated safety glass. Late in the year we increased our equity in this company from 75 to 100 per cent.

Associates and Affiliates

Our associates are companies in which we have a one-half interest. In affiliates, our equity is less than 50 per cent. Although neither type of company is included in our consolidation, some of the major ones operating in foreign countries are discussed here.

Mitsubishi Monsanto Chemical Company, our Japanese associate, showed a healthy increase in sales and profits. The company is a major producer of polyvinyl chloride and polystyrene in Japan.

Societe Monsanto Boussois, our French associate which produces polystyrene and styrene copolymer, did not match its 1960 sales or profits.

Our new Spanish associate, Monsanto Iberica S.A., produces stabilizers, plasticizers and a catalyst for vinyl resins manufacture. A major expansion now under way will provide facilities for production of calcium carbide and acetylene derivatives. We have a minority interest in another Spanish company, Etino Quimica S.A., a producer of polystyrene and polyvinyl chloride.

Sicedison S.p.A., our 40 per cent owned Italian affiliate, experienced a downward trend in prices of many plastics and chemical products during a large and costly expansion program. Final sales and earnings figures are not available as this report goes to press.

Although the operations of our domestic associates are not consolidated with those of Monsanto and subsidiaries, some discussion of them may be of interest.

Mobay Chemical Company, owned with Farbenfabriken Bayer A.G. of West Germany, continued its fast growth. Today Mobay is the nation's largest producer of urethane chemicals.

Wider use of urethane foam cushioning in household furniture, commercial seating and mattresses was mainly responsible for the company's 70 per cent increase in sales of urethane raw materials. Growing acceptance of rigid foams for structural insulation in the construction and refrigeration industries also helped. So did a marked increase in use of flexible foam interlining by the apparel and textile industries.

Introduction of "Texin" urethane elastoplastic material as a moldable or extrudable resin for the plastics and rubber-processing industries proceeds on schedule. The product shows promise of sizable potentials.

"Merlon" polycarbonate resin, a high-impact, transparent thermoplastic, acquired additional stature when it was classified as a self-extinguishing plastic by Underwriters' Laboratories, Inc. "Merlon" is a unique specialty resin. Products made from it can withstand the pounding of a heavy hammer without cracking or shattering.

In October, ground was broken for a 50,000-square-foot research center adjacent to Mobay's headquarters in suburban Pittsburgh. Scheduled for 1962 completion, the modern facility will house general research and customer service laboratories, administrative offices and a technical library.

Mobay expanded its tolylene diisocyanate (TDI) plant at New Martinsville, W. Va., for the fifth time since 1956. And a sixth major expansion of TDI capacity was scheduled for 1963 completion. At the same site, construction was begun on facilities to make organic isocyanates and intermediates

for use in pharmaceuticals, herbicides, insecticides, adhesives, protective coatings and elastomer products.

Plax Corporation, owned with Emhart Manufacturing Company, increased its sales. But income was lowered by the high costs of plant start-ups and foreign operations.

Plax put three plants on stream and expanded another. The new plants are at Sharonville, Ohio; Anaheim, Calif.; and Yardville, N. J. The expansion occurred at Ligonier, Ind.

The big move of liquid detergents to polyethylene bottles took place in 1960. In 1961, household bleaches, representing an annual market for 500 million containers, made a similar move. As a major manufacturer of plastic bottles, Plax benefited substantially.

"Polyflex" biaxially oriented polystyrene film was used increasingly by growers to wrap such produce as lettuce, cabbage and cauliflower. The transparent film keeps such vegetables fresh longer. This potentially large market represents the first significant use of the product as an overwrap material.

Heavier "Polyflex" sheeting was used extensively in thermoformed domes, trays and cradles for food packaging.

Shawinigan Resins Corporation, owned with Shawinigan Chemicals Limited of Canada, made sales advances in almost all established applications.

However, sales of Shawinigan's principal product, polyvinyl butyral for laminated safety glass interlayer, were down. Increased use of tempered glass plus greater production of compact cars with smaller glass areas reduced the market.

At year end, the company was completing capacity increases for polyvinyl alcohol and related products at Springfield, Mass. Increased demand in the adhesives, textile and surface coatings industries, coupled with promising new growth in the paper, building products and packaging industries, prompted the expansions.

Shawinigan's export sales increased, as overseas

markets for its polyvinyl formal, polyvinyl butyral and polyvinyl alcohol expanded.

Fome-Cor Corporation had somewhat higher sales. But the young company, still in its developmental stage, did not turn a profit.

Marketing efforts on "Fome-Cor" lightweight laminated board — a sandwich of styrene foam between layers of kraft paper — were reoriented. There was a new concentration of emphasis on selling to the construction, automotive and graphic arts industries, all of which represent potentially big outlets.

