FINAL
3/6/92

CONTACT:
Jo-Anne Coe
O: 202/408-5105
FAX: 202/408-5117
H: 703/845-1714

Lynda Nersesian
PMA
O: 202/835-3486
FAX: 202/835-3488
H: 202/362-8151

WEATHER FORECAST:

FRIDAY: Variable cloudiness in afternoon; 30% chance today and 20% chance tonight for scattered showers or thunder storms. Highs in low 80's, overnight lows in high 60's or low 70's, winds SE 15 mph.

SATURDAY, SUNDAY AND MONDAY: Partly cloudy (30-70% chance of cloud cover), but some sun. Only a slight chance of rain. High's in the low 80's, overnight lows in the 60's and 70's. Surf temp. 74.

SENATOR BOB DOLE SCHEDULE -- MARCH 6-9, 1992

FRIDAY, MARCH 6

2:40 PM — Lv. Capitol

2:55 PM — Ar. Butler Aviation
Washington National Airport
703/549-8340

3:00 PM — Lv. Washington

AIRCRAFT: Canadair Challenger 601 (Syntex Corp.)
TAIL NO.: N 144 SX
SEATS: 10

PILOT: Larry Jenks
CO-PILOT: Steve Elam

FLIGHT ATTENDANT: Kimberly Klotz

MANIFEST: Senator Dole
Mrs. Dole
Rick Farrell - Syntex
Lynda Nersesian - PMA

CONTACT: Kitty, Syntex Aviation Dept.
408/297-8100

MEAL SERVICE: Fresh fruit & vegetables
Snacks

FLIGHT TIME: 2 hours

5:00 PM Ar. West Palm Beach, Fla., International Airport
Jet Aviation
407/233-7242

MET BY: Ritz-Carlton car and driver

5:30 PM Ar. Ritz Carlton Hotel
Palm Beach, Florida
407/533-6000

Proceed to rooms (2 connecting)

EVENING FREE

OPTION A: 6:30-7:30
Stop by Reception
Pharmaceutical Manufacturers Assoc.
Poolside

NOTE: This is best opportunity for Mrs. Dole to become acquainted with the CEO's.

OPTION B: 7:30 - PMA Dinner (Casual)
Poolside

OPTION C: 7:45 PM
Hotel car and driver will be at hotel entrance

8:00 PM -- Private Dinner - Senator & Mrs. Dole
(Courtesy of PMA)

Dinner reservations made at Mario's
Local Palm Beach Italian Restaurant
(one of best restaurants in area)

Mario's: 407/833-2607

NOTE: PLEASE ADVISE IF THIS IS TOO LATE, OR IF YOU WISH TO MAKE YOUR OWN ALTERNATE DINNER PLANS.

(Car and driver will wait at restaurant, and return you to the hotel)

RON: Ritz Carlton Hotel
407/533-6000

SATURDAY, MARCH 7

8:15 AM-
9:00 AM — KEYNOTE AND OPEN DISCUSSION
Pharmaceutical Manufacturers Association
1992 Strategic Planning Meeting

Ritz-Carlton - Plaza I Conference Room

CROWD SIZE: 35 CEO's of PMA's member companies
plus few select PMA senior staff

SEE BRIEFING BOOK FOR BIOS & PHOTOS OF CEO'S

FORMAT: Podium and Mike

PRESS: CLOSED

PROGRAM: Informal Remarks and Open Discussion

SENATOR DOLE will be introduced by:
Paul Freiman, CEO of Syntex

CONTACT: Ms. Terry Parsons
(reached through hotel operator)

9:05 AM — Lv. Ritz Carlton Hotel and Palm Beach

DRIVER: Ritz-Carlton car and driver

DRIVE TIME: 1 hr 30 mins

10:35 AM — Ar. Seaview Hotel
Bal Harbour, Florida
305/866-4441

PROCEED TO PRIVATE

SUNDAY, MARCH 8

PRIVATE

MONDAY, MARCH 9

3:00 PM — Lv. Seaview

DRIVER: Seaview Hotel car and driver

PLEASE ADVISE IF THIS IS OK -- OTHERWISE, PMA WILL HAVE STAFF MEMBER STAY OVER TO MONITOR YOUR NEEDS FOR MONDAY.

3:30 PM — Ar. Ft. Lauderdale Executive Airport
ATC Jet Center
305/772-1364

3:30 PM — Lv. Ft. Lauderdale

AIRCRAFT: Charter Learjet 25
CHARTER CO: BizJet, West Palm Beach
TAIL NO.: N 522 TA
SEATS: 7 comfortably

PILOT: Jim Keeling
CO-PILOT: Larry Linman

(SEE ATTACHED INFO RE PLANE & PILOTS)

MANIFEST: Senator Dole
Mrs. Dole

FLIGHT TIME: 2 hrs 30 mins

CONTACT: Andrea Brickley
BizJet
407/478-8700

6:00 PM — Ar. Washington National Airport
Butler Aviation
703/549-8340

MET BY: Wilbert Jones

PROCEED TO PRIVATE

PHARMACEUTICAL CO. CEO'S ATTENDING PALM BEACH MEETING

Paul E. Freiman - Chairman & CEO, Syntex Corp.

Duane L. Burnham - Chairman & CEO, Abbott Laboratories

Dr. Theodore Cooper - Chairman & CEO, Upjohn

Dr. Sheldon G. Gilgore - Chairman & CEO, G.D. Searle

Gavin S. Herbert - Chairman of the Board, Allergan, Inc.

Richard J. Kogan - President & Ch. Oper. Ofcr., Schering-Plough

Irwin Lerner - President & CEO, Hoffmann-La Roche Inc.

Jan Leschly - Chairman, SmithKline Beecham Pharmaceuticals

Fred W. Lyons, Jr. - President & CEO, Marion Merrell Dow Inc.

Richard J. Markham - Sr. V.P., Merck & Co., Inc. &
President, Merck Human Health Division

G. Kirk Raab - President & CEO, Genentech Inc.

Dr. Charles A. Sanders - Chairman & CEO, Glaxo Inc.

John R. Stafford - Chairman & CEO, American Home Products

William C. Steere, Jr. - Chairman & CEO, Pfizer Inc.

Eugene L. Step - Chairman of the Board of Directors, Eli Lilly
International Co., & Exec. Vice Pres of Eli Lilly and Company,
and President of the Pharmaceutical Division

Douglas G. Watson - Vice President, CIBA-GEIGY Corp., and
President, Pharmaceuticals Division

INFORMATION ON CHARTER AIRCRAFT

TYPE OF AIRCRAFT: Learjet 25

YEAR OF MANUFACTURER: 1980

TAIL NO.: N 522 TA

SEATS: 7 COMFORTABLY

CHARTER COMPANY: BIZ JET, WEST PALM BEACH, FLORIDA
407/478-8700

OWNER: TERMINAL AIRWAYS

WHO IS RESPONSIBLE FOR MAINTENANCE?: BIZ JET

DATE OF LAST INSPECTION: DEC. 1991

HOURS FLOWN SINCE LAST INSPECTION: 51.3

FLYING HOURS ON ENGINES: LEFT - 4492.6, RIGHT - 4477.4

PILOT: JIM KEELING
AGE: 55
NO. HOURS PILOT-IN-COMMAND: 11,760
NO. HOURS MULTI-ENGINE: 8,360
NO. HOURS THIS AIRPLANE: 5,220
IFR RATING: YES

CO-PILOT: LARRY LINMAN
AGE: 26
NO. HOURS FLYING TIME: 1,500
MULTI-ENGINE: 200 (IN 1990 -- MORE NOW)
NO. HOURS THIS PLANE: 300

CORPORATE REFERENCES: (BOTH CHECKED OUT OKAY)

TEXACO REFINING: 713/752-3831
PIEDMONT AVIATION: 404/765-1850

SENATOR BOB DOLE

PHARMACEUTICAL MANUFACTURER'S ASSOCIATION

TALKING POINTS

THE GOOD NEWS IS HEALTH CARE IS NEAR THE TOP OF THE DOMESTIC AGENDA. THE BAD NEWS IS YOU ARE VIEWED AS THE VILLAINS OF THE INDUSTRY.

WHILE NO ONE DISPUTES THE EXTRAORDINARY CONTRIBUTION DRUGS HAVE MADE TO THE MAINTENANCE AND HEALTH OF OUR POPULATION, THE SPECTER OF ESCALATING COSTS AND UNREASONABLE PROFITS HAVE MARRED THE VISION.

THOSE OF US WHO YOU CAN COUNT AMONG YOUR FRIENDS, RECOGNIZE HOW HIGHLY COMPETITIVE YOUR INDUSTRY IS. I ALSO RECOGNIZE THAT YOU ARE ONE OF THE FEW REAL CONTINUING SUCCESS STORIES IN THE INTERNATIONAL MARKETPLACE AND THAT THIS IS LARGELY A

RESULT OF YOUR INVESTMENT

IN RESEARCH AND

DEVELOPMENT.

BUT UNFORTUNATELY,

YOUR STORY IS EITHER NOT

GETTING OUT, BEING HEARD OR

BEING BELIEVED.

WHILE DRUGS REPRESENT ONLY ABOUT 5 PERCENT OF HEALTH CARE COSTS AND CAN HELP PREVENT COSTLY HOSPITAL STAYS, THEY ARE INCREASINGLY BEING TARGETED AT CONGRESSIONAL "TOWN MEETINGS" AND IN LETTER-WRITING CAMPAIGNS.

5

WHILE TOURING MY OWN STATE OF KANSAS AND IN LETTERS I RECEIVE FROM CONSTITUENTS, THE COSTS OF DRUGS ARE HIGHLIGHTED TIME AND TIME AGAIN. IN FACT, I RECENTLY HAD OCCASION TO HELP A CONSTITUENT SECURE A MEDICATION HE NEEDED. IN DOING SO, I DISCOVERED A

DRUG COMPANY SPONSORED PROGRAM TO HELP THE INDIGENT. IT WAS A SURPRISE TO ME AND I EXPECT IT WOULD BE TO OTHERS.

THE INFORMATION ABOUT THESE KIND OF PROGRAMS NEED TO BE MORE READILY AVAILABLE IF YOU HOPE TO

COUNTER YOUR NEGATIVE PRESS.

I DON'T MEAN TO SUGGEST THAT YOU'RE NOT WELL-REPRESENTED -- YOU ARE -- GERRY (MOSSINGHOFF, PRESIDENT), MIKE (REED, VICE PRESIDENT GOVERNMENT) AND LYNDA (NERSESSIAN) ALL DO A

TERRIFIC JOB, BUT CONSTITUENT CONTACTS ARE THE MOST PERSUASIVE. YOU NEED TO DO SOME EDUCATION AT THE GRASSROOTS AND YOU NEED TO LOOK INTERNALLY, AMONG THE COMPANIES, TO SEE WHAT YOU CAN DO TO IMPROVE THE SITUATION. EVEN SENATOR PRYOR

COMPLIMENTED MERCK FOR THEIR EFFORTS.

BUT MAKE NO MISTAKE, SENATOR PRYOR WILL CONTINUE TO SINGLE YOU OUT - - AND HE'LL HAVE HELP FROM BARBARA MIKULSKI AND OTHERS.

IN FACT, THE SO-CALLED PRYOR AMENDMENT DEALING WITH SECTION 936 WILL BE THE FIRST ONE OFFERED TO THE TAX BILL WHEN IT COMES BEFORE US NEXT WEEK. I LOOK TO YOU TO TELL ME WHERE THE VOTES ARE.

GIVEN THAT THIS BILL IS CERTAIN TO MEET A TIMELY DEATH -- YOU MAY WANT TO MAKE YOUR BIG FIGHT IN CONFERENCE WHERE I WOULD EXPECT MR. RANGEL MIGHT BE OF HELP AND HOPE THE PROVISION IS DROPPED BEFORE WE BEGIN DISCUSSIONS ON A

REAL ECONOMIC GROWTH PACKAGE.

BUT WHATEVER YOU DECIDE TO DO ON THIS ONE -- KNOW THAT FOR YOUR INDUSTRY THE BATTLE IS FAR FROM OVER.

WE'LL HELP YOU AS BEST WE CAN -- BUT YOU'RE GOING TO HAVE TO GIVE US SOMETHING STRONG TO DEFEND.

SATURDAY, MARCH 7

8:15 AM-
9:00 AM — KEYNOTE AND OPEN DISCUSSION
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plus few select PMA senior staff

SEE BRIEFING BOOK FOR BIOS & PHOTOS OF CEO'S

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DRIVE TIME: 1 hr 30 mins

10:35 AM — Ar. Seaview Hotel
Bal Harbour, Florida
305/866-4441

PROCEED TO PRIVATE

SUNDAY, MARCH 8

PRIVATE

THE PRESCRIPTION DRUG COST CONTAINMENT ACT of 1991
(S. 2000)

Senator David Pryor (D-Ark)
Introduced November, 1991

SUMMARY OF THE LEGISLATION

The Prescription Drug Cost Containment Act of 1991 addresses the prescription drug inflation problem by utilizing a business-like, carrot and stick tax incentive approach. Specifically, individual drug manufacturers would have reduced access to the non-research and development Section 936 (Possession) Tax Credit if, and only if, the manufacturer increases prices beyond the general inflation rate. The drug manufacturing industry receives approximately $2 billion in Section 936 tax credits each year. Under the proposal, revenue saved would be funneled into a new prescription drug trust fund to finance Medicare outpatient prescription drug demonstration projects and to reduce the deficit.

SECTION 1 - REDUCTION IN SECTION 936 (POSSESSION) TAX CREDIT FOR EXCESSIVE DRUG INFLATION

Legislative Specifications: Amending section 936 of the tax code, Section 1 establishes a formula that provides a strong tax incentive for drug manufacturers to keep price increases at or below the general inflation rate. The formula first compares the drug manufacturer's section 936 tax credit to the amount of wages it paid in Puerto Rico. If the manufacturer's section 936 tax credit exceeds the wages paid in Puerto Rico, the excess will be subject to a reduction of 20 percent of the 936 tax credit for each percentage point its drug prices increase over the general inflation rate (CPI-U). The reduction formula will be applied on a drug by drug basis and be weighted according to the percent of sales that each drug accounts for the manufacturer's total drug sales. If the manufacturer's section 936 tax credit does not exceed wages paid, the reduction formula does not apply.

