



DOW ANNUAL REPORT TO SHAREHOLDERS

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PLAINTIFF'S
EXHIBIT

DOW-210

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DONALD K. BALLMAN..... Former Senior Vice President
EARLE B. BARNES..... Vice President
ROBERT B. BENNETT..... Treasurer
CLYDE H. BOYD..... President, Dow Chemical of Canada, Limited
C. B. BRANCH..... President
MELVIN CALVIN..... University Professor,
University of California
WILLIAM R. DIXON..... Assistant to the Director,
Corporate Administration
HERBERT D. DOAN..... President, Doan Associates
Former President of the Company
HERBERT H. DOW..... Secretary
JULIUS E. JOHNSON..... Vice President
J. M. LEATHERS..... Vice President
H. H. LYON..... Vice President
ZOLTAN MERSZEI..... Vice President
PAUL F. OREFFICE..... Financial Vice President
MACAULEY WHITING..... General Manager, Hydrocarbons Department,
Dow Chemical U.S.A.
G. JAMES WILLIAMS..... Vice President

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C. B. Branch, Chairman, Earle B. Barnes,
Carl A. Gerstacker, Julius E. Johnson,
H. H. Lyon, Zoltan Merszei, Paul F. Ore-
ffice, Herbert H. Dow, Secretary & Alter-
nate Member

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Bennett, Herbert H. Dow, William A.
Groening, Jr., A. P. Hammer, Frank Har-
low, Paul F. Oreflice.

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Herbert D. Doan, Chairman; Melvin
Calvin, Herbert H. Dow.

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CARL A. GERSTACKER..... Chairman of the Board
EARLE B. BARNES..... Vice President
President, Dow Chemical U.S.A.
WILLIAM A. GROENING, JR..... Vice President, General Counsel
JULIUS E. JOHNSON..... Vice President
General Manager, Life Sciences Department
Director, Corporate Research & Development
J. M. LEATHERS..... Vice President
Executive Vice President, Dow Chemical U.S.A.
H. H. LYON..... Vice President, Director of Corporate Administration
ZOLTAN MERSZEI..... Vice President
President, Dow Chemical Europe, S.A.
PAUL F. OREFFICE..... Financial Vice President
G. JAMES WILLIAMS..... Vice President
Executive Vice President, Dow Chemical U.S.A.
ROBERT B. BENNETT..... Treasurer
HERBERT H. DOW..... Secretary
A. P. HAMMER..... Controller, Assistant Secretary
FIRMIN A. PAULUS..... Assistant Controller
DAVID C. BAIRD..... Assistant Secretary
R. W. BARKER..... Assistant Secretary
LOIS J. HOERLEIN..... Assistant Secretary
GERTRUDE WILKER..... Assistant Secretary
WILSON A. GAY..... Assistant Treasurer
DAVID N. FIVERT..... Assistant Treasurer
DALE A. BYWATER..... Auditor

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Barnes, Melvin Calvin, Herbert D. Doan,
Carl A. Gerstacker, Julius E. Johnson;
James H. Pearce, Executive Secretary

Transfer Agents

The Cleveland Trust Company, Morgan
Guaranty Trust Company of New York

Registrars

The National City Bank of Cleveland; Mor-
gan Guaranty Trust Company of New York

Certified Public Accountants

Haskins & Sells

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Highlights

Operations Summary (in millions)

	1973	1972	% Change
Net sales.....	\$3,067.9	\$2,403.7	+27.6
Depreciation.....	263.1	234.9	+12.0
Research and development expenditures	118.4	104.7	+13.1
United States and foreign income taxes	202.6	127.1	+59.4
Net income before extraordinary items	271.2	189.0	+43.5
Earnings per share before extraordinary items (in dollars)	2.94	2.07*	+42.0
Cash dividends paid per share (in dollars)	.95	.90*	+ 5.6
Average common shares outstanding.....	92,113,861	91,324,016*	+ .9
Common stockholders.....	88,849	84,838	+ 4.7
Employees	49,800	48,800	+ 2.0

*Restated to reflect one-for-one stock distribution made May 9, 1973.

Quarterly Results

Quarter Ended	Sales (in millions)		Earnings per Share before extraordinary items (in dollars)	
	1973	1972	1973	1972*
3/31	\$ 702.8	\$ 550.2	\$.63	\$.45
6/30	747.4	607.2	.86	.58
9/30	784.0	604.2	.81	.57
12/31	833.7	642.1	.64	.47
TOTAL	\$3,067.9	\$2,403.7	\$2.94	\$2.07

*Restated to reflect one-for-one stock distribution made May 9, 1973.

ANNUAL MEETING

The 1974 annual meeting of stockholders will be held at 2 p.m. (EDT) Wednesday, May 8, in the Midland Center for the Arts, St. Andrews and Eastman Roads, Midland, Michigan. A formal notice of the meeting, with a proxy statement and form of proxy, will be mailed to each stockholder separately from this report.

Cover: A solar flare symbolizes a limitless energy source of the future, a prime long term objective of a world newly aware that today's energy resources have their limits and require fresh conservation efforts. The Dow Chemical Company has established a reputation as a leader in industrial resources conservation.

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To our stockholders

The year 1973 was another outstanding one, stained only by the deaths of nine Dow people while working for the Company. Five of these were employed by Gruppo Lepetit (three in Argentina, one in Brazil, and one in Italy), three by Dowell, and one by the Texas Division of Dow Chemical U.S.A. We mourn these losses; we are determined to prevent their repetition. Nothing comes before this in our priorities.

With this exception, Dow people everywhere—in every part of the world, every department, every function—demonstrated their unusual ability, mobility and flexibility. We have every reason to be proud of them.

The tabular part of this report shows their financial achievements:

Sales exceeded \$3 billion for the first time in the Company's history, up 28% from the previous year.

Net income for the year, before minor extraordinary items, increased 44% to \$271 million, or \$2.94 per share. This compares with \$189 million, or \$2.07 per share in 1972.

Our return on stockholders' equity was 19%, an increase from 15% in 1972.

Companies which are 20%-50% owned by Dow also registered significant increases. Our equity in earnings from this source reached more than \$43 million, an increase of approximately 70% over the previous year.

Research and development expenditures reached \$118 million, more than 13% over the previous year and a new high for the 14th consecutive year. (A special report starts on page 15 which describes the contributions to sales and earnings resulting from our research and development programs.)

Capital investment continued at record levels with \$402 million in 1973. Of that total, \$260 million was spent on new or expanded facilities in the United States, while \$142 million went into expansion in other countries. For 1974, we are projecting capital expenditures in the \$500 million range.

Our record profits resulted from unprecedented demands in the U.S. and abroad for Dow's products and services. Throughout the year, our manufacturing facilities operated at approximately 90% of capacity, which for all practical purposes represents full

capacity for our highly integrated operations. The last time such high operating rates were achieved was in 1966. However, profit margins on sales still have not reached 1966 levels.

Higher profits are essential to continued high levels of employment and progress. The Company must research new products and processes to offset the rising costs of energy, and build new plants to meet continued growth in demand for its products and services. This we are doing.

There are two specific highlights which, while small relative to our total activities, convey a story I believe worth telling.

In January, 1974, the government of Chile returned all of the Dow properties in Chile, and the loyal, patriotic Chilenos and Chilenas, of whom I wrote in the 1972 annual report, came home. We are delighted for them and they for us. They had maintained a long, courageous and lonely struggle because, as patriotic citizens, they believed their country needed Dow principles, citizenship and technology. I believe stockholders have no better proof of the total quality of our Company.

The other unusual highlight occurred in a totally different ideology, but for identical reasons. In September, we announced an agreement with Organsko Kemijska Industrija (OKI) of Yugoslavia to form a joint enterprise for the manufacture of polystyrene resins. Why did OKI wish to do this? Because we have a singular reputation for quality of technology, environmental responsibility, citizenship and business management—precisely the same elements which have resulted in our return to Chile.

I should also make special mention of our continuing environmental considerations as well as our energy situation. We see a direct relationship between the two.

As you know, Dow employees for years have worked to improve our pollution control standards at every manufacturing facility we operate. Their efforts have paid off consistently. In the U.S., for instance, we estimate that we will have reduced liquid process wastes 80% to 90% by the end of 1974 as compared to the five year period of 1965-69. Also, we are significantly reducing air emissions from our processes.

During 1973, the worldwide energy

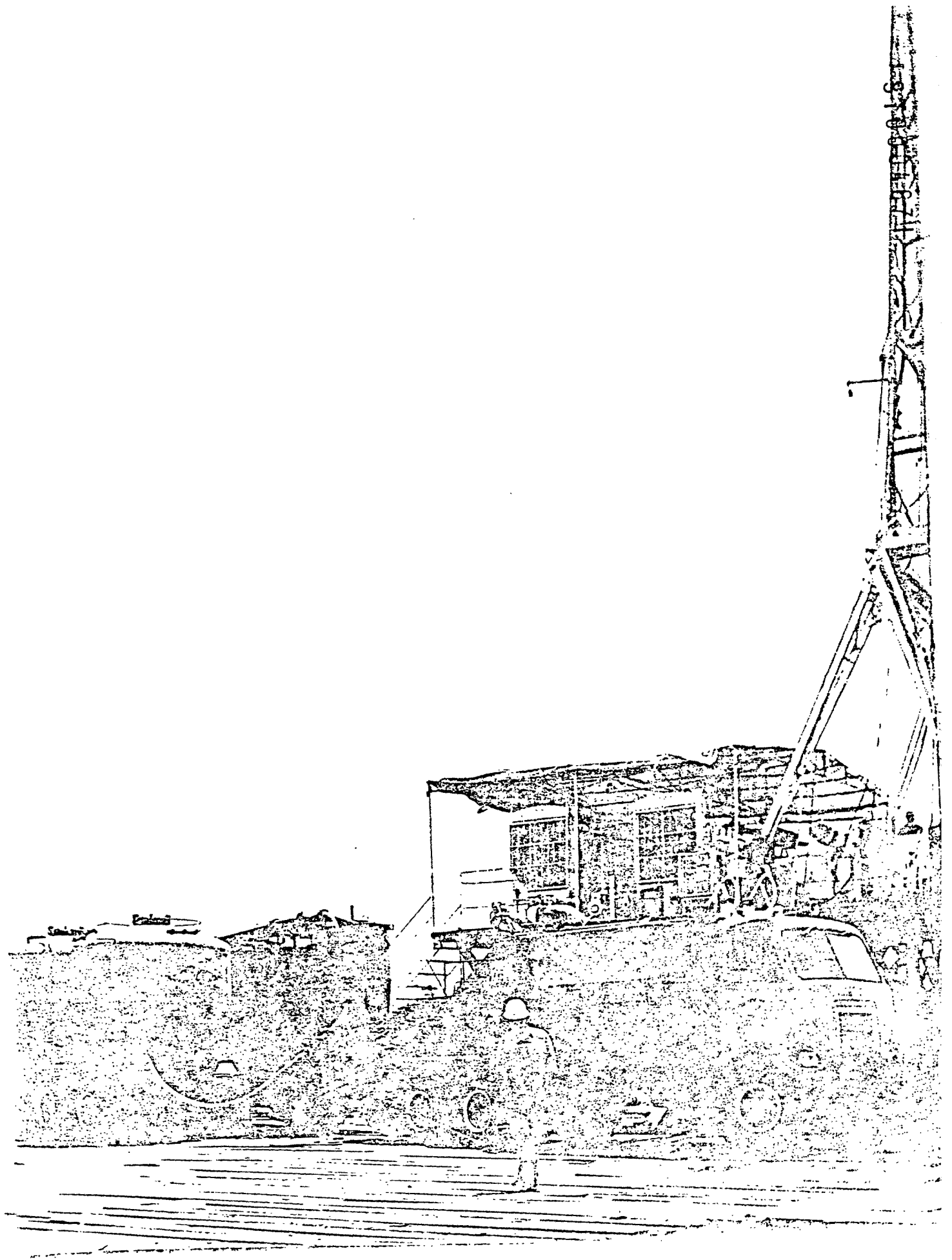


situation worsened and we were especially thankful that the foresight of J. M. (Levi) Leathers and S. V. T. Marshall and many others enabled us to weather the problem in a way that enables us to maintain a strong competitive position. We remain convinced that energy conservation and waste prevention in our manufacturing processes are usually complementary and compatible. Each is part of total resource conservation, and this along with safety is one of our most vital concerns. We believe that foreseeable energy problems do not require any significant changes in Company policy or programs with respect to the control of liquid and solid wastes and process emissions to the atmosphere.

In closing, I would like to note that we have received dozens of letters from retirees whose pension program was improved by the Board of Directors in December. The affection and continuing loyalty expressed in these letters is yet another example of how much fun it is to be the president of this Company.

C. B. Branch

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World operations

UNITED STATES—In 1973, for the third consecutive year, the percentage increase in sales for Dow's U.S. operations exceeded the increase of the previous year. Sales were up 20%, while operating income was up 16%.

Government controls kept prices from increasing sufficiently to cover increased operating costs, particularly the rapidly rising costs of fuels and petrochemical feedstocks.

The year was characterized by high operating rates and shortness of supply in many products, including many on allocation. Raw material shortages were common and these shortages limited our ability to produce the increased volume of many products needed by the market. Among the major products whose production was curtailed were styrene (because of a shortage of benzene) and phenol (because of a shortage of cumene).

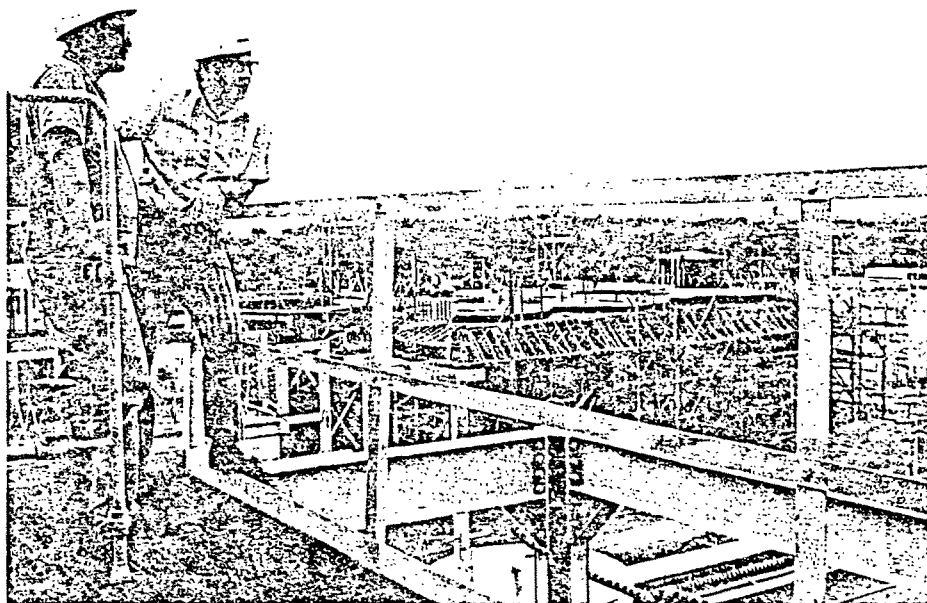
The largest percentage increases in U.S. sales were registered by polystyrene and polyethylene plastics and by organic chemicals. The largest profit improvement was shown by organic chemicals, as the drastic oversupply situation of recent years was corrected and prices strengthened accordingly.

Capital spending in the U.S. totaled \$260 million, up 22% from 1972. Two very large facilities were started up in 1973. One was a styrene monomer plant with a capacity of a billion pounds per year in the Texas Division—the largest such plant ever built. The other, in the same division, was a billion-pound-per-year ethylene plant.

Another plant completion of unusual interest was an ABS (acrylonitrile-butadiene-styrene) facility at the Allyn's Point Plant in Connecticut which doubled our U.S. capacity for this plastic molding material with high impact resistance.

EUROPE/AFRICA—Dow's Europe/Africa operations made 1973 another outstanding year with a 40% increase in sales and an operating income increase of 64%. This included an improvement by Gruppo Lepetit S.p.A., which rebounded sharply from a relatively weak profit performance in 1972.

Left: The worldwide energy shortage has increased the importance of Dowell Division's acidizing, fracturing, and cementing services—all aimed at increasing the output of oil and gas wells.



Local manufacturing facilities in Europe accounted for over 80% of our sales in the area, and sales from production at these plants increased by more than \$200 million. Shifting currency values had a positive effect on the sales total. Although production levels were high, many products were in tight supply. Prices generally moved up to realistic levels, compensating for increased costs in raw materials and labor. Special emphasis was laid again on cost reduction programs.

Of the major product groups, hydrocarbons, agricultural chemicals, and plastic molding materials showed the greatest sales and operating income increases. Germany and The Netherlands led the major countries in sales increases. Spain showed a fine performance in improving profits, and a second public offer raised Dow ownership in Dow-Unquinesa S.A. from 85% to 95%.