Specific applications, both commercial and developmental, include ceiling panels, ductwork for air conditioning systems, low-cost movable partitions, automobile headliners and door panels, signs and displays.

Geospace dome shelters, made from "Fome-Cor" by Filtered Rosin Products Company (a Monsanto subsidiary), provided one of 1961's most interesting uses.

Fome-Cor is owned with St. Regis Paper Company.

PERSONNEL

Employee relations were excellent.

Personnel development activity continued at a brisk pace. In the conviction that better trained managers and scientists insure a more successful company, we continued our academic and advanced management leave programs, while at the same time carrying on an extensive training program within the company.

New efforts were exerted to strengthen technical recruiting. For example, 52 science professors from the nation's colleges and universities were guests at the October dedication of our Research Center. The occasion provided good opportunity to familiarize these educators with the scope of our research program.

Our 1961 safety performance, although among the chemical industry's best, was not as good as that of 1960. Still, it was almost five times better than our industry's average.

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Constant encouragement of safe work habits not only benefits our employes but continues to lower our insurance premiums.

New two-year work contracts were successfully negotiated at six plants. New three-year work agreements were negotiated at two. The only work stoppage was a week-long strike at Nitro, W. Va., over a subcontracting issue.

In 1961, about 1,200 people (our employes and their families) transferred to St. Louis from other Monsanto locations. Many were personnel of the Plastics Division and Lion Oil Company — headquarters of which were shifted from Springfield, Mass., and El Dorado, Ark., respectively. The move greatly strengthened the coordination between division managements and placed all division headquarters in St. Louis. Others transferred to St. Louis were scientists from El Dorado and Dayton, Ohio, who joined the staff of the Research Center.

The year's executive reassignments included the transfer of Irving C. Smith to Italy to become deputy managing director of Sicedison S.p.A. Mr. Smith had served Monsanto ably as a vice president and as chairman of our Budget Committee and our Corporate Planning Group.

At the same time, Arthur W. Lucas was elected a Monsanto vice president and named chairman of a new Corporate Planning and Evaluation Staff. Mr. Lucas had been a vice president of Chemstrand and executive director of finance for that company.

The Budget Committee, which Mr. Smith had headed, now has the company president as its

chairman. Mr. Lucas and Edwin J. Cunningham, our controller, were added to its membership in 1961.

In October, Vice President Robert K. Mueller, who had been serving as general manager of the Plastics Division, was elected a director and a member of the Executive Committee. Succeeding him as the Plastics Division's general manager was John R. Eck, who had been the division's assistant general manager. Mr. Eck, who also was elected a vice president, is a former president of Mobay Chemical Company.

Also in October, Vice President H. Harold Bible, who had been general manager of our Lion Oil Company Division, was appointed general manager of our newly formed Hydrocarbons Division.

* * * *

Thus went 1961, the year of Monsanto's 60th anniversary. Our company has come a long way since it began in 1901 as the part-time venture of its founder. It has weathered many vicissitudes since it set out to make its first product — saccharin. Its research today is a far cry from that conducted on an empty packing case in a large, windowless closet.

But despite the changes of the first 60 years, the objective has been constant. From the start, Monsanto's mission has been to extend man's mastery of the atom and the molecule and, in doing so, to develop, make and market at a profit products that contribute to human welfare. Our success in this mission is to the credit of our employes and to the benefit of our shareowners.

Sincerely,

Charles Allen Thomas
Chairman of the Board

Charles H. Sommer
President

February 16, 1962
St. Louis, Missouri

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PARENT COMPANY AND ALL SUBSIDIARIES

SALES BY PRODUCT GROUPS

	1961 %	1960 %	1956 %
Chemical Fibers.....	25.2	23.6	16.2
Plastics, Synthetic Resins and Surface Coatings.....	21.0	21.7	23.5
Phosphate Products and Detergents.....	12.2	12.0	15.1
Intermediates and Plasticizers.....	10.7	11.2	11.3
Rubber and Oil Chemicals.....	7.7	8.3	9.7
Agricultural Chemicals.....	7.2	6.3	6.3
Petroleum Products—Net of purchases.....	6.7	6.6	6.8
Pharmaceuticals, Flavors and Condiments.....	3.6	3.6	4.2
Textile and Paper Chemicals.....	2.8	3.5	2.3
Heavy Chemicals.....	2.6	2.9	4.1
Other.....	.3	.3	.5
	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>

