Documents regarding an updated report on The Effects of Domestic Policies of the Federal Government Upon Innovation by Small Businesses

Advisory Committee on Industrial Innovation

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THE EFFECTS OF DOMESTIC POLICIES OF THE FEDERAL GOVERNMENT
UPON INNOVATION BY SMALL BUSINESSES

A Report of Small Business Members
Who Served on the Industrial Innovation Advisory Committee
That Was Established as Part of the Domestic Policy Review.

May 1, 1979

NOTICE: This report represents the views of the several members from small business who served on the Advisory Committee on Industrial Innovation, an advisory committee that was convened by and reported to the Secretary of Commerce. This report of the committee members from small businesses does not necessarily represent the views of the Department of Commerce, the Small Business Administration, or any other agency of the Federal Government.
SUMMARY OF CONCLUSIONS

. Innovation is an essential ingredient for creating jobs, controlling inflation, and for economic and social growth.

. Small businesses make a disproportionately large contribution to innovation. There is something fundamental about this unusual ability of small firms to innovate that must be preserved for the sake of healthy economic and social growth.

. If the U.S. desires to bring inflation under control, to create new and better jobs, and to continue to enjoy the economic and social benefits of innovation, individual entrepreneurs and their small companies must be free to innovate. Unfortunately, the environment for small business innovation has greatly deteriorated during the past decade.

. The creative processes in small businesses are pronouncedly different from large corporations and institutions. There is a lack of awareness within government of how small independent innovators create and how federal policies determine the climate for small business innovation.

. A wide array of federal policies adversely impact upon small innovative businesses, including:

--Federal tax, pension fund and security policies that have virtually eliminated all forms of capital from small innovative business ventures;

--Government regulations that treat large and small firms equally that are, in fact, discriminatory against small firms;

--Federal funding for research and development where the most innovative sector of the American economy, small science and technology based enterprises, are virtually excluded from effective participation;

--Federal procurement policies that similarly exclude small innovative firms;

--Patent policies that have resulted in the diminution of the value of patent protection for independent inventors and small businesses.

. With sufficient amendments to Domestic Policies to provide relief for small creative enterprises, a major renaissance in anti-inflationary innovation will emerge with concomitant social and economic growth. Such amendments will require a major departure from current policies affecting small businesses in capital acquisition, regulation, R & D funding, procurement and patents.
SUMMARY OF RECOMMENDATIONS

1. Changes in the federal tax code to again encourage the flow of capital into small innovative businesses.

2. Changes in ERISA policies to return a portion of our national flow of savings to high-risk innovation.

3. Changes in security laws and regulations to remove obstacles for innovative enterprises to acquire seed, start-up and expansion capital.

4. Changes in regulatory policies to remove adverse discrimination against the small innovator.

5. Changes in federal R & D funding policies to produce substantially greater results by awarding a larger share to small businesses.

6. Changes in federal procurement policies to allow greater participation by small businesses on a more equitable basis.

7. Strengthening our weakened patent system, and making changes in federal policies to recognize and protect initial exclusivity as an essential requirement for successful innovation.

Specific details for these recommendations are included at the end of this report.
Mr. Duane Pearsall
President
Small Business Development Corporation
24758 Foothills Drive North
Golden, Colorado 80401

Dear Mr. Pearsall:

On Wednesday, October 31, the Senate Commerce, Science, and Transportation Committee, in a joint hearing with three other committees of the House and Senate, received testimony from Secretary of Commerce Juanita Kreps and other officials on the results of the Administration's Domestic Policy Review on industrial innovation.

The Committee has scheduled a second hearing on the President's recommendations for November 14, 1979, beginning at 9:30 A.M. in Room 235 of the Russell Senate Office Building. This letter is to invite your participation in this hearing. We would appreciate hearing your assessment of the problems and opportunities which the President's program addresses, as well as your evaluation of his proposals. In addition, we would appreciate your outlining the conclusions and recommendations of the Small Business Administration Office of Advocacy Task Force on innovation.

We request that you make a brief opening statement, not to exceed 15 minutes, to be followed by questions from the Committee and discussion with other witnesses. If you wish to prepare a longer written statement, we will include it in the hearing record.