At the Dow Europe installation at Stade, Germany, startup of the final units was completed in the first major chlor-alkali facility, and an additional series of interrelated projects was authorized. Scheduled for completion in 1975, these projects will include new facilities for chlorine, methyl chloride, Chlorothene solvents, methylene chloride, propylene oxide, and ethylene dichloride. Also authorized was an expansion of ethylene capacity at the

Construction of a plant for Styron polystyrene at Guarujá, Brazil, is observed by two Dow employees from a completed plant for Voranol polyols.

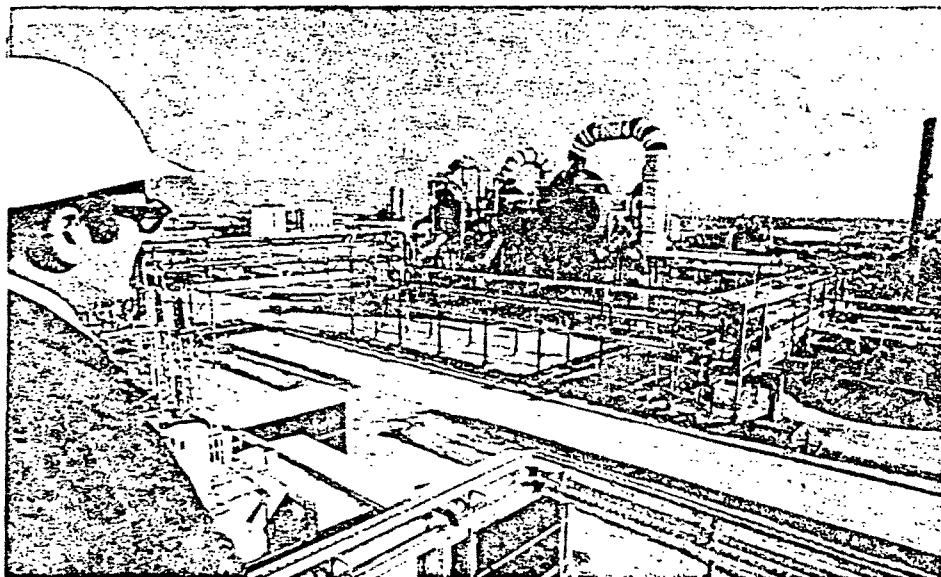
Terneuzen complex in The Netherlands for completion in 1975.

LATIN AMERICA—Solid growth again was exhibited by our Latin American operations. Sales increased 30% and operating income 27%. The area operating income performance was moderated by that of the Lepetit operations, which were negatively affected by plant relocation expenses in Mexico and pharmaceutical price controls in Argentina.

Sales growth of greater than 30% occurred in Argentina, Brazil, Central America, Colombia, Ecuador, Mexico, and Peru. Voranol polyols, high density polyethylene, Tordon herbicide, ethylene glycols, and styrene-butadiene latex made especially noteworthy gains. Among major product groups, agricultural and veterinary products gained most.

The first styrene-butadiene latex plant in Brazil was brought on stream by Dow during the year; the facility at Guarujá will serve the paper and textile industries. Also at Guarujá, a plant for Styron polystyrene will be on stream in 1974, and we have authorized for

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Dow Canada serves major markets, chlor-alkali products with this new world-scale facility at Sarnia, Ontario. It replaces three smaller plants that used the mercury-cell process.

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mid-1976 completion, an expansion that will approximately double our polystyrene capacity in the country. At Aratú, in the Brazilian state of Bahia, ground was broken for a major facility which ultimately will represent an investment of more than \$100 million; the first units will produce propylene oxide and glycols and chlorinated solvents, with chlorine-caustic soda production units expected to be added later.

The new Chilean government has returned to Dow control the Petroquímica-Dow S.A. manufacturing facilities (70% Dow owned) at Concepción and those of Dow Química Chilena S.A. (100% Dow owned) at Santiago. The two plants, which had been seized by the previous government in 1972, were found by a Dow inspection team to be operational but in need of maintenance and renovation, which are now underway.

CANADA—On a sales increase of 25%, operating income in Canada increased by 25%. Among product groups, the best percentage increases were posted by plastic molding materials, organic and specialty chemicals, and agricultural chemicals. Individual products making prime contributions in these respective groups were Styron polystyrene, ethylene glycol antifreeze, and pesticides.

Our Canadian facilities accounted for more than 75% of Dow sales in Canada and operated at an average of about 85% capacity. At the major plant of Dow Chemical of Canada, Limited, in Sarnia, Ontario, a strike by members of the Oil, Chemical, and Atomic Workers

International Union was initiated in October and continued until late December; however, the plant was operated by salaried personnel, and deliveries to customers were maintained.

Dow Canada's three mercury-cell chlorine-caustic plants were shut down in 1973, and a new world-scale chlor-alkali facility of the diaphragm type, which uses no mercury, was completed and brought on stream at Sarnia.

Dow Canada is proceeding with plans for a world-scale petrochemical complex involving a 1.2 billion pound ethylene plant and a pipeline system to transport ethylene and light hydrocarbon liquids to other chemical plants in Alberta and Ontario. This project, the pipeline portion of which would be a joint venture with Dome Petroleum Limited, has the support of the provincial government of Alberta and awaits approval by the National Energy Board of Canada. The ethylene plant would be four times the size of the next largest plant in Canada today and would be a significant factor in alleviating shortages of ethylene which have existed there in the past few years.

PACIFIC—Sales in the Pacific were up 57% and operating income was up 126%. Strength in product prices and devaluation of the dollar contributed to this performance, which was the best for any geographic area. Since our business in the Pacific is highly dependent on imports, primarily from the U.S., product availability problems paralleling those of the U.S. were encountered for most of the year.

Strong growth in the Japanese economy, coupled with the energy crisis and production problems at several Japanese chemical plants, augmented the demand for imported chemicals. Sales of chlorine derivatives were strong.

Following a six-month recession in 1972, the Australian economy strengthened considerably in 1973. Sales of *Voranol* polyols and *Tordon* herbicide were particularly good. Dow lost its bid to build a petrochemical plant in the state of South Australia. Several significant steps taken during the year were designed to strengthen the base of Dow production facilities in the area. Dow acquired a majority interest in its New Zealand holding, Ivon Watkins-Dow. Plans for Dow's first wholly owned production facilities in Asia were announced—a plant for the production of *Dowpon* and *Dalapon* herbicides near Medan, Indonesia, and a \$20 million polystyrene plant in Hong Kong.

Dow's business in the healthy and growing economies of Korea, Taiwan, Hong Kong, the Philippines, and Singapore more than doubled in 1973.

Sales of *Dursban* insecticide for use in rice cultivation were exceptionally good in the Philippines and India.

INVESTMENTS IN 20-TO-50% OWNED COMPANIES

Dow's share of the sales of companies in which our ownership ranges from 20% to 50% totaled approximately \$540 million, up 32% from 1972. Dow's equity in the net income of these companies, which is included in our financial statements, was \$43.3 million, compared to \$25.2 million in 1972, both before extraordinary items. Activities of the major companies are reported below.

Dow Badische Company and its subsidiaries attained a sales increase of 14% and a profit increase of more than 50% above the previous year. Demand exceeded ability to produce in every product line except double-knit fabrics. Especially impressive was the growth in demand and sales of acrylic fibers and metallic yarns.

A new flame-retardant acrylic fiber for use in carpets was successfully commercialized during the year, and yarn sales to the carpet industry continued to make excellent gains. Growth in facilities was highlighted by a 20% expansion of the plant for caprolactam, a raw material for nylon-6, in Freeport, Texas.

Among Dow Badische subsidiaries, noteworthy events included:

- A particularly good year for the polyester yarn business of **Universal Textured Yarns, Inc.** (100% owned), as the use of these products grew substantially in the woven goods market and imports dropped.

- A record year in demand and profits for **Lurex B.V.**, a 100% owned metallic yarn company based in The Netherlands.

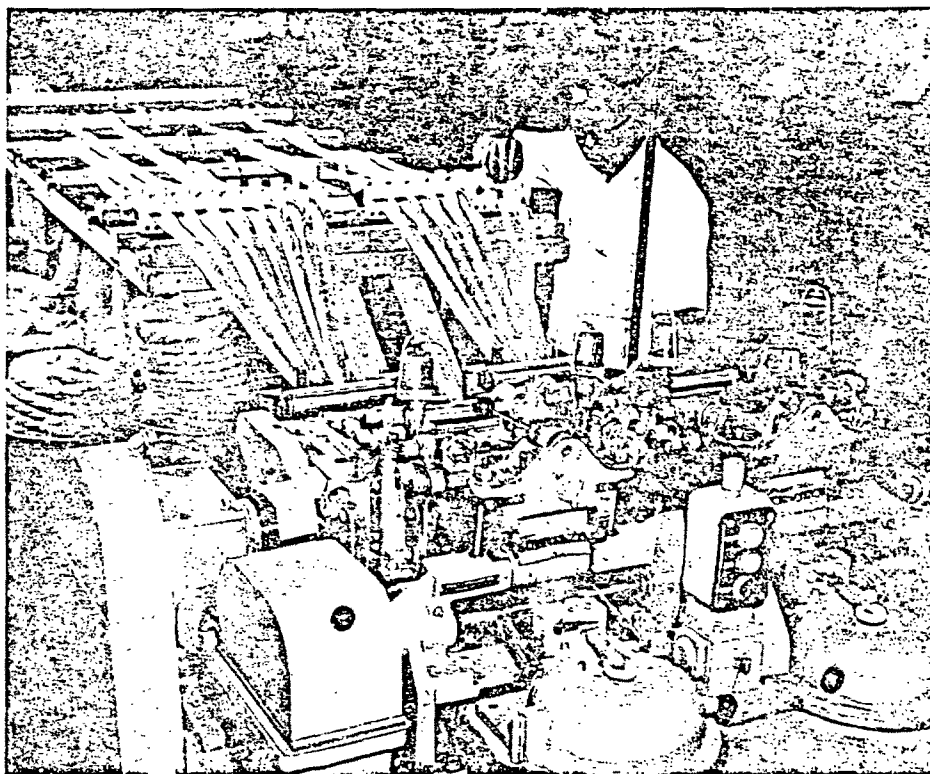
- Year-long capacity operation by **Sylvania Spinning Corporation**, a 50% owned carpet-yarn spinning operation.

Sales and operating income of **Dow Corning Corporation** were well above 1972. The company supplied silicone and silicon products to customers around the world from 23 plants in nine countries.

Successful new products introduced in 1973 ahead of 1972. A new product tagging system was formalized and is providing a more effective approach to new-product commercialization.

Outstanding developments in new products and applications included:

- A new construction sealant that combines excellent stretchability with very low springback.



A soft, round mammary prosthesis that is the standard of the industry. The production-line use of **Silastic** silicone rubber sealant as formed-in-place gaskets by major automotive companies.

Continued acceptance of silicone rubber in the automotive market, with major manufacturers opting to use an all-silicone ignition wire on 1975-model cars.

A broad-range improvement program at Dow Corning's plant in Midland, Michigan, and construction of a new corporate center near Midland were in full swing at year's end.

Dowell Schlumberger, which performs the same oil-field services in the rest of the free world as our Dowell Division in North America, continued its growth with substantial earnings increases in 1973. Increased operations in Indonesia, the Middle East, Algeria, and Nigeria contributed to the company's outstanding performance.

Nationals from developing countries are now being trained for positions as Dowell Schlumberger service and sales engineers at a new training center in France operated in conjunction with the parent Schlumberger organization.

Asahi-Dow Ltd. made an excellent recovery from the mild recession

At Dow Badische Company's technical assistance center in Williamsburg, Virginia, a technician combines a trial blend of fibers for a customer.

experienced by the Japanese chemical industry in 1972. Sales for the first half of the company's fiscal year ended September 30, 1973, were up nearly 50%, and profits were in a healthy rebound.

In addition to the economic boom enjoyed by Japan during most of 1973, an effective price improvement program, continuing attention to product mix, and improved utilization of personnel aided Asahi-Dow's performance.

In its first full year of manufacturing operations, **Korea Pacific Chemical Corporation** operated at capacity and achieved an excellent level of profitability. The company, owned jointly with Korea General Chemical Corporation, a Korean government enterprise, manufactures low density polyethylene and vinyl chloride monomer at Ulsan, Republic of Korea.

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CHEMICALS—Caustic soda, chlorine, and chlorine derivatives generally moved from a balanced supply situation in 1972 to global shortages in 1973. Caustic soda use in chemical intermediates, acid waste treatment, alumina production, and the paper industry showed appreciable increases. Chlorine-caustic facilities were extensively modernized at Midland, Michigan, and Pittsburg, California. In 1973 the last of our chlorine cells based on mercury in North America was shut down. Globally, more than 99% of our chlorine cells use no mercury. The demand for chlorine derivatives, particularly ethylene dichloride for vinyl chloride monomer, was very strong throughout the world. Chlorinated solvents also continued to grow at a healthy rate. Growth of the Chlorothene solvents as replacements for other solvents less ecologically suitable continued in the metal cleaning industry.

Two new U.S. facilities to produce brominated fire retardants for plastics were authorized. Sales of ethylene dibromide were lower in 1973, reflecting the impact of low-lead gasoline in the market place. New magnesium oxide production facilities were authorized in Texas to increase capacity and enlarge product mix. Ethylene glycol was extremely short globally, particularly for polyester fiber production. Our production efficiencies for ethylene oxide were improved markedly. Profit performance in ethylene oxide and glycol showed dramatic improvement. Propylene oxide moved to a slightly short position. Voranol polyols for urethane foam exhibited outstanding sales growth. Glycerine and epichlorohydrin were strongly up in sales, with firm pricing. Phenol production was curtailed by a shortage of cumene, its raw material.

METALS—Global sales of primary magnesium showed substantial growth, and there was a worldwide shortage of this metal. Sales outside the U.S. were up even more than U.S. sales. The demand for magnesium for use as an

alloying agent with aluminum continued to firm in the U.S., reflecting the aluminum industry's higher level of operation.

Because magnesium production in the U.S. was insufficient to meet demand, purchases were made from the government stockpile. The use of magnesium in the steel industry continues to grow; steel desulfurization, the newest such use, is beginning to consume significant quantities of magnesium and shows excellent growth potential. With the emphasis on lighter weight automobiles, the potential for magnesium in diecast auto parts is significantly greater.

The growth of fabricated magnesium products, measured in both physical volume and revenue, was significantly larger than in the last several years. At mid-year, our fabricating facilities for aluminum were sold to Taber Metals, Inc., thus removing Dow from that line of business.

PLASTICS—Sales and operating income of molding and extrusion resins rose sharply. Styron polystyrene was again the major contributor. Global production of Styron was held to less than full capacity for most of the year because of a shortage of benzene, a primary raw material.

Tyrl styrene-acrylonitrile resins, designed for applications requiring high chemical resistance, showed notable sales and operating income gains.

Both high- and low-density polyethylene contributed strongly to the performance of molding materials. Global pricing in both of these products was significantly improved, and production facilities operated at capacity all year.

Chlorinated polyethylene applications were significantly expanded to include pond liner and wire and cable use. Excellent profit and sales growth was shown by this product, which was introduced in 1969.

Substantial gains were made in the sales and operating income of coating materials and monomers. Epoxy resins were particularly strong in the U.S. Vinyl chloride monomer showed outstanding profit growth, as did vinyltoluene.

Plastic foams had another year of solid growth. The first liquified natural gas tanker insulated with Styrofoam brand plastic foam went into service between

Algeria and Japan. *Ethafoam* brand plastic foam was approved by the U.S. Coast Guard for use in life jackets.

PACKAGING—Operating income for this product group was again up, with the most significant strength being shown by commercial films.

Dow Window Film sales were very strong as the replacement of glassine envelope windows by plastic film expanded. New capacity for Trycite polystyrene film was added, and two further expansions were authorized.

Dow Adhesive Film, a specialized polyethylene film with adhesive properties, showed excellent growth in carpet under-layment usage; it smooths the foam surface, facilitating carpet installation. Several developmental applications for the film look promising, such as the coating of steel culverts for corrosion resistance.

During 1973, Dow and the American Can Company of Greenwich, Connecticut, agreed in principle that American Can would purchase Dow's converted flexible products facilities at Cleveland, Ohio, and Fresno, California.

