The Story of Monsanto

Faith, Hope and $5,000

THE TRIALS AND TRIUMPHS
OF THE FIRST 75 YEARS

by Dan J. Forrestal

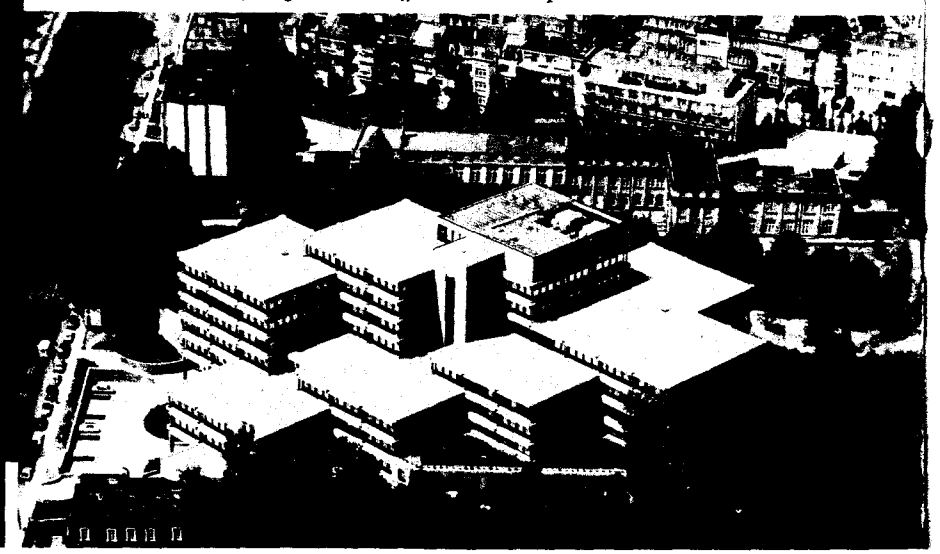


Simon and Schuster
New York



James S. McDonnell (left), chairman of McDonnell Douglas Corporation, and John W. Hanley, president and chairman of Monsanto Company, with trade representatives of the People's Republic of China at a dinner meeting in St. Louis in 1974.

Monsanto's new European headquarters building on Avenue de Tervuren in Brussels, Belgium. The offices were completed in 1976.



CHAPTER XV

The Era of the Activists

MONSANTO had been a rather "low profile" company long before the words "low profile" became a popular part of the lexicon of modern business. Edgar M. Queeny's comment on corporate spokesmanship took two words: "We're conservative."

Dr. Charles A. Thomas had achieved some prominence in the fifties as president of the American Chemical Society and as an advocate of chemistry as a preeminent professional career. Queeny himself had spoken up on isolated occasions and had been particularly articulate in the written word in his campaign against what he regarded as government oversteering and against free trade.

In the main, however, up until the sixties Monsanto was not among the most vocal companies in American industry. Taking a safe and cautious course, Monsanto was often inclined to avoid controversy, or at least to avoid provoking controversy, in the press and other public forums.

But a new day dawned in the sixties, when the era of the activists arrived. Critics and reformers and antibusiness spokesmen proliferated, seemingly overnight.

Monsanto—in company with other companies—began to hear new noises from beyond its walls.

Management Consultant Peter Drucker called it "the era of the great American debate."

Critics in government, critics on the campus, critics within the newly flowering consumer movement, critics in journalism—these and others were shaking their fists, making accusations, hurling charges, issuing threats and attempting to marshal public opinion in causes aimed at "protecting the public interest."

The business system—including Monsanto—had not been without its vocal critics before. Founder John F. Queeny had had to fight accusations about the purity of saccharin during his company's early years. In the interim, criticism from governmental, academic, labor and other quarters had been a part of life's struggle.

During Edgar Queeny's long period of influence and leadership, he often commented that the business system had brought on some of the hostility it faced. In his book *The Spirit of Enterprise* Queeny specifically declared, "Business did not have clean hands; but its critics and detractors were not fair nor honest toward it, either."

Queeny's mid-sixties estimate was: "Some of the criticism has been brought about by the behavior of the business system, itself. Some has been valid. Some is being voiced by sincere, well-meaning people striving for a better way of life. But some seems to have been mounted for political purposes. Some seems founded on something less than facts. And some seems simply vicious."