The Committee requires 100 copies of your statement, 10 of which should be submitted to the Committee in Room 5202 of the Dirksen Senate Office Building 48 hours in advance of the hearing. The remaining copies should be brought to the hearing and presented to the representative of the
Mr. Duane Pearsall  
November 5, 1979  
Page Two

Committee at least 15 minutes prior to the hearing. If you have any questions concerning your testimony, please contact Stephen Merrill or Steven Flajser of the Committee staff at (202) 224-9351.

With best wishes, I am

Sincerely,

Enclosures

HWC:sms
INTRODUCTION

In mid-1978 President Carter ordered a review of the impact of federal policies upon industrial innovation. The President directed Secretary of Commerce Juanita Krepps to supervise this study, and she appointed an Industrial Advisory Committee to work under the direction of Dr. Jordan Baruch, Assistant Secretary for Science and Technology to advise her on this project. This Industrial Advisory Committee was composed of approximately one hundred and fifty business executives who were divided into seven subcommittees to analyze specific areas of federal policy and their impact upon private decision making relative to innovation.

While most members of the several subcommittees were from large corporations, each group included one executive from small business who participated in the work of the Committee and made contributions to the draft reports that were produced. Because the small business representation was limited in comparison to the much larger representation of large corporations, one would expect that the subcommittee draft reports would not analyze the small business situation in appreciable depth. There is however, almost universal recognition by the seven subcommittees that small businesses make a large contribution to innovation, and that the policies, laws, regulations and procedures of the Federal Government impose a very heavy burden upon small business innovation.

Upon completion of the draft reports of the seven subcommittees, the small business representatives decided that an additional report should be prepared on the specific impact of federal policies upon innovation in small businesses, and how federal policies might be revised to again stimulate innovation in this important sector of the economy. We wish to emphasize that our report is not a minority report expressing disagreements with the subcommittees, but a supplement to address the importance, and the unique role and problems of small innovative enterprises in America. We wish to place emphasis upon certain areas of the draft reports and make additional recommendations of our own.

Without detracting from the strong vigor of our recommendations, it must be noted that there are diverse opinions amongst our Committee members with respect to emphasis, priority, and details of our recommendations.
THE AD-HOC COMMITTEE OF SMALL BUSINESS MEMBERS*

George S. Lockwood, Acting Chairman
President
Monterey Abalone Farms
Monterey, California
(Member--Subcommittee on Environment, Health and Safety Regulations)

Wayne H. Coloney
Chairman and Chief Executive Officer
Wayne H. Coloney Company
Tallahassee, Florida
(Member--Subcommittee on Procurement and Direct Support of Research and Development)

Eugene M. Lang
President
REFAC Technological Development Corporation
New York, New York
(Member--Subcommittee on Economic and Trade Policy)

Duane Pearsall
President
Small Business Development Corporation
Littleton, Colorado
(Member--Subcommittee on Industry Structure and Competition)

Eric Schellin, Esq.
Attorney at Law
Arlington, Virginia
(Member--Subcommittee on Patents and Information)

Dr. Robert C. Springborn
President
Springborn Laboratories
Enfield, Connecticut
(Member--Subcommittee on Procurement and Direct Support of Research and Development)

*The membership listed after each name indicates the Subcommittee of the Industrial Innovation Advisory Committee upon which the individual served.
SENATE COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION

HEARINGS ON
INDUSTRIAL INNOVATION OVERSIGHT

WITNESS LIST*

Wednesday, November 14, 1979. 9:15 a.m., Room 235 Russell Senate Office Building,
Washington, D.C. 20510

Professor Dale Jorgenson, Department of Economics, 122 Littauer Center, Harvard
University, Cambridge, Massachusetts 02138

Dr. Betsy Ancker-Johnson, Vice President, Environmental Activities Staff,
General Motors Technical Center, Warren, Michigan 48090

Franklin A. Lindsay, Chairman of the Board, Itek Corporation, 10 Maguire Road,
Lexington, Massachusetts 02173

Dr. N. Bruce Hannay, Vice President for Research and Patents, Bell Laboratories,
600 Mountain Avenue, Murray Hill, New Jersey 07974

Mr. Duane Pearsall, President, Small Business Development Corporation,
24758 Foothills Drive North, Golden, Colorado 80401

*Not necessarily in order of appearance
Mr. George S. Lockwood  
General Partner  
Monterey Abalone Farms  
300 Cannery Row  
Monterey, California 93940  

Dear George:

Thank you very much for sending me a copy of the second draft of your small business report on federal policy on industrial innovation. The extra effort you and your colleagues have made is greatly appreciated. Your input has been quite useful to the government task force participants. I am confident that the President's final decisions will recognize the special role of small business in industrial innovation.