SECTION 2 - ESTABLISHMENT OF MEDICARE PRESCRIPTION DRUG BENEFIT DEMONSTRATION PROJECT AND TRUST FUND

Legislative Specifications: Section II provides that up to $200 million saved from the recapture of the 936 tax credit (and directly attributable to excessive and inflationary pricing practices of drug manufacturers) would be directed each year for 5 years to a new Federal Prescription Drug Trust Fund. The Fund would finance the establishment of a 15-site Medicare Outpatient Prescription Drug Demonstration program. Revenue above the amount necessary to fund the Demonstration program would be directed for deficit reduction.

SECTION 3 - ESTABLISHMENT OF U.S. PRESCRIPTION DRUG POLICY REVIEW COMMISSION and STUDY ON PRICE REVIEW BOARD

Legislative Specifications: Section 3 provides for the establishment of a Prescription Drug Policy Review Commission (RxPRC). The Commission would be responsible for analyzing trends in national and international prescription drug prices and making recommendations on providing or improving coverage, reimbursement, and financing for prescription drugs under federal health care programs, such as Medicaid and Medicare. In addition, it would monitor the use and effectiveness of the various financial incentives given to the drug industry, including the revised Section 936 tax credit. Finaly, the Commission would be charged with studying the feasibility of establishing a pharmaceutical products price review board in the United States. Membership on the Commission would include health care and pharmaceutical economists, physicians, pharmacists, other health care profssionals, and consumer representatives.

The study of the price review board would:

a) Assess the impact that such a board has had in other nations -- such as Canada -- in containing the costs of prescription drugs and the launch price of new drugs;
b) Develop guidelines that might be used by the board in determining whether prices or price increases for drugs are excessive; and
c) Evaluate possible incentives for drug manufacturers to price their products fairly, including a system of compulsory licensing of drug products or a reduction in the period of market exclusivity as a penalty for excessive inflation.

SECTION 4 - STUDY ON FEDERAL SUBSIDIES AND TAX WRITE OFFS GIVEN TO DRUG INDUSTRY

Legislative Specifications: Section IV instructs the Secretary of the Department of Health and Human Services, acting in consultation with the Secretary of the Treasury, to conduct a study of the value of all the federal tax grants, subsidies, and write offs given to the pharmaceutical industry.

Included in the study should be an assessment of:

a) The value and designed purpose of federal subsidies of the drug industry;
b) The federal role in researching and developing patented pharmaceutical products;
c) Comparable financial incentives and tax credits provided to the drug industry by other industrialized nations; and
d) How federal tax subsidies can be modified to provide incentives for an individual drug manufacturer's pricing behavior and research priorities.

For additional information about the legislation, or a copy of the Aging Committee staff report on which the legislation is based, contact either Chris Jennings or John Coster at the U.S. Senate Special Committee on Aging (202-224-5364). (111891)

March 6, 1992

TO: SENATOR DOLE

FROM: SHEILA BURKE

SUBJECT: REMARKS TO PHARMACEUTICAL MANUFACTURER'S ASSOCIATION

You are scheduled to talk to the PMA Executive Board on Saturday morning. The stated purpose of their meeting is to discuss their communication strategy. There is no doubt that their press hasn't been all that great of late. They are anxious to have you talk with them candidly about what they should do to improve their image. They are expecting you to talk about 10 - 15 minutes and then answer a question or two.

Issues

Clearly, the issue of greatest concern is the proposal to link their Section 936 benefits to their price increases.

In summary, the proposal provides that we compare the amount of the drug manufacturer's section 936 tax credit to the amount of the wages it pays in Puerto Rico. If their credit exceeds the amount they pay on wages, the excess is subject to a reduction of 20 percent of their 936 credit for each percentage point its drug prices increase over the general inflation rate. In effect, it links its 936 benefits to drug price increases.

The bill currently has 10 cosponsors only one of whom is a Republican (Cohen). There is no companion bill in the House and no one seems as consumed with this issue as Pryor.

I think its fair to say that Senator Pryor has been quite aggressive in his opposition to the industry and has tried on numerous occasions to put price controls into place. To date he has been unsuccessful although he was able to orchestrate the 1990 enactment of the current Medicaid Drug Rebate Program under which the drug companies must offer (or rebate) to Medicaid the lowest price (deepest discount) offered to any purchaser except, under limited circumstances, the Veterans Administration. The rumored reaction to date of the companies was to do away with most of their discounts which has become a huge problem for HMO's and community clinics.

The criticism of the American drug industry is almost entirely linked to their prices and there is little or no complaint about quality or quantity. In fact, as I mentioned to you, they are viewed very positively re: their international

competitiveness. The drug companies will, of course, argue that their prices reflect their investment in R&D, which is critical to their survival -- but the public is weary of price increases that routinely outstrip price increases in the economy as a whole. For example, Medicaid paid 21.7 percent more for outpatient drugs in 1991 than they did in 1990.

I think most people would agree that Senator Pryor has gone too far -- but there aren't many who are anxious to defend the industry.

Regarding the possible outcome of a conference with the House -- Congressman Stark dislikes both Section 936 and the pharmaceutical industry and will likely support Senator Pryor. On the other hand, Congressman Charlie Rangel will likely strongly oppose because of his support of Puerto Rico.

I have attached to this memo some recent stories about the industry, a list of attendees, a summary of the Pryor bill and some brief talking points. In addition to the drug specific points I drafted, I would imagine some brief comments on the upcoming tax fight would be welcome. They are obviously in support of R&D tax credits, lower capital gains rates and the investment tax allowance.

The good news? This group's return on equity is still way above average. The bad news? The politicians have noticed the profits.

By Mary Beth Grover

Health stocks are hot. Through mid-November 1991, drug companies outperformed the S&P 500 by a 2-to-1 margin, health maintenance organization stocks doubled and biotechnology stocks nearly tripled. Investors might be happy, but Washington isn't. Indeed, the 1992 election campaign portends a war against national health care costs, which are now nearly $700 billion and growing rapidly.

"Everyone is bent out of shape over cost containment," says Smith Barney analyst Christina Heuer, who points out that, as of mid-December, this worry has pushed down drug stocks' relative P/Es to the market multiple, from twice that figure 20 years ago. And as trade barriers come down in Europe, drug companies will no longer be

Health	Profitability				Growth				Sales	Net income	Profit margin
	Return on equity		Return on capital		Sales		Earnings per share				
Company	5-year average %	latest 12 mos %	latest 12 mos %	Debt/ capital %	5-year average %	latest 12 mos %	5-year average %	latest 12 mos %	latest 12 mos $mil	latest 12 mos $mil	latest 12 mos %
Drugs											
American Home Prods	60.6	49.7	37.1	3.4	5.2	1.0	NM	10.0	6,873	1,331	19.4
Syntex	51.1	48.6	38.9	21.4	12.2	18.0	17.8	18.5	1,871	431	23.0
Merck	48.9	53.1	43.8	9.4	16.7	14.4	30.4	20.9	8,388	2,034	24.3
Warner-Lambert	40.0	38.7	29.4	14.9	8.7	10.8	15.9*	14.9	4,967	543	10.9
Marion Merrell Dow	38.8	41.2	40.0	6.2	37.2	24.8	18.8	37.9	2,708	568	21.0
Abbott Laboratories	35.3	37.3	31.4	3.9	12.7	13.5	18.2	15.0	6,700	1,054	15.7
Glaxo Holdings	33.6	27.7	25.4	3.7	20.1	9.5	17.6	1.7	5,441	1,362	25.0
Schering-Plough	26.4	30.7	26.0	8.2	11.0	7.6	22.4	19.5	3,550	627	17.7
Bristol-Myers Squibb	26.2*	36.7	34.0	2.6	11.9	10.4	14.5*	106.0	10,958	1,971	18.0
Eli Lilly	26.0	32.5	30.4	8.5	8.2	14.4	16.5	16.3	5,597	1,259	22.5
Upjohn	18.6	25.3	20.5	10.7	8.5	11.9	9.5	144.4	3,311	522	15.8
Pfizer	18.0	16.8	15.7	2.9	9.3	12.6	5.5	18.5	6,885	876	12.7
Bergen Brunswig	15.8	14.0	11.1	29.8	9.6	8.9	21.4	3.3	4,838	64	1.3
Cardinal Distribution	15.8	11.3	8.9	30.6	19.5	38.5	15.6	31.5	1,368	21	1.5
Durr-Fillauer	14.5	15.0	16.0	34.3	13.5	14.9	18.0	14.3	908	19	2.1
Rhone-Poulenc Rorer	13.1	59.2	18.8	62.5	40.5	72.1	10.7	D-P	3,817	365	9.6
McKesson	11.8	11.3	9.8	25.9	5.6	12.2	3.3	5.8	9,163	101	1.1
Imcera Group	9.4	10.0	7.1	21.9	NM	10.1	46.4*	34.5	1,640	96	5.9
Bindley Western Inds	9.2	17.1	12.4	46.1	27.3	21.2	NM	111.3	2,287	10	0.5
National Intergroup	def	1.4	3.9	25.8	NM	11.1	NM	D-P	3,124	12	0.4
Medians	22.3	29.2	23.0	12.8	11.4	12.4	16.2	19.0	4,328	533	14.2
Health care services											
FHP International	39.5	18.2	16.4	9.6	37.8	28.5	33.9	19.4	1,367	37	2.7
PacifiCare Health	26.1	30.4	31.3	0.7	59.8	31.3	33.3	47.4	1,173	24	2.0
US Healthcare	24.7	58.4	60.2	0.0	28.0	27.5	NM	156.6	1,558	141	9.0
National Health Labs	22.0*	38.2	35.2	0.0	24.2	19.2	32.9	25.3	576	98	17.0
Humana	21.5	20.2	15.4	30.5	18.2	20.9	35.5	10.1	5,865	355	6.1
National Medical	18.2	19.6	10.6	32.3	6.9	1.6	30.0	12.8	3,896	289	7.4
United HealthCare	16.5	45.3	45.3	1.7	36.1	38.8	NM	87.5	741	64	8.6
Manor Care	12.5	14.7	8.2	56.6	11.5	15.8	NM	21.6	846	34	4.0
Lifetime	10.4	13.1	12.5	47.2	64.2	25.4	48.1*	13.3	831	20	2.5
Universal Health	5.4	11.1	7.0	38.8	9.5	10.0	-6.9	62.7	676	19	2.8
Beverly Enterprises	def	4.7	5.8	51.0	3.5	6.8	NM	83.3	2,241	25	1.1
Foundation Health	NE	def	48.7	1.5	55.0	8.9	NM	50.3	986	31	3.2
American Medical	NA	def	5.9	81.0	NM	0.5	NA	D-D	2,546	-19	def
Hillhaven	NA	1.2	4.4	70.2	8.3	9.4	NA	NA	1,254	2	0.1
Medians	17.3	16.5	13.9	31.4	21.2	17.5	11.6	25.3	1,214	33	3.0

D-D: Deficit to deficit. D-P: Deficit to profit. P-D: Profit to deficit. D-Z: Deficit to zero. def: Deficit. NA: Not available. NE: Negative equity. NM: Not meaningful. *Four-year average. †Three-year average. For further explanation, see page 95.

Sources: Forbes; Value Line Data Base Service via Lotus CD Investment.

required to run manufacturing facilities in the countries they do business in, thereby eliminating excess capacity. Heuer recommends Glaxo, Merck, Pfizer and Syntex because of promising new products.

As the government and managed health care providers try to stem drug costs, drug companies are responding with their own cost-cutting efforts. Merck, for instance, thinks it can offset price concessions given to large health care organizations by reducing the size of its sales force. The Food & Drug Administration is leaning toward speeding up its approval process. A change here would substantially reduce the 10 to 12 years and more than $230 million in research and development costs typically necessary to get a new drug from the laboratory to the market.

Advances in laparoscopy—in which doctors make small incisions and use miniature instruments and cameras to do gall bladder surgery, hernia surgery and sometimes even appendectomies, hysterectomies and other operations—were the big news in 1991. By 1995 laparoscopy should be a $2 billion market, figures Cowen & Co.'s Daniel Lemaitre. U.S. Surgical leads this field, and Johnson & Johnson is getting started in it.

It's hard to find much in the way of earnings in the biotechnology stocks. One exception is Amgen, which wasn't profitable when it went public in 1983. But worldwide sales of its Epogen red blood cell stimulator are expected to exceed $800 million in 1991. Of that, Amgen will get $400 million, plus royalties. In the first ten months of 1991, investors in search of the next Amgen poured

Diversity and synergy

ANY WAY you look at it, Abbott Laboratories stacks up well against the competition. North Chicago-based Abbott spends just 21% of its estimated $7 billion 1991 sales on selling, general and administration costs. Competitor Johnson & Johnson spends nearly twice that amount. Cowen & Co.'s analyst Daniel Lemaitre estimates Abbott's pretax margin at 22%—about twice those of Baxter International, C.R. Bard and Becton Dickinson.

What's Abbott's secret? Diversity, for one thing. Abbott has a big or leading market share in infant formula, in-vitro diagnostics, medical nutritional products, intravenous fluids and anti-infective pharmaceuticals. So when it comes to marketing and distributing, Abbott is able to realize enormous efficiencies.

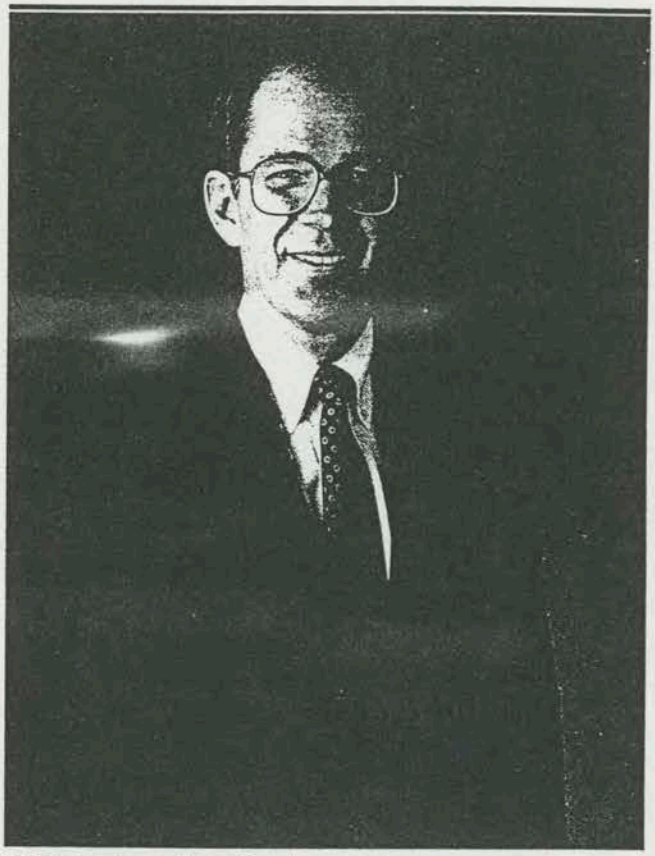
For example, a few years ago Abbott's $1.5 billion (1990 revenues) diagnostics division came out with TestPack, an easy-to-use testing product that allows doctors to test for strep throat and pregnancy right in their offices.