If Monsanto officers bridled a bit at the negative implications from the activists in the sixties, this was understandable. Monsanto officers were confident—and perhaps, then, a bit overconfident—that their company's performance and behavior were always in the public interest. Such confidence was reinforced by their knowledge that Monsanto products were serving such essential fields as safety, food, housing, transportation, apparel and health. A few Monsanto people became so upset by the new noises that they resorted to calling activists "eco-nuts"—but fortunately this sort of thing met with scowls from top officers and had a brief life span.

On the U.S. scene in the sixties two best-selling books had a towering influence toward anti-establishmentism and reform. They were *Silent Spring,* by Rachel Carson (Houghton Mifflin, 1962), and *Unsafe At Any Speed,* by Ralph Nader (Grossman, 1965).

Miss Carson was no newcomer to the literary scene. She had already achieved fame as a conservationist, a serious scientist and a prolific author.

Ralph Nader, a young man from Winsted, Connecticut, was virtually unknown. He had decided to write a book "exposing the lethal design of the Corvair" as a method of confrontation with General Motors and as a manifesto to rally others to the already developing cause of consumerism. He was on the threshold of becoming a dominant symbol of the new era.

Monsanto felt only marginally involved in the Nader book's argument, but it felt directly implicated by the earlier work by Rachel Carson. And Monsanto responded in non-Monsanto style—with a rebuttal which burst upon the scene like a skyful of skyrockets.

New Yorker Magazine was the trigger. Without an assist from *The New Yorker,* Monsanto might very well have adopted a safe and cautious course of not making waves.

But it did make waves in the matter of *Silent Spring,* in which Miss Carson issued a frightening warning on the worldwide dangers of chemical pesticides.

In May, 1962, Monsanto learned—quite accidentally—that *New Yorker* Magazine planned to run a major excerpt of the Carson book in

advance of the book's scheduled October publishing date—in *New Yorker* issues of June 16, 23 and 30.

Thus Monsanto had an early warning of what was to come. And thus it learned, in three installments, how *Silent Spring* unleashed terrifying criticism of the perils and potential perils of pesticides.

Board Chairman Thomas's reaction was: "The airplane also involves risks but no one wants to eliminate aviation. The challenge is to make aviation even safer. Pesticides involve the matter of tradeoffs. Their benefits far outweigh their perils. We in the pesticides business should continue to keep increasing their benefits and keep minimizing their risks."

"Let's not throw out the baby with the bathwater" had long been a popular expression at Monsanto, and when the three *New Yorker* issues were passed around from office to office, the expression became more popular than ever.

Aware on the one hand that wrongly used or carelessly used pesticides can be harmful to man, birds, fish, livestock, crops and flowers, Monsanto was also aware, on the other hand, that the world could never produce sufficient food without chemicals to combat insects and weeds which, if left uncontrolled, would take a disastrous toll.

In 1962 Monsanto was a major manufacturer of selective weed killers, but it was not a major manufacturer of insecticides, except for parathion. The most controversial insecticide of the period, DDT, had already been discontinued by Monsanto and was no longer in its product catalogue.

Against this background . . .

Chairman Thomas and President Sommer noticed in *The New Yorker*'s excerpts that Miss Carson spent very little time explaining the need for insect control and weed control in order to feed the world.

Sommer commented, "She accentuated the negative. I am sure she felt she could get maximum impact by dramatizing the worst."

Thomas kept reiterating his disappointment that Miss Carson, a respected fellow scientist, had not presented a both-sides-of-the-story analysis.

Two principal options were considered: to ignore the whole thing and let some other company or a trade association speak up, or to fight back.

The vehicle for fighting back was a spirited essay in the October 1, 1962, issue of *Monsanto Magazine,* entitled "The Desolate Year"—a rebuttal which received widespread exposure and acclaim.

Based largely on quotes from eminent agronomists, biologists, entomologists and other scientists unrelated to Monsanto, "The Desolate Year" speculated on what the world would be like if pesticides were nonexistent for a year.

Walter Sullivan of *The New York Times Book Review* commented, "Miss Carson forfeits persuasiveness among those who know she is not

telling the whole story. She lays herself open to parody. Some unsung hero of the chemical industry has written . . . 'The Desolate Year.'"