Sincerely,

[Signature]

Jordan J. Baruch
May 7, 1979

Dr. Jordan Baruch
Assistant Secretary
for Science and Technology
U.S. Department of Commerce
Room 3862
Washington, DC 20230

Dear Jordan:

Thank you for your kind letter of April 30 concerning the second draft report from our Small Business Committee addressing the question of Domestic Policies that effect Industrial Innovation. I am glad to learn that you have found our conclusions and recommendations helpful.

You will find enclosed a copy of our final report. There have been only minor editorial changes in the text, and Summaries of Conclusions and Recommendations have been included at the beginning. Our conclusions and recommendations remain the same as in the second draft dated April 2.

Please feel free to use this report in any way that you believe helpful towards our mutually shared objective of stimulating innovation.

Again, I wish to express my great appreciation for the opportunity to participate in this overall exercise. It has been an interesting experience from which I have grown.

Best regards,

Sincerely,

George S. Lockwood
General Partner

GSL:lmj
cc
Enclosure
EXCEL MINERAL JOINED ANOTHER SMALL COMPANY ON A R & D EFFORT FOR URANIUM. WE DISCOVERED A DEPOSIT IN A REMOTE AREA OF WYOMING NEAR THE RED DESERT. WE DRILLED OUT AN ORE BODY WHICH MIGHT BE SUITABLE FOR IN SITU SOLUTION MINING. WE SET UP A PILOT OPERATION WHICH PROVED FEASIBLE UNDER PERMITS FROM THE NUCLEAR REGULATORY AGENCY AND THE REGULATORY AGENCY OF THE STATE OF WYOMING. UPON COMPLETION, THE REGULATORY AGENCIES DEMANDED FURTHER VERY COSTLY TESTING -- REQUIRING A SECOND PILOT OPERATION WHICH HAS NOT TAKEN. NEITHER THE NRC OR THE STATE HAS SET WATER QUALITY STANDARDS OR GUIDELINES. THE AGENCIES PROCRASITNATE, SAYING GO AHEAD BUT WHEN WE DO SET THE STANDARDS YOU MUST AGREE TO ABIDE BY THEM. FACED WITH THIS ECONOMIC UNCERTAINTY WE SOLD A LARGE INTEREST TO A MAJOR COMPANY. UNDER THE PRESENT EVEN THE MAJOR COMPANY MAY DECIDE TO ABANDON THE DEVELOPMENT.

STRONTIA CHEMICAL VS ENDANGERED SPECIES.

EXCEL MINERAL DEVELOPED A NEW PROCESS FOR PRODUCING STRONTIA CHEMICALS FROM A CELESTITE DEPOSIT THEY HAVE DEVELOPED IN THE UNITED STATES. EXCEL PLANNED TO BUILD A PROCESSING PLANT ADJOINING FACILITIES IT HAS IN TAFT, CALIFORNIA FOR PERSONAL AND ECONOMIC REASONS. THE BUREAU OF LAND MANAGEMENT PURPOSED TRADING FEDERAL LAND ADJOINING EXCEL'S PLANT FOR A SECTION OF PRIVATE LAND THEY WISH TO ACQUIRE IN THE CONDOR BIRD REFUGE. WE AGREED. TWO DAYS BEFORE CLOSING A BIOLOGIST WITH THE BLM IDENTIFIED THE PROPERTY ADJOINING EXCEL'S PROPERTY AS THE HABITAT OF THE ENDANGERED SNUBBED NOSE RING-TAILED LIZARD. AFTER THREE YEARS THEIR BIOLOGIST HAS NOT BEEN ABLE TO VERIFY THE PROPERTY AS A HABITAT FOR THE LIZARD. STRONTIA CARBONATE IS USED AS A RADIATION BARRIER FOR COLOR TV TUBES AS WELL AS FOR A NUMBER OF SMALL BUT IMPORTANT PRODUCTS. WE WOULD BE THE ONLY PRODUCER USING DOMESTIC CELESTITE ORE -- ALL OTHERS ARE IMPORTED. AT THE PRESENT TIME WE ARE PLANNING TO EXPORT OUR CELESTITE TO JAPAN INSTEAD OF PRODUCING STRONTIA CHEMICALS IN CALIFORNIA.