The problem was that the diagnostics sales force, which called on hospitals and clinical laboratories, didn't have the manpower to call on individual doctors. The solution? Have the drug sales force sell the new kits. Abbott is now the world market leader in the $1 billion doctors' office diagnostics market, supplying physicians with test kits.

It is also a world leader in the $10 billion diagnostics market, which includes the $4 billion immunology diagnostics market for screening diseases such as hepatitis, AIDS and cancer.

Abbott continues to invest strongly in its growing pharmaceutical and diagnostics divisions. Ultimately, this should offset declining margins for the infant formula division, which is under pricing pressure from the government and competitors.

As with all drug companies, research at Abbott is a big-ticket item. Last year alone, Abbott spent an estimated $770 million on research. Such expenditures grew at a compound rate of 19% for the last five years, exceeding the compound growth rate for sales over the same period. That kind of investing has cut into Abbott's earnings-per-share growth: While profits grew at a record 20% rate in 1988, they will probably increase only 15% a year for the next several years.



Abbott's chairman, Duane Burnham
Balancing growth with investing.

But Chief Executive Duane Burnham, 49, sees nothing wrong with that kind of progress. Neither would many other chief executives of corporations as large as Abbott Laboratories.

–M.B.G.

over $1 billion into the 32 largest biotech initial public offerings.

Although some of the new biotech issues will probably bomb, Prudential Securities' Joseph Edelman expects biotechnology to be one of the fastest-growing industries in history. He thinks industrywide revenues could grow to $40 billion by the end of the decade; current revenues are about $4 billion. His advice? Stick with stocks of companies like Centocor, Synergen and Chiron, all of which have some clinical data to back up their claims. ■

Health

Company	Profitability: Return on equity 5-year average %	Profitability: Return on equity latest 12 mos %	Profitability: Return on capital latest 12 mos %	Profitability: Debt/capital %	Growth: Sales 5-year average %	Growth: Sales latest 12 mos %	Growth: Earnings per share 5-year average %	Growth: Earnings per share latest 12 mos %	Sales latest 12 mos $mil	Net income latest 12 mos $mil	Profit margin latest 12 mos %
Medical supplies											
Johnson & Johnson	27.7	28.4	23.2	17.3	11.8	10.9	23.9	27.5	12,093	1,419	11.7
Medtronic	22.5	20.5	20.7	1.0	19.8	19.9	18.5	12.9	1,053	139	13.2
US Surgical	21.5	29.4	22.6	40.8	21.5	66.3	33.8	76.1	755	77	10.2
Hillenbrand Inds	20.3	19.0	14.7	16.0	16.7	5.2	18.1	14.7	1,157	83	7.2
VWR	20.2	19.9	10.9	60.5	12.8	3.2	6.4	14.9	435	7	1.6
CR Bard	19.3	15.3	13.7	16.5	11.6	8.8	4.8	25.3	847	53	6.2
Bausch & Lomb	17.7	17.4	14.8	11.7	18.6	11.0	14.7	15.8	1,478	146	9.9
Becton Dickinson	17.4	14.6	10.3	32.2	9.9	7.9	13.1	4.1	2,172	190	8.7
Corning	16.2	15.4	12.6	23.1	10.8	15.4	19.1	4.2	3,206	298	9.3
American Cyanamid	15.0	13.6	11.7	11.5	6.1	8.7	19.7	6.6	4,984	349	7.0
Beckman Instruments	13.8*	11.6	10.6	13.7	8.7	7.7	NM	2.4	850	38	4.4
Angelica	13.1	12.7	11.0	22.7	8.7	5.8	4.8	3.9	427	22	5.3
Owens & Minor	9.6	12.9	10.2	40.2	27.0	8.8	NM	78.8	1,284	11	0.9
Baxter International	7.5	15.5	12.4	31.8	22.6	10.4	NM	D-P	8,705	585	6.7
Westmark Intl	5.3*	5.5	5.9	4.5	21.0	0.7	NM	–11.0	482	16	3.4
Perkin-Elmer	0.0	def	def	17.0	–10.1	1.1	NM	P-D	868	–16	def
Allergan	NA	def	def	20.5	23.6	7.2	NA	P-D	911	–62	def
Henley Group	NA	def	def	61.2	28.4†	–11.2	NM	D-D	1,689	–557	def
Medians	16.8	14.9	11.4	18.9	14.8	8.3	6.4	9.7	1,105	65	6.5
Industry medians	17.9	16.9	14.2	18.9	12.5	10.8	14.7	18.5	1,780	90	6.5
All-industry medians	13.2	9.9	7.6	32.4	11.3	3.7	4.5	–5.9	1,436	40	2.9
Biotech											
Diagnostic Products	24.1	20.9	22.3	0.0	27.4	19.7	30.3	14.4	87	19	22.4
ICN Biomedicals	15.9	7.4	5.3	22.8	40.3	–9.0	22.2*	–51.2	109	4	4.1
Life Technologies	14.4	11.0	11.4	0.0	11.9	14.8	NM	–2.0	166	15	8.7
Applied BioScience	13.3	20.4	18.1	2.9	33.8	23.0	37.8	72.9	109	12	10.6
ALZA	11.3	13.1	7.9	38.4	17.8	31.1	28.4	32.8	122	33	27.0
Immucor	10.4	12.5	14.2	0.0	25.4	81.6	52.4	33.5	23	3	14.1
Molecular Biosystems	8.3	3.0	4.2	5.6	65.3	4.7	NM	–8.3	13	1	10.1
Amgen	7.2	8.3	9.8	2.7	79.6	104.4	NM	–46.9	646	40	6.3
Applied Biosystems	6.8	2.0	1.9	7.0	25.1	5.5	NM	D-P	168	3	1.9
Cordis	4.7	14.0	12.6	16.2	4.7	17.0	NM	–9.5	203	11	5.4
IGI	2.5	1.7	3.0	33.1	1.7	9.6	–44.5*	Z-P	22	0	0.5
Collagen	1.2	def	def	19.1	26.2	8.8	NM	P-D	60	–7	def
Gamma Biologicals	def	6.1	6.9	6.6	NM	–6.9	NM	–4.8	16	1	5.5
Biogen	def	3.0	6.0	0.0	32.7	36.6	NM	300.0	60	9	14.7
Synergen	def	def	def	3.9	NM	–54.0	NM	D-D	5	–8	def
California Biotech	def	def	def	0.0	10.6	–35.1	NM	D-D	9	–8	def
Genentech	def	8.2	6.2	13.9	41.7	9.8	NM	D-P	477	61	12.9
Genetics Institute	def	def	def	0.0	22.7	91.3	NM	D-D	68	–21	def
Chiron	def	8.5	7.3	31.0	58.6	78.6	NM	D-P	110	12	10.8
Collaborative Research	def	def	def	0.7	–4.6	0.1	NM	D-D	9	–2	def
Genzyme	def	0.0	1.5	0.6	39.3	111.1	NM	D-Z	91	3	3.6
Cambridge Biotech	def	def	def	12.7	34.1	22.2	NM	D-D	26	–4	def
Synbiotics	def	def	def	0.3	34.0	–28.1	NM	D-D	7	–6	def
Repligen	def	def	def	0.0	20.3	–30.0	NM	D-D	7	–7	def
Calgene	def	def	def	7.9	25.6	–15.0	NM	D-D	26	–28	def
Centocor	def	def	def	41.0	28.8	–24.7	NM	P-D	53	–284	def
Immunex	def	def	def	9.8	62.7	26.8	NM	D-D	40	–10	def
Enzo Biochem	def	def	def	64.9	24.5	2.0	NM	D-D	20	–11	def
XOMA	def*	def	def	1.1	26.4	–1.1	NM	D-D	19	–31	def
Medians	def	1.7	1.9	5.6	26.2	9.6	NM	–51.2	53	1	1.9

D-D: Deficit to deficit. D-P: Deficit to profit. P-D: Profit to deficit. D-Z: Deficit to zero. Z-P: Zero to profit. def: Deficit. NA: Not available. NE: Negative equity. NM: Not meaningful. *Four-year average. †Three-year average. For further explanation, see page 95. Note: Medians for the Biotech industry are not included in this Health industry and the all-industry medians.

Sources: Forbes; Value Line Data Base Service via Lotus CD Investment.

In addition, the Company filed a shelf registration with the Securities and Exchange Commission in 1988 for $500 million of debt securities and warrants to purchase debt securities, $250 million of which has been issued in 1990. The remaining $250 million was combined with a new $500 million shelf registration, filed in 1990, to form a medium term note (MTN) program for the issuance of up to $750 million of unsecured debt securities and warrants to purchase debt securities. During 1990, $200 million of MTN's were issued.

At the end of 1989, $187 million of commercial paper and $347 million of debt due in 1990 were classified as long-term debt based on the Company's ability and intent to refinance such debt. The $347 million of debt consisted of $250 million 8 7/8% Notes and the two Australian (A] dollar Notes due in 1990.

Loans and notes payable at the end of 1990 are composed of U.S. commercial paper borrowings of $347 million, $100 million of medium term notes and $429 million of local borrowings principally by international subsidiaries, of which $121 million represents the current portion of long-term debt.

Long-term debt comprised:

(Dollars in Millions)	1990	1989
8 1/2% Notes due 1995	$ 250	--
10% European Currency Unit Notes due 1993(1)	137	--
7% Swiss Franc Notes due 1994(1)	118	--
8 1/8 to 8 3/8 Medium Term Notes due 1993-4	100	--
12 7/8% Italian Lire Notes due 1993(1)	88	--
9 1/8% Notes due 1992 (net of unamortized discount)	249	249
7 3/4% European Currently Unit Notes due 1992(1)	136	116
8 7/8% Notes due 1990	--	250
17 3/8% A$ Notes due 1990(1)	--	60
18 3/8% A$ Notes due 1990(1)	--	37
Commercial paper	--	187
Industrial Revenue Bonds	95	99
Other, principally international	143	172
	$1,316	1,170

(1) These debt issues include the effect of foreign currency movements in the principal amounts shown. However, these debt issues were converted to floating rate U.S. dollar liabilities at interest rates below commercial paper rates via interest rate and currency swaps. Unrecognized gains (losses) on the currency swaps are classified in the balance sheet as other assets (liabilities).

Interest rates on the Industrial Revenue Bonds and other long-term obligations vary from 5% to 14% according to local conditions.

Aggregate maturities of long-term debt obligations for each of the next five years commencing in 1991 are:

(Dollars in Millions)	1991	1992	1993	1994	1995
	$121	437	397	143	257

7 Income Taxes-The provision for taxes on income consists of:

(Dollars in Millions)	1990	1989	1988
Currently payable:			
U.S. taxes on domestic income	$ 75	30	28
U.S. taxes on international income	30	51	7
International taxes	403	353	387

are not material.

NOTE-5: [STOK]

Note 5 - Common Shares

On March 9, 1990, the Company approved a two-for-one stock split. Shareholders of record at the close of business May 1, 1990, were issued an additional share of the Company's common stock on May 31, 1990, for each share owned on the record date. Authorized common shares were increased from 600,000,000 to 1,200,000,000 effective with the stock split. All share and per share data in the consolidated financial statements and notes have been adjusted to reflect the stock split.

In 1988, the Board of Directors declared a dividend distribution of Common Share Purchase Rights, whereby each common share outstanding has one non-voting Common Share Purchase Right. The Rights, which are exercisable only under certain conditions, entitle the holder to purchase common shares at prices specified in the Rights Agreement. The Rights were not exercisable at December 31, 1990.