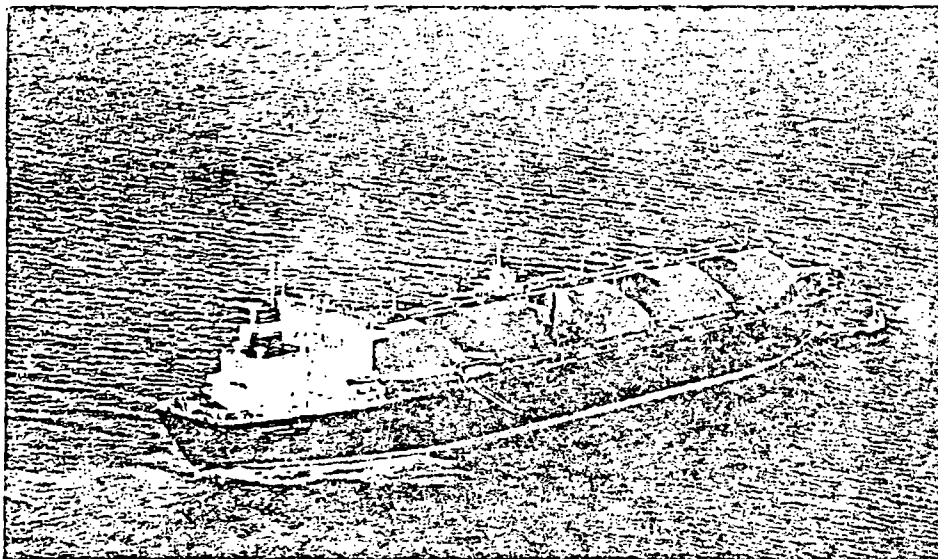
LIFE SCIENCES—All major units contributed to a substantial increase in sales and a sharp increase in operating income.

The operating income of Gruppo Lepetit S.p.A. recovered strongly from 1972 despite continuing high labor costs in Italy. Lepetit's improved sales performance was generally balanced across major product groups, with medical-surgical products showing the largest percentage increases. Sales of Rifadin antibiotic again increased as geographic penetration was expanded.

Bio-Science Enterprises opened a diagnostic laboratory in New York City and a jointly-owned diagnostic laboratory in Sao Paulo, Brazil, bringing to four the number of laboratories outside the Continental U.S. (the others are in Hawaii, Canada and Germany).

Research expenditures again increased, and many new products are proceeding satisfactorily through various research phases. Among the most promising is a new anti-inflammatory compound discovered by Lepetit for use in the treatment of arthritis; clinical trials are nearing completion in several countries and have been initiated in the U.S. New-drug applications have been submitted in the U.S. and Canada for Probucol hypocholesterolemic, an anti-cholesterol drug.

Left: In addition to its use as a mosquito larvicide in the U.S., Dursban insecticide is being used to control insect pests which infest cotton crops in several areas abroad, resulting in improved yields from cotton plantings. Dursban is now a major Dow product.



The Norman Lady, which transports liquified natural gas from Algeria to Japan, utilizes a total of 1.5 million board feet of Styrofoam brand plastic foam insulation to maintain its LNG cargo in five spherical storage tanks at -260°F.

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In order to provide improved global coordination in Life Sciences, its organization was structured into three businesses: Pharmaceuticals, Diagnostic Products, and Diagnostic Services.

Lepetit completed a large new fermentation facility at Brindisi, Italy, and packaging facilities at Anagni, Italy. A new production facility is being completed near Cuernavaca by Laboratorios Lepetit de Mexico.

AGRICULTURAL PRODUCTS —

Sales and operating income rose strongly. Prices were either firm or higher globally.

Dursban insecticide became a major product, as its sales and profits showed exceptional growth. Plant capacity was tripled for this broad-range insecticide, which offers excellent ecological properties along with effective insect control. Tordon herbicide contributed significantly to group profit performance, and its use in jungle clearance in Latin America added to sales. Plictran miticide, a joint development with M&T Chemicals, Inc., Division of American Can Company, was approved in the U.S. for preventing mite damage to apples, pears, and citrus fruits. Phenoxy herbicides (2,4-D and 2,4,5-T) showed strong pricing, and supply and demand were essentially in balance globally. Sales of Dowpon herbicide benefited from increased use for grass control on rubber plantations.

Modest increases in sales and income for poultry coccidiostats were accomplished despite continued competitive pressure.

CONSUMER PRODUCTS — This product group showed sharp profit improvement on good sales gains.

Saran Wrap and Handi-Wrap brands of plastic film maintained their preeminent position in the U.S. plastic roll wrap market. Saran Wrap showed significant profit growth. The dispensing properties of Saran Wrap were markedly improved by a change in carton design. The profit growth of Handi-Wrap was outstanding in 1973. Ziploc plastic bags were the fastest-growing products in the storage bag business. A significant plant expansion for Ziploc bags will be completed in 1975.

Dow Oven Cleaner maintained its No. 2 position. Dow pioneered in safety-cap regulations for aerosol oven cleaners and introduced the first safety-cap container nationally. Dow Bathroom Cleaner maintained a strong No. 2 position in a rapidly growing business. Marketing of Touch of Sweden hand lotion was expanded from a regional to a national basis. Aztec sun care products, which had been in regional marketing in 1971, will be reintroduced and marketed nationally in 1974; they have been repositioned in the market to emphasize Dow's patented sun-protection technology.

DOWELL DIVISION — Despite shortages of materials, equipment, supplies, and personnel, Dowell again reported a record year both in revenues and operating income.

Highlights of the year included completion of the Scranton, Pennsylvania, mine backfilling project and establishment in Tulsa, Oklahoma,

of a new training program for equipment operators. The mine backfilling project is indicative of Dowell's increasing involvement in areas outside the petroleum industry. Potential in these other areas will be limited only by equipment and personnel availability. The training program is a prime example of Dowell's concern for two of the most important aspects of its operations: personnel safety and job performance. New equipment operators learn from instructors who have spent years in the field, in the laboratories, or in the shops. They drive oilfield roads, make hook-ups, "pressure-up," and learn exactly how they must function safely as a team member.

On a much broader scale, the worldwide energy shortage presents a most challenging opportunity and an extremely bright business outlook to Dowell for the foreseeable future. Dowell expects to contribute very significantly to the industry's all-out effort to increase U.S. petroleum production.

Energy: some answers

Employees of The Dow Chemical Company are frequently asked questions on various aspects of the Company's energy situation. Some of the most frequently asked questions, and their answers, follow.

Q. How efficient is the chemical industry in the use of energy?

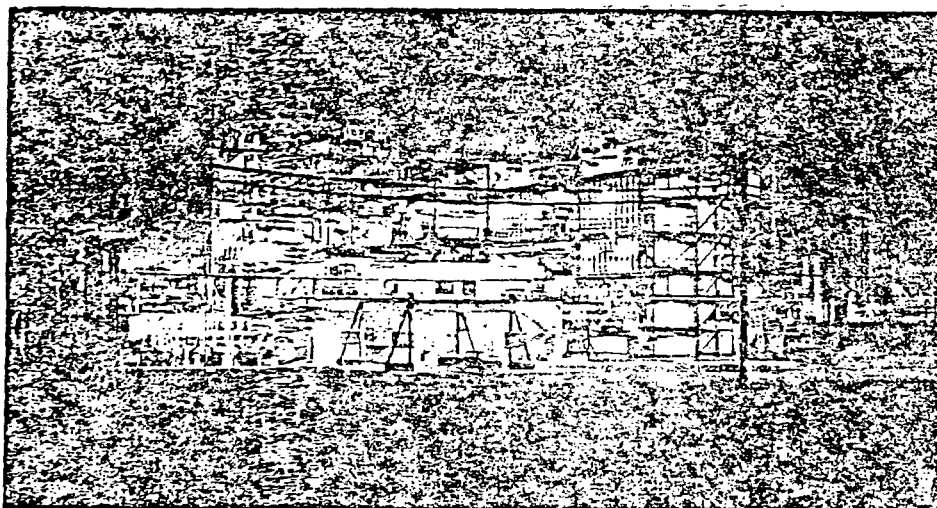
A. Highly efficient, and we are confident that Dow is one of the most efficient in the industry. For example, Dow can use steam not only for power generation but also for its manufacturing processes. Some Dow plants have a combined efficiency on power and steam of approximately 60%, while a typical utility has an energy efficiency of only 33%. Yet compared to other energy users, even the utility represents a very high degree of efficiency. An incandescent lamp is only about 4% efficient in converting electrical energy into light. For that matter, when you eat a steak, you utilize only about 10% of the energy stored in the steak.

Q. Plastics have been used extensively to replace metals. Considering the energy that is required to produce plastics, would it now be wise to switch back to metal?

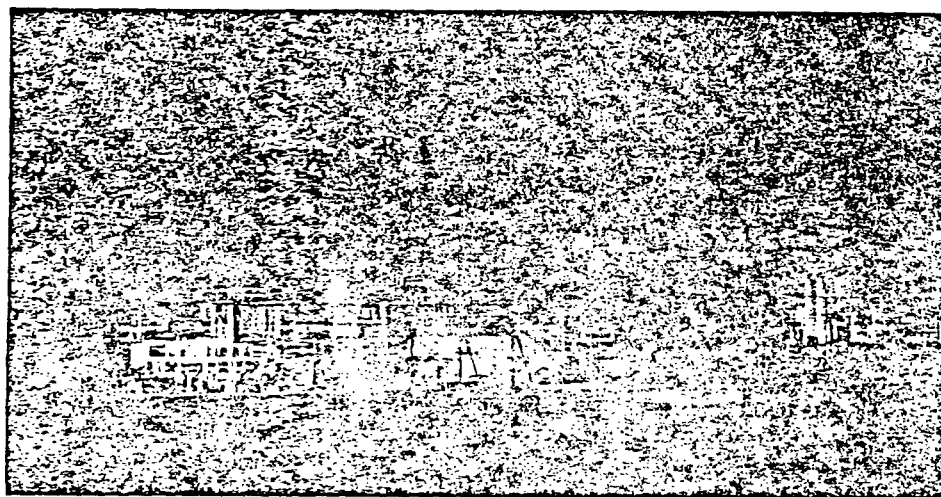
A. Actually, to produce a cubic inch of a plastic such as polystyrene or polyethylene, only about one-third to one-fifth of the energy is required in comparison to the energy necessary for a cubic inch of some metal.

This means that chemical products, and particularly plastics, are actually energy bargains. The real problem at the moment for consumers is that they don't know which products are the most energy intensive in their manufacture and distribution. If they were in a position to compare products on the basis of their over-all energy intensity, it would be wise in many instances to make increased use of plastics. In any case, there is a national need for manufacturers to determine the energy content of their products and for prices to reflect energy costs so

Because of its continued reliance on coal as its major energy source, Dow's Midland Division had no serious fuel problem in 1973. Even so, employees continued to reduce the number of Btu's used in their operations as part of a Company-wide program to make better use of energy resources.



Before and after: In the battle to conserve energy in Dow's Texas Division facilities at Freeport, bright lights became a thing of the past in various manufacturing areas.



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that consumers will be in a position to make intelligent, energy-conserving decisions.

Q. How do chemical raw materials differ from the oil and gas used for fuels?

A. The existing petrochemical plants in the United States have been built to use certain feedstocks and cannot run on other feedstocks without enormous changes—in some cases, without totally new plants. For example, 80% of the U.S. produced ethylene requires liquefied petroleum gases as feedstocks. The feedstocks that are commonly used by the petrochemical industry are crude oil derivatives and natural gas plus liquefied petroleum gases. These materials pass through many processing steps and become raw materials for industries such as synthetic fibers, plastics, synthetic rubber, agricultural chemicals, pharmaceuticals, and many others. These products, in turn, are vital for "downstream" industries such as the

tire, rubber, automotive, construction and garment industries.

When you burn fuel for heat, it isn't necessary to be as selective in your choice of hydrocarbons as it is in the choice of feedstocks for the petrochemical industry.

Dow scientists believe we should try to reserve liquefied petroleum gas, naphtha, benzene and toluene for petrochemical feedstocks and burn the remaining portion of the heavier fossil fuels such as fuel oil and coal.

Ultimately, they believe that as other energy resources become available, we will be in a position to reserve all of our limited fossil fuels for use as chemical raw materials.

Also, Dow scientists are confident that we will continue to develop various other sources such as fusion and solar energy; these will be virtually limitless and will obviate the necessity of relying on fossil fuels. Geothermal energy, while not limitless, nevertheless appears to have great

potential as a major energy source for the future.

Q. When did Dow become aware of the energy crisis and what has the Company done about it?

A. Fortunately, a number of Dow people foresaw the problem several years ago and started planning accordingly—even though fuel was such a low cost item at that time that it was still not economically sound to invest major capital in energy conservation. Then, about five years ago, Dow employees started fighting "war on Btu's". In essence, this meant continuing reduction of the British thermal units (a universal measure of energy) that go into each pound of product that the Company produces. The results have been remarkable, as have been commented on increasingly by the news media. For example, during the past two years, Dow has managed to decrease its Btu's by 20% on an over-all basis; the reduction goal for 1974 is another 7%.

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To give you more specific examples, the sixth light hydrocarbon facility which Dow built in 1967 uses approximately 20% less energy per pound of olefin produced than the average of the first five light hydrocarbon plants which were built in the 1940's and 1950's. And the seventh light hydrocarbon facility, completed in 1973 in the Texas Division at Freeport, uses 32% less than the average of the first five—and with a yield increase of 15% and a waste discharge reduction of better than 90%.

Even more impressive are the energy savings that have been made in other key facilities such as those for polyethylene and ethylene dichloride.

Between 1956 and 1973, there has been a 60% reduction in existing plants in the energy necessary to produce a pound of polyethylene, and labor productivity has been doubled in the same period.

The most recently completed polyethylene facility uses 80% less energy per pound of polyethylene than a facility completed in 1956.

As for ethylene dichloride, the new jumbo plant recently completed in the Texas Division uses 85% less energy per pound of product than the facilities which were completed less than five years ago.

Q. Why didn't Dow start making these improvements earlier?

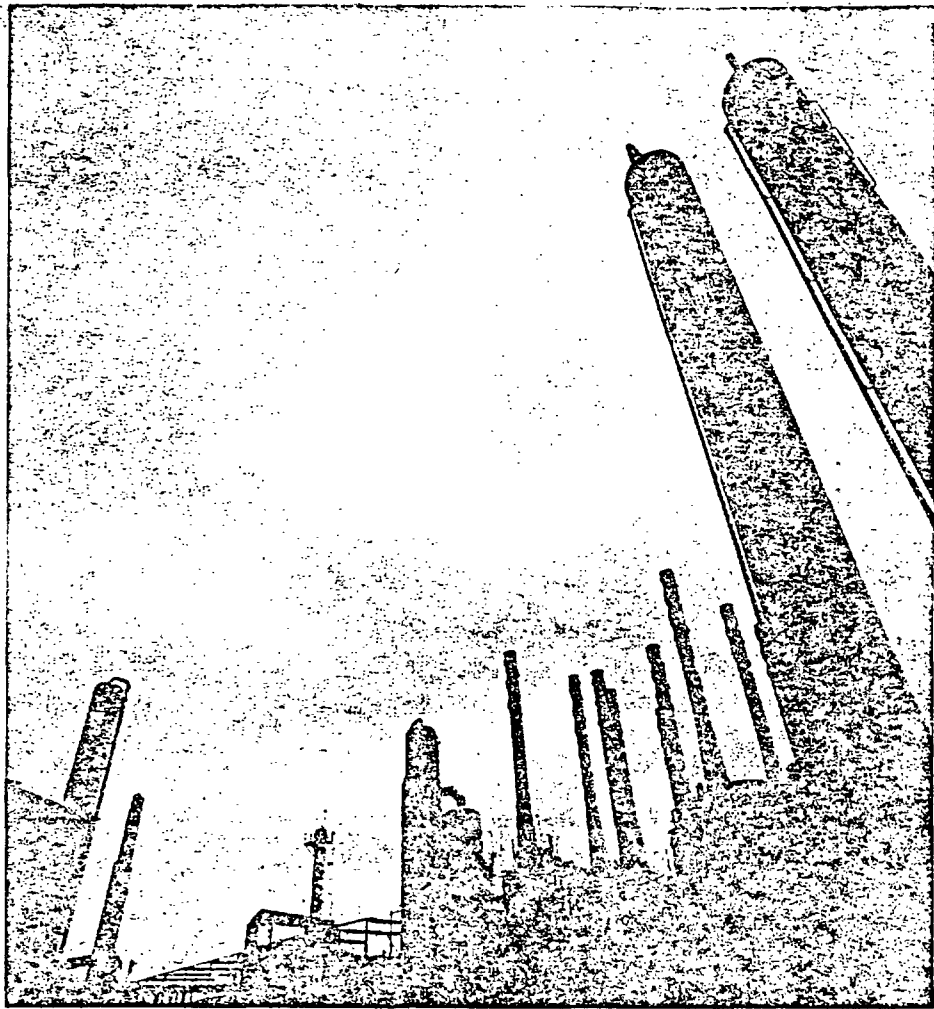
A. Until fairly recently, hydrocarbon fuel was so inexpensive compared to the capital expenditures that would have been required for most energy conservation projects that it wouldn't have been economically feasible to mount a major technological effort to conserve energy.