PARENT COMPANY

SALES TO PUBLIC AND CONSUMING INDUSTRIES

	1961		1960		1959	
	Position	% of Total	Position	% of Total	Position	% of Total
Agriculture.....	1	13.16	2	11.85	2	11.46
Soap and Detergent.....	2	12.56	1	12.03	1	12.75
Petroleum.....	3	11.16	3	10.91	4	9.88
Plastics and Resins.....	4	9.37	4	9.57	3	10.03
Rubber.....	5	7.90	5	8.81	5	8.94
Paper and Printing.....	6	5.73	8	5.57	9	4.96
Textile.....	7	5.06	7	5.62	6	6.54
Stone, Glass and Vitreous Product.....	8	4.90	9	5.32	8	6.00
Metal.....	9	4.82	6	5.63	7	6.07
Public-Service Station Sales, etc.....	10	4.67	10	4.58	10	4.35
Paint, Varnish and Printing Ink.....	11	3.45	11	4.20	11	4.01
Pharmaceutical.....	12	3.37	12	3.03	12	2.72
Food.....	13	3.01	13	2.61	13	2.50
Lumber and Timber.....	14	2.06	14	2.09	14	2.31
Iron, Steel and Related Product.....	15	1.68	15	1.59	17	1.28
Color and Dyestuff.....	16	1.26	17	1.28	15	1.58
Transportation Equipment.....	17	1.15	16	1.30	16	1.32
Non-ferrous Metal.....	18	.71	18	.74	18	.56
Other.....		3.98		3.27		2.74
		<u>100.00</u>		<u>100.00</u>		<u>100.00</u>

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MONSANTO CHEMICAL COMPANY

STATEMENT OF CONSOLIDATED FINANCIAL POSITION

ASSETS

	1961	1960
	(In Thousands)	
Current Assets:		
Cash.....	\$ 28,914	\$ 32,757
Marketable securities, at cost which approximates market.....	18,600	75,110
Net receivables.....	152,704	124,425
Inventories.....	154,438	153,479
	<u>354,656</u>	<u>385,771</u>
 Investments and Miscellaneous Assets, at Cost or Less:		
Investment in and advances to associates.....	33,545	27,789
Miscellaneous investments and receivables.....	56,942	47,646
	<u>90,487</u>	<u>75,435</u>
 Property, Plant and Equipment, at Cost.....	1,224,923	1,092,323
Less accumulated depreciation and depletion.....	544,119	476,621
Net property.....	<u>680,804</u>	<u>615,702</u>
 Deferred Charges.....	16,326	12,737
	<u>\$1,142,273</u>	<u>\$1,089,645</u>

The above statement should be read in conjunction with pages 20 and 21 of this report.

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AND SUBSIDIARIES

AT DECEMBER 31, 1961 AND 1960

LIABILITIES

	1961	1960
	(In Thousands)	
Current Liabilities:		
Accounts payable and accruals.....	\$ 109,560	\$ 86,477
Income taxes.....	48,794	46,777
Sinking fund payments, less \$1,000,000 debentures in treasury.....	8,937	9,820
	<u>167,291</u>	<u>143,074</u>
 Debentures, Bonds, etc.—Less Current Portion Above.....	 <u>128,225</u>	 <u>148,239</u>
 Income Debentures.....	 <u>141,000</u>	 <u>141,000</u>
Other Liabilities:		
Deferred income taxes.....	28,069	31,138
Miscellaneous.....	3,394	3,117
	<u>31,463</u>	<u>34,255</u>
 Minority Interests in Subsidiary Companies.....	 <u>23,065</u>	 <u>23,114</u>
 Shareowners' Equity:		
Common shares—authorized, 35,000,000 shares, par value \$2 each; outstanding, 28,023,440 shares in 1961 and 27,195,189 shares in 1960.....	56,047	54,390
Paid-in surplus.....	323,055	286,666
Retained earnings.....	272,127	258,907
	<u>651,229</u>	<u>599,963</u>
	<u>\$1,142,273</u>	<u>\$1,089,645</u>

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MONSANTO CHEMICAL COMPANY

STATEMENT OF CONSOLIDATED INCOME

	1961	1960 (In Thousands)	Increase Decrease
Income:			
Net sales.....	\$932,916	\$890,114	\$42,802
Other.....	11,755	10,411	1,344
	<u>944,671</u>	<u>900,525</u>	<u>44,146</u>
Deductions:			
Cost of goods sold.....	672,924	632,696	40,228
Selling, administrative and research expenses.....	131,407	126,364	5,043
Interest.....	11,579	12,362	783
Minority interests.....	382	1,569	1,187
Other.....	1,339	934	405
	<u>817,631</u>	<u>773,925</u>	<u>43,706</u>
Income Before Income Taxes.....	127,040	126,600	440
Provision for Income Taxes.....	58,384	58,793	409
Net Income.....	<u>\$ 68,656</u>	<u>\$ 67,807</u>	<u>\$ 849</u>

The above statement should be read in conjunction with pages 20 and 21 of this report.