NOTE-6: [TX COMMT]

Note 6 - Taxes on Earnings

Earnings before taxes, and the related provisions for taxes on earnings, are as follows:

(dollars in thousands)

Earnings Before Taxes	1990	1989	1988
Domestic	$ 1,074,440	$ 983,479	$ 850,938
Foreign	276,293	210,732	204,538
Total	$ 1,350,733	$ 1,194,211	$ 1,055,476

Taxes on Earnings	1990	1989	1988
Current:			
U.S. Federal and Possessions	$ 266,454	$ 205,804	$ 181,465
State	41,903	31,774	35,976
Foreign	109,129	82,596	93,969
Total Current	417,486	320,174	311,410
Deferred:			
Domestic	(34,582)	11,509	(9,117)
Foreign	2,055	2,696	1,156
Total Deferred	(32,527)	14,205	(7,961)
Total	$ 384,959	$ 334,379	$ 303,449

thousands

Societe Anonyme CIBA-GEIGY (France)
Laboratoires CIBA-GEIGY SA (France)
CIBA-GEIGY SA (France)
Etablissements CIBA-GEIGY SA (France)
Brochier SA (France)
SODIEMA SA (France)
Societe Francaise de Participation 'Insecticides', (SOFRAPIN) (France)
CIBA-GEIGY GmbH (Germany)
Chemische Fabrik Pfersee GmbH (Germany)
CIBA-GEIGY Marienberg GmbH (Germany)
CIBA-GEIGY Holding Deutschland GmbH (Germany)
CIBA-GEIGY AG (Germany)
Dr. Christian Brunnengraber GmbH (Germany)
Med. Fabrik chemisch-pharmazeutischer Praparate, J. Carl Pfluger GmbH & Co. (Germany)
Garvens Automation GmbH (Germany)
CIBA-GEIGY HELLAS S.A. (Greece)
CIBA-GEIGY SA (America Central y Caribe) (Guatemala)
CIBA-GEIGY (HONG KONG) LTD. (Hong Kong)
HINDUSTAN CIBA-GEIGY LTD. (India)
P.T. CIBA-GEIGY Pharma Indonesia (Indonesia)
P.T. Candra Sari (Indonesia)
CIBA-GEIGY IRAN Ltd. (Iran)
CIBA-GEIGY Ireland Ltd. (Irish Republic)
CIBA-GEIGY S.p.A. (Italy)
SOCHIM Cote d'Ivoire SA (Ivory Coast)
CIBA-GEIGY (JAPAN) LTD. (Japan)
Asahi-CIBA Ltd. (Japan)
Musashino-Geigy Co. Ltd. (Japan)
Nagase-CIBA Ltd. (Japan)
Nippon Alkyl Phenol Co. Ltd. (Japan)
Kenya Swiss Chemical Co. Ltd. (Kenya)
Daihan Swiss Chemical Corp. (Korea)
SEARLE KOREA LTD. (Korea)
CHEIL CIBA-GEIGY Co. Ltd. (Korea)
CIBA-GEIGY MIDDLE EAST S.A.L. (Lebanon)
CIBA-GEIGY (MALAYSIA) SDN. BHD. (Malaysia)
CIBA-GEIGY MEXICANA S.A. de C.V. (Mexico)
PRODUCTORA Quimica de Jalisco, S.A. de C.V. (Mexico)
Atoquim, S.A. de C.V. (Mexico)
Societe Maroco-Suisse pour l'Industrie Chimique SA "SOMACHIM" (Morocco)
CIBA-GEIGY Pharma Maroc (Morocco)
CIBA-GEIGY BV (Netherlands)
CIBA-GEIBY International Asia BV (Netherlands)
CIBA-GEIGY International Nederland BV (Netherlands)
Ligtermoet Chemie BV (Netherlands)
CIBA-GEIGY MAASTRICHT BV (Netherlands)
Multipharma BV (Netherlands)
CIBA-GEIGY New Zealand Ltd. (New Zealand)
Swiss Nigerian Chemical Co. Ltd. (Nigeria)
CIBA-GEIGY A/S (Norway)
CIBA-GEIGY (PAKISTAN) LTD. (Pakistan)
CIBA-GEIGY Sociedad Anonima de Venta y Distribucion (Panama)
FARNAC SA (Peru)
CIBA-GEIGY (Philippines) Inc. (Philippines)
CIBA-GEIGY Portuguesa Lda. (Portugal)
INAC Industria Nacional de Produtos Quimicos Lda. (Portugal)
Laboratorio Normal-Produtos Farmaceuticos, Lda. (Portugal)
CIBA-GEIGY S.E. Asia (Pte.) Ltd. (Singapore)
CIBA-GEIGY International Asia BV (Singapore)
CIBA-GEIGY (Pty.) Ltd. (South Africa)
CIBA-GEIGY Sociedad Anonima (Spain)
Industrias Quimicas de Navarra SA (Spain)
MAICES HIBRIDOS Y SEMILLAS SA (Spain)
CIBA-GEIGY AB (Sweden)
CIBA-GEIBY International Ltd.
CIBA-GEIGY Ltd., Werk Stein, Stein AG
CIBA-GEIGY Ltd., Centre de recherches agricoles
CIBA-GEIGY Ltd., Usine de Monthey
CIBA-GEIGY Werke Kaisten AG
CIBA-GEIGY Werke Schweizerhalle AG
CIBA-GEIGY Munchwilen AG, Munchwilen AG
CIBA-GEIGY Sales and Distribution Co. Ltd.
CIBA-GEIGY Services Ltd.
CIBA-GEIGY Trading and Marketing Services Co. Ltd.
Compagnie des Forces Motrices d'Orsieres
Mettler-Toledo AG
Zyma SA
Servipharm Ltd.
Pro Rheno Betriebs AG
Hommel SA
Dispersa AG
Ingold Messtechnik AG
Ciba Vision Management AG
Saurefabrik Schweizerhall AG
Asia Pacific Resin Corp.(Taiwan)
CIBA-GEIGY (Taiwan) Ltd. (Taiwan)
Swisspharma Taiwan Ltd. (Taiwan)
CIBA-GEIGY (THAILAND) LTD. (Thailand)
MULPRO Ltd. (Thailand)
CIBA-GEIGY Ilac ve Kimya Urunleri Sanayii ve Ticaret A.S. (Turkey)
CIBA-GEIGY PLC (United Kingdom)
CIBA-GEIGY (Financial Services) PLC (United Kingdom)
CIBA-GEIGY Chemicals Ltd. (United Kingdom)
CIBA-GEIGY URUGUAYA SA (Uruguay)
CIBA-GEIGY Corp.(U.S.A.)
Ciba Corning Diagnostics Corp. (U.S.A.)
Geneva Generics Inc. (U.S.A.)
The Biocine Co. (U.S.A.)
Cord Laboratories (U.S.A.)
Ohaus Corp. (U.S.A.)
PRODUCTOS CIBA-GEIGY SA (Venezuela)
COVIGAL SA (Venezuela)
SOCIETE ZAIRO-SUISSE DE PRODUITS CHIMIQUES SARL (Zaire)
CIBA-GEIGY Sales and Distribution Co. Ltd. (Zimbabwe)

Board of Directors

Alex Krauer, Chmn. & Managing Dir.
Albert Bodmer, Dep. Chmn.
Hans-Jorg Held, Sec.
M.M. Burger
Franz Galliker
H.B. Herzog
A.F. Muller
Helmut Sihler
Otto Sturzenegger
Frank Vischer
K.V. Cassani
R.E. Gut
Fritz Leutwiler
Francois Schaller
Robert Staubli
H.E.R. Uyterhoeven

Auditors: Swiss Auditing & Fiduciary Co.

Annual Meeting: In May.

No. of Employees: Dec. 31, 1990, 94,141.

No. of Stockholders Dec. 31, 1990, 65,392.

Head Office: Basel, Switzerland. **Tel.:** 4161 697 22 17. **Fax:** 4161 697 25 39.

Income Account, years ended Dec. 31 (in millions of Swiss Francs):

	1990	1989
Sales	6,960	6,925
Own work capitalized	157	148
Dividend, royalties & int.	516	379
Total revenue	7,633	7,452
Raw mat., intermediates, etc.	3,308	3,261
Wages & salaries	1,353	1,266
Welfare benefits	389	370
Oth. exp. & taxes	1,519	1,469
Deprec., provis.	701	681
Net profit	363	405

Balance Sheet, as of Dec. 31 (in millions of Swiss Francs):

Assets:	1990	1989
Cash & banks	661	1,100
Securities	1,552	1,897
Receivables	1,656	1,582
Stocks	666	586
Total current	4,535	5,165
Int. in group & affiliate cos.	2,080	914
Loans to group cos. & branch establish.	1,712	1,621
Financial assets	235	.....
Fixed assets	142	93
Total	8,704	7,793
Liabilities:		
Bank debt	314	11
Money mkt. book debt	200	.....
Accts. payable	3,976	3,593
Long term debt	431	441
Share capital (Sfr.100)	523	426
Cap. partic. cts. (SFr.100)	34	119
Statutory res.	725	725
Free reserves	449	447
Special reserves	1,633	1,620
Employment creation reserve	50	.....
Profit brought fwd.	6	6
Net profit	363	405
Shareholders' equity	3,783	3,748
Total	8,704	7,793

Long Term Debt: Outstg. Dec. 31, 1990, SFr.431,214,000 comprised of:
(1) SFr.100,000,000 4% debenture loan, due 1992, redeemable from 1988.
(2) SFr.150,000,000 4¼% debenture loan, due 1998, redeemable from 1996.
(3) SFr.149,964,000 2% convertible loan, due 1998, redeemable 1988-1998 with put option excercisable June 9 to July 9, 1996.
(4) SFr.31,250,000 loans, due 1993 at 5% from Pro Rheno AG, Basle, to finance water pollution control measures redeemable from 1990.

Other Guaranteed Debt: Outstg., Dec. 31, 1989, as follows:
(1) £25,000,000 6¾% guaranteed bonds, with warrants, of CIBA-GEIGY International Nederland BV, Arnhem.
(2) FFr,200,000,000 8¾% guaranteed bonds, with warrants, of Societe Anonyme CIBA-GEIGY, Rueil-Malmaison.
(3) U.S.$50,000,000 7½% guaranteed bonds of CIBA-GEIGY International Nederland BV, Arnhem.
(4) U.S.$200,000,000 euro-commercial paper programme of CIBA-GEIGY International Nederland BV, Arnhem.

Capital Stock: 1. CIBA-GEIGY Ltd. bearer shares; par SFr.100:
OUTSTG. — Dec. 31, 1990, 749,034 shs.; par SFr.100.
DIVIDENDS PAID — (fiscal years, in Sfr.):

1965-68	100	1969	110	1970-75	22
1976	23	1977-80	22	1981	25
1982	28	1983	31	1984	35
1985-87	38	1988	50	1989	65
1990	60				

LISTED — On Zurich Stock Exchange.

2. CIBA-GEIGY Ltd. registered shares; par SFr.100:
OUTSTG. — Dec. 31, 1990, 4,477,682 shs.; par SFr.100.
DIVIDENDS PAID — (fiscal years, in Sfr.):

1965-68	100	1969	110	1970-75	22
1976	23	1977-80	22	1981	25
1982	28	1983	31	1984	35
1985-87	38	1988	50	1989	65
1990	60				

LISTED — On Zurich Stock Exchange.

3. CIBA-GEIGY Ltd. participation certificates; par SFr.100:
OUTSTG. — Dec. 31, 1990, 341,420 ctfs.; reserved for options, 131,823 ctfs.; par SFr.100.
DIVIDENDS PAID — (fiscal years, in Sfr.):

1965-68	100	1969	110	1970-75	22
1976	23	1977-80	22	1981	25
1982	28	1983	31	1984	35
1985-87	38	1988	50	1989	65
1990	60				

LISTED — On Zurich Stock Exchange.

CLARIDEN BANK

History: Established in Switzerland in 1955.
In 1990, ownership of Co. passed from Financiere Credit Suisse-First Boston to Leu Holding AG, both subsidiaries of CS Holding.

Control: Wholly owned by Leu Holding AG, a 56% subsidiary of CS Holding.

Business: Provides asset management and investment advisory services, investment banking and local lending.

Property: Co. operates offices in Zurich, Geneva, Singapore and Hong Kong.

Subsidiaries

Claridan Trust Management AG
Claridan Asset Management (New York) Inc. (USA)
Claridan Bank and Trust (Cayman) Ltd. (Cayman Island)

Officers

Alex Hoffmann, Pres.

Executive Vice-Presidents.
Peter Gubler
Thomas Hoepli

Board of Directors

R.L. Genillard, Chmn.
Hans-Joerg Rudloff, Vice-Chmn.
Peter Kuepfer
Gerhard Landert
Alexandre F. Jetzer Hans-Peter Sorg

Secretary: Herbert Neher.

Auditors: KPMG Klynveld Peat Marwick Goerdeler SA, Zurich.

No. of Employees: Mar. 31, 1990, 228.

Zurich Office: Claridenstrasse 26, CH-8002 ZURICH, Postfach 5080, CH-8022 Zurich, Switzerland. **Tel.:** (01) 205 62 62. **Telex:** 816919. **Fax:** (01) 205 63 03.

Geneva Office: 1, quai du Mont-Blanc, CH-1201 GENEVA, Case postale 1,304, CH-1211 Geneva 1, Switzerland. **Tel.:** (022) 731-9650. **Telex:** 421 390. **Fax:** (022) 738 6449.

Profit & Loss Account, years ended Dec. 31 (in millions of Swiss Franc):

	1990	1989
Interest earned	36.7	32.2
Inc. from bills & money mrkt. instruments	7.0	6.3
Comm. earned	44.3	49.7
Fgn. exchge. & precious metal dealings	6.8	10.4
Inc. & gains on secur.	2.3	6.2
Other income	4.8	0.6
Total income	102.0	105.4
Interest paid	33.6	26.2
Commissions paid	4.6	5.1
Personnel expenses	20.2	21.6
Pension fund contrib.	2.3	2.2
General expenses	15.1	14.0
Taxes	7.0	7.7
Deprec. amort. & prov.	6.1	14.3
Net profit	12.9	14.4
Balance brought fwd.	0.2	0.2
Transf. to legal res.	1.5	1.0
Transf. to spec. res.	1.6	3.4
Dividend	10.0	10.0
Balance carried fwd.	0.1	0.2

Balance Sheet, as of Dec. 31 (in millions of Swiss Franc):

Assets:	1990	1989
Cash on hand	12.6	13.0
Due from banks: at sight	35.7	88.5
Within 90 days	141.0	71.3
After 90 days	146.8	110.9
Bills & money market instrument	64.3	104.8
Unsecured overdrafts	0.2	0.7
Secured overdrafts	80.9	75.0
Unsecured term loans	2.3	.....
Secured term loans	64.7	96.6
Securities	68.7	93.7
Participations	2.0	1.7
Bank premises	22.9	18.2
Other assets	14.0	39.9
Total	656.2	714.4
Liabilities:		
Due to banks: at sight	47.8	99.5
Within 90 days	165.2	161.2
After 90 days	108.4	104.7
Due customers: at sight	64.4	61.8
Within 90 days	14.9	25.4
After 90 days	12.9	9.7
Deposit accounts	87.2	90.3
Mortgages on bank premises	.....	5.0

MERCK & CO INC DEC 31, 1990

8. SUPPLEMENTARY INCOME STATEMENT INFORMATION

	1990	1989	1988
Advertising expenses	$ 254.2	$ 241.4	$ 241.5
Taxes, other than income, principally payroll taxes	217.3	175.1	159.7
Repairs, alterations and maintenance	150.4	132.6	123.2

NOTE-9: [TX]

9. TAXES ON INCOME

A reconciliation between the Company's effective tax rate and the U.S. statutory rate follows:

	1990 Amount	Tax Rate 1990	1989	1988
U.S. statutory rate applied to pretax income	$ 917.6	34.0%	34.0%	34.0%
Differential arising from:				
Tax exemption for Puerto Rico operations	(114.6)	(4.3)	(4.6)	(3.7)
Foreign operations	56.9	2.1	2.6	1.5
State taxes	53.1	2.0	1.9	1.1
Other, including minority interests	4.6	.2	.6	2.6
	$ 917.6	34.0%	34.5%	35.5%

Domestic companies contributed approximately 66% in 1990 and 1989, and 57% in 1988 to consolidated pretax income.