JOHN A. STEPHENS
EXCEL MINERAL COMPANY

TELEX 658437 XL GLOBAL SNC
1808 EST

STATITROL LWOD
ATTN: DUANE PEARSA LL

CONTACT LENSES VS. THE FDA

EXCEL PARTICIPATED IN THE DEVELOPMENT OF A CONTACT LENS WHICH WAS BASED ON A POLYMER CONTAINING 80 PER CENT WATER AND WHICH COULD BE WORN FOR 6 MONTHS OR MORE WITHOUT REMOVAL. WE SPENT 2 YEARS AND OVER $250,000.00 ON AN FDA CERTIFICATION TESTING PROGRAM. AT THE END OF 2 YEARS, A CHANGE IN RULES BY THE FDA REQUIRED AN ADDITIONAL 2 YEARS OF TESTING. WE FELT THE RISK WAS TOO HIGH AND SOLD TO A MAJOR COMPANY.

JOHN A. STEPHENS
EXCEL MINERAL CO.
TELEX 658437 XL GLOBAL SNC
1928 EST
STATITROL LWOD

12/08/78
COMPETITION EXISTS AT TWO LEVELS: BETWEEN COMPANIES AND WITHIN COMPANIES. WITHIN A COMPANY ONE FORM OF COMPETITION IS OVER THE BUDGET. ONE OF THE MOST IMPORTANT FACTORS CONTROLLING THE BUDGET FOR R & D IS THE TOTAL AVAILABLE FUNDS FOR ALL OPERATIONS. THE PROFITS. THE FEDERAL MINE SAFETY AND HEALTH ACT OF 1977 IS A PANDORA'S BOX OF REGULATORY PROBLEMS AFFECTING ALL MINING COMPANIES ESPECIALLY THE SMALL COMPANY. THE MANDATORY TRAINING STANDARDS WHICH HAVE BEEN EXTENDED TO ALL NON-MINING OPERATIONS WILL ADD ALONE AT LEAST $150,000.00 PER YEAR TO EXCEL MINERAL'S COST. FOR EXAMPLE, IN ADDITION TO OUR OWN PEOPLE OUTSIDE EXPERT CONTRACTORS MUST BE GIVEN 24 HOURS OF TRAINING AND A CERTIFICATE BEFORE THEY CAN GO TO WORK. COMPLIANCE COSTS OVERALL WILL PROBABLY EQUAL THE TRAINING COSTS. SUBSTITUTE PRODUCTS SET A CEILING TO CONSTANT PASSING ON OF OUR COSTS. THE AMOUNT IN QUESTION WOULD BE AS HIGH AS 1/4 OF EXCEL'S R & D BUDGET.

JOHN A. STEPHENS
EXCEL MINERAL CO.
TELEX 658437 XL GLOBAL SNC
1857 EST
STATITROL LWOD
EXCEL MINERAL COMPANY ACQUIRED RARE-EARTH MINERAL DEPOSITS IN IDAHO WHICH IT IS EXPLORING AND DEVELOPING. THE PRINCIPAL MINERAL IS EUXENITE WHICH DOES NOT OCCUR ELSEWHERE IN THE UNITED STATES. EUXENITE CONTAINS URANIUM, COLUMBITE-TANTALUM AND YTTRIUM.

1) URANIUM IS THE FUEL FOR NUCLEAR REACTORS.
2) COLUMBIUM AND TANTALUM ARE USED IN STEEL TO STABILIZE CARBON AND NITROGEN, IMPROVE THE YIELD STRENGTH, DECREASE WEIGHT, AND INCREASE THE WELDABILITY. COLUMBIUM STEELS ARE BEING USED INCREASINGLY FOR APPLICATIONS IN PIPELINES, AUTOMOBILES, RAILROADS, HEAVY EQUIPMENT, CONSTRUCTION, AND SHIPBUILDING. THE PRIMARY END USE FOR HIGH-PUITY COLUMBIUM METAL, IN POWDER AND INGOT FORM, IS IN HIGH-TEMPERATURE SUPER-ALLOYS. U.S. DEMAND IS INCREASING. FERROCOLUMBIUM IMPORTS INCREASED 55 PER CENT IN 1974 OVER 1973 AND COLUMBITE-TANTALUM MINERAL CONCENTRATES INCREASED BY 11 PER CENT. THERE IS NO DOMESTIC PRODUCTION OF COLUMBIUM-TANTALUM. THE BUREAU OF MINES CONSERVATIVELY ESTIMATES THE BEAR VALLEY RESERVES AT 176,000,000 CUBIC YARDS.