Q. Does Dow own much of its energy and power sources?

A. Dow owns more than 10% of its natural gas supplies, and controls about 50% of the pipelines which collect the feedstocks necessary for ethylene. The balance is purchased through contracts with proven reliable suppliers. Also, we produce more than 50% of our own power, and this gives us greater flexibility and control than if we had to rely entirely on public utilities. The result is that we are probably in a better position on energy than are many of our competitors and many companies in other industries.

Q. Is it economically feasible to switch production facilities from gas to oil or to coal?

A. For some time now, we have been



The huge new Walter Roush Ethylene Plant at Freeport, Texas (named in honor of the man who in 1973 retired as manager of Dow's Technology Centers) was designed to be highly efficient in its use of energy. More than 80% of the steam it uses is generated by waste heat recovery.

improving our capability to burn different types of fuels, and to switch from one to another and back again. The basic idea is to maintain the flexibility to burn the most economic fuel that is available at any given time.

In some cases, we can even burn one or two or three fuels at the same time. In the future, our tendency will probably be to switch to heavier fuels—in other words, from gas to oil and from oil to coal. We can do this in most cases. However, it is impossible to burn coal in some of our existing facilities.

Q. Would curtailing chemical exports be a good way to stretch chemical feedstocks and energy supplies?

A. No. For one thing, exports provide one-sixth of Dow's U.S. jobs. Also, the U.S. must continue to generate the necessary balance of payments to purchase foreign goods. This includes oil, which must be purchased overseas in sizable quantities for years to come—that is, until we in the U.S. can

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Dow scientists believe that geothermal energy will be an important source for the Company in the future. This unit stands atop an enormous store of underground steam in northern California.

develop our own alternate resources. We must also remember that if this nation is to continue to be a major chemicals producer, we must import some feedstocks such as the benzene required to make styrene. In addition, it is essential to purchase substantial quantities of ores and metals from foreign nations. All of this adds up to a situation in which we must continue to export chemicals and other products.

Q. *How will skyrocketing prices for oil and gas affect Dow?*

A. Obviously, our manufacturing costs are being affected, and we will definitely require price increases — particularly on chemicals which are hydrocarbon intensive. However, we believe we can also protect our profits by continuing to make more effective use of our energy. Generally speaking, we feel that the highest profits will go to the most efficient users. Since our efforts at making more effective use of our available energy have been very successful, and show every sign of

continuing to be, we view the over-all energy situation as a major opportunity for Dow rather than as a potential disaster.

Q. *What plans does Dow have for obtaining new feedstock and energy supplies so the company can continue to grow?*

A. We are working to obtain new oil and gas supplies in all oil producing parts of the world. In the U.S., for example, we are stepping up our exploration of oil and gas significantly. Dow's Oil and Gas Division has increased expenditures to develop oil and gas reserves five-fold during the past three years. We are also building fuel pipelines to almost all of our major plants. In addition, we have projects under way which should eventually give us the capability to use feedstock from oil shale, just as we plan to greatly accelerate our technology to use liquids from coal. Also, we are increasingly interested in geothermal energy, and see this as a potentially promising

energy source in the relatively near future.

Nuclear energy is still another possibility. The Midland Division, which was one of the first in the nation to recognize the looming shortage of fuels, started working toward a nuclear power base several years ago. In fact, one of the most significant energy conservation projects that we know of involves the use of obtaining steam exhaust from the nuclear facility. This steam will be utilized as process steam instead of being lost to cooling water as it is in a conventional nuclear plant.

Q. What products or technology does Dow have to help solve the energy crisis?

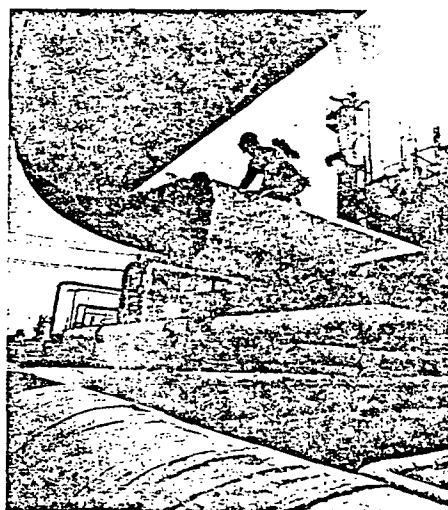
A. The list is almost endless. They include insulation materials, heat transfer media, hollow fibers technology for industrial and other applications, and a wide variety of plastics and chemicals and metals which rank as truly impressive energy savers. Dow also has a number of engineering techniques for conserving energy — techniques which have been shared with the engineering profession in various journals.

Plastics are particularly important for many applications in that they are light in weight and corrosion resistant. Increasingly, plastics (which are generally better in energy content than the metals they replace) are being used in automobiles. The lighter weight of these plastics has a favorable impact on the long range fuel economy of automobiles.

Dow is also selling *Derakane* vinyl ester resin to replace metal in many corrosive plant applications. The longer life of the *Derakane* will prove to be an energy saver.

One of Dow's most notable energy conservers is *Styrofoam* brand plastic foam insulation. Dow also markets *Voranol* polyols which are used as one component of urethane foams for insulation.

As for hollow fibers, Dow has pioneered the development of a family of them which can be used to purify a variety of materials. Many of the hollow fiber devices use purification techniques which are very similar to those found naturally in the environment — an important point, considering nature's way of selecting the most energy efficient processes. Sea water purification using hollow fibers is an example of a relatively low energy



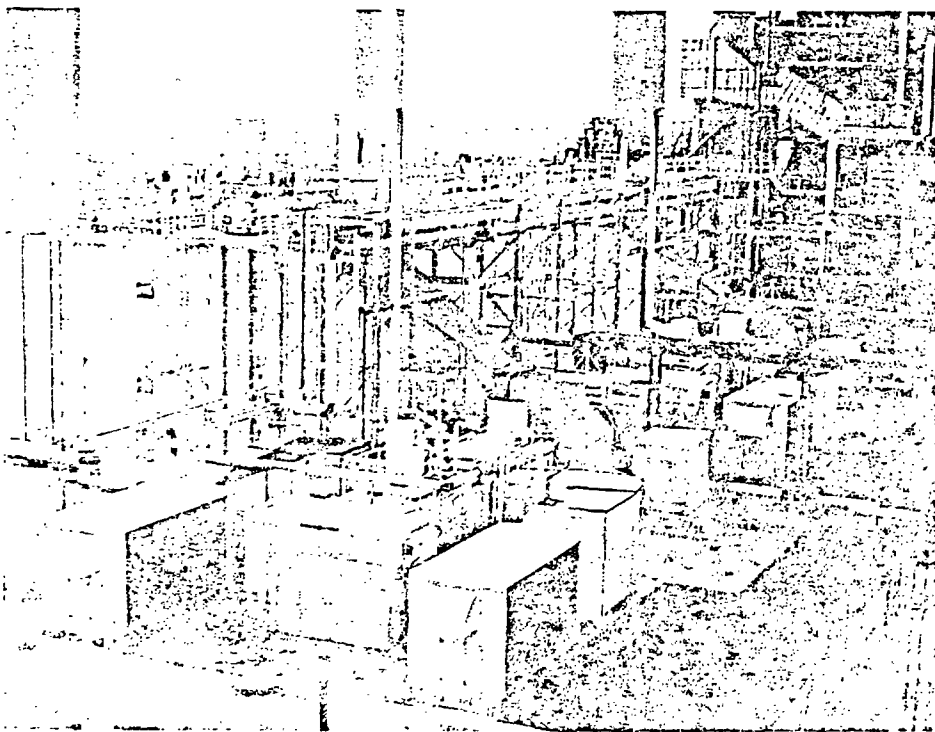
Increased insulation of process pipes is just one method of conserving energy at Dow's Louisiana Division and other locations throughout the world. Midland Division engineers estimate that particularly in colder climates, heat savings can be 10 to 20 times greater when insulation is used compared to when it is not.

purification technique.

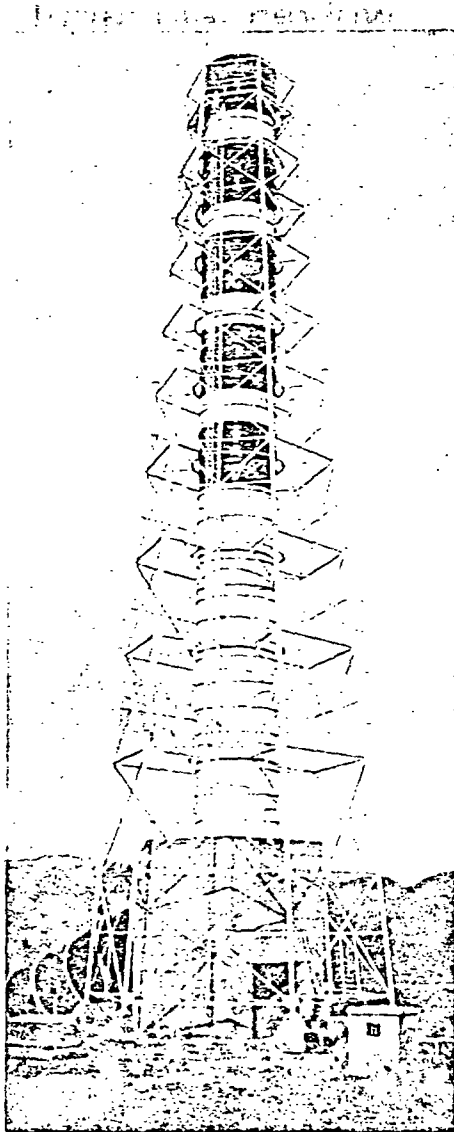
Dowell has also long been active in providing services to the petroleum industry. These services, such as acidizing and hydraulic fracturing, are designed to stimulate the production of oil from wells; through Dowell-Schlumberger, they are offered on a worldwide basis. And *Pusher* chemicals for secondary oil recovery, used in conjunction with water injection in oil fields, are Dow products designed to increase the recovery of oil.

Many of Dow's agricultural chemicals produce impressive energy savings. For example, herbicides are often sprayed by air to clear rangeland of unwanted brush. In addition, railroad tracks, irrigation and water transport systems,

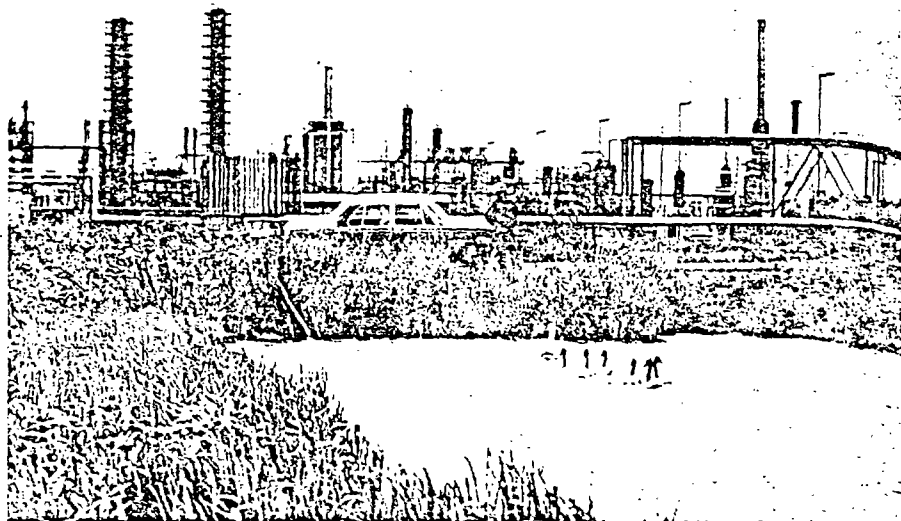
Below: Two gas-fired turbines generate electricity at Dow Canada's facility at Sarnia, Ontario. Waste heat from the turbines is used to produce steam. The over-all system operates at the exceptional efficiency level of 86%.



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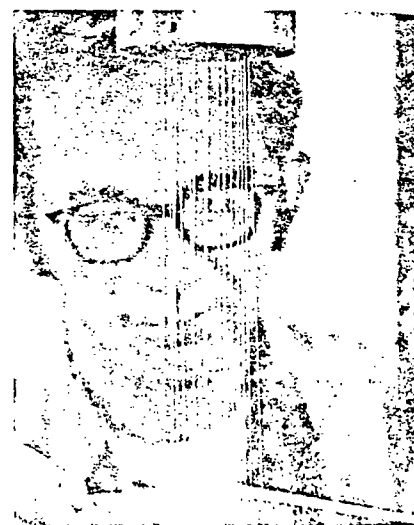


This 175-foot stack at a Canadian kraft paper mill is made of Derakane brand vinyl ester resin, a Dow product. Derakane is expected to deliver a longer life and thus save energy as compared to a metal stack.



Above: Recycling of waste heat has taken on increased importance at Dow's chlor-alkali facility at Stade, West Germany. The result will be annual savings of approximately \$300,000 in comparison to when the complex went on stream about one year ago.

Right: Hollow fibers technology, which involves driving water through exceedingly thin, hollow plastic fibers as a means to reject salt content, is a top-priority project for Dow scientists. The amount of energy required to desalt water through this emerging form of technology is about one-tenth of that required by evaporation or distillation.



roadsides and industrial sites all lend themselves to various herbicide application techniques that require substantially less use of energy than mechanical clearing techniques.

Still other energy saving agricultural products are on the horizon. For instance, Dow is awaiting registration of a product, *N-Serve* nitrogen stabilizer, that serves a unique function. *N-Serve* is selectively active against a bacteria that transforms ammonia into less usable forms of nitrogen. By inhibiting the activity of these bacteria, *N-Serve* preserves the ammonia in a form that remains in the soil ready for use by growing plants. By increasing the efficiency of the fertilizer, *N-Serve* conserves hydrocarbon feedstocks. Considering that 40,000 cubic feet of natural gas are required to produce one ton of anhydrous ammonia, a widely used

fertilizer, the contribution of this product to saving energy resources will be impressive.

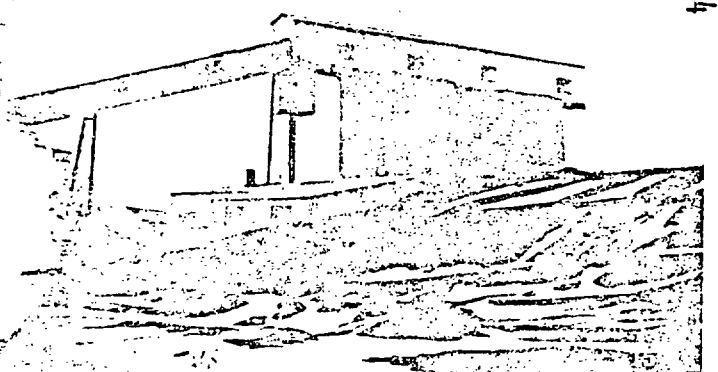
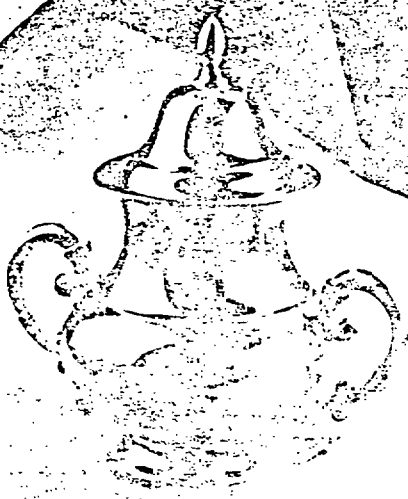
Still another example involves chemicals being used on a developmental basis for the production of cement. These reduce the power necessary for the manufacture of cement by approximately 30%, and at the same time increase the effective capacity of the cement industry. In an age where the use of cement is increasingly on the rise throughout the world, this contribution will be essential in the future.

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Dow is one of the very few U.S. chemical companies that have not reduced their research and development expenditures at some time during the past 10 years; in fact Dow has increased in each of the past 14 years. We are one of the top 20 U.S. companies in all industries in total expenditures for non-government-funded R&D. Dow's R&D spending in 1973 totaled

1974

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Two analytical chemists analyze a new chemical compound by laser Raman spectroscopy. The device, which can analyze minute samples, was used to detect an impurity in Dursban insecticide and led to a significant improvement in the manufacturing process for this important Dow product.

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\$118 million, up 13% from 1972. This was equivalent to nearly 25% of pre-tax profits. The Company's major product groupings (Chemicals/Metals, Plastics/Packaging, and Bioproducts/Consumer Products) each accounted for roughly a third of the R&D budget.

PRODUCT RESEARCH—Ten of 1973's new products are listed in the box on page 17. Some of these may become major products for Dow, as have *Tordon* herbicide, *Coyden* coccidiostat, *Rifadin* antibiotic, and *Dursban* insecticide in recent years. However, we cannot tell at this time which ones will achieve this stature.

Preceding page: Drs. Ben A. Teffertiller and Clarence E. Habermann were the principals among more than 50 Dow R&D people involved in developing a new, award-winning process for making acrylamide. Acrylamide flocculants are used in the sugar, coal, and minerals industries and in wastewater treatment. Silhouetted in the background is the inventors' experimental apparatus.

since it typically takes five to 10 years for a new product to make a major impact on Company sales and earnings.