Taxes on income consisted of:

	1990	1989	1988
Current provision			
Federal	$ 567.5	$ 476.3	$ 441.2
Foreign	403.5	303.2	304.1
State	78.8	74.0	59.3
	1,049.8	853.5	804.6
Deferred provision			

millions

these Debentures had been converted into approximately 3.8 million shares of common stock.

The 8 3/4% Convertible Subordinated Debentures Due 2006 are convertible into common stock at $ 28.25 per share and, at the Company's option, are redeemable at diminishing premium rates. The Debentures are subject to redemption through the operation of a sinking fund commencing in 1992. During 1990, approximately $ 9.4 million of these Debentures were converted into .3 million shares of common stock. Through December 31, 1990, $ 107.7 million of these Debentures had been converted into approximately 3.8 million shares of common stock. Approximately 1.5 million shares are reserved for potential conversions.

At the Company's option, the 8 1/2% Sinking Fund Debentures Due 1999 are redeemable at premium rates declining to par five years prior tto their maturity. This issue is redeemable through a sinking fund which commenced in 1985. At December 31, 1990, the Company had acquired sufficient Debentures to meet sinking fund requirements through 1993.

At December 31, 1990, the Company had approximately $ 1.2 billion in major unused lines of credit with U.S. and foreign banks.

During 1990, 1989 and 1988, respectively, the Company incurred interest costs of $ 142.4, $ 131.2 and $ 86.5 million, including $ 9.9, $ 5.2 and $ 4.0 million which was capitalized. Interest paid was approximately $ 133.8, $ 121.4 and $ 87.4 million in 1990, 1989 and 1988, respectively.

NOTE-7: [TX]

Taxes on Income

The provision for taxes on income consists of the following:

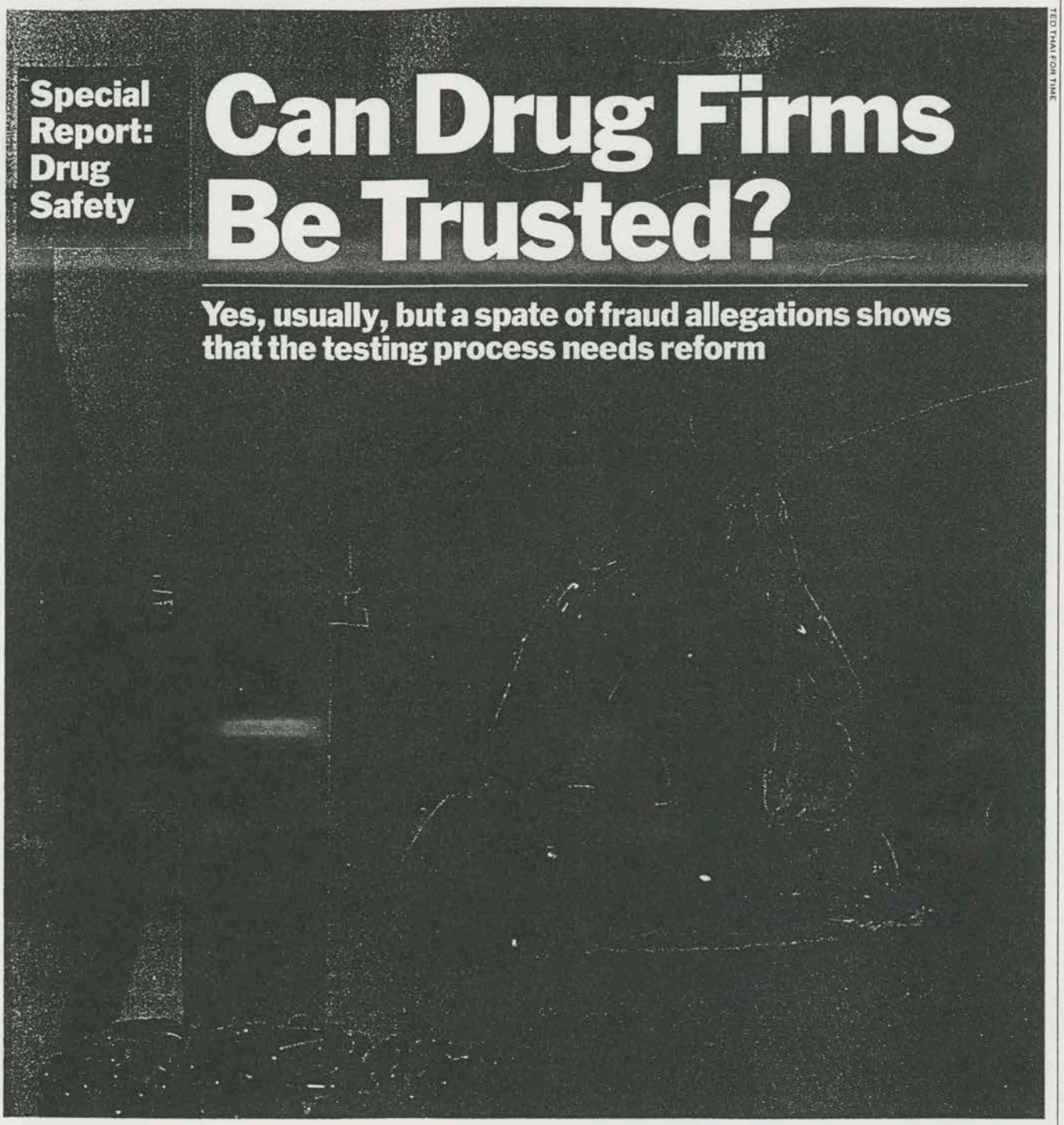
(millions of dollars)	1990	1989	1988
UNITED STATES			
Income before taxes	$ 479.3	$ 331.5	$ 471.5
Taxes currently payable	132.5	108.1	190.6
Deferred income taxes	9.1	(11.1)	(48.5)
Tax provision	141.6	97.0	142.1
INTERNATIONAL			
Income before taxes	624.0	585.0	632.3
Taxes currently payable	132.7	151.0	144.0
Deferred income taxes	23.6	(16.7)	23.3
Tax provision	156.3	134.3	167.3
Total tax provision	$ 297.9	$ 231.3	$ 309.4

MAY include State taxes

Special Report: Drug Safety

Can Drug Firms Be Trusted?

Yes, usually, but a spate of fraud allegations shows that the testing process needs reform



TED THAI FOR TIME

By CHRISTINE GORMAN

Even to a nation grown accustomed to multibillion-dollar business frauds, the allegations are shocking. A Scottish psychiatrist has charged Upjohn of Kalamazoo, Mich., with falsifying scientific evidence regarding the safety of the sleeping pill Halcion (annual worldwide sales: $240 million). The accusation has prompted a federal investigation. Dow Corning Wright of Arlington, Tenn., stands accused of failing to report that its silicone-gel breast implants were associated with severe side effects—including the development of autoimmune disorders like rheumatoid arthritis and lupus. That product and similar implants made by other manufacturers have been placed in 1 million to 2 million American women. If fraud has occurred, the cost cannot be compared with chicanery in other industries, for at stake is more than the customers' investment. It is their health and, in some cases, their very lives.

The charges of fraud have struck an industry already reeling from allegations of deception, greed and insufficient attention to their products' safety. The Food and Drug Administration is currently investigating an alleged cover-up by Hoffmann-La Roche of the lethal effects of its liquid anesthetic Versed, which has been linked to 40 deaths from respiratory failure. And while fraud has not been alleged against Pfizer, the New York City–based company will set aside $500 million for problems arising from one of its now dis-

continued artificial heart valves, which exhibit a sometimes fatal tendency to crack inside the body.

Meanwhile, Eli Lilly is battling several lawsuits that claim, on the basis of scant evidence, that the antidepressant Prozac can cause extreme agitation, suicidal tendencies and even an impulse to murder.

A critical social contract between manufacturers, regulators and the public seems to be unraveling. "I just don't trust the drug companies as much as I once did," says New York City real estate agent Peggy Mathews. "Halcion and silicone implants stand out like beacons, putting us all on the alert." She has reason to worry, says Dr. Sidney Wolfe, a consumer activist who heads Public Citizen's Health Research Group. "The heart of the problem is the dangerous amount of control the industry has over testing. Hundreds of people have been killed and thousands injured because data have been falsified."

Is Wolfe just crying wolf? Or has a pervasive corruption—which the FDA seems powerless to stop—spread throughout the pharmaceutical and medical-device industries? Upjohn and Dow Corning strenuously deny any wrongdoing. They point out, rightly, that only a small proportion of consumers report problems with their products, and that it is naive to expect perfection in so large and complex a business. In the U.S. alone, there are 3,000 types of drugs on the market and more than 1.5 billion prescriptions written every year. A small number of incidents with a handful of drugs is hardly an indictment of the entire system.

In addition, say some drug-industry experts, the system has a built-in incentive for companies to be honest about their products' quality. "The negative fallout of dangerous drugs is much worse in many cases than not getting the drug approved to begin with," says Dr. Kenneth Kaitin, assistant director of the Center for the Study of Drug Development at Tufts University. "If a drug has to be pulled from the market, it's very bad for public relations, financially and in every possible way. It just doesn't make sense that they would intentionally conceal real problems."

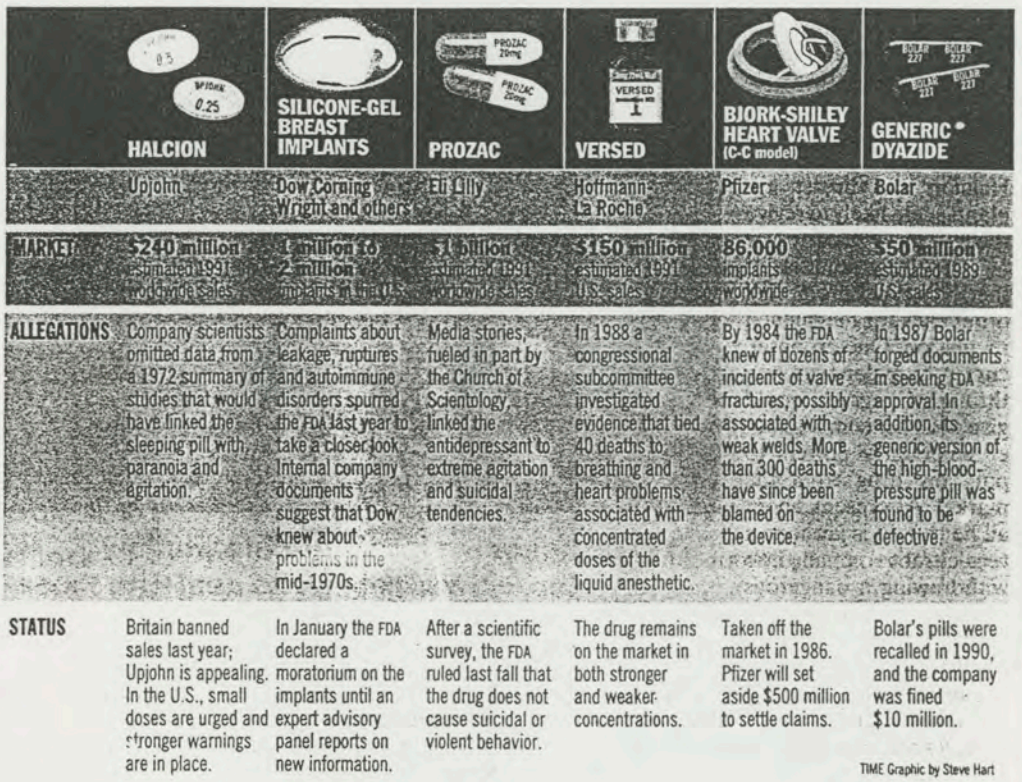
That kind of thinking had been the basis for a relationship of trust between the medical-products industry and the FDA. Historically, the agency has counted on the pharmaceutical firms, when they apply for approval of a new drug or device, to carry out the necessary testing themselves and to do it honestly. Though agency panels scrutinize the results of industry research, they rarely demand the raw data, relying instead on the analyses and conclusions drawn by the company. The FDA simply does not have the personnel or the budget to do all the research itself—nor would it be practical for it to do so. "That road leads to madness," says Dr. Jere Goyan, dean of the school of pharmacy at the University of California, San Francisco, and former head of the FDA. The FDA is designed to act as a brake, not a developer.

But relying on drug marketers to analyze research data has serious drawbacks. Raw data are often ambiguous; the medicine vial can be half empty or half full. Considering that it can take an investment of $200 million and 10 years to bring a drug from the lab bench to the pharmacy, manufacturers have a powerful incentive to look on the bright side, particularly when problems turn up late in the game after millions have been expended. "They definitely have rose-colored glasses," admits Robert Temple, chief of the FDA's office of drug evaluation.

Still, the system mostly seems to work. Last year the government carried out 203 random inspections of clinical investigators and discovered just eight studies that were significantly flawed. (Offending researchers can be permanently barred from submitting any drug tests to the FDA.) The low rate of skulduggery has remained constant since 1962, which helps explain why there has historically been a "gentlemanly working relationship between the FDA and industry," says Dr. Norman Anderson, a professor at the Johns Hopkins University School of Medicine who has served on numerous science advisory panels for the FDA.

The silicone breast-implant scandal may, however, change that relationship. Anderson's own trust in the system was shattered on Dec. 12, when he sat down and read scores of Dow Corning documents, including 17 internal memos dating as far back as the mid-1970s, about silicone-gel breast implants. The information surfaced during a liability suit in Michigan. When he finished, Anderson wrote and hand-delivered both the documents and an urgent letter to the FDA demanding that all such implants be promptly removed from the marketplace. "This appeal is not made lightly," Anderson wrote. He noted that Dow Corning officials had assured an FDA review panel, of which Anderson was a member, that the company had disclosed all relevant information on implants. "I am now in possession of unprotected court documents which indicate this was not true." Anderson's conclusion: the memos leave "little doubt of [Dow Corning's] misrepresentation of the facts."

The resulting furor rattled the FDA like no scandal since the thalidomide scare of the early 1960s. Following Anderson's appeal, the agency declared a moratorium on all silicone-gel implants, pending further review. "It's the ultimate case as to why you need a strong agency," says FDA Commissioner David Kessler. Now, says Kessler, "the honor system is out the window." He promises that companies will be subject to intensive audits in which investi-



gators will scrutinize how data are analyzed and presented by the manufacturers. Says he: "People have to know that we have the will and resolve to deal with those who have crossed the line."