RECOMMENDATION:

ALL FEDERAL LAND WITHDRAWALS SHOULD BE SUBJECT TO ECONOMIC IMPACT REPORTS AND APPROVAL BY CONGRESS.

JOHN A. STEPHENS
EXCEL MINERAL COMPANY
TELEX 658437 XL GLOBAL SNC
2015 EST
STATITROL LWOD
imports and $10 billion a year in our trade balance can be held up four years to the point where literally an act of Congress is required for its rescue. Scrubbers are mandated for power plants that burn Wyoming coal which is as clean without scrubbers as Illinois coal is with scrubbers — a further reminder that not all the giant pandas in the country are to be found in the Washington Zoo.

A $700 million hydroelectric project must give way to 30 specimens of a plant undistinguished for anything except the name of Furbish Lousewort. Development — including energy development — is inhibited in nonattainment areas because the air is too dirty, and prohibited in nondegradation areas because the air is too clean — according to government-prescribed standards.

Meanwhile, vast regions that one would think would be classified as nondegradation attainment areas because they are virtually uninhabited turn out in fact to be nonattainment areas because their natural background levels of dust, ozone, and hydrocarbon emissions from vegetation exceed government standards.

Not even mother nature herself can satisfy the exacting requirements of the state and federal bureaucracies! This is not environmental policy or energy policy or any other kind of policy.

It is lunacy.

But it is also fact.

It is the product of the single-minded pursuit of single objectives by single-purpose organizations without regard for the larger consequences of their actions.

And those larger consequences include substantial contributions to inflation, declining productivity, unemployment, oil imports, the deficit in our balance of payments, and the multiplying troubles of the dollar.

We have it today because those in government — and industry too — allowed themselves to be intimidated and manipulated by splinter groups of self-appointed guardians of the public interest who claim to speak for the people of the United States.

And it will endure until the real vox populi is heard loud and clear from Honolulu and Anchorage to New York and Miami and Washington.

Now, of course, maybe I’m hearing things that aren’t there, but the sounds I hear and the things I see encourage me to think that the people of the United States are beginning to speak up at long last.

A few weeks ago in Boise, Idaho, I took some small pleasure in witnessing the discomforture of the Director of the Bureau of Land Management who had been sent out to placate an assemblage of western ranchers.

His peace offering was the promise to spend a billion dollars to upgrade the range.

The ranchers weren’t impressed, and some were frank enough to say that they figured that billion dollars had some strings to it and they weren’t interested in going along with his game.

A few weeks later, a convoy of truckers rolled into Washington to demand relief from the detailed regulations that were driving them up the wall and out of business — and some were pretty blunt about their sentiments.

*Newsweek* of August 14 carried a story of citizens uniting to resist being put out of their homes in areas being taken over by the National Park Service.

Proposition 13 and the dozens of similar movements it has inspired throughout the country are a revolt not only against high taxes, but against intrusive and meddlesome government.

President Carter won an election two years ago on a platform which had a plank to give the people some relief from the oppression of federal bureaucrats, and one of the reasons he is in trouble now is his failure to deliver on that pledge.

The Senate even found it safe to vote down Ralph Nader’s special pet earlier this year — the so-called Consumer Protection Agency.

But these are only straws in the wind, and we have a long, long way to go to redress the balance between government and the private sector.

The effort needs all the help we can give it, and I would hope that all of you will give it your active support.

We don’t have a lot of time left, either.

It is only six more years to 1984.

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**The Day Innovation Died**

**DEFENSIVE R AND D**

By JOHN W. HANLEY, Chairman and President, Monsanto Company

*Delivered at the Houston Club, Houston, Texas, September 26, 1978*

SEEING many people here today with whom Monsanto has a business and professional relationship reinforces my belief that we in St. Louis and you in Houston have a great deal in common.