Contrary to popular belief, brand new products aren't the only target of Dow's product research efforts. Considerable attention also is paid to improving and modifying existing products; such efforts not only can enhance a product's performance in its current use but often open up entirely new markets. As a result, what started out as a single product may eventually become a "family" of products.

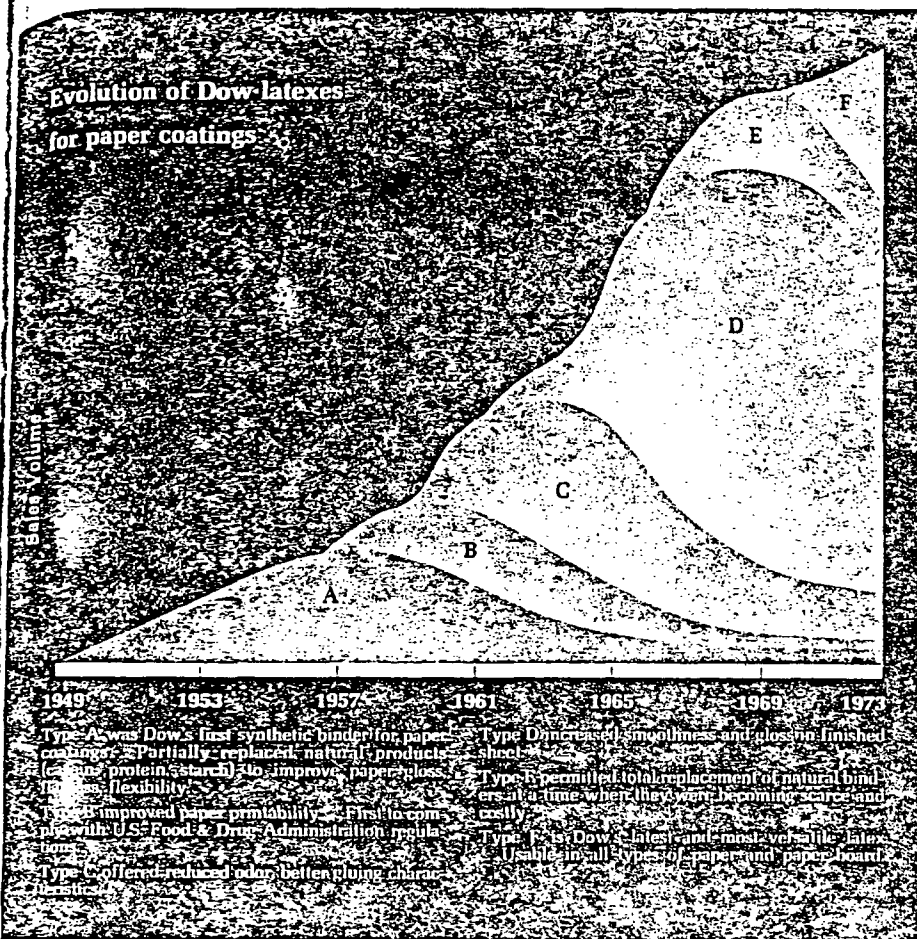
Styrene-butadiene (S/B) latex is an outstanding example of this. Originally a binder for water-base paints, S/B latex is now a large product family, with special formulations for pigmented paper coatings, carpet backing, foamed carpet padding, adhesives, high-strength Portland cement mortars, and binders for asbestos-based vinyl floor coverings and non-woven fabrics—all as the result of continuing research on the basic product. There are even families within this family, as shown in the chart on page 17.

PROCESS RESEARCH—Dow process research both develops commercial processes for new products and improves existing processes. Through rigorous study of each reaction step and innovations in equipment design and construction, research scientists increase the yield of salable product from a given amount of raw material, boost the total output of production plants, eliminate waste and unwanted by-products, reduce energy demand, and save on capital costs.

In the past three to five years we have significantly increased the output of our plants, thereby reducing the amount of investment required per pound of product. A 35% reduction in polyethylene investment and a 45% reduction for polystyrene are just two examples. Dramatic evidence of similar progress in conserving power and steam and in pollution abatement will be found in the articles on energy (page 9) and social responsibility (page 18).

Dow was recognized in 1973 with a merit award in the Kirkpatrick Award competition sponsored by *Chemical Engineering* magazine. We were

Evolution of Dow latexes for paper coatings



Type A was Dow's first synthetic binder for paper coatings. Partially replaced natural products (casein, protein, starch) to improve paper gloss, flexibility.

Type B improved paper printability. First to comply with U.S. Food & Drug Administration regulations.

Type C offered reduced odor, better plume character.

Type D increased smoothness and gloss of finished sheets.

Type E permitted total replacement of natural binders at a time when they were becoming scarce and costly.

Type F is Dow's latest and most versatile latex. Usable in all types of paper and paper board.

Since the introduction of the first Dow styrene-butadiene latex for paper coatings in 1949, the basic product has been continuously modified and improved. As each new formulation

wins market acceptance, it tends to replace previous formulations, whose sales then decline. But as the chart shows, total sales of Dow latexes for paper have continued to mount rapidly.

A sampling of 1973 new products from Dow research

- Anti-sag treatment for double-knit fabrics. Withstands washing and drycleaning.
- Viscosity improver for cement production. Reduces energy consumption by as much as 30%.
- Imbiber Bead containment devices for hydrocarbon spills. Absorb hydrocarbons from water and soil.
- Plastic resin for use in fabricating sandwich-type auto body panels.
- Technology for hydrogen sulfide removal in coal gasification plants and natural gas production.
- Propellant device to assist the inflation of automotive air-safety cushions.
- All-weather brake fluid. Exceeds U.S. Department of Transportation's most stringent requirements.
- First commercially available insulation panels for cold-storage buildings that meet Factory Insurance Association criteria for higher fire resistance.
- Dow HRP (heat-resistant plastic), styrene-based polymer for use in appliances and other products associated with relatively high temperatures.
- Fospirate insecticide for household pets. Currently registered for use in dog collars to control fleas. Research on other uses in progress.

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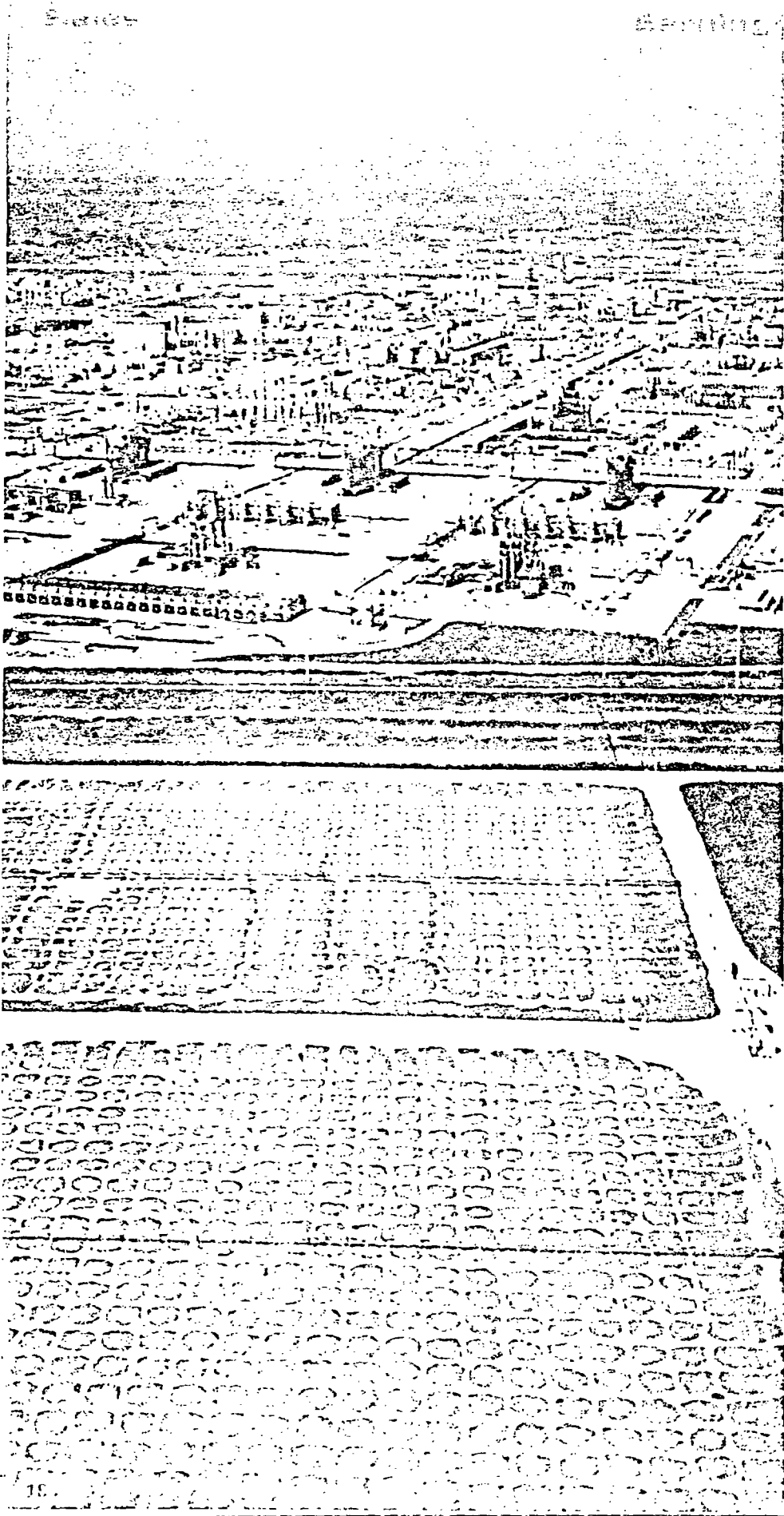
honored for a new catalytic process for the production of acrylamides, used in industrial flocculating agents (see photo, page 15). The new Dow process — the result of a four-year program — not only produces higher yields and product purity but also eliminates undesirable by-products and reduces costs.

Process research is immensely productive and, in fact, is essential to maintain and improve Dow's competitive position. About \$20 million was devoted to our process research programs in 1973 and resulted in annual savings of approximately \$45 million.

SUPPORTIVE RESEARCH — A substantial number of Dow people are engaged in activities that broadly support the over-all R&D effort. These include:

- Analytical chemists, who work closely with research chemists to determine the structure of new chemicals and the composition of the products of new reactions.
- Toxicologists, who determine the health impact of chemicals to assure the safety of employees and consumers.
- Ecologists, who guard against any adverse effect of our products on the environment.
- Computer specialists, who simulate chemical processes and analyze data from research experiments.

In summary, Dow's ongoing commitment to R&D has provided continuous benefits to customers and, ultimately, the public. It also has helped keep Dow ahead of, or competitive with, other companies in the product lines that are important to the economic health of the Company.



Social responsibility: a progress report

Employees of The Dow Chemical Company have increasingly become involved in activities which are socially responsive.

These activities include a continuing drive to reduce water and air pollution; an intensification of product stewardship, increased hiring of members of minorities, professional advancement of women, and improving the Company's safety performance on a worldwide basis.

Some examples of what is being accomplished in these diverse and vital activities follow.

POLLUTION ABATEMENT—During the past year, 554 pollution abatement projects were completed at a cost of \$2 million. Our annual net savings of just under \$1 million are more modest than in previous years. This is to be expected, since the further we progress in pollution reduction, the more expensive it becomes per unit of reduction to produce savings.

Increasingly, we are finding success in containing our liquid wastes. Our facilities at Dalton, Georgia, and Hanging Rock, Ohio, are already at the point where their liquid process waste and cooling water are completely recycled. In addition, we expect our facilities at Pevely, Missouri, and Allyn's Point, Connecticut, to be in a position to totally contain their liquid process wastes within the near future. At Pittsburg, California, the location of our largest facility on the West Coast, all liquid process waste is being completely contained and all cooling water will be recycled by the end of this year.

PRODUCT STEWARDSHIP—Dow continued to intensify its stewardship over the products it makes. This activity represents the coordination and acceleration of a number of ongoing activities, some of 40 years' or more standing.

A good example of this is Dow's stewardship of vinyl chloride, currently being investigated by the National Institute for Occupational Safety and

These wastewater treatment ponds in the Texas Division cool and neutralize plant effluents and reduce their biological oxygen demand through a combination of aeration and bacterial action. Spread over 30 acres, the ponds and related facilities were completed in 1973 at a cost of nearly \$5 million.

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safety awareness program with the
slogan, "Life Is Fragile," was
extensively promoted throughout the
Company and won national
recognition. It included the distribution
of thousands of safety pennants to
employees of all ages.

Health as a possible carcinogenic
hazard at certain exposure levels.
thirteen years ago. Dow scientists
outlined the merits of an industrial
hygiene guide that was one-tenth the
level recommended by the American
Conference of Governmental Industrial
Hygienists and began working toward
a Dow's own locations. The Dow
levels were based on animal toxicity
work performed in our Toxicology
Laboratory.

our opinion that this level of
exposure, which is met or bettered in
Dow U.S. plants, has been and is a
safe level of exposure.

Dow employees are carrying out our
policy of product stewardship on our
consumer products as well. With that
objective in mind, the Company has
essentially completed product data files
on 400 products and product families
identified as requiring this measure.
This enables Dow to assess the
environmental impact of these
products on a worldwide basis.

MINORITY HIRING—In 1973,
minority employment increased 19%.
compared to a 2% increase for over-all
employment. At year's end,



The first safety cap for aerosol oven
cleaners was introduced nationally by
Dow in 1973. An example of the
Company's ongoing Product
Stewardship program, the child-
resistant cap is supplied with both the
8-ounce and 16-ounce cans of Dow
Oven Cleaner.

minority persons—defined by the
government as Blacks, Orientals,
American Indians, and Spanish
Americans—accounted for 7.3% of
Dow's total U.S. employment,
compared to 6.3% at the same time a
year ago.

ADVANCEMENT OF WOMEN—We
believe our female work force
constitutes an important reservoir of
talent and that women should be
challenged to the fullest in the jobs
they perform.

During 1973, a system was developed to
better classify and use women's job
interests, skills, and education. Female
employees, with guidance from their
supervisors, are assessing their
personal capabilities and setting career
goals for themselves.

Worldwide in 1973, 22% of our women
employees were advanced at least one
step. Many of these were within the
secretarial-clerical classifications. The
Company is seeking to advance and
hire more women into professional-
management categories.

SAFETY PERFORMANCE—In spite
of the severity of injuries and the nine



Progress in minority hiring and
advancement was recorded in all three
of Dow's major activities—
manufacturing, research, and
marketing. Here, a Dow field sales
man confers with a buyer for a leading
customer in the Cleveland area.

deaths which occurred in 1973. Dow
continued to have one of the best safety
records in the industry. Our 1973
frequency rate was 0.80 disabling
injuries per million man hours worked.
The Midland Division, which earned
the Company President's Award,
completed two periods of 5 million man
hours without a lost-time accident and
the Rocky Flats Division has completed
6 million man hours. Three facilities—
King's Lynn, England; Barry, Wales;
and Allyn's Point, Connecticut—each
completed five years without a
disabling injury, while employees at
Pevelly, Missouri, have completed
seven years.

According to data compiled by the
Manufacturing Chemists' Association,
the chemical industry average for
disabling injuries in 1973 was 3.76 per
million man hours worked. Among the
top six U.S. chemical companies, Dow's
record was third best for the year.

Also, Dow employees' on-the-job
record was appreciably better than
their off-the-job performance.
Traditionally, there are from four to six
times more disabling injuries away
from work, and that ratio remained
intact during 1973.

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1973 was a year of constant monetary turmoil. The dollar was officially devalued in February and then continued to lose ground. By midsummer, the dollar had lost some 20% to 40% of its value against most other major currencies.

In the last quarter, we saw a reversal of this trend, but the dollar still closed the year well below its value at the beginning. At the same time, inflation rates reached new highs in all major industrialized nations.

Since Dow, in 1973, had 46% of its sales and 34% of its plant investment outside of the U.S., we were obviously affected by these events.

As foreign currencies strengthened during the first nine months of 1973, the effect was to increase the dollars of sales and earnings derived from foreign business while creating exchange losses on foreign currency debt. Then, as the dollar strengthened in the last three months, the situation was reversed.

For the year, Dow dollar sales were up about \$100 million due to the shifting currency relationships. Likewise, operating income was favorably impacted but exchange losses partially offset this increase. The result was a net favorable impact on earnings of approximately \$.08 per share.

Other items affecting 1973 earnings also warrant special mention.