Brave words from a bureaucrat with limited power. Although the FDA is entrusted with guaranteeing the safety of all medical drugs and devices in the U.S., it is poorly armed for the job. For example, unlike almost every other federal agency, the FDA lacks the legal clout to subpoena a company's internal records if a problem is suspected. Congress woke up to the problem last fall, at Kessler's prodding, and introduced a bill that would have enabled the agency to seize corporate documents. The threat of a presidential veto halted the measure, though the new revelations about Halcion and breast implants seem likely to revive the initiative.

The drugs scandals of the '90s are prompting other calls for heightened regulation. One proposal, currently making its way through Congress, would give the FDA commissioner emergency powers to pull any drug from the market. At present, about all he can do is jawbone a recalcitrant company into withdrawing a dangerous product. "It's easier for the Consumer Products Safety Division to recall a toaster than for the commissioner of the FDA to recall a dangerous drug," grouses a Capitol Hill staff member. Even so, the measure is strenuously opposed by both the Pharmaceutical Manufacturers Association and the White House, which sees it as burdensome regulation.

Would-be reformers are also pushing the FDA to adopt a more strenuous review of drugs after they have been approved for marketing. Such postapproval monitoring is already being tried in Canada, Britain and Sweden, where officials can tap into data from a national health-care system. The reasoning behind the push is quite straightforward. Clinical trials typically include a few thousand people and can therefore pick up only the most obvious and prevalent side effects. Once a drug enters the market, hundreds of thousands or even millions of people start using it, often for sustained periods of time—when more subtle or long-term risks may come to light. Such was the case with "beta-blocker blues," a syndrome of fatigue and mild depression sometimes associated with regular use of a popular category of heart drugs called beta blockers. The syndrome went undetected in clinical trials.

Currently the FDA relies on spontaneous reporting of postmarketing problems by physicians who prescribe the drugs or manufacturers who may receive complaints from doctors. It is a seriously flawed system, says Joe Graedon, author of several consumer-oriented books about prescription drugs. First, says Graedon, if a patient has a problem—say an upset stomach or itching skin—he or she may not make the connection to a drug or medical device. Second, even if the patient does make the link, the doctor may dismiss it. Third, a physician simply may not take the time to report a suspicious problem to the FDA or drug manufacturer. "It means extra time, extra paperwork, and there is always the fear of litigation." Graedon believes the FDA should contract with large medical groups—major HMOs, for instance—to keep data bases on adverse reactions.

The Bush Administration might even be persuaded to go along with this extra regulatory step. For several years now, it has been pressuring the FDA to streamline its approval process. Agency officials have been reluctant, and the recent scandals have proved them right. But streamlining approval may make more sense if postapproval surveillance is beefed up.

Drug companies are marshaling their forces to oppose increased government oversight. Those that stand accused are also conducting somewhat belated counteroffensives to limit the legal damage and repair their frayed reputations. Dow Corning, which has been widely criticized for reacting insensitively to the implant debacle, announced that it has retained former Attorney General Griffin Bell to lead an independent investigation into its development and marketing of implants. The company has also agreed to make public 90 additional documents and to ensure that it provides accurate information to the thousands of women calling the company for advice.

CHARLES TASNADI—AP

"The honor system is out the window . . . We have the will and resolve to deal with those who have crossed the line."

—FDA CHIEF KESSLER

Upjohn is meanwhile reassuring physicians that reported problems with Halcion occur only at high doses and if the drug is taken for long periods of time. At the FDA's request, Upjohn revised the drug's package insert to warn patients not to extend its use beyond 10 days without consulting their physician. Last week the firm filed a libel suit against its Scottish accuser, Dr. Ian Oswald, and the British Broadcasting Corporation for televising allegations of fraud. Upjohn is also actively appealing the British Department of Health's decision last fall to ban Halcion.

The negative publicity has affected the whole industry, prompting several companies to curry favor with the public. Last month Bristol-Myers Squibb announced that it will donate 17 different brands of blood pressure– and cholesterol-lowering drugs for use by patients whose doctors will certify that they have no insurance or other means of paying. In addition, Bristol Myers, Syntex and Merck have announced that they will provide 12.5% price rebates on drugs dispensed in federally financed public health programs for the poor.

All the goodwill gestures in the world seem unlikely to deflect the growing movement toward further government regulations of the pharmaceutical industry. Experts caution, however, that hastily written rules, even if they are produced with the best of intentions, can backfire. The Orphan Drug Act, for instance, was passed in 1983 to encourage the development of drugs for rare diseases. The law provides an extra economic incentive, in the form of a seven-year monopoly, to companies that market products for maladies that afflict

fewer than 200,000 people. Though it has done some good, it has also been widely blamed for the outrageous prices of certain medications, including aerosolized pentamidine for AIDS patients, and for allowing some companies to make a killing when an "orphan drug" has turned out to be useful for a common disease. Congress is working on revising the measure.

Despite such regulatory pitfalls, the time is ripe for putting some teeth into the FDA. A profit-driven system cannot be so dependent on trust, particularly when lives hang in the balance. Doctors and their patients also bear some responsibility for using drugs wisely. "All drugs have risk," observes physician-activist Wolfe. "Most of the time the benefits outweigh the risks. But there is abysmal ignorance on the part of the public about side effects." In a culture that has long been addicted to the quick fix, a healthy respect for the power of the pill—negative as well as positive—may prove to be the best medicine of all. ***—Reported by Mary Cronin and Andrew Purvis/New York and Dick Thompson/Washington***

Special Report: Drug Safety

Lawyers to the Rescue

Legal action helps keep drug companies honest, but it's a crazy way to regulate an industry

By MICHAEL D. LEMONICK

The news about the dangers of silicone implants may have struck terror into the hearts of thousands of women, but for many trial lawyers it represents a bonanza. More than 1,000 implant-related lawsuits have already been filed by women who claim they were disfigured or debilitated by the devices. And the revelation that manufacturers may have knowingly buried facts about the dangers is causing the numbers to skyrocket. Some attorneys have even set up toll-free numbers to handle—and encourage—the surge.

The most aggressive of them advertise in newspapers, on billboards and even on TV with come-ons such as "Has your breast-implant surgery gone wrong? We can help." Doctors find this alarming. "They're scaring the hell out of the women who have had these things put in," complains Dr. Mark Gorney, medical director of the Doctors' Co., a large malpractice insurer. "Any woman with an implant who has a twinge in her shoulder says, 'Oh, my God, I'm going to die.'" Many attorneys also worry about the appearance of a feeding frenzy.

New York attorneys Arthur Luxenberg, left, and Perry Weitz see no problem with their recent decision to advertise in newspapers. Says Luxenberg: "Women are delighted that they have someplace to turn."

Alas, massive lawsuits and ambulance-chasing lawyers have become a major part of America's beleaguered system for regulating medical products. To be fair, legal action is not only a valuable recourse for patients who have been harmed; it can also expose problems overlooked by regulators. It was lawsuits in Michigan and California—and aggressive reporting by newspapers—that revealed Dow Corning Wright's internal memos concerning the risks of silicone-gel implants.

The fear of lawsuits also forces drug companies to be honest. "I will sue people so that I can protect women," says Connecticut attorney Karen Koskoff. An implant recipient herself, Koskoff co-chairs the implant litigation group at the Association of Trial Lawyers of America (ATLA).

Of course, forces other than altruism may be at work. Attorneys usually work on a contingency fee, collecting nothing if the action fails but pocketing at least 30% of the proceeds if the defendants pay up. The three judgments so far in implant cases have ranged from $4.5 million to $7.3 million. Cases settled out of court can bring $500,000 to $750,000.

For all the virtues of the judicial system, the courtroom is not the best place to work out scientific truths. Lawyers pursuing drug-liability suits often depend on a small cadre of "expert witnesses" to help make their case. These hired guns, complains Frank Woodside, a doctor and attorney for Dow Corning Wright, "don't always have qualifications, and prey upon the sympathy of the jurors."

Last fall, for instance, despite ambiguous evidence, a jury ordered Merrell Dow to pay a Texas couple $33.8 million; they claimed the antinausea drug Bendectin had maimed their child in the womb. And patients around the country are lining up to sue Eli Lilly, alleging that the antidepressant Prozac induces violent thoughts—despite FDA findings to the contrary. In some cases, companies decide to settle out of court rather than take their chances with juries. Upjohn, for example, paid an undisclosed sum to a woman who claimed the drug Halcion had driven her to commit murder. Most doctors believe the allegation is absurd.

Nor is truth served by the publicity and lobbying battles between medical societies and legal organizations. ATLA holds conventions twice a year to discuss strategies in breast-implant suits, and issues ATLA alerts to warn the public about drugs and medical products it considers dangerous. Such announcements are supposedly issued as a public service, though the lawyers clearly have an interest in the matter.

Doctors are just as organized and just as eager to get their version of the facts across. The plastic surgeons' society plans to spend about $500,000 over the next year to "tell the other side of the breast-implant story." The society has even formed a political-action committee—PlastyPAC—with a war chest of $120,000 to lobby and reward policymakers who help keep implants on the market.

No one can argue against compensating the victims of dangerous products. But a system based on political influence and courtroom science is just as dangerous as drug firms that hide test data. Inappropriate awards and public relations battles drive up the cost of products and can make companies think twice about bringing to market new, potentially lifesaving drugs. The best way to assure safety is through a more rigorous and independent approval process rather than scattershot lawsuits once the damage is done. ***—Reported by Andrew Purvis/New York***

Drug Therapy

A 1984 law to increase the availability of low-priced generic drugs was a big victory for consumers. But today, Congress is trying to cure the ills of the industry that reaped the profits.

BY JULIE KOSTERLITZ

Seven years after it passed landmark consumer legislation to help get low-cost generic versions of prescription drugs on the market, Congress is trying to clean up a scandal involving the industry that reaped the profits and the federal officials charged with regulating it.

Two key House Members recently agreed on legislation that would impose tough sanctions on generic drug companies that run afoul of the Food and Drug Administration (FDA). "The whole idea of this bill is to restore public confidence in the generic drug industry and FDA's handling of that industry," said Rep. Henry A. Waxman, D-Calif., chairman of the Energy and Commerce Subcommittee on Health and the Environment and an author of the 1984 law.

Following the enactment of the Patent Term Restoration and Drug Price Competition Act, lower-cost copies of brand-name prescription drugs flooded into the marketplace, as the bill's authors intended. Exact figures are hard to come by, but experts estimate that buyers have been saving hundreds of millions of dollars a year ever since—even though they believe that the full potential for generic drug sales is yet to be realized.

The 1984 statute opened up lucrative financial opportunities for generic drug manufacturers. Some, in their scramble to cash in quickly, defrauded the system set up to make sure generic drugs delivered what they promised: safe and effective medication with properties equivalent to those of their brand-name competitors. Regulators at the FDA were bribed, firms cheated on tests of their products and false information was submitted to the agency.

In the past two years, five FDA officials, nine generic industry executives, an industry consultant and four generic drug companies have been convicted of or have pleaded guilty to charges related to the scandal. While those found culpable thus far represent a tiny fraction of the industry, federal investigators say there's more to come.

The scandal caught many people off guard. Consumer advocates both inside and outside of Congress had viewed the generic drug companies as partners in a battle against the large pharmaceutical houses, whose brand-name products had monopolized the market. "It's one of the great disappointments, because I had hoped the generic industry would turn into something clean and decent and would offer honest and honorable competition to the rest of the pharmaceutical industry," said Michigan Democrat John D. Dingell, who is chairman of the House Energy and Commerce Committee and its investigative subcommittee that helped unearth the pattern of misdeeds. "It turned out I was prodigiously in error."

Dingell estimates that 33-50 per cent of the companies that make up the generic industry either have been convicted or are under investigation. At a 1990 hearing, he labeled the generic drug industry "the most pervasively corrupt this subcommittee has ever uncovered."

Many observers—including FDA higher-ups—were also shocked at the revelations of the corruption of regulators at an agency that has long prided itself on its sense of mission in protecting the public health. Some critics, including Dingell, contend that the budget cuts and deregulatory agenda of the Reagan Administration contributed to lax management by the FDA.

But there were signs of potential trouble in the generic industry and at the FDA well before Congress passed the 1984 law, and even before the Reagan Administration took office. Some problems were apparently unknown to consumer advocates in Congress and elsewhere; others may have been overlooked by these advocates in their zeal to help get generic drugs out to consumers.

The government's failure to heed the warning signs and keep a tight rein on the expanding branch of the drug industry has set back the consumer movement's objectives. More than 130 generic drugs have been challenged by the FDA, roughly half of which have already been pulled from the marketplace. Hundreds more

GENERIC DRUG INDUSTRY CHAMPION'S MUTED VOICE

At a time when Congress is considering legislation that would help decide the future of generic drugs, the leading spokesman for the industry in past Washington battles has lowered his public profile. Capitol Hill sources say the clout of William Haddad, the politically well-connected chairman of the Generic Pharmaceutical Industry Association (GPIA), has diminished as his group's membership has dwindled and since his own name surfaced in a congressional probe of questionable industry practices.

Haddad officially stepped aside as the GPIA's president and chief spokesman in 1985 but continued to be recognized as the industry's leading advocate, testifying as recently as March 1990 before the House Select Committee on Aging.

During three years of investigations leading up to the introduction of proposals to subject generic drug manufacturers to tough new sanctions, Rep. John D. Dingell, D-Mich., chairman of the House Energy and Commerce Committee and its Oversight and Investigations Subcommittee has questioned business dealings involving Haddad.

In several subcommittee hearings, Dingell aide David W. Nelson has probed an arrangement under which Danbury Pharmacal, of Carmel, N.Y., received 50 per cent of the profits from the sale of a generic copy of a best-selling anti-hypertensive drug called Dyazide manufactured by another company, Bolar Pharmaceutical Co. Inc. A former Food and Drug Administration (FDA) official, Marvin Seife, testified that Haddad, a Danbury official, repeatedly pressed him to hurry approval of the drug—an allegation Haddad denies—and that the drug was approved in an unusually short time.