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AND SUBSIDIARIES

STATEMENT OF CONSOLIDATED PAID-IN SURPLUS AND RETAINED EARNINGS

PAID-IN SURPLUS

	1961	1960
	(In Thousands)	
Balance at Beginning of Year	\$286,666	\$230,517
Additions:		
Excess of approximate market value of common capital stock distributed as a stock dividend over the par value thereof	27,022	16,175
Excess of amounts received over the par value of common capital stock issued under stock option plans	9,367	970
Adjustment resulting from an increase in the stated value of common stock of The Chemstrand Corporation (see retained earnings below).		39,000
Other		4
Balance at End of Year	<u>\$323,055</u>	<u>\$286,666</u>

RETAINED EARNINGS

Balance at Beginning of Year	\$258,907	\$272,861
Addition—Net Income for the Year	68,656	67,807
	<u>327,563</u>	<u>340,668</u>
Deductions:		
Dividends on capital stock of parent company:		
Cash—at the rate of \$1 a share	27,316	23,159
Stock—2%	28,120	17,102
	<u>55,436</u>	<u>40,261</u>
Cash dividend on capital stock of The Chemstrand Corporation		2,500
	<u>55,436</u>	<u>42,761</u>
Transfer to common capital stock account by The Chemstrand Corporation resulting from an increase in the stated value of its common stock (see paid-in surplus above)		39,000
	<u>55,436</u>	<u>81,761</u>
Balance at End of Year	<u>\$272,127</u>	<u>\$258,907</u>

The above statement should be read in conjunction with pages 20 and 21 of this report.

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FINANCIAL REVIEW

The accompanying financial statements (pages 16 through 19) consolidate with the parent company all active domestic and foreign subsidiaries in which Monsanto Chemical Company owns more than 50 per cent of the voting capital stock.

The equity in the unaudited 1961 net income of 50 per cent owned companies was \$3,652,000, compared with \$2,165,000 in 1960. Dividends of \$573,000 were received from these companies in 1961 and \$563,000 in 1960, which have been included in the parent's income. The equity in the unaudited net assets of such companies at the end of 1961 was \$36,871,000, which exceeded the carrying value of \$33,545,000 by \$3,326,000.

Charges against income for depreciation, obsolescence and depletion totaled \$84,527,000, of which \$81,852,000 was depreciation and obsolescence, and \$2,675,000 depletion of mines and wells. In 1960, such charges were \$73,218,000 and \$2,870,000.

The excess of depreciation provided by the sum of the years digits method over straight line depreciation increased from \$10,644,000 in 1960 to \$12,263,000.

Accumulated depreciation and depletion at year end:

	1961	1960
	(In Thousands)	
Depreciation.....	\$514,849	\$449,383
Depletion.....	29,270	27,238
Total.....	\$544,119	\$476,621

Repair and maintenance charges included in operating expenses were \$57,883,000 in 1961 and \$60,785,000 in 1960.

In certain prior years, provisions were made for income taxes payable in future years resulting from the excess of depreciation and amortization of facilities constructed under Certificates of Necessity for income tax purposes over depreciation for accounting purposes. For the years 1961 and 1960, \$4,049,000 and \$3,021,000 of such taxes became payable and were charged against the reserve provided in prior years.

Inventories are valued substantially at the lower of cost or market. Annual rates of turnover were 4.4 in 1961 and 4.5 in 1960.

Reserves for doubtful accounts were \$4,110,000 in 1961 and \$3,081,000 in 1960.

Debentures, bonds, etc., and income debentures were comprised of:

	1961	1960
	(In Thousands)	
Debentures, bonds, etc.:		
Parent company:		
3¼% sinking fund debentures, due 1968.....	\$ 11,250	\$ 12,500
2.65% debentures, due 1971 (less \$1,000,000		
in treasury).....	23,000	24,000
3⅞% sinking fund debentures, due 1972.....	11,000	11,500
The Chemstrand Corporation and subsidiaries:		
4½% term loans from banks, due 1962.....		10,000
4½% min. term loan from bank, due 1963.....		1,907
3½% first mortgage bonds, due 1976.....	62,257	69,392
Monsanto Chemicals Limited (British subsidiary):		
6% debentures, due 1977/82.....	8,400	8,400
5% debentures, due 1982.....	9,800	9,800
Other subsidiaries (less \$289,500 in treasury).....	2,518	740
Total.....	<u>\$128,225</u>	<u>\$148,239</u>
Income debentures — Parent company:		
3¼%, due 2002.....	\$ 91,000	\$ 91,000
4¼%, due 2008.....	50,000	50,000
Total.....	<u>\$141,000</u>	<u>\$141,000</u>

The May 1, 1962 and 1963 sinking fund payments on the 2.65 per cent debentures were anticipated by the purchase of \$2 millions of these debentures.