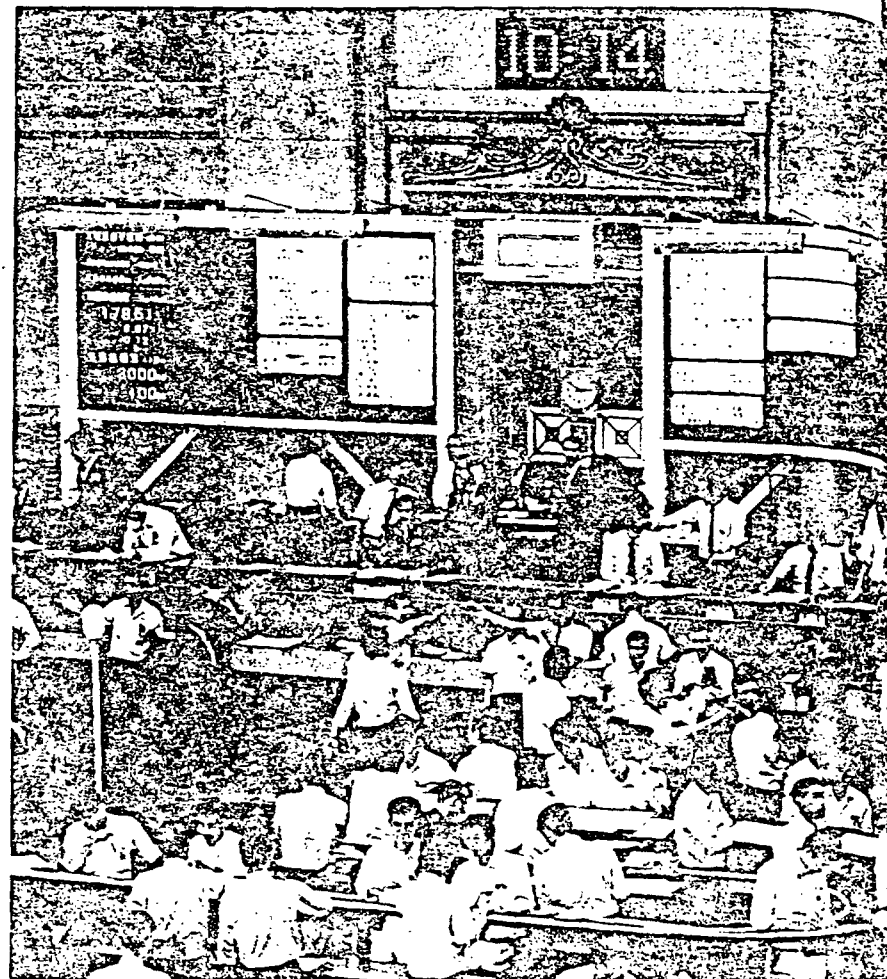
Our selling prices increased about 5% during the year to compensate for the high worldwide increase in Dow's labor, raw material, and energy costs. At the same time, these conditions created so-called "inventory profits" as low cost inventories were liquidated and replenished with higher cost materials. We estimate that during 1973, such inventory profits amounted to some \$.15 per share.

During the second quarter, we sold an investment property which resulted in a profit equivalent to \$.09 per share.

An extraordinary profit of \$.05 per share was obtained from the tax benefit of an operating loss carry-forward of the Dow Badische Company.

Dow was also very active in the area of financing in 1973.

While cash resources from earnings, depreciation and working capital were again adequate to meet plant expansion requirements, the Company did some major long-term financing in order to place itself in a liquid position. During the year, we issued \$100 million of



7.625% 30-year debentures in the U.S. as well as 80 million Swiss Francs of 6-1/4% 15-year Swiss bonds.

As a result of these financing operations, Dow repaid all U.S. bank borrowings and commercial paper. Consolidated short-term debt at the year's end was \$253 million, the lowest level since 1967. Offsetting this, the Company owned \$298 million in short-term marketable securities.

Capital spending in 1973 was \$402 million. The Company expects to increase capital expenditures substantially over the next few years, and the program of refinancing short-term into long was designed to prepare the Company for these higher expenditures.

Early in 1974, the U.S. government removed the regulations which restricted the free flow of capital out of the country. At the same time, several other Western governments reduced their barriers. While Dow has been able to operate successfully in the face of these restrictions, their removal will undoubtedly add to our international financial flexibility.

Dow shares were listed on the Tokyo Stock Exchange near the end of 1973. One of the first non-Japanese firms to be listed on the Tokyo exchange, the Company was the first U.S. industrial firm to be listed. In recent years, Dow shares have been listed on a growing number of stock exchanges throughout the world, and particularly in Europe.

Another event of significance was the listing of Dow Common Stock on the Tokyo Stock Exchange on December 18, 1973. Dow was the first foreign industrial company listed and one of only six non-Japanese firms to be accepted for trading in Tokyo. During the first months of trading, Dow stock was the most active foreign stock in Japan. It is the Company's belief that, with almost half of its business outside of the U.S., we should make it easier for our employees and other non-U.S. citizens to acquire our stock. The listing in Tokyo was a move in that direction and follows previous listings in many European countries. During 1974, we also expect to have Dow stock traded on the Toronto Stock Exchange.

Year Ended December 31

1973

1972

Products and Services

Net sales	\$3,067,888,218	\$2,403,709,379
Operating costs and expenses:		
Cost of sales	2,229,392,459	1,760,779,411
Selling and administrative	330,285,968	284,938,970
	<u>2,559,678,427</u>	<u>2,045,718,381</u>
Products and services operating income	<u>508,209,791</u>	<u>357,990,998</u>

Non-Products and Services

Investment and financial:		
Profit (loss) on investment turnover	13,216,221	(1,391,813)
Income from sundry investments	1,707,433	2,766,499
Equity in earnings of non-consolidated subsidiaries	5,407,800	4,035,377
Administrative expenses	<u>(1,264,190)</u>	<u>(1,456,533)</u>
Equity in earnings of associated companies and minority investments exceeding 20%	19,067,264	3,953,530
	43,272,153	25,214,716
Interest expense — net	(83,403,897)	(85,834,176)
Sundry income (expense) — net	<u>(4,066,491)</u>	<u>22,709,166</u>
Non—products and services loss	<u>(25,130,971)</u>	<u>(33,956,764)</u>

Income Before Provision for Taxes on Income	483,078,820	324,034,234
Provision for Taxes on Income	<u>202,600,000</u>	<u>127,100,000</u>
Income Before Minority Interests	280,478,820	196,934,234
Minority Interests' Share in Income	<u>9,330,808</u>	<u>7,963,037</u>
Income Before Extraordinary Items	271,148,012	188,971,197
Extraordinary Items	<u>4,419,500</u>	<u>217,709</u>
Net Income	<u>\$ 275,567,512</u>	<u>\$ 189,188,906</u>

Earnings per Share

Income before extraordinary items	\$2.94	\$2.07*
Extraordinary items	.05	—
Net Income	<u>\$2.99</u>	<u>\$2.07*</u>

* Restated to reflect one-for-one stock distribution made May 9, 1973.

See Accounting Principles and Notes to Financial Statements

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Consolidated Balance Sheet

December 31

ASSETS	December 31	
	1973	1972
Current Assets		
Cash.....	\$ 19,796,580	\$ 19,682,558
Marketable securities and interest-bearing deposits (at cost — approximately market)	297,885,419	142,837,705
Accounts and notes receivable:		
Trade, less allowance for doubtful receivables (1973, \$21,806,936; 1972, \$12,500,820)	582,594,345	475,008,228
Miscellaneous	140,299,069	108,396,543
Deferred income tax benefits	21,922,473	12,044,690
Inventories:		
Finished and in process	325,896,628	303,863,266
Materials and supplies	171,632,875	119,994,216
	<u>1,560,027,389</u>	<u>1,181,827,206</u>
Investments		
Capital stock — at cost plus equity in accumulated earnings (less reserves — 1973, \$2,554,456; 1972, \$1,985,488):		
Banking and insurance subsidiaries	49,827,403	41,828,545
Associated companies (50%-owned)	199,150,224	164,392,066
Other	47,794,043	50,602,868
Sundry — at cost (less reserves — 1973, \$3,580,064; 1972, \$3,217,251)	43,057,280	44,747,309
Noncurrent receivables (less reserves — 1973, \$4,563,921; 1972, \$2,679,614)	88,667,474	52,275,398
	<u>428,496,424</u>	<u>353,846,186</u>
Plant Properties	3,301,341,698	2,980,845,425
Less — accumulated depreciation	1,522,917,360	1,331,177,286
	<u>1,778,424,338</u>	<u>1,649,668,139</u>
Goodwill	83,811,404	79,890,532
Deferred Charges and Other Assets	45,433,173	47,496,582
TOTAL	<u>\$3,896,192,728</u>	<u>\$3,312,728,645</u>

See Accounting Principles and Notes to Financial Statements

Consolidated Balance Sheet

December 31

1972

LIABILITIES

1973

1972

Current Liabilities

9,682,558	Notes payable	\$ 214,008,963	\$ 269,646,540
2,837,705	Long-term debt due within one year	38,950,674	37,613,103
	Accounts payable	354,775,529	218,935,508
	United States and foreign taxes on income	167,349,570	101,681,612
1,008,228	Accrued and other current liabilities	<u>230,032,944</u>	<u>170,145,274</u>
1,396,543		<u>1,005,117,680</u>	<u>798,022,037</u>
1,044,690			

863,266			
<u>994,216</u>			
327,206	Long-Term Debt.....	1,225,885,957	1,094,947,875

Other Liabilities and Reserves

	Minority interests in subsidiary companies.....	44,133,961	38,339,482
3,545	Deferred employee benefits	32,325,976	29,800,839
2,066	Deferred investment grants.....	1,322,916	1,177,640
2,668	Deferred income taxes	51,887,647	14,961,015
	Loss on foreign investments.....	<u>6,000,000</u>	<u>6,000,000</u>
13,09		135,670,500	90,278,976

Stockholders' Equity

25	Common stock (1973 — issued, 97,133,834 shares)	485,669,171	241,260,353
86	Capital surplus	321,321,422	542,797,165
39	Retained earnings	843,475,141	657,817,916
		<u>1,650,465,734</u>	<u>1,441,875,434</u>
2	Less — treasury stock at cost (1973 — 4,873,981 shares)	<u>120,947,143</u>	<u>112,395,677</u>
		1,529,518,591	1,329,479,757

TOTAL	\$3,896,192.728	\$3,312,728.645
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See Accounting Principles and Notes to Financial Statements

(millions of dollars)

Before extraordinary items

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\$ 3.00

2,000

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*Restated to reflect one-for-one stock distribution made March 9, 1973

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Consolidated Statement of Capital

	Year Ended December 31	
	1973	1972
Balance at Beginning of the Year	\$542,797,165	\$520,935,018
Add (Deduct):		
Excess of selling or market price over par value of common stock issued to employees	17,655,932	21,568,281
Income tax benefit realized from sale of common stock to employees	2,315,031	
Excess of face value of debentures over par value of common stock issued on conversion	61,146	189,252
Transactions related to acquisition of subsidiaries	90,875	104,614
Transfer to common stock relative to one-for-one stock distribution	<u>(241,598,727)</u>	<u> </u>
Balance at End of the Year	<u>\$321,321,422</u>	<u>\$542,797,165</u>

Consolidated Statement of Retained Earnings

	Year Ended December 31	
	1973	1972
Balance at Beginning of the Year	\$657,817,916	\$553,448,631
Add (Deduct):		
Net income	275,567,512	189,188,906
Adjustments related to consolidation of subsidiaries		189,291
Retirement of treasury shares	(41,780)	(2,677,183)
Cash dividends	<u>(89,868,507)</u>	<u>(82,331,729)</u>
Balance at End of the Year	<u>\$843,475,141</u>	<u>\$657,817,916</u>

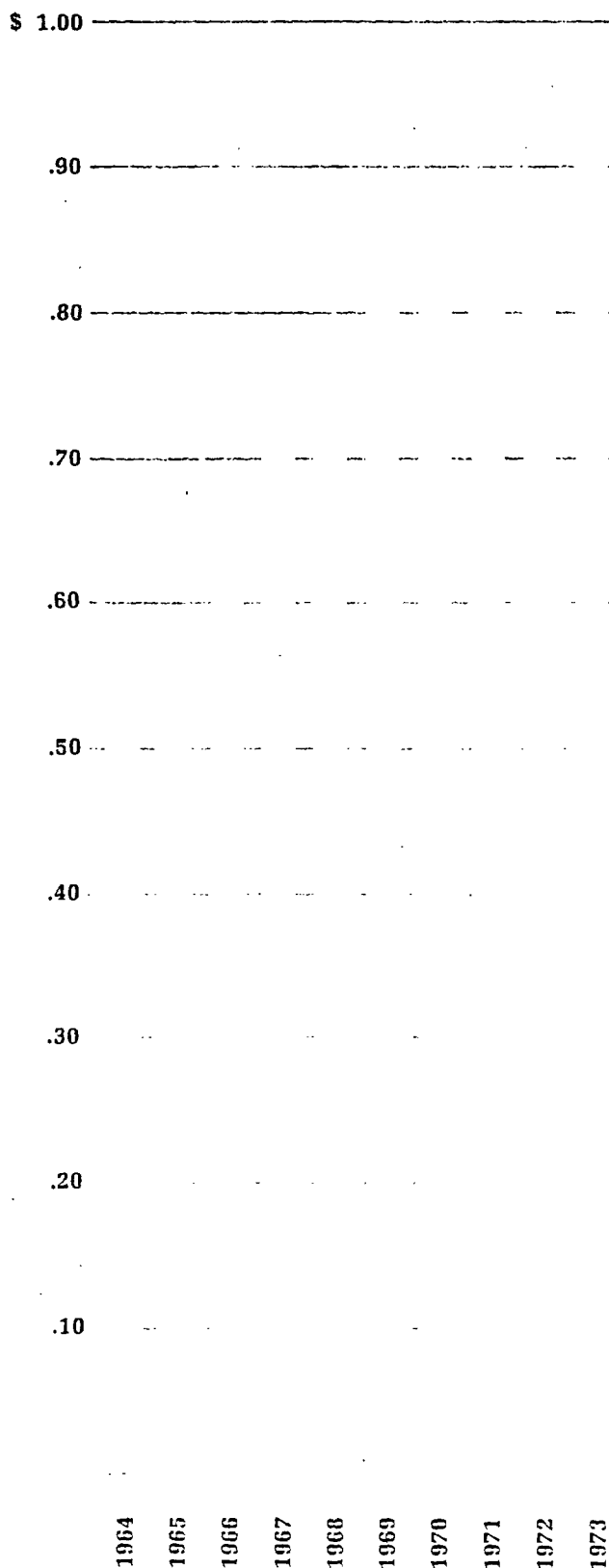
See Accounting Principles and Notes to Financial Statements

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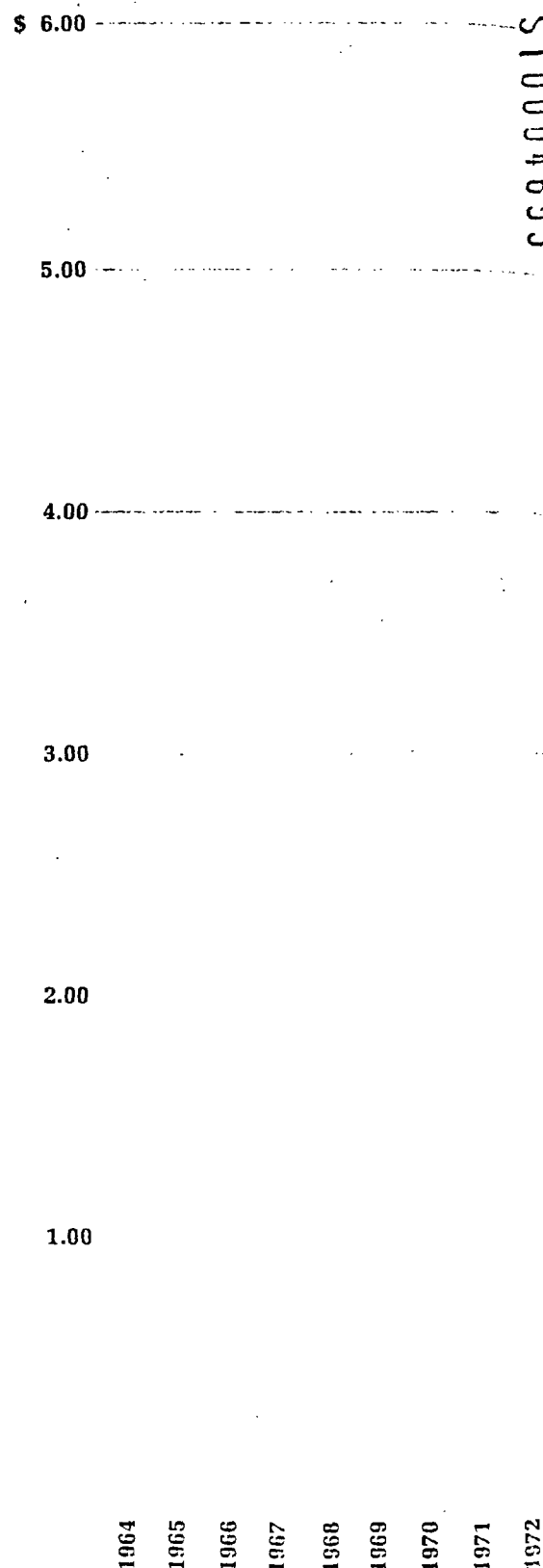
Cash Dividends Paid Per Share*