Bolar, the first of only two firms to get approval to make generic Dyazide, has since been found to have cheated on key tests of the drug and to have submitted fraudulent information to the FDA to gain approval of its version of Dyazide. Bolar's sales of the drug, at roughly 50 per cent of the price of the brand-name drug, totaled $140 million before its Dyazide copy was pulled from the market in January 1990. In March, Bolar pleaded guilty to several fraud charges and was fined $10 million—a record fine for violating FDA regulations.

The subcommittee has made no direct allegation of misconduct on the part of Haddad. But in a June 1990 statement, Nelson said, "The subcommittee has been very, very interested in the activities of Danbury and one of its officers, William Haddad, because of inconsistencies in staff interviews and in the press statements regarding the involvement of Mr. Haddad in Bolar's Dyazide approval, which was subsequently withdrawn by the FDA because of fraud."

Haddad, who is now also vice chairman of Danbury's parent company, Schein Pharmaceutical Inc. of Port Washington, N.Y., declined an interview, but sent a statement to *National Journal*, which he said was intended to "put a stop to any potentially mischievious rumormongering." In the statement, Haddad said he "had no foreknowledge or involvement in any plan by any generic company to falsify any submission to the FDA with regard to any drug" and that he "did not exert 'pressure' on Dr. Seife to obtain the approval of any drug."

Originally developed by SmithKline Beecham, Dyazide is a top-selling drug used to treat hypertension. It earned $1 million a day for its developer while still under patent, according to testimony before the subcommittee. The drug had long been eyed by generic drug manufacturers eager to produce their own equivalents of the drug after its patent expired but according to industry experts, the drug's imperfect formulation was very difficult to copy.

Haddad is an unusual figure to end up in Dingell's gunsights. As the GPIA's first president in the early 1980s, he was a key figure in crafting the landmark 1984 compromise legislation that helped generic drugs gain entry to the marketplace in a big way. He boasts a long résumé in other fields, including stints as a reporter for the *New York Post* and *The New York Herald Tribune*, as a special assistant to former Sens. Estes Kefauver, D-Tenn., and Robert F. Kennedy, D-N.Y., as an investigator for the New York State Assembly and as an assistant to automaker John Z. DeLorean. He has worked in political campaigns for New York Lt. Gov. Mario M. Cuomo and Sen. Albert Gore Jr., D-Tenn.

Over the past few years, the GPIA has experienced a decline in membership, partly through resignations and expulsions related to scandals within the industry.

have been withdrawn voluntarily by manufacturers. In a few cases, the removals have left very popular brand-name drugs without generic competitors, which typically cost less than half as much.

There is no evidence that generic drugs wrongfully approved by the FDA have caused any harm. But public confidence in both generics and the FDA has suffered a blow. And the approval of new generic drugs by the beleaguered FDA has slowed to a trickle. "Congress sought to get generic drugs into the hands of patients at reasonable prices—fast," said the U.S. Court of Appeals for the District of Columbia Circuit in an April ruling on a suit brought by a generic drug company protesting the slowdown in approvals. "The record before us reflects the defeat of those hopes."

UNPROPPING PRICES

To understand what went wrong in the generic industry, it's important to understand the prescription drug marketplace before 1984. Many popular prescription drugs were marketed only under the brand names of the pharmaceutical companies that had researched and developed them—even after the patents on such drugs had expired.

Generic copies could be produced and sold for a fraction of the prices charged for off-patent brand-name drugs. Despite generics' similarity to already-approved drugs, federal requirements for the approval of copycat products were—with the exception of certain grandfathered older drugs—as rigorous as those for newly developed drugs. The process was so costly and time-consuming that almost no one tried to market them.

In the 1970s, congressional attempts to lower the bars to generics met with no success. But in the early 1980s, the politics of the issue began to change. That's when brand-name pharmaceutical manufacturers began pressing Congress to grant their products longer patents—and thus longer protection from competition—to make up for the time that they said was lost while the FDA approved their drugs.

Consumer organizations and the then-tiny generic drug industry were galvanized into mounting a counteroffensive. In the end, a compromise was brokered in Congress that promised gains to both sides. The law enacted in 1984 gave the big pharmaceutical houses some added patent protection for their brand-name products and vastly simplified the FDA's approval process for generic drugs. Generic drug manufacturers henceforth would have to show only that their drugs had the same active ingredients as the brand-name equivalent, could be absorbed by the body in a similar fashion and were being manufactured in an acceptable manner.

Almost overnight, a host of generic drugs poured into the marketplace; in just over a year, the number of generic products nearly doubled. The more competitors per drug, the bigger the savings for consumers; prices of generic equivalents range from 67-75 per cent of brand-name prices to as low as 10 per cent. Expected savings were pegged at as much as $236 million in 1984 and are believed to have increased at least tenfold since. A pharmacy company run by the American Association of Retired Persons (AARP) reports that its roughly three million customers save approximately $100 million a year by using generic drugs.

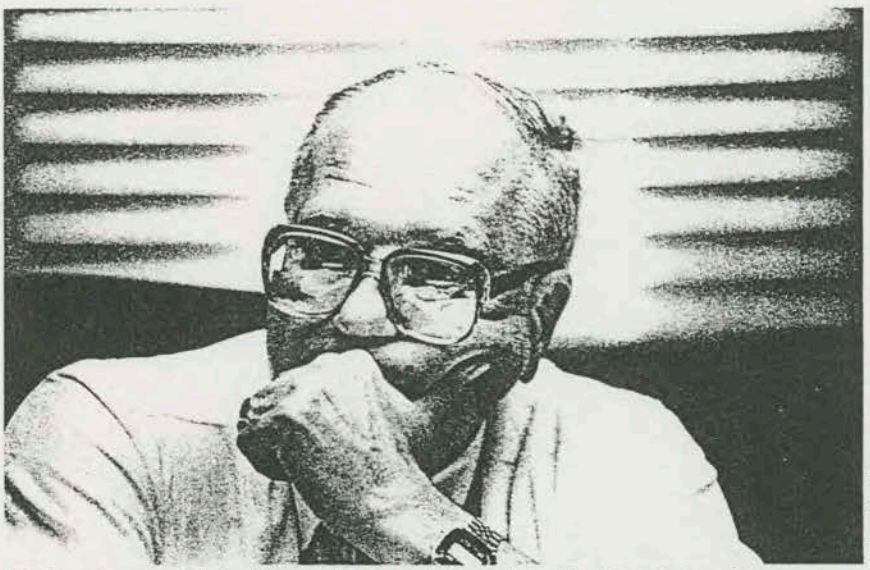
The big savings enjoyed by consumers have been matched by big profits for manufacturers. Three years after the law passed, annual sales of generic drugs had more than tripled to $3.4 billion, and have since more than doubled again, with current annual sales estimated at $7 billion-$9 billion.

It was particularly lucrative to be first on the market with a generic alternative. The first copycat drug attracts lots of cost-conscious buyers and often retains its market advantage even after other copies of the same drug become available because it has become a known quantity to the pharmacists who stock drugstore shelves. A first copy "could be guaranteed 50-60 per cent of the [generic] market share over the therapeutic life of the drug," said F. Nicholas Willard, director of governmental affairs for Retired Persons Services, the pharmacy company run by the AARP.

That incentive touched off a mad scramble to be first. The law requires that the FDA approve generic drug applications on a first-in, first-out basis. Several companies rushed forth with applications for drugs that they hadn't yet figured out how to manufacture properly. It was later revealed that some companies lied about their manufacturing practices or cheated on required laboratory tests; if they couldn't make a proper copy, some simply submitted a sample of a brand-name drug for testing in place of their own product.

Some generic manufacturers also found that they could increase their chances of being first on the market by bribing FDA officials. Despite the agency's squeaky-clean image, court cases would later show that a few FDA officials expedited some applications and slowed down others—sometimes for profit and sometimes on arbitrary whim.

Charles Y. Chang, an FDA supervisory chemist who later pleaded guilty to racketeering charges, told a congressional inquiry that "when I sought to influence the order of approvals, I would assign [applications] for the larger companies to the picky reviewers, while the smaller companies got the fast reviewers." Chang received more than $20,000 from generic drug companies in foreign trips, furniture and computer equipment.



Richard A. Bloom

Michigan Democrat John D. Dingell, head of House investigative subcommittee Generic drug industry is "the most pervasively corrupt" his panel has ever found.

A LITTLE-KNOWN INDUSTRY

Unsavory practices on the part of manufacturers caught most proponents of generic drugs off guard. "I think a lot of people were absolutely amazed at what we found out," the AARP's Willard said. "I was personally distraught by the revelations, because I . . . had gone out and represented myself and my company as a total believer [in generic drugs]."

Many consumer advocates had come to view generics as partners in the quest for consumer justice. "I don't know if we equated idealism with entrepreneurialism, but we knew that the big guys were taking advantage of the situation," said Elliot A. Segal, who was a special assistant on the House Energy and Commerce Subcommittee on Oversight and Investigations from 1975-81. "We thought, 'Wouldn't it be great to find a way these guys could come out and be big competitors to the big [pharmaceutical] houses?' "

In hindsight, it can be said that a close look at the industry on the eve of the enactment of the 1984 law might have suggested trouble. "It was true we would talk among ourselves that [some of the generic firms] weren't the most ethical," said Judith Brown, a drug policy analyst for the AARP from 1978-90. But she added that no one talked specifics, and the feeling was that "the industry was changing and had changed."

In 1984, the generic industry included both small, unsophisticated family-run companies and firms with state-of-the art plants that were attracting seasoned officials from the more-established brand-name companies. Indeed, despite the fact that the brand-name pharmaceutical houses often disparaged the quality of generic drugs and the companies that made them, large drug companies sometimes contracted with generic companies to make brand-name products.

As Congress moved closer to passing a law, however, the business attracted a host of newcomers. "When [investments in generic drugs] started to show up as fairly profitable, lots of new companies came in," said Stephen W. Schondelmeyer, director of pharmaceutical economics research at Purdue University. "Some of those less-experienced entrepreneurs came into the market" in the early 1980s in anticipation of the new law, he said.

Inexperience and big expectations, it turned out, were a dangerous combination. "Prescription drugs are not like making candy," Schondelmeyer said. "In

prescription drugs, making tablets that work is [not always] easy to do. . . . Many found it required a sophistication of manufacturing beyond just compressing tablets," he said. "So there were a number of them that cut corners."

Dingell said that "some of these people took what were essentially garage operations to $100 million corporations in a matter of a couple years." He argued that "given the expectations they had, they had enormous incentives to bribe and to engage in all manner of scandalous practices."

dent were also convicted of payoffs; Quantum Pharmics Ltd. of Amityville, N.Y., later sold to American Home Products, was shut down and all of its products were recalled after FDA investigations found that the firm had submitted fraudulent data to the agency.

Vitarine Pharmaceuticals Inc. of Queens, N.Y., which purchased Premo and hired at least one key Premo production assistant, was found to have substituted brand-name products for its own in five testing instances and to have made numerous other false statements in documents submitted to the FDA, according to a report by Dingell's subcommittee. The FDA has revoked or is considering revoking approval of some 30 of the firm's products, and one of the firm's former officials was indicted in April for lying to the FDA.

John Ficele

F. Nicholas Willard, officer of pharmacy company run by retirees' organization
Despite scandals, he says, generic drug products "didn't threaten the public health."

While many of the new generic manufacturers were unknown quantities, some of them arrived with unsavory reputations. Several spin-offs of a family-run, New York City-based company, Premo Pharmaceutical Laboratories, are a case in point. Premo was considered a pioneer in the industry in the 1960s when it cracked into the marketing of the antibiotic tetracycline, which previously had been controlled by a cartel.

But in the 1970s, Premo marketed unapproved drugs that were seized by the FDA, and in 1981, a company official was caught selling outdated antibiotics under a competitor's label to so-called medicaid mills in New York City, according to reports in the Long Island-based daily *Newsday*.

The company was sold shortly thereafter, but a successor company along with several others founded by former Premo officials have since figured in the scandal over generic drug applications: Par Pharmaceutical Inc. of Spring Valley, N.Y., was convicted of making thousands of dollars in payoffs to FDA officials; an Indianapolis subsidiary of Par, Quad Pharmaceuticals, and its former president were also convicted of payoffs; Quantum Pharmics Ltd. of Amityville, N.Y., later sold to American Home Products, was shut down and all of its products were recalled after FDA investigations found that the firm had submitted fraudulent data to the agency.

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A MISJUDGED AGENCY

If there were some qualms about the generic drug industry, there apparently were none about the watchdogs at the FDA who would be expected to police it. "I think we had a blind faith in the regulatory process," Brown, who now serves on a new FDA advisory committee on generic drugs, said.

But the agency was given little help in preparing for the flood of generic drug applications spawned by the 1984 law. The agency was given just two months to try to write a host of complicated regulations and ready itself for the deluge. Former FDA commissioner Frank E. Young said he complained repeatedly about the short timetable but to no avail.

By contrast, Young noted with irony, the agency was given two years to implement a subsequent law allowing broader competition by generic versions of veterinary drugs.

Congress granted the FDA a small increase in staff to help handle generic drug applications, but agency officials say it was scarcely enough to keep pace. In November 1984—the first month new applications were allowed—the agency's work load nearly tripled. In 1985, the FDA received 1,069 applications, compared with 470 in 1984. In addition, large numbers of amendments and additions were routinely filed as applications wound through the process.

Waxman, in a recent interview, said he doesn't recall complaints about the law's implementation timetable. He said he had wanted the FDA to move quickly to get cost-saving drugs to consumers. He and Dingell conceded that the agency was probably underfinanced and ill-equipped at the time, but argued that most of the blame rests with the Reagan Administration.

But the FDA's generic drug division had problems that predated the landmark 1984 law. In 1980, five division officials—including Chang and the division's director, Marvin Seife—were temporarily removed from their positions for accepting meals or other gifts of value from generic drug companies. Over the objections of several of their superiors, however, the five were soon reinstated—thanks in part to support from Capitol Hill.

The House subcommittee that later probed the division's misconduct stepped in in 1980 to support Seife because some of its members considered him an important advocate for generic drugs at a time when the FDA was thought to favor the position of the brand-name drug companies. Moreover, Seife had been a valuable witness at subcommittee hearings on generic drug matters.