The parent company has executed an agreement for the sale to an institutional investor of \$75 millions principal amount of 4¾ per cent promissory notes, due January 1, 1993. On January 16, 1962, \$50 millions of such notes were sold; the remaining \$25 millions will be sold in May, 1962. The notes require that 93 per cent of the principal amount be prepaid in equal annual installments commencing January 1, 1973, with the balance due at maturity. The company expects to sell an additional \$25 millions of such notes in June, 1962, on a basis to yield 4⅞ per cent interest over the average life of the notes.

In 1961, four quarterly cash dividends of 25 cents each were paid on the common shares. Also, a stock dividend of two per cent was paid in December.

The parent company has three stock option plans in effect: the plans authorized by shareholders in 1951 and 1960 for key employees, and the Second Employees' Stock Plan, authorized by shareholders in 1960 for hourly and salaried employees except participants in the first mentioned plans. The status of the authorized shares of each and the changes occurring during the year were:

	1951 Stock Option Plan	1960 Stock Option Plan	Second Employees' Stock Plan
Outstanding 1/1/61....	390,816	237,660	423,692
Unoptioned 1/1/61....		119,340	26,308
Authorized during year.		193,000	
Optioned during year...		281,750	11,696
Exercised during year..	215,968	13,932	49,460
Terminated during year.....	740	2,060	33,694
Outstanding 12/31/61..	177,808*	513,370*	352,234
Unoptioned 12/31/61..		33,696*	48,306

*Adjusted for 1961 two per cent stock dividend.

Under the Stock Option Plans, 383 options are outstanding, at prices ranging from \$26.03 to \$56.13 a share. Where applicable, the prices have been adjusted for stock dividends and for the 1955 three-for-one split.

The three-year Second Employees' Stock Plan, which became effective on June 3, 1960, provided for the grant to hourly paid and salaried employees of options to purchase a maximum of 450,000 Monsanto shares. On June 5, 1961, and December 4, 1961, the anniversary dates of the plan, options were offered to those employees who had not previously been eligible to participate. At the end of the year, the options outstanding were:

Date of Offering	Number of Employees	Number of Shares	Price a Share
June 3, 1960.....	8,621	330,460	\$39.25
December 5, 1960.....	355	10,393	40.75
June 5, 1961.....	245	4,441	50.25
December 4, 1961.....	513	6,940	50.50
Total.....	9,734	352,234	

The prices are approximately 95 per cent of the New York Stock Exchange average price on the dates the options were offered. Payments by the employee over the option period are made by payroll deductions on which the company has been crediting interest at a minimum rate of four per cent.

MAR 000684

LAM016743

ACCOUNTANTS' OPINION**HASKINS & SELLS**

CERTIFIED PUBLIC ACCOUNTANTS

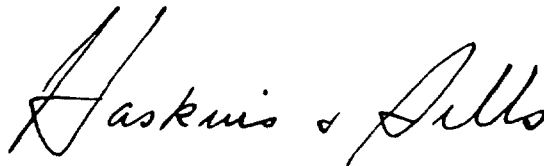
BOATMEN'S BANK BUILDING
SAINT LOUIS 2

Monsanto Chemical Company:

We have examined the statement of consolidated financial position of Monsanto Chemical Company and its subsidiary companies as of December 31, 1961 and the related statements of consolidated income and paid-in surplus and retained earnings for the year then ended. Our examination was 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 statement of consolidated financial position and statements of consolidated income and paid-in surplus and retained earnings present fairly the financial position of Monsanto Chemical Company and its subsidiaries at December 31, 1961 and the results of their operations for the year then ended, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

February 5, 1962



MAR 000685

LAM016744

MONSANTO CHEMICAL COMPANY AND SUBSIDIARIES

SOURCE AND DISPOSITION OF FUNDS

(In Thousands)

Source of Funds:

	TOTAL	1961 ⁽¹⁾	1960 ⁽¹⁾	1959	1958	1957
Net income.....	\$266,596	\$ 68,656	\$ 67,807	\$ 53,473	\$ 36,882	\$39,778
Provisions for:						
Depreciation, etc.....	306,737	84,527	76,088	51,691	48,884	45,547
Deferred income taxes.....	6,235				1,839	4,396
Sale of securities:						
4½% income debentures.....	50,000			25,000	25,000	
6% debenture stock of British subsidiary...	8,400				3,780	4,620
Common shares issued under options.....	26,242	9,926	1,040	13,846	872	558
Other—net.....	14,471	<i>5,569</i>	677	9,087	6,988	3,288
	<u>678,681</u>	<u>157,540</u>	<u>145,612</u>	<u>153,097</u>	<u>124,245</u>	<u>98,187</u>

Disposition of Funds:

Dividends on common shares:

Monsanto.....	116,624	27,316	23,159	22,414	22,218	21,517
Chemstrand.....	2,500		2,500			
	<u>119,124</u>	<u>27,316</u>	<u>25,659</u>	<u>22,414</u>	<u>22,218</u>	<u>21,517</u>
Plant additions and replacements.....	466,605	153,818	121,253	68,657	58,057	64,820
Investment in affiliated companies.....	48,415	9,810	9,723	5,504	20,232	3,146
Retirement of debt.....	42,462	21,928	9,915	3,999	3,870	2,750
Increase— <i>decrease</i> in working capital ⁽²⁾	39,638	5,021	27,479	<i>3,485</i>	7,862	2,761
Increase— <i>decrease</i> in cash and securities...	<i>37,563</i>	<i>60,353</i>	<i>48,417</i>	56,008	12,006	3,193
	<u>\$678,681</u>	<u>\$157,540</u>	<u>\$145,612</u>	<u>\$153,097</u>	<u>\$124,245</u>	<u>\$98,187</u>

(1) The accounts of The Chemstrand Corporation and subsidiaries are included only in the years 1961 and 1960.

(2) Exclusive of cash and securities.
Italics indicate decrease.

MAR 000686

LAM016745

MONSANTO CHEMICAL COMPANY

HISTORICAL STATEMENT OF CONSOLIDATED

(In millions)

ASSETS

	1961 ⁽¹⁾	1960 ⁽¹⁾	1959	1958	1957	10 YEARS AGO 1951	25 YEARS AGO 1936
Current Assets:							
Cash.....	\$ 28.9	\$ 32.8	\$ 25.7	\$ 24.6	\$ 28.3	\$ 25.8	\$ 4.9
Marketable securities.....	18.6	75.1	93.3	38.5	22.7	17.5	2.4
Net receivables.....	152.7	124.4	101.6	93.5	79.6	35.9	2.9
Inventories.....	154.5	153.5	105.5	100.4	108.3	56.1	5.9
	354.7	385.8	326.1	257.0	238.9	135.3	16.1
Investments, etc.....	90.5	75.4	79.6	76.4	55.4	12.5	.9
Property:							
Land.....	23.4	19.2	14.2	11.8	10.9	4.9	1.7
Buildings.....	195.0	181.0	110.4	107.3	103.0	46.5	6.7
Machinery and equipment.....	907.0	795.5	524.1	484.4	453.3	175.7	18.9
Phosphate deposits.....	8.5	8.1	6.9	6.2	6.1	4.0	.4
Producing oil and gas properties....	82.1	79.5	76.6	74.9	67.7		
Undeveloped oil and gas leaseholds.	8.9	9.0	10.0	12.8	19.7		
Accumulated depreciation, etc.....	<i>514.8</i>	<i>449.4</i>	<i>307.7</i>	<i>274.3</i>	<i>238.5</i>	<i>79.5</i>	<i>9.0</i>
Accumulated depletion.....	<i>29.3</i>	<i>27.2</i>	<i>25.6</i>	<i>24.4</i>	<i>22.3</i>	<i>.5</i>	
Net property.....	680.8	615.7	408.9	398.7	399.9	151.1	18.7
Deferred Charges.....	16.3	12.7	10.2	8.5	6.5	2.3	.2
	\$1,142.3	\$1,089.6	\$824.8	\$740.6	\$700.7	\$301.2	\$35.9

(1) The accounts of The Chemstrand Corporation and subsidiaries are included only in the years 1961 and 1960.
Italics indicate deduction.

MAR 000687

LAM016746

AND SUBSIDIARIES

FINANCIAL POSITION

(In millions)

LIABILITIES

	1961 ⁽¹⁾	1960 ⁽¹⁾	1959	1958	1957	10 YEARS AGO 1951	25 YEARS AGO 1936
Current Liabilities:							
Accounts payable and accruals...	\$ 109.6	\$ 86.5	\$ 65.5	\$ 63.0	\$ 61.2	\$ 29.4	\$ 3.1
Income taxes less tax notes.....	48.8	46.8	36.1	22.0	25.7	34.6	1.2
Sinking fund payments.....	8.9	9.8	1.8	1.8	1.8		
	167.3	143.1	103.4	86.8	88.7	64.0	4.3
Debentures, Bonds, etc.....	128.2	148.2	68.8	72.5	72.3	30.3	
Income Debentures.....	141.0	141.0	141.0	116.0	91.0		
Other Liabilities:							
Deferred income taxes.....	28.1	31.1	19.0	19.3	17.5	4.5	
Miscellaneous.....	3.4	3.1	1.7	2.5	3.3	9.0	.6
	31.5	34.2	20.7	21.8	20.8	13.5	.6
Minority Interests in Subsidiaries..	23.1	23.1	21.6	20.4	20.2	18.8	2.3
Shareowners' Equity:							
Preference shares.....						15.0	
Common shares.....	56.0	54.4	46.3	44.5	44.4	24.4	11.1
Paid-in surplus.....	323.1	286.7	222.6	187.2	186.5	64.9	8.3
Retained earnings.....	272.1	258.9	200.4	191.4	176.8	70.3	9.3
	651.2	600.0	469.3	423.1	407.7	174.6	28.7
	\$1,142.3	\$1,089.6	\$824.8	\$740.6	\$700.7	\$301.2	\$35.9