But Edward Weeks in the same book review section wrote, "Yes, but it took Miss Carson to remind us that in our uncoordinated, often selfish, use of chemicals, we have too often thrown nature out of balance."

Recently, when Charlie Sommer was asked for comment on Monsanto's widely quoted 1962 rebuttal, he said, "We felt we had a responsibility to demonstrate the other side of the tradeoff—namely, the perils of abandoning pesticides. I remember that a few years after *Silent Spring* was published a House subcommitee on agriculture in Washington declared the book had created 'an atmosphere of panic.'"

Sommer added, "I've been asked in recent years whether Monsanto didn't overreact. At the time, it didn't seem so. Actually, I'm glad we spoke out. Yet as I look back, perspective suggests Miss Carson's work was surely a lot more enduring in its influence than our rebuttal. Many people today believe her warnings should have been sounded. And her cry for a better and safer world still reverberates.

"I realize a lot of people remember that Monsanto spoke out with force and conviction, dramatizing the importance of pesticides, but the major thing to remember is that the new era forced all companies to take a harder look at the way they and their products were impacting the quality of life.

"I happen to know that all along Monsanto had been doing a diligent job in assuring the safe use of its products, and I also believe we had been doing a diligent job in attempting to control pollution at our plants. However, the record also shows that we had only just begun."

Monsanto's 1963 Annual Report made a one-paragraph reference to the pesticides issue: "A best-selling book which made some disturbing charges against weed and insect killers performed one useful service. It reminded the public that pesticides must be tested thoroughly, marketed responsibly, and applied discriminately. Monsanto has always said so."

The same Annual Report dealt with another kind of environmental issue by announcing the advent of some new technology. It said, "As a major supplier of detergent chemicals, Monsanto has realized for several years that present detergents feed hard-to-remove residues into rivers and streams, where they continue to foam—harmlessly but annoyingly. As detergent use has increased, so has the problem.

"Detergent makers have also been sensitive to this problem and have searched with us and with others for a solution. That solution has come in the form of biodegradables—the so-called 'soft' detergents—that leave residues easily decomposed by microscopic organisms found in water.

"Monsanto will begin producing biodegradables commercially in 1964. Major detergent companies say they will start using them in proprietary formulations immediately thereafter."

But not all new chemical technology for the detergent industry turned out so well. Example: There was that seven-syllable problem product nitrilotriacetate, which had that handy nickname of NTA.

Why NTA?

Here's the background: During the fifties and early sixties, phosphates —and especially phosphate-related detergents—were widely blamed for the degradation of lakes and rivers. (The eutrophication of Lake Erie was perhaps the most dramatic and frequently cited case.) In the course of a search for alternate raw materials for detergents, NTA was judged by the detergent industry and its suppliers as a promising candidate.

In 1968 Monsanto announced that at Chocolate Bayou, near Alvin, Texas, it had completed a production unit for NTA, the then-new chemical wonder destined to be used with sodium phosphate in a new generation of detergents.

Two years later, when Monsanto reported an extraordinary charge against earnings in the amount of $11,343,000, it explained: "The largest of 1970's extraordinary charges resulted when detergent makers accepted a federal government regulation to stop using NTA detergent builder, thus forcing Monsanto to halt manufacture of the product. Detergent makers, although satisfied that NTA is both safe and effective, agreed to discontinue all use of the material. Monsanto had no choice but immediate shutdown."

The 1970 Annual Report also mentioned that "Detergent phosphates were under fire. It was charged that the product caused excessive plant growth in lakes and streams. And proposals were advanced to ban their use.

"Although it is generally recognized that phosphates are plant nutrients, Monsanto does not believe that removal of phosphates from detergents will solve the eutrophication problem. Furthermore, the company takes the position that not only phosphates but other nutrients must be brought under control to combat the problem effectively. Monsanto believes a better solution would be efficient removal of plant nutrients, including phosphates, in sewage-treatment plants. Such plants would extract all sources of nutrients in municipal wastes—an approach Monsanto believes to be far more desirable than a nationwide attack against a single source of just one nutrient."

Few if any chemicals escaped fresh scrutiny in the sixties. And whereas Monsanto experienced no trauma like that of Dow Chemical Company during the latter's participation in the U.S. napalm project, Monsanto nonetheless was occasionally mentioned as a manufacturer of 2,4,5-T weed and brush killers, some of which were identified as defoliants used during the war in Vietnam.