Cynics might say, “Yes, both places are hotter than soup in the summer.” They might add that our two baseball teams are not so hot.

But I shrug off those disrespectful comments and point to our mutual good sense in promoting an aggressive, diversified business community in our respective hometowns.

I applaud our mutual good taste in covering two of the world’s greatest sports emporia — the Astrodome and Busch Stadium — with Monsanto’s Astroturf.

The fact that yours was the first commercial installation was a stroke of luck for both Monsanto and Houston. Monsanto got a catchy name for one of its new products. And Judge Roy Hofheinz, having discovered that grass wouldn’t grow after the dome was painted, got a ready-made solution to his problem.

The Astros as well as other baseball and football teams might have played in the dirt for some time if Monsanto hadn’t — a long time before the birth of the Astrodome —
committed the necessary years of research and development to come up with synthetic playing surfaces. Industrial innovation takes time. It's not unusual, as you know, for a successful innovation to be a decade or longer in the making.

That brings me to the subject I'd like to review with you today — innovation — the status of innovation in the United States in 1978.

Assume for a moment that 10 years ago today all U.S. industrial innovation had stopped. Just imagine for a moment that September 26, 1968, was the day innovation died.

In the short run, we wouldn't have noticed much change.

But today, life would be quite different.

Air transportation would not be so comfortable without jumbo or wide-body jets. Nor could pilots rely on the improved safety features that make flying in the U.S. safer than going to a rock concert.

As for your health, the innovations that never were would range from laser surgery to soft contact lenses, low-cholesterol egg substitutes, synthetic heart valves and on and on.

Our families would forego the fire protection offered by inexpensive home smoke detectors. The term "home computer" would sound ridiculous, because computers would still be huge, expensive, difficult machines.

Even large businesses would find these computers less useful without today's improved data communications systems.

Of course, one might argue that those lost innovations would make little difference since we wouldn't know what we were missing.

But we could hardly miss the economic distress generated by the absence of innovation. Productivity gains would have all but disappeared while inflation and trade deficits climbed. More innovative nations would grab away our position as the world's technology leader. American jobs would be lost to more efficient foreign competitors. American stockholders and savers would see their holdings dwindle because of inflation and international devaluation of the dollar.

But wait a minute. Aren't we faced with all of those problems today? Well, you and the great majority of Americans know that, in fact, we are.

Obviously, innovation did not drop dead precisely 10 years ago today. Yet a strong case can be made that, during that 10 years, U.S. innovation has lagged far behind historical levels. And this lag has been a major contributor to our present economic ills, which we cannot hope to alleviate unless we boost our innovation rate.

That's why I believe that our nation's most serious shortage today involves not energy or raw materials or jobs, but innovation.

This afternoon, I'd like to examine with you the evidence of what I regard as a critical shortage of innovation. I'll discuss how policies of the federal government contribute to the lag, and how overregulation can have an especially chilling effect on innovation. Finally, I will suggest a plan of action which I believe can help the nation out of this dilemma.

Innovation is a commodity that defies direct precise measurement — so we must resort to proxy measurements. Let me give you a few that indicate the dimensions of the problem.

—The nation's total research and development expendi-
of innovation because they shape the overall investment climate. The U.S. ranks far below other industrialized countries on percentage of national output reinvested in productive capacity. It’s no coincidence that we also tax capital gains and stock dividends more harshly than most industrialized nations.

Federal antitrust laws create still another worry for innovators. Their new technology may be too successful and precipitate lawsuits.

But when it comes to frustrating would-be innovators, nothing beats the federal regulatory process. For starters, there is the staggering drain on financial resources. Economist Murray Weidenbaum, director of Washington University’s Center for the Study of American Business, calculates that regulatory compliance will cost business almost $100 billion in 1979 alone.

Regulation injects new uncertainties into the already risky business of innovation.

Will regulatory approvals take so long that millions in sales will be lost — as well as the competitive lead?

Will the approval process cost so much that a useful innovation meant to serve a small market can never be profitable?

Will the fruits of innovation be lost entirely because of a needless product ban based on flimsy evidence?

These are not hypothetical situations. They can be demonstrated all too readily.

Take the pharmaceutical industry. Almost everyone will agree that we must proceed with proper caution on new drugs. But at what point should we begin asking who is looking after the public interest?