MAR 000688

LAM016747

MONSANTO CHEMICAL COMPANY

HISTORICAL STATEMENT OF CONSOLIDATED INCOME

(In millions except per share earnings)

	1961 ⁽¹⁾	1960 ⁽¹⁾	1959	1958	1957	10 YEARS AGO 1951	25 YEARS AGO 1936
Income:							
Net sales.....	\$932.9	\$890.1	\$688.0	\$611.3	\$624.8	\$305.7	\$28.9
Other.....	11.8	10.4	12.3	8.9	7.3	2.6	.4
	944.7	900.5	700.3	620.2	632.1	308.3	29.3
Deductions:							
Cost of goods sold.....	672.9	632.7	512.5	469.1	468.8	205.8	19.6
Selling, administrative, research....	131.4	126.3	83.4	75.4	77.7	31.5	3.8
Interest.....	11.6	12.4	7.5	7.3	6.0	.8	
Minority interests.....	.4	1.6	1.6	.5	.8	1.2	.1
Other.....	1.3	.9	1.8	5.1	6.0	1.8	.3
	817.6	773.9	606.8	557.4	559.3	241.1	23.8
Income Before Income Taxes.....	127.1	126.6	93.5	62.8	72.8	67.2	5.5
Provision for Income Taxes.....	58.4	58.8	40.0	25.9	33.0	42.8	1.0
Net Income.....	\$ 68.7	\$ 67.8	\$ 53.5	\$ 36.9	\$ 39.8	\$ 24.4	\$ 4.5
Per Common Share:							
Adjusted for splits.....	\$ 2.45	\$ 2.49	\$ 2.31	\$ 1.66	\$ 1.79	\$ 1.63	\$.45
Adjusted for splits and stock dividends.....	\$ 2.45	\$ 2.44	\$ 2.22	\$ 1.56	\$ 1.69	\$ 1.45	\$.40

(1) The accounts of The Chemstrand Corporation and subsidiaries are included only in the years 1961 and 1960.

MAR 000689

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AND SUBSIDIARIES

OTHER DATA

(In millions except where italicized)

	1961 ⁽¹⁾	1960 ⁽¹⁾	1959	1958	1957	10 YEARS AGO 1951	25 YEARS AGO 1936
Depreciation, depletion, etc.....	\$ 84.5	\$ 76.1	\$ 51.7	\$ 48.9	\$ 45.5	\$ 12.6	\$ 1.6
Book value a share ⁽²⁾	<i>\$23.24</i>	<i>\$22.06</i>	<i>\$20.27</i>	<i>\$19.01</i>	<i>\$18.34</i>	<i>\$10.93</i>	<i>\$2.88</i>
Gross additions to property.....	\$153.8	\$121.3	\$ 68.7	\$ 58.1	\$ 64.8	\$ 42.0	\$ 5.3
Employees ⁽³⁾	<i>37,576</i>	<i>35,427</i>	<i>25,148</i>	<i>24,524</i>	<i>24,331</i>	<i>18,192</i>	<i>4,799</i>
Net working capital.....	\$187.4	\$242.7	\$222.7	\$170.2	\$150.2	\$ 71.3	\$11.8
Employed capital ⁽⁴⁾	\$943.5	\$912.3	\$700.7	\$632.0	\$591.2	\$223.7	\$31.0
Employed capital per employee.....	<i>\$25,110</i>	<i>\$25,752</i>	<i>\$27,863</i>	<i>\$25,771</i>	<i>\$24,298</i>	<i>\$12,297</i>	<i>\$6,460</i>
Parent company:							
Cash dividends on common shares	\$ 27.3	\$ 23.2	\$ 22.4	\$ 22.2	\$ 21.5	\$ 12.1	\$ 3.2
Per common share ⁽²⁾	<i>\$1.00</i>	<i>\$1.00</i>	<i>\$1.00</i>	<i>\$1.00</i>	<i>\$1.00</i>	<i>\$.83</i>	<i>\$.33</i>
Preference shares outstanding.....						150,000	
Common shares outstanding ⁽²⁾	28.0	27.2	23.2	22.3	22.2	14.6	10.0
Number of shareowners.....	82,203	83,809	78,675	66,427	60,036	19,527	6,216

(1) Data for The Chemstrand Corporation and subsidiaries are included only in the years 1961 and 1960.