Cyclamates for soft drinks joined the Monsanto product catalogue in 1965 but remained there for only two years, chiefly because of the lack

of profitability. In 1969 cyclamates were banned by the U.S. Food and Drug Administration as a possible health hazard, yet, ironically, the FDA subsequently indicated the ban was imposed on the basis of inconclusive evidence.

But the problem of an ubiquitous chemical called PCB became the most persistent of all.

In the company's 1970 Annual Report, it was stated: "Monsanto voluntarily undertook a program to reduce the presence of polychlorinated biphenyl (PCB) in the environment. The company withdrew PCB from the plasticizer market and introduced specially tailored replacements. Sales of PCB to the electrical industry (as a dielectric insulating fluid) were not affected because the product can be safely disposed of."

When the company announced in 1976 its intention to phase out the production of PCB, it explained:

> To fully comprehend the dilemma Monsanto had experienced as the sole producer in North America, it is necessary to understand the risks and benefits of PCB. The chemical structure of PCB has been known for almost 100 years. But it wasn't until 1929 that commercial production was initiated. This start-up was in response to the needs of the electrical industry for an improved dielectric fluid which would also provide increased fire resistance in transformers and capacitors.
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> The only known alternative at that time was mineral oil. But it was very hazardous since it is unstable and flammable. The unique properties of PCB answered the special needs of the electrical industry by eliminating the threat of fires, explosions, equipment damage and personal injuries.
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> For almost 40 years, PCB was used without any apparent problems. It wasn't until the late 1960s that the first signs of hazards began to surface.
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> In 1968, almost 1,000 people in Japan became ill from eating rice contaminated with PCB as a result of an industrial accident. Symptoms of those eating the rice included dizziness, weakness and nausea. In addition, children born to mothers exposed during pregnancy had darkened skin at birth. In every case, however, the skin condition cleared within three months.
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> An environmental problem was reported for the first time in the early sixties by a Swedish biologist, who identified PCB in the bodies of fish. Monsanto and others immediately began to study the Swedish work.
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> When the study confirmed the presence of PCB in the U.S. environment, Monsanto began voluntarily withdrawing its sales of PCB to open application which could result in losses to the environment. This action reduced the company's annual PCB production from about 85 million pounds to less than 40 million. At the same time, Monsanto made the conscientious decision to continue supplying PCB to the electrical power distribution industry where it is used in sealed transformers and capacitors. Withdrawal from these applications would have halted production of equipment essential to the safe and efficient distribution of electrical energy, since no alternative was available.
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> In 1972, Monsanto's restricted program was reviewed, supported and endorsed by a federal task force. But despite this endorsement, there were increasing reports that the entry of PCB into the environment had not been curbed.
>
> We were convinced that these reports were not evidence our program was not effective, but rather substantiated our theory that PCB remains in the environment for a long period of time. The findings of yet another task force, initiated in 1975, supported our theory that the majority of present quantities of PCB in the environment were the result of losses in past years.
>
> Monsanto had invested millions of dollars to implement and maintain its restrictive sales program, which we believe had been effective. And we have invested additional millions in our search for replacement dielectric fluids which would be more compatible with the environment.

Yet Monsanto was not content in the mid-seventies simply to stick with a restricted sales program. It had many sessions with the Environmental Protection Agency and, of course, with its industrial customers using PCB. On October 5, 1976, Monsanto announced its intention to withdraw as a PCB supplier effective no later than October 31, 1977.

IN 1969, realizing it had some proprietary technology which would help other industries combat pollution, the company formed a subsidiary, Monsanto Enviro-Chem Systems, Inc.

The new subsidiary's strength was more or less assured by its dowry of Monsanto's formidable technology in the design, engineering, construction and catalysts for sulfuric acid plants. More than 600 such plants have been established in 56 nations over the past 50 years. With such a solid and profitable base, Enviro-Chem was initially regarded as a sure winner. President Edward J. Bock in 1969 called it "our white hat."

The most notable success in Enviro-Chem's pollution-control package has been the Brink mist eliminator, named for its Monsanto scientist-inventor, Dr. Joseph A. Brink. This device is designed to remove and collect virtually any liquid mist or soluble solid from any manufacturing gas stream with up to 99.95-percent efficiency on sub-micron particles.