According to Segal, a subcommittee aide who worked with Sen. Albert Gore Jr., D-Tenn., when Gore was in the House said that at the time, there was concern that the FDA was retaliating against Seife for testimony given at hearings chaired by Gore. Segal said there was no direct intervention by him or by Gore on Seife's behalf, but added that his and Gore's feelings about the matter were no secret. "My guess is that Gore made it known in public hearings," Segal, who now is president of Managed Care Options, a Bethesda (Md.)-based health management company, said. "I was upset," Segal added. "I thought they were just trying to go after [Seife] for blowing the whistle, telling the truth."

But several former FDA officials, all of whom left the agency before the recent generic drug scandal, said that the notion that Seife was being punished in 1980 for

being a whistle-blower is off the mark. They said that Gore's position effectively pressured the agency to leave some bad apples in place.

"Because of the politics of the times, the FDA was automatically cast as the weak regulator that favored the big guys and had sold out to [the powerful brand-name pharmaceutical] industry," said an official who asked not to be named. "In this instance," he said, Congress's attitude "served to protect weak management practices in the division."

When Seife was later convicted of lying about lunches paid for by generic industry officials, government prosecutors argued that he had a long history of cozy relations with the industry over the years and said that he "set a moral tone in the generic drug division that resulted in corruption throughout the industry."

Gore, according to a spokesman, wasn't available for comment. Waxman, however, commented: "I expect the FDA to watch after their employees. If you have them accepting improper gratuities from generic companies or any else, it shouldn't be permitted."

COMING UP WITH A CURE

The question of how to get the generic industry back on track—and keep it there—has been a sensitive issue on Capitol Hill. The recent scandals indicate that the FDA lacks adequate authority to punish those who violate its rules. The agency has legal authority to prevent the marketing of ineffective or unsafe drugs, but not to crack down in situations involving fraud or criminal activity in the the drug approval process.

A behind-the-scenes debate has taken place in Congress, not over the advisability of giving the FDA more power to crack down on scofflaws, but over whether all FDA-regulated industries should be targeted and over the severity of penalties to be meted out.

Dingell argues that only a crackdown on the generic industry would restore its credibility. "To let the punishment fit the crime, that has always been my purpose, my object all sublime," said Dingell in a paraphrase of Gilbert and Sullivan. Last year he proposed harsh medicine, including barring drug applications for at least 18 months from any company suspected of a felony in its dealings with the FDA and requiring the FDA to suspend the marketing of all products of firms found to have engaged in a pattern of abuse or which are under federal criminal investigation.

Waxman, backed by some consumer advocates, has argued against singling out the generic branch of the pharmaceutical industry. Many backers of this argument feel that both Dingell's investigation and his proposed solutions have been overly heavy-handed and could work against restoring confidence in generic drugs.

Although sales of generic drugs appear to have rebounded after a decline last year associated with publicity about wrongdoing by manufacturers, Purdue's Schondelmeyer estimates that only about a third of the prescriptions that could be filled with generic drugs actually are. He attributes that largely to long-standing efforts by the brand-name producers to impugn the quality of generics and to get state laws throwing up barriers to their use. *(See NJ, 7/18/8, p. 1847.)*

Generic drug enthusiasts worry about congressional action that will play into the hands of the industry's enemies. "My concern is that what's going on with Dingell has scared a lot of people," the AARP's Willard said. "I think what happened was serious . . . , [but] what the generic companies manufactured and put out, from what I've seen, didn't threaten the public health."

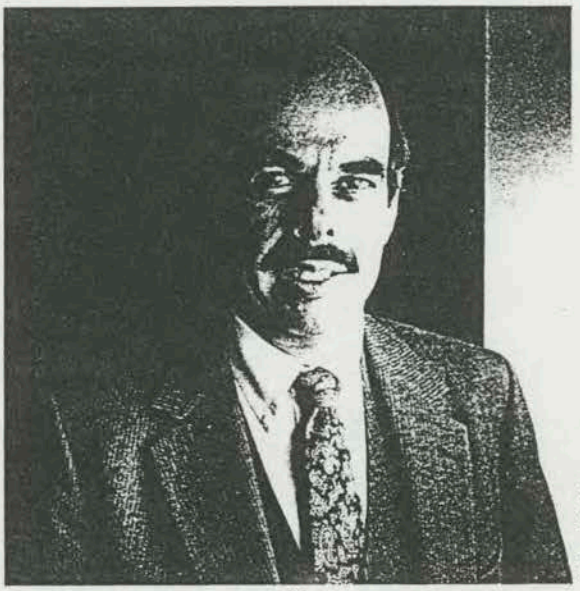
Waxman and his allies maintain that the number of bad apples in the generic drug industry is small. The Generic Pharmaceutical Industry Association contends that the firms that have been found guilty or have admitted to fraud account for only 5 per cent of the generic drug market. *(See box, p. 1230.)*

Legislation initially put forward by Dingell, some argued, would have needlessly put companies out of business, such as in cases of wrongdoing by a single employee or in which past abuses have been eliminated. That's tougher than the punishment meted out to rogue defense contractors, argued Richard M. Cooper, a partner with the law firm of Williams & Connolly. "I know of no precedent in American law for this kind of provision, which as a matter of punishment destroys companies on the basis of past conduct," Cooper said in a speech to the Food and Drug Law Institute last year.

Dingell has responded that his investigation has in part been driven by "complaints from the responsible part of the industry." He said that "in dollar amounts," fraud in the generic drug business doesn't compare to that in the defense industry, but because of its public health implications, "it's probably more serious."

Dingell said he is not persuaded by arguments that there is no evidence that fraudulently approved generic drugs have harmed anyone's health. "When you take a drug that doesn't work, you don't necessarily know that the drug is not working," he said. "If you die or get sick, you don't necessarily know that it's the fault of the drug."

Dingell and his aides say they've singled out the generic drug industry because the corruption there is endemic: Of the roughly 36 generic drug companies with more than one product on the market, a Dingell aide said, as many as 18 are currently under criminal investigation by the Justice Department.



Richard A. Bloom

Rep. Henry A. Waxman, D-Calif.
He backs compromise to abate generic drug firm abuses.

In mid-May, Waxman and Dingell struck a compromise: Proposed new enforcement powers for the FDA would apply only to generics, but some of the penalties suggested earlier by Dingell would be less harsh. The minimum debarment period would be reduced and products wouldn't automatically be recalled following company wrongdoing. Instead, recalls would be based on evidence of risk to the public health. "There was no disagreement on what we wanted to accomplish, only on the details," Waxman said, explaining the agreement.

Dingell and Waxman say that they don't expect major opposition to their compromise and that if it is enacted, the book will be closed on the generic drug scandal. But some observers worry that the generic industry will still have a struggle to live up to its original promise. "I guess what concerns me about [the legislation] is this heavy suspicion that anybody who makes [a generic drug] is corrupt," Schondelmeyer said. ■

Keynote

Sat, March 7
8:15-9:00 am

Lynda L. Nersesian
DEPUTY VICE PRESIDENT
GOVERNMENT RELATIONS

Pharmaceutical Manufacturers Association

Palm Beach, FL

February 6, 1992

The Honorable Robert Dole
Republican Leader
The Capitol, S-230
Washington, DC 20515

$2,000 -

Dear Senator Dole:

I am writing to invite you to be the keynote speaker of the 1992 Strategic Planning meeting of the Pharmaceutical Manufacturers Association (PMA). This meeting will be held March 7-8 at the Ritz-Carlton, Palm Beach, Florida.

Each year the Executive Committee of the PMA Board of Directors, as well as selected senior PMA staff, meet for two days to review the industry's overall strategy in dealing with the many issues which confront us. If you could join us, we would ask you to begin our meeting on Saturday morning. The primary purpose of your opening presentation would be to outline steps which PMA and its members can take to strengthen our effectiveness with Congress and state officials.

Specifically, your role would be to: (1) offer your assessment of how the pharmaceutical industry is regarded by members of Congress and (2) offer your suggestions with respect to pharmaceutical industry relationships with key health policy-makers. This entails a presentation of about 40 minutes, followed by a general discussion lasting approximately twenty minutes.

I hope that your schedule permits your attendance. I will follow up by telephone with Yvonne Hopkins to check on the possibility of your joining us.

Sincerely,

Lynda L. Nersesian

Lynda L. Nersesian

2-24 advised Linda "maybe"

1100 Fifteenth Street NW, Washington, DC 20005 • Tel: 202-835-3486 • TWX: 7108229494-PMAWSH

PHARMACEUTICAL CO. CEO'S ATTENDING PALM BEACH MEETING

Paul E. Freiman - Chairman & CEO, Syntex Corp.

Duane L. Burnham - Chairman & CEO, Abbott Laboratories

Dr. Theodore Cooper - Chairman & CEO, Upjohn

Dr. Sheldon G. Gilgore - Chairman & CEO, G.D. Searle

Gavin S. Herbert - Chairman of the Board, Allergan, Inc.

Richard J. Kogan - President & Ch. Oper. Ofcr., Schering-Plough

Irwin Lerner - President & CEO, Hoffmann-La Roche Inc.

Jan Leschly - Chairman, SmithKline Beecham Pharmaceuticals

Fred W. Lyons, Jr. - President & CEO, Marion Merrell Dow Inc.

Richard J. Markham - Sr. V.P., Merck & Co., Inc. &
President, Merck Human Health Division

G. Kirk Raab - President & CEO, Genentech Inc.

Dr. Charles A. Sanders - Chairman & CEO, Glaxo Inc.

John R. Stafford - Chairman & CEO, American Home Products

William C. Steere, Jr. - Chairman & CEO, Pfizer Inc.

Eugene L. Step - Chairman of the Board of Directors, Eli Lilly
International Co., & Exec. Vice Pres of Eli Lilly and Company,
and President of the Pharmaceutical Division

Douglas G. Watson - Vice President, CIBA-GEIGY Corp., and
President, Pharmaceuticals Division

U.S. INDUSTRIAL OUTLOOK '92

BUSINESS FORECASTS FOR 350 INDUSTRIES

U.S. Department of Commerce
Robert A. Mosbacher, Secretary

J. Michael Farren
Under Secretary for International Trade

Timothy J. Hauser
Deputy Under Secretary for International Trade

James C. Lake
Acting Assistant Secretary for Trade Development

January 1992

44

Drugs

Growth in the drug industry will continue at a moderate but somewhat slower rate than in recent years. While the structure of the industry is being influenced by government regulations, spiraling R&D costs, and competitive pressure from generic drugs, the industry will maintain its competitive edge in foreign markets.

The pharmaceutical industry (SIC 283) consists of four primary components: medicinals and botanicals (SIC 2833), pharmaceutical preparations (SIC 2834), diagnostics (SIC 2835) and biologicals (SIC 2836). Before reading this chapter, please see "How to Get the Most Out of This Book" on page 1. It will clarify questions you may have concerning data collection procedures, forecasting methodology, sources and references, and the Standard Industrial Classification (SIC) system. For other topics related to this chapter, see chapters 17 (Advanced Materials: Biotechnology), 43 (Health and Medical Services), and 45 (Medical and Dental Instruments and Supplies).

The United States continues to be the world's leader in discovering and developing new medicines and represents the world's largest single market for pharmaceuticals. Highly innovative and technologically advanced, the industry has consistently maintained a competitive edge in international markets and a positive balance of trade. In 1991, exports exceeded imports by about $1 billion.

Drug industry shipments increased about 9.4 percent in 1991 to about $59 billion. In constant dollars, the increase was close to 4 percent. Fueled in part by demand for new drugs, exports, valued at almost $6 billion, rose nearly 14 percent above 1990, while imports reached almost 5 billion, up nearly 25 percent. For 1991, total employment in the industry reached 191,000, a slight increase over 1990.

While the pharmaceutical market again proved to be resistant to economic recession in 1990–91, the structure of the industry is changing in response to increasing research and development (R&D) costs, growing sales of generic drugs, and government regulations. Most recently, for example, the Omnibus Budget Reconciliation Act of 1990 mandated price rebates on pharmaceuticals reimbursed under Medicaid beginning in 1991. Pharmaceutical manufacturers must offer Medicaid its "best price," with rebates ranging from a minimum of 12.5 percent to a maximum of 25 percent. By 1993, the minimum rebate will be 15 percent, and there will be no maximum.

Similarily, Food and Drug Administration regulations not only greatly affect the industry's domestic performance, but also have a direct bearing on its international competitiveness. New drug approvals are perhaps the most rigorous in the world. According to a 1990 study by the Center for the Study of Drug Development at Tufts University, it takes U.S. pharmaceutical firms an average of 12 years and $231 million to get one new medicine from the laboratory to the pharmacist's shelf. Only about one in five of the medicines that begin clinical trials make it through the approval process. In addition to the strict regulatory environment, the industry must deal with increasing legal costs growing out of product liability and medical malpractice suits.

Partly as a result of high R&D costs, mergers and acquisitions have increased as the major pharmaceutical firms seek to adjust to market conditions. In 1991, the industry's R&D expenditures increased by 13 percent to more than $9.2 billion. Drawn-out clinical trials, more complex diseases, and the growing expense of high-technology equipment all add to escalating R&D costs. Pharmaceutical R&D has grown from around 12 percent of the value of industry shipments in 1980 to more than 15 percent in 1991, one of the highest proportions of any U.S. industry.

Growing sales of lower-priced generic drugs also influence the way the pharmaceutical industry markets its products. Generic prescription drugs now account for 30 percent of total prescriptions written. While the recent recession did not slow the demand for pharmaceuticals, Americans did scale back on their visits to physicians and were more cost conscious when purchasing pharmaceuticals. Direct-to-consumer advertising for non-branded generic drugs has increased. Likewise, the brand-name firms significantly increased their marketing efforts throughout the world in response to the competition from generics.

INTERNATIONAL COMPETITIVENESS

U.S. manufacturers account for 42 percent of the major pharmaceuticals marketed worldwide. While consistently maintaining a positive trade balance, the industry faces increasing international competition. To maintain competitiveness, the industry must overcome such obstacles to U.S. sales overseas as price controls, illegal use of patents and copyrights, and foreign regulations on marketing and R&D. During the last 20 years, for example, price and profit controls in most Eurpean countries limited price increases for phamaceuticals to less than one-half of the rate of inflation. Because of widespread piracy of product

Trends and Forecasts: Drugs (SIC 283)

(in millions of dollars except as noted)

Item	1987	1988	1989	1990[1]	1991[2]	1992[3]	Percent Change 1987–88	1988–89	1989–90	1990–91	1991–92
Industry Data											
Value of shipments[4]