A pharmaceutical company in the U.S. may wait one to four years for approval of a new drug application. Since it also takes several years to develop a modern drug, half the patent life may be gone before the product even reaches the marketplace. In fact, approval in the U.S. generally lags so far behind other countries that American pharmaceutical companies have established manufacturing units abroad in part so as not to lose out on foreign sales.

The upshot is that jobs and capital in these instances are exported while fewer effective drugs are made available here. In the 15 years preceding 1962, there were 641 new drugs introduced in this country. But the next 15 years have produced only 247 new drugs.

A similar situation exists in the agricultural chemical industry. The Fifties saw about 20 new pesticides enter the market. The Sixties also produced about 20. But from 1971 to 1977, only three or four truly new products reached the market.

Monsanto’s experience with its Roundup herbicide tells the story well. Roundup was developed in 1970 after 15 years of research. Its unique chemistry destroys perennial weeds right down to their roots. Yet Roundup is about as toxic as table salt. It breaks down quickly in the soil, won’t migrate to adjacent areas, and leaves no residue in the crops.

It was 1975 before Roundup received U.S. regulatory approval for use with any major grain crops. Three years later, we’re still waiting for approval for use with other crops. One of the ironies of this case is that regulation has slowed the introduction of a pesticide that is environmentally more attractive than many of those now on the market.

I doubt whether there is any more effective way to kill an innovative spirit than by scaring it to death. I can testify firsthand that a product ban based on flimsy evidence can do just that.

We at Monsanto were shocked when the federal government banned our Cycle-Safe bottle for carbonated soft drinks. This plastic bottle, which took 10 years to develop, first received regulatory approval in 1975. Shoppers in the test markets loved it because it was lightweight and shatter-resistant. And since it was recyclable and potentially refillable, it was an innovation that could help solve our nation’s litter problem.

The raw materials for making Cycle-Safe included a chemical called acrylonitrile. This has been used in food-contact applications for more than 30 years. But a 1977 study indicated that, in massive doses, it might cause cancer in rats.

Monsanto researchers, using the most sophisticated testing equipment available today, cannot find any trace of acrylonitrile leaching into the beverage under realistic conditions. But the regulators say that if the bottles were filled with acetic acid and stored for six months at 120 degrees Fahrenheit, infinitesimal amounts of the chemical could leach into the solution. Never mind that a carbonated beverage stored at 120 degrees would burst the bottle in a few weeks — and that a child would have to drink 3,000 quarts of beverage every day for a year to equal the dose of acrylonitrile fed to the rats.

Despite the remoteness of the risk, the regulators chose to ignore the bottle’s considerable real and potential benefits. The federal government said Cycle-Safe must go.

Monsanto is still appealing that decision in the courts. I think we will win — long after the victory will have any value beyond establishing the principle that, without proper balancing of risks against benefits, such government decisions are foolish and capricious.

In the meantime, though, our three Cycle-Safe plants have closed, eliminating nearly one thousand jobs. We have written off a good many millions of dollars, including $20 million worth of equipment and facilities.

This shock persuaded us — if we needed any further persuasion — that business cannot stand idle while regulatory agencies destroy innovative products without attempting to weigh the risks against the benefits. Thus, Monsanto has initiated a broad communications program through which we hope to bring a greater sense of balance to the national debate over industry regulation.

Not surprisingly, the Cycle-Safe episode also helped turn more of Monsanto’s R and D resources away from innovation and toward defense of other products.

Just yesterday in St. Louis, we dedicated a new $12 million toxicology laboratory where product safety testing will be done. In the past, we found it more economical to contract with outside laboratories for such testing. But today there aren’t enough contract labs to handle all the toxicological testing needed to satisfy government regulations.

Monsanto is not alone in this. Another large chemical company reports that its spending for defensive research — research that will never produce any new knowledge or products — has gone up five times faster than spending for innovative research in recent years.

The Industrial Research Institute, an association of manufacturers with research facilities, surveyed its members and found an alarming rate of increase in the
I find it somewhat paradoxical that the chasm between the feelers, and the debates which now swirl around us. But other segments of society — including business — do feel challenged by the media — and not always fairly. I find it somewhat paradoxical that the chasm between the media and the public has seemed to widen, even as the similarities between them have begun to become recognized. In fact, the similarities are such that at least the print