Cash Flow Per Share*

Before extraordinary items



*Restated to reflect one-for-one stock distribution made May 9, 1973



*Restated to reflect one-for-one stock distribution made May 9, 1973

Year Ended December 31
(in thousands)

1973

1972

Source of Working Capital

Net income before extraordinary items	\$271,148	\$188,971
Charges (credits) to income not involving working capital:		
Depreciation	263,114	234,886
Equity in earnings of non-consolidated companies, less dividends received	(33,168)	(23,335)
Other—net	7,473	9,835
Proceeds from sale of investments, less gains reflected in net income	5,921	16,325
Provided from operations	514,488	426,682
Extraordinary items		935
Issuance of long-term debenture notes	93,300	100,000
Increase (decrease) in other long-term debt	37,046	(2,088)
Sale of common stock to employees	22,763	23,700
Increase in other liabilities and reserves	45,914	5,480
Decrease (increase) in deferred charges and other outlays	1,094	(8,682)
Disposal of plant property and sundry	12,140	18,274
	<u>726,745</u>	<u>564,301</u>

Use of Working Capital

New plant and equipment	401,663	358,993
Cash dividends	89,869	82,332
Purchase of treasury stock	8,614	
Increase (decrease) in noncurrent investments	50,745	(49,014)
Acquisitions of subsidiaries and purchase of minority interests	4,749	2,606
	<u>555,640</u>	<u>394,917</u>

Increase in Working Capital	<u>\$171,105</u>	<u>\$169,384</u>
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Increase in Current Assets

Cash and marketable securities	\$155,162	\$ 56,406
Receivables	139,488	89,140
Deferred taxes	9,877	1,953
Inventories	73,673	28,398

Decrease (Increase) in Current Liabilities

Notes payable and current portion of long-term debt	54,300	96,185
Accounts payable	(135,840)	(38,421)
Income taxes and accruals	(125,555)	(64,277)
Increase in Working Capital	<u>\$171,105</u>	<u>\$169,384</u>

See Accounting Principles and Notes to Financial Statements

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Accounting Principles

Consolidation The accompanying consolidated statements include the assets, liabilities, revenues and expenses of all significant subsidiaries except for a bank and insurance company, both wholly owned. Because of the nature of their operations, the accounts of the bank and insurance company are not consolidated. However, their earnings are included in consolidated net income under the equity method of accounting.

Investments in companies which are 20%-50% owned are carried on the equity basis. Other investments are carried at cost less reserves, where applicable.

Translation of Foreign Currencies Property in foreign countries is translated into United States dollars at the exchange rates which prevailed at the dates the assets were acquired. All other assets and liabilities are translated generally at current rates of exchange. Revenues and expenses are translated at the average exchange rates for the year, except that depreciation reflects the historical rate. Unrealized losses on forward exchange contracts are recognized currently while gains are recorded at maturity. All exchange gains or losses in developing countries (principally Latin America) are credited or charged to income currently. In developed countries, net gains or losses on translation of long-term debt, net of losses or gains arising from forward contracts and from the translation of assets and other liabilities, are deferred and amortized over the life of the debt.

Inventories Finished materials and work in process are stated at standard cost, which approximates current production cost, or market if that is lower. Standard cost includes labor, material, depreciation and other overhead. Raw materials and supplies are stated at cost under the first-in, first-out method.

Plant Properties and Depreciation Land, buildings and equipment are carried at cost less accumulated depreciation. Depreciation is based on the estimated service lives of depreciable assets, using the declining balance method in the United States and Canada. In other countries, the straight line method is used.

Expenditures for renewals and betterments are capitalized, and maintenance and repairs are charged to income.

Prior to 1972, assets that were fully depreciated were eliminated from property and the reserve for depreciation at the end of each year. In 1972, the Company adopted the practice of retaining on the books those assets which became fully depreciated but still remain in use. In the case of disposals, the assets and related reserves are removed from the accounts and the net amount, less proceeds from disposal, is charged or credited to income.

Goodwill The excess of the cost of investments in consolidated subsidiaries over carrying value of assets acquired is shown as goodwill. Goodwill arising since October 1970 is amortized over 40 years. In the opinion of management, goodwill arising prior to that date requires no amortization.

Retirement Plans The Company and certain subsidiaries have plans which provide retirement benefits for eligible employees. The major plan covers substantially all full time employees. The policy is to accrue and fund pension costs computed by an actuary.

Investment Turnover The profit or loss resulting from the disposal of assets held for investment and resale is segregated in the statement of income as investment turnover.

Taxes on Income and Investment Credits The companies compute and record income taxes currently payable based upon their determination of taxable income which may be different from pretax accounting income. These differences may arise from recording in pretax accounting income transactions which enter into the determination of taxable income in another period. The effect of these timing differences is recognized by adjustment currently to the provision for taxes.

Provision is made for income taxes on unremitted earnings of subsidiaries as required under United States income tax laws, and of 20%-50% owned companies to the extent that such earnings are determined to be not permanently invested. Further, the Company expects that a portion of the income of principal foreign subsidiaries will be distributed and additional taxes, if any, applicable to such distributions are provided in the year in which the income is earned.

Laws governing the determination of United States and certain foreign income taxes provide for investment credits which are allowable generally upon completion of qualified facilities. Such credits are reflected as a reduction of income tax expense on the flow-through basis in the year in which they are earned.

In addition to tax credits, certain foreign countries provide investment incentives in the form of tax-free grants which offset development and start-up expenses of new facilities to which they relate. The excess, if any, of grants earned over expenses incurred are amortized over the life of the facilities.

Research and Development All research and development costs are charged to income as incurred.

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A. Investments The Company's equity in the net assets of investments accounted for by the equity method approximates the carrying value of such investments. Dividends received from companies carried on the equity basis were \$11.3 million in 1973 and \$5.3 million in 1972.

B. Plant Properties Properties and accumulated depreciation at December 31, 1973 were:

(In thousands)		
Classifications	Cost	Accumulated Depreciation
Land	\$ 74,167	
Land and waterway improvements	88,365	\$ 34,133
Buildings	332,496	148,799
Machinery and other equipment	2,475,898	1,280,217
Wells and brine systems	49,540	27,110
Furniture and fixtures	39,423	21,542
Other	22,395	11,116
Construction in progress	219,058	
Total	<u>\$3,301,342</u>	<u>\$1,522,917</u>

C. Leased Properties Minimum rental liability under long-term leases, substantially all of which pertain to manufacturing facilities and transportation equipment, is due as follows:

1974	\$51,380,000	1979-1983	\$97,965,000
1975	41,662,000	1984-1988	68,513,000
1976	35,570,000	1989-1993	35,903,000
1977	28,220,000	After 1993	27,021,000
1978	25,897,000		

The present value of minimum rental commitments on long-term financing leases included above was \$145,660,000 and \$139,640,000 at December 31, 1973 and 1972, respectively. Present values were determined by discounting minimum rentals at a weighted average interest rate of 6.7%. Individual interest rates ranged from 3.0% to 9.5%.

If the financing leases were capitalized and if applicable straight line depreciation and imputed interest were substituted for rentals, the effect on net income would not be material.

Rental payments charged to expense were \$63,884,000 in 1973 and \$51,687,000 in 1972.

D. Long-Term Debt and Available Credit Facilities

Details of long-term debt were:

	(In thousands)	
	December 31	
	1973	1972
Promissory notes:		
4.5%, final maturity 1990	\$ 100,000	\$ 105,000
5.0%, final maturity 1991	84,000	88,000
Debentures:		
4.35%, final maturity 1988	67,935	71,950
6.70%, final maturity 1998	96,000	96,000
7.75%, final maturity 1999	100,000	100,000
8.875%, final maturity 2000	150,000	150,000
8.90%, final maturity 2000	150,000	150,000
7.40%, final maturity 2002	100,000	100,000
7.625%, final maturity 2003	93,300	
Other (various rates and maturities):		
Foreign currency loans	221,905	176,925
Dollar loans	64,384	58,737
	<u>1,227,524</u>	<u>1,096,612</u>
Less unamortized debt discount	1,638	1,664
Total	<u>\$1,225,886</u>	<u>\$1,094,948</u>

The promissory notes and debentures are payable generally in annual installments beginning at various dates. Installments (stated in millions) due on long-term debt in the five years after 1973 are: 1974, \$39.0; 1975, \$47.4; 1976, \$88.0; 1977, \$45.1; 1978, \$49.3.

The Company has \$188 million of committed credit available under agreements with various United States and Canadian banks which require retention of average cash balances aggregating approximately \$17 million. These requirements are satisfied by balances available from normal business operations. There were no borrowings at December 31, 1973.

Other unused committed credit includes \$110 million under a revolving credit agreement with a group of foreign banks, and approximately 730 million Deutsche marks under a one billion Deutsche mark agreement with a group of major German banks.

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Notes to Financial Statements

1972 Annual Report

E. Stockholders' Equity At December 31, 1973, authorized capital stock consisted of 200,000,000 common shares and 25,000,000 preferred shares of \$5 and \$1 per share, respectively.

Numbers of shares and prices per share quoted in this note have been adjusted to recognize the one-for-one stock distribution as of May 9, 1973.

The changes in the number and amount of issued shares of common stock during 1973 were:

	Shares	Amount
Issued January 1	96,504,142	\$482,520,706
Sold to employees	625,158	3,125,790
Conversion of debentures	4,534	22,675
Issued December 31	<u>97,133,834</u>	<u>\$485,669,171</u>

At December 31, 1973, there were 92,259,853 shares of common stock outstanding, after deducting 4,873,981 shares of treasury stock. No preferred shares have been issued.

The Company's Award Plan permits the granting, during the ten-year period ending May 1979, of 1,050,000 shares of Restricted or Deferred Stock, or a combination thereof, to selected employees in lieu of cash for services. During 1973, 9,445 shares of Deferred Stock were awarded; no Restricted Stock was issued. At December 31, 1973, there were 919,695 shares available for grant. The Plan also extended to May 1979 the previous authority for granting Dividend Units. Other plans for granting to officers and key employees options to purchase common stock at the fair market value at date of grant were authorized in 1972 and 1967. Changes during 1973 in Dividend Units and in the number of shares optioned under the 1972 and 1967 plans were:

	1972 Option Plan	1967 Option Plan	Dividend Units*
Outstanding January 1	387,400	675,444	200,240
Granted	333,820		1,740
Exercised	(4,600)	(304,180)	
Outstanding December 31	716,620	371,264	201,980
Available for grant December 31	778,780		548,020
Price range on outstanding options at December 31	\$44.28 to \$58.62	\$20.48 to \$45.81	

* A Dividend Unit is the right to receive for a specified period cash payments equivalent in value to cash dividends paid during such period on one share of common stock.

A management incentive plan provides for granting to key employees, including officers and directors, incentive awards which are related to consolidated net income. Awards may be made in cash, Dividend Units, Deferred Stock and Restricted Stock, or a combination thereof. The aggregate amount charged to expense under this plan in 1973 and 1972 was \$1,705,000 and \$1,869,524, respectively.

In May 1973, the Company made an offering of common stock to its employees at \$45.25 a share, payable generally through payroll deductions. At December 31, 1973, there were unfilled subscriptions for 359,151 shares which may be cancelled at the option of the employee. Partial payments on these subscriptions aggregating \$10,237,988 are included in current liabilities.

In computing earnings per share, no adjustment was made for common shares issuable under stock purchase and option plans or upon conversion of debentures because there would be no material dilutive effect.

F. Extraordinary Items The Company's equity in the tax benefit of the net operating loss carryforward of a 50%-owned company was \$4.4 million in 1973. In 1972, a similar tax benefit amounting to \$4.0 million was offset by extraordinary charges against income of \$3.8 million, primarily the result of plants and projects abandoned.

G. Retirement Plans The cost of pension plans for companies in the consolidated group in 1973 and 1972 was \$29,683,725 and \$24,965,998, respectively. Pension fund assets exceed the actuarially computed value of vested benefits as of January 1, 1973. Payments from the pension fund to beneficiaries of the Company's major plan were \$10,281,460 in 1973 and \$8,734,010 in 1972.

H. Foreign Exchange Losses arising from translation of foreign currencies to U.S. dollars which were deferred at December 31, 1973 and 1972 amounted to \$1,495,264 and \$2,298,268, respectively.

Exchange adjustments incurred during the year plus \$760,556 amortization of losses previously deferred resulted in a charge to income for 1973 of \$10,304,685. This compares with \$2,287,106 for the preceding year.

At December 31, 1973, there were unrecorded gains of \$3,516,330 on outstanding forward contracts.

Investment Grants Investment grants credited to income amounted to \$800,320 in 1973 and \$5,097,735 in 1972.

Taxes on Income The provision for taxes on income consisted of:

	(In millions)			1972
	1973			
	Current	Deferred	Total	Total
United States:				
Federal.....	\$ 96.1	\$ 2.1	\$ 98.2	\$ 66.4
State and local.....	6.4		6.4	6.3
Foreign.....	73.2	24.8	98.0	54.4
Total.....	<u>\$175.7</u>	<u>\$26.9</u>	<u>\$202.6</u>	<u>\$127.1</u>

The current tax provision was reduced by investment credits of \$20.0 million in 1973 and \$11.3 million in 1972.

Principal events giving rise to deferred tax provisions were:

	(In millions)	
	1973	1972
Excess of depreciation claimed for tax purposes over book depreciation —principally foreign.....	\$ 29.0	\$ 7.6
Provision for doubtful accounts and other losses in excess of those allowed for tax ..	(8.0)	(2.8)
Tax on undistributed earnings of foreign subsidiaries deemed not to be permanently invested.....	5.6	1.4
Other.....	.3	1.7
Total.....	<u>\$ 26.9</u>	<u>\$ 7.9</u>

Effective consolidated tax rates for 1973 and 1972 were 41.9% and 39.2%, respectively. Major differences between these rates and the United States statutory rate were:

	Percent	
	1973	1972
Statutory rate.....	48.0	48.0
U.S. investment credits.....	(3.5)	(2.0)
Taxes on income from foreign sales at rates different from U.S. statutory rate.....	.2	(2.0)
Untaxed equity in income of companies whose accounts are not consolidated.....	(4.3)	(4.1)
Other.....	1.5	(.7)
Effective tax rate.....	<u>41.9</u>	<u>39.2</u>

The Company has provided taxes applicable to the earnings of foreign subsidiaries which are expected to be remitted. No provision has been made for taxes on those unremitted earnings of subsidiaries and 50%-owned companies which are deemed permanently invested. Such unremitted earnings were approximately \$400 million and \$350 million at December 31, 1973 and 1972, respectively.

Agreement has been reached with the Internal Revenue Service for all years through 1969.

K. Contingent Liabilities and Commitments Suits have been started against the Company and certain subsidiaries because of alleged product damages and other claims. All suits are being contested and the amount of uninsured liability thereunder is considered adequately covered by provisions made.