The Brink technology was developed during the mid-fifties and was successfully tested at Monsanto's phosphoric acid plant at Trenton, Michigan, starting in 1959. The first sale outside of Monsanto was accomplished in 1960 to Collier Carbon and Chemical Co., Wilmington, California. Brink elements have since been put into service in approximately 2000 installations in 54 countries.

The rest of Enviro-Chem has not done as well.

A process to remove sulfur dioxide from the stack gas of coal-fired

electric power plants got off to a good start in a small, prototype installation in Pennsylvania, but it encountered difficulties when a full-scale system was installed by Illinois Power Company at Wood River, Illinois. Called the Cat-Ox system, it met performance guarantees during its start-up at Wood River in 1973, but when operating problems were subsequently more than Illinois Power felt it could cope with, the system was shut down. The Environmental Protection Agency had helped Illinois Power fund the project.

Another Enviro-Chem venture was a company called Monsanto Biodize Systems, Inc. It had technology for treating waste waters, particularly those of industrial origin. Biodize was dissolved in 1972 with the terse obituary notice that its "technology was not superior to the state of the art."

Equally unsuccessful was an Enviro-Chem effort to install systems to handle sewage disposal for municipalities. Engineering costs far exceeded initial estimates, and the venture wound up as an unfortunate experiment. Cost overruns for three years (1972, 1973 and 1974) resulted in a $19.5 million reduction of net income. This offspring of Enviro-Chem was accordingly also short-lived, and was plainly not superior to the "state of the art."

Enviro-Chem presently boasts of technology for dealing with solid waste problems. This system is called Landgard. After a laboratory model of a direct-fire, continuous pyrolysis unit had been built and operated in Dayton, a pilot plant with a capacity of 35 tons a day was installed and operated in St. Louis, largely to develop scale-up data for a full-size plant. A full-size plant with an anticipated capacity of 1000 tons a day was started in 1973 in Baltimore, funded by the city of Baltimore, the state of Maryland and the EPA. When the plant neared completion, mechanical problems and emission problems developed. Corrective measures were taken.

(In February, 1977, the program headed toward oblivion when Monsanto Enviro-Chem recommended to the city of Baltimore that the Landgard resource recovery project be terminated because of the "mechanical unreliability" of the system and the "inability to predict clearcut success.")

Challenging as technical problems can be in the invention and development of pollution control equipment, Monsanto and other manufacturing companies have found another kind of problem which is not only challenging but annoying, costly, time-consuming and chain-reacting: the matter of dealing with innumerable federal, state and local regulations.

Sometimes called "the fourth branch of government," the federal regulatory agencies have multiplied dramatically. Recently compiled data show that in 1965 there were only twelve major federal regulatory agencies and that they spent about $860 million, but that now there are twenty-four major regulatory agencies with a budget of $4 billion. A later count by the Library of Congress indicates there are actually sixty-seven federal regulatory bodies of all kinds in operation.

During 1974 alone, Congress enacted 404 laws but the federal bureaucrary spewed out 7496 new or amended regulations.

Charles H. Sommer recently observed, "The public is demanding more respect for the environment and the public will get what it demands—but it will pay for it. Naturally, government guidelines are needed, but it's unfortunate that there have been so many changing, overlapping, contradictory and confusing regulations. The paperwork causes a pollution of its own. More seriously, the situation brings about a relentless upward pressure on costs and it fuels the fires of inflation."

Sommer recalls that the countdown of the sixties ended in a nationwide observance of Earth Day in April, 1970. As president, he was in the driver's seat over the bumpy roads from 1960 to 1968, and he was chairman in 1970 when the company announced it had more than 175 technical and professional people spending full time on antipollution activities. Speaking at the 1970 Annual Meeting of shareowners, Sommer said:

> Paramount among today's and tomorrow's needs are the needs of society. A company operating in the public interest is the only kind of company which will merit progress.
>
> Take pollution. On the front pages, it competes with Vietnam as a major issue of our times. We in Monsanto hope the day has finally dawned when all major elements of our society will work together to find effective measures for environmental control. This task is a necessary part of the new job we face, the job which Norman Cousins described as 'the management of our planet.'
>
> Healthy concern is being shown not only about air pollution and water pollution but also about pollution of our land by solid wastes. In addition, there has been increased attention given lately to a fourth element disturbing our tranquility, namely, pollution by noise.
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> And it's all due to the fifth element of pollution, people—to a world population due to double by around the year 2000. It is this fifth pollution—overpopulation—that has put the pressure on the other four.
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> As you know, it took many years for pollution to reach its present critical stage. Perhaps we can all say it's too bad all major elements of our society didn't wake up sooner. But that's in retrospect. And let's face it: Industry has contributed to pollution. Municipalities have surely done their share to worsen the problem. So have public utilities. Yet individuals are the most blameworthy. And as individual citizens we must face the fact that the fault is largely our own.
>
> Some remedies will come rapidly; others will take time and thought and skill and patience and persistence. But in any case, let's make certain our programs are motivated by a genuine desire to control pollution and not by mere political expediency.
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> It is interesting to see the younger generation take up this fight

with plan and purpose. If the clamor of youth for improvement can stir a populace into wise courses of action, then we owe the young a sincere vote of thanks.

The young—idealistic and, above all, compassionate—are precisely the right people to be concerned about the quality of life tomorrow. For it is their life and it is their tomorrow.

Students, conservationists, ecologists and others will find Monsanto striving for the same blue sky, the same clear water, the same uncluttered land. We also strive for equitable and reasonable standards, divorced from political considerations, yet dedicated to public insistence on action.

Rhetoric about pollution abounds. And if this helps dramatize the problems and force solutions it is probably helpful. Yet there is a tremendous gap between rhetoric and commitment. At Monsanto, our commitment began long ago.

Some observers have said that technology cannot save us from this sorry mess. I do not share this despair. I ask you not to sell technology short. For technology can cure as well as cause. Technology can lead us to better and cleaner processes in all industries and will lead the way to retarding the despoilment of our fragile environment. The physical sciences, employed in their ultimate role, are indispensable in the struggle for a healthful environment, as man seeks to balance his own needs with nature's irrevocable laws.

Since 1970's Earth Day, many of the concerns voiced by Charlie Sommer have been similarly recited by a wide variety of executives within Monsanto. New environmental pressures have since become a part of daily life, adding not only a new sense of corporate responsibility but a new set of high price tags to the "cost of doing business."

In the three-year period from 1974 to 1976 Monsanto spent approximately $136 million on pollution-abatement equipment alone, a figure which does not include operating and maintenance costs. The tab for the ensuing three years, 1977 to 1979, is expected to be at almost the same level, bringing the six-year total beyond a quarter billion dollars.

CHAPTER XVI

Old Faces In New Places

LEADERSHIP during the sixties and early seventies came principally from three executives whose Monsanto roots ran deep.

The year 1965 provides a particularly good vantage point for views of Charles H. Sommer, Edward A. O'Neal and Edward J. Bock.

Charlie Sommer was in his fifth year as president and was firmly settled in a position for guiding the orderly operations of a growing company. Sales approached $1.5 billion in 1965; net income approached $125 million, and per share earnings were up to $3.89. The shareowner family totaled almost 95,000 and the payroll numbered over 56,000.

In March of 1965, the much-traveled and versatile Ed O'Neal took over the chairmanship for a three-year period when Dr. Charles A. Thomas stepped down. Thomas in turn remained a board member for the ensuing five years until his retirement at age seventy.

In April of 1965 Vice President Ed Bock, general manager of Inorganic, moved into greater prominence in a new corporate position called Vice President, Administration. He also became a member of the board and of the Executive Committee.

Sommer, in particular, was sensitive to the need for adapting Monsanto's organizational concepts to the problems and opportunities of a fastgrowing multinational company.

Heretofore, principal organizational attention had been given to the so-called line activity and to the various operating divisions charged with the responsibility of inventing, developing, making and marketing products on a worldwide basis. Responding to the pains and glories of growth, Monsanto had concentrated on the first priority of making sure its line operations were properly and solidly based, because that's where the action was.

This had been no small task in itself, particularly considering the pressing demands for servicing a constantly widening circle of customers with an expanding product line in a larger world market. Virtually all of the growth was internal. There had been no major acquisitions since the 1960 decision to purchase American Viscose's 50-