(2) Adjusted for splits.

(3) Excluding employees of government plants.

(4) Net worth and long term debt.

MAR 000690

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PETROLEUM OPERATING DATA

	1961	1960	1959	1958	1957
Expenditures for Exploration.....	\$11,522,563	\$10,470,702	\$11,374,804	\$11,765,858	\$15,647,840
Portion Capitalized.....	\$ 7,020,962	\$ 7,339,777	\$ 7,869,800	\$ 8,031,826	\$11,401,163
Portion Expensed.....	\$ 4,501,601	\$ 3,130,925	\$ 3,505,004	\$ 3,734,032	\$ 4,246,677
Leaseholds Expired and Abandoned...	\$ 2,349,316	\$ 2,949,815	\$ 4,363,793	\$ 4,038,948	\$ 2,654,890
Number of Producing Wells (net).....	1,229	1,171	1,167	1,157	1,141
Natural Gas Produced—Net MCF ⁽¹⁾	22,580,513	23,315,450	22,454,760	21,161,443	21,456,156
Liquefied Pet. Gas Produced—Bbls....	881,501	804,223	936,923	733,306	884,804
Gross Crude Oil Produced—Barrels....	9,231,679	9,845,270	10,300,226	8,050,160	8,568,035
Net Crude Oil Produced—Barrels.....	8,017,188	8,553,981	8,927,401	7,103,196	7,502,654
Average Crude Price Per Barrel ⁽²⁾	\$2.80	\$2.86	\$2.87	\$2.90	\$2.98
Domestic Undeveloped Acreage.....	741,380	639,580	629,463	1,301,657	2,392,507
Domestic Producing Acreage.....	86,639	87,572	83,450	79,203	78,141
Crude Oil Run to Stills—Barrels.....	12,326,902	11,956,667	10,943,015	10,392,687	10,527,774
Daily Average Crude Oil Runs—Barrels.	33,772	32,668	29,981	28,473	28,843
Refinery Production—Barrels.....,...	12,695,132	12,784,443	11,758,846	11,375,494	11,347,931
Station Sales—Gallons.....	152,987,798	144,378,691	130,968,526	114,177,697	111,562,216
Refined Oil Sales—Gallons ⁽³⁾	534,653,119	499,065,023	455,425,433	478,416,598	455,120,546

(1) Excludes gas returned to formations.

(2) At end of year.

(3) Includes station sales.

MAR 000691

LAM016750



CHARLES ALLEN THOMAS
Chairman of the Board of Directors



CHARLES H. SOMMER
President and Chairman of the Executive Committee



EDGAR M. QUEENY
Chairman of the Finance Committee

MAR 000692

LAM016751



DILLON ANDERSON



JOHN L. CHRISTIAN

DIRECTORS



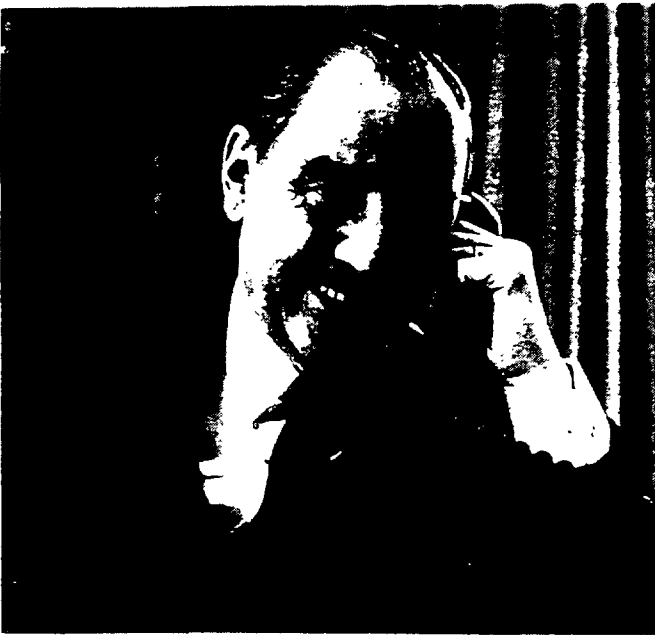
FREDRICK M. EATON



JOHN L. GILLIS

MAR 000693

LAM016752



CARROLL A. HOCHWALT



HERBERT HOOVER JR.



EDWARD A. O'NEAL JR.



ROBERT K. MUELLER

MAR 000694

LAM016753



WILLIAM W. SCHNEIDER

DIRECTORS



ALAN H. TEMPLE



FELIX N. WILLIAMS



MAR 000695

LAM016754

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MAR 000696

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