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Opinion of Independent Public Accountants

THE DOW CHEMICAL COMPANY

We have examined the consolidated balance sheet of The Dow Chemical Company and its subsidiary companies at December 31, 1973 and the related consolidated statements of income, retained earnings, capital surplus, and changes in financial position 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, such financial statements present fairly the financial position of the companies at December 31, 1973 and the results of their operations and the changes in their financial position for the year then ended, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

Haskins & Sells

Detroit, Michigan, February 19, 1974

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Product Results

(dollars in millions)

Sales

	1973	1972	% Change	1973—% of Total Company
Chemicals/Metals	\$1,522.3	\$1,169.0	+30.2	49.6
Plastics/Packaging	1,003.9	789.6	+27.1	32.7
Bioproducts/ Consumers Products.	<u>541.7</u>	<u>445.1</u>	<u>+21.7</u>	<u>17.7</u>
TOTAL	\$3,067.9	\$2,403.7	+27.6	100.0

Products and Services Operating Income

	1973	1972	% Change	1973—% of Total Company
Chemicals/Metals	\$ 206.5	\$ 156.3	+32.1	40.6
Plastics/Packaging	223.5	154.5	+44.7	44.0
Bioproducts/ Consumers Products.	<u>78.2</u>	<u>47.2</u>	<u>+65.7</u>	<u>15.4</u>
TOTAL	\$ 508.2	\$ 358.0	+42.0	100.0

Capital Expenditures

	1973	1972	% Change	1973—% of Total Company
Chemicals/Metals	\$ 292.2	\$ 278.2	+ 5.0	72.8
Plastics/Packaging	78.9	49.1	+60.7	19.6
Bioproducts/ Consumers Products.	<u>30.6</u>	<u>31.7</u>	<u>- 3.5</u>	<u>7.6</u>
TOTAL	\$ 401.7	\$ 359.0	+11.9	100.0

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Products and Services Operating Income

	1973	1972	% Change	1973—% of Total Company
United States.....	\$1,662.5	\$1,382.9	+ 20.2	54.2
Europe/Africa.....	827.5	591.1	+ 40.0	27.0
Latin America.....	232.2	177.7	+ 30.7	7.5
Canada.....	192.9	154.7	+ 24.7	6.3
Pacific.....	152.8	97.3	+ 57.0	5.0
TOTAL.....	\$3,067.9	\$2,403.7	+ 27.6	100.0

Gross Plant Properties

	1973	1972	% Change	1973—% of Total Company
United States.....	\$ 215.5	\$ 185.2	+ 16.4	42.4
Europe/Africa.....	185.0	100.8	+ 83.5	36.4
Latin America.....	43.7	34.4	+ 27.0	8.6
Canada.....	26.2	20.9	+ 25.4	5.2
Pacific.....	37.8	16.7	+126.3	7.4
TOTAL.....	\$ 508.2	\$ 358.0	+ 42.0	100.0

Capital Expenditures

	1973	1972	% Change	1973—% of Total Company
United States.....	\$2,177.7	\$1,984.1	+ 9.8	66.0
Europe/Africa.....	750.0	670.1	+ 11.9	22.7
Latin America.....	75.9	62.8	+ 20.9	2.3
Canada.....	267.1	242.4	+ 10.2	8.1
Pacific.....	30.6	21.4	+ 43.0	0.9
TOTAL.....	\$3,301.3	\$2,980.8	+ 10.8	100.0

Employees (thousands)

	1973	1972	% Change	1973—% of Total Company
United States.....	\$ 259.8	\$ 213.4	+ 21.7	64.7
Europe/Africa.....	87.5	88.0	- 0.6	21.8
Latin America.....	16.4	11.6	+ 41.4	4.1
Canada.....	32.2	39.7	- 18.9	8.0
Pacific.....	5.8	6.3	- 7.9	1.4
TOTAL.....	\$ 401.7	\$ 359.0	+ 11.9	100.0

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Condensed Comparative Statements

ST0004703

		1973	1972
Financial Condition (in millions)	Current Assets:		
	Cash and marketable securities	\$ 317.7	\$ 162.5
	Receivables (less reserves)	744.8	595.4
	Inventories	497.5	423.9
	Total current assets	1,560.0	1,181.2
	Current Liabilities:		
	Notes payable	214.0	269.6
	Accounts payable and accruals	623.8	426.7
	Taxes on income	167.3	101.7
	Total current liabilities	1,005.1	798.0
	Working Capital	554.9	383.6
	Property (at cost)	3,301.3	2,980.8
	Depreciation	1,522.9	1,331.1
	Net property	1,778.4	1,649.7
	Other Assets	557.7	481.2
Income (in millions)	Investment (A) plus (B) plus (C)	2,891.0	2,514.7
	Long-Term Indebtedness	1,225.9	1,094.9
	Other Liabilities and Reserves	135.6	90.3
	Total	1,361.5	1,185.2
	Common Stockholders' Equity (D) minus (E)	\$1,529.5	\$1,329.5
	Net sales of products and services	\$3,067.9	\$2,403.7
	Cost of sales	2,229.4	1,760.8
	Selling and administrative expenses	330.3	284.9
	Products and services operating income	508.2	358.0
	Investment and sundry income—net	58.3	51.8
	Interest expense	(83.4)	(85.8)
	Non-products and services income (loss)	(25.1)	(34.0)
	Taxes on income	202.6	127.1
	Minority interests' share in income	9.3	7.9
	Net income before extraordinary items	\$ 271.2	\$ 189.0
	Net income after extraordinary items	\$ 275.6	\$ 189.2
Other Statistics (in millions)	Additions to property	\$ 401.7	\$ 359.0
	Depreciation	263.1	234.9
	Research and development expenses	118.4	104.7
	Taxes (major)	314.3	218.0
	Wages and salaries paid	611.6	516.4
	Cost of employee benefits	101.8	85.4
	Number of employees at year-end (thousands)	49.8	48.8
	Cash dividends declared on common stock	89.9	82.3
	Per share of common stock (in dollars)(*):		
	Earnings before extraordinary items	2.94	2.07
	Earnings after extraordinary items	2.99	2.07
	Cash dividends paid	.95	.90
	Market closing price on December 31	57.50	50.75

(*) Adjusted for stock splits and stock dividends

1972	1971	1970	1969	1963	1953
162.5	\$ 106.1	\$ 78.6	\$ 133.4	\$ 54.3	\$ 202.4
595.4	504.3	445.1	430.0	198.7	49.8
423.9	395.5	368.2	289.1	167.7	74.3
101.8	1,005.9	891.9	852.5	420.7	326.5
69.6	368.3	229.3	337.8	19.1	101.6
26.7	366.8	350.6	291.1	115.0	45.0
01.7	56.4	56.8	51.6	41.8	52.4
96.0	791.5	636.7	680.5	175.9	199.0
33.8	214.4	255.2	172.0	244.8	127.5
30.8	2,722.9	2,524.3	2,305.1	1,244.6	602.0
11.1	1,158.8	1,086.1	1,010.1	687.2	172.9
9.7	1,564.1	1,438.2	1,295.0	557.4	429.1
1.2	508.7	474.7	498.5	106.6	16.6
4.7	2,287.2	2,168.1	1,965.5	908.8	573.2
1.9	1,010.1	969.8	798.0	166.8	249.2
1.5	80.1	70.8	61.0	.9	31.3
1.2	1,090.2	1,040.6	859.0	167.7	280.5
1.5	\$1,197.0	\$1,127.5	\$1,106.5	\$ 741.1	\$ 292.7
7	\$2,052.7	\$1,911.1	\$1,797.1	\$ 967.7	\$ 430.4
8	1,517.3	1,417.8	1,348.7	721.0	311.3
9	250.7	233.7	208.7	110.8	29.4
0	284.7	259.6	239.7	135.9	89.7
3	43.9	36.0	43.9	17.3	4.8
3	(78.5)	(73.5)	(54.3)	(4.6)	(6.3)
3	(34.6)	(37.5)	(10.4)	12.7	(1.5)
1	91.0	88.1	81.5	65.8	50.7
1	4.7	4.0	5.2		.8
	\$ 154.4	\$ 130.0	\$ 142.6	\$ 82.8	\$ 36.7
	\$ 154.7	\$ 102.1	\$ 142.6	\$ 82.8	\$ 36.7
	\$ 364.6	\$ 348.1	\$ 370.6	\$ 82.1	\$ 97.6
	218.8	207.7	177.9	99.2	52.0
	95.3	91.5	87.3	62.6	16.2
	161.8	136.5	140.7	92.8	59.2
	464.7	433.2	410.6	239.2	104.8
	72.2	64.4	56.3	21.7	8.7
	47.8	47.4	47.4	31.2	20.8
	81.0	78.5	77.3	47.1	20.7
	1.70	1.44	1.57	.91	.46
	1.70	1.13	1.57	.91	.46
	.89	.87	.83	.52	.28
	39.44	24.54	22.88	22.55	11.10

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Distribution of 1973 Income Dollar

Dow Wage/Selling Price Index

Earnings for the year
invested in the business 5.8

Cash dividends 2.8

Taxes 9.9

Depreciation 8.3

Wages, salaries and
indirect benefits 22.3

Raw materials, supplies
and services 50.9

200

180

160

140

120

100

80

60

40

20

Wages, Salaries and Benefits

Net Selling Prices

1963

1964

1965

1966

1967

1968

1969

1970

1971

1972

1973

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Locations and Holdings

Dow Chemical Company
250 Dow Center
Midland, Michigan 48640

UNITED STATES

Manufacturing Locations in 26 States and 1 Territory*

Alabama—Tucson
Arizona—Magnolia, Russellville
California—Costa Mesa, Fresno, Pico Rivera, Pittsburg, Torrance, Van Nuys, Walnut Creek
Colorado—Denver, Golden
Connecticut—Gales Ferry, Trumbull
Florida—Miami
Georgia—Dalton, Lawrenceville, Sylvania
Hawaii—Honolulu
Illinois—Joliet (under construction)
Indiana—Decatur, Indianapolis, Zionsville
Iowa—Davenport
Kentucky—Carrollton, Elizabethtown
Louisiana—Breaux Bridge, Napoleonville
Maine—Bangor
Michigan—Bay City, Hemlock, Ludington, Midland
Minnesota—Biwabik
Missouri—Cape Girardeau, Pevely
New Jersey—Carteret, East Rutherford
New York—Washington
New York—New York
North Carolina—Boonville, Greensboro, Mebane
Ohio—Findlay, Ironton, Newark
Oklahoma—Tulsa
Pennsylvania—Roversford
South Carolina—Allendale, Anderson
Texas—Freeport, Oyster Creek
Virgin Islands—St. Croix
Virginia—Williamsburg
Washington—Wenatchee
Principal Partly Owned Companies:
Dow Chemical Corp., Miami, Florida (50%)
Dow Packaging Corp., Los Angeles, California (50%)
Dow Badische Company, Williamsburg, Virginia (50%)
Corning Corporation, Midland, Michigan (50%)
Karlidge Pak Co., Davenport, Iowa (50%)
Pipe Line Company, Houston, Texas (30%)

EUROPE

24 Manufacturing Locations in 10 Countries*:

Belgium—Seneffe; Tessenderlo (under construction)
France—Drusenheim, Seclin
Germany—Greffern, Munich, Stade
Greece—Lavrion
Italy—Anagni, Brindisi, Garesio, Livorno, Milan, Venice
The Netherlands—Amsterdam, Rotterdam, Terneuzen
Portugal—Lisbon
Spain—Bilbao, Madrid, Tarragona
Sweden—Norrköping (under construction)
United Kingdom—King's Lynn, England; Barry, Wales

Principal Partly Owned Companies*:

Bank Mendes Gans, Amsterdam, The Netherlands (40%)
Compagnie des Services Dowell Schlumberger, Paris, France (50%)
Dowell Schlumberger Corporation, London, England (50%)
Dow-Unquinesa S.A., Bilbao, Spain (95%)
Gruppo Lepetit S.p.A., Milan, Italy (78%)

MIDDLE EAST

Iran—Teheran

LATIN AMERICA

13 Manufacturing Locations in 7 Countries*:

Argentina—Buenos Aires, Córdoba, San Lorenzo
Brazil—Aratú (under construction), Guarujá, São Paulo
Chile—Concepción, Santiago
Colombia—Cartagena
Ecuador—Quito
El Salvador—San Salvador
Mexico—Cuernavaca, Mexico City
Principal Partly Owned Companies:
Atanor S.A.M., Buenos Aires, Argentina (22%)
Banco Cidade de São Paulo S.A., São Paulo, Brazil (45%)
Bio-Ciências/Lavoisier Análises Clínicas, São Paulo, Brazil (50%)
Laboratorios Industriales Farmacéuticos Ecuatorianos, Quito, Ecuador (63%)
Petroquímica-Dow S.A., Concepción, Chile (70%)
Pirâmides Brasília S.A., Indústria e Comércio, São Paulo, Brazil (24%)
Produtos Petroquímicos Nacionais S.A., Guarujá, Brazil (80%)

CANADA

12 Manufacturing Locations in 4 Provinces*:

Alberta—Fort Saskatchewan
British Columbia—Ladner
Ontario—Cambridge, Don Mills, Guelph, Kitchener, Sarnia, Thunder Bay, Toronto, Weston
Quebec—Montreal, Varennes
Principal Partly Owned Companies:
Canadian General-Tower Ltd., Cambridge, Ontario (44%)
Conn-Chem Ltd., Toronto, Ontario (20%)
Morval—Durofoam Limited, Kitchener, Ontario (25%)

PACIFIC

18 Manufacturing Locations in 9 Countries*:

Australia—Altona, Brisbane, Smithfield
Hong Kong—Hong Kong (under construction)
India—Bombay
Indonesia—Medan (under construction)
Japan—Ageo, Chiba, Kanuma, Kawasaki, Mizushima, Nobeoka, Sapporo, Suzuka
Korea—Ulsan
Malaysia—Kuala Lumpur
New Zealand—New Plymouth
Thailand—Bangkok
Principal Partly Owned Companies:
Asahi-Dow Limited, Tokyo, Japan (50%)
Consolidated Fertilizers Ltd., Brisbane, Australia (20%)
Ivon Watkins-Dow Limited, New Plymouth, New Zealand (51%)
Korea Pacific Chemical Corporation, Seoul, Korea (50%)
Pacific Chemicals Berhad, Kuala Lumpur, Malaysia (51%)
Polychem Limited, Bombay, India (25%)

*Includes wholly owned companies and principal partly owned companies.

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Directors and Officers

Board of Directors

EARLE B. BARNES	Chairman of the Board
EARLE B. BARNES	Vice President
EARLE B. BARNES	Chairman, Chemical Financial Corporation
EARLE B. BARNES	Former Treasurer of the Company
EARLE B. BARNES	President, Dow Chemical of Canada, Limited
EARLE B. BARNES	President
EARLE B. BARNES	University Professor, Chemistry, University of California
EARLE B. BARNES	Consultant
EARLE B. BARNES	Partner, Doan Associates
EARLE B. BARNES	Former President of the Company
EARLE B. BARNES	Secretary
EARLE B. BARNES	Vice President
EARLE B. BARNES	Vice President
EARLE B. BARNES	President, Dow Chemical Pacific, Limited
EARLE B. BARNES	Vice President
EARLE B. BARNES	Vice President
EARLE B. BARNES	Financial Vice President and Treasurer
EARLE B. BARNES	President, Dow Chemical Latin America
EARLE B. BARNES	General Manager, Petroleum Production & Services, Dow Chemical U.S.A.
EARLE B. BARNES	Vice President

Executive Committee

C. B. Branch, Chairman; Earle B. Barnes, Carl A. Gerstacker, Julius E. Johnson, H. H. Lyon, Zoltan Merszei, Paul F. Oreffice, Herbert H. Dow, Secretary & Alternate Member

Finance Committee

Carl A. Gerstacker, Chairman; Herbert H. Dow, Wilson A. Gay, William A. Groening, Jr., A. P. Hanmer, I. Frank Harlow, Paul F. Oreffice

Audit Committee

Herbert D. Doan, Chairman; Melvin Calvin, Herbert H. Dow

Officers and Assistant Officers

C. B. BRANCH	President
C. B. BRANCH	Chief Executive Officer
CARL A. GERSTACKER	Chairman of the Board
EARLE B. BARNES	Vice President
HERBERT H. DOW	President, Dow Chemical U.S.A.
WILLIAM A. GROENING, JR.	Secretary
A. P. HANMER	Vice President
A. P. HANMER	General Counsel
A. P. HANMER	Vice President
A. P. HANMER	Controller
A. P. HANMER	Assistant Secretary
I. FRANK HARLOW	Vice President
I. FRANK HARLOW	Tax Counsel
JOULIS E. JOHNSON	Vice President
JOULIS E. JOHNSON	General Manager, Life Sciences Department
J. M. LEATHERS	Director, Corporate Research & Development
J. M. LEATHERS	Vice President
H. H. LYON	Executive Vice President, Dow Chemical U.S.A.
H. H. LYON	Vice President
ZOLTAN MERSZEI	Director of Corporate Administration
ZOLTAN MERSZEI	Vice President
PAUL F. OREFFICE	President, Dow Chemical Europe S.A.
PAUL F. OREFFICE	Financial Vice President
G. JAMES WILLIAMS	Treasurer
G. JAMES WILLIAMS	Vice President
G. JAMES WILLIAMS	Executive Vice President, Dow Chemical U.S.A.
R. W. BARKER	Assistant Secretary
DALE A. BYWATER	Auditor
WILSON A. GAY	Assistant Treasurer
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DAVID N. LEVERT	Assistant Treasurer
FIRMIN A. PAULUS	Assistant Controller
GERTRUDE WELKER	Assistant Secretary

Public Interest Committee

Herbert H. Dow, Chairman; Earle B. Barnes, Melvin Calvin, Herbert D. Doan, Carl A. Gerstacker, Julius E. Johnson; James H. Pearce, Executive Secretary

Transfer Agents and Registrars

The Cleveland Trust Company; Morgan Guaranty Trust Company of New York

Stock Exchange Listings

United States: New York, Midwest, Pacific; Europe: Amsterdam, Antwerp, Basel, Bern, Brussels, Dusseldorf, Frankfurt, Geneva, Hamburg, Lausanne, London, Zurich; Asia: Tokyo

Certified Public Accountants

Haskins & Sells

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THE DOW CHEMICAL COMPANY
MIDLAND, MICHIGAN 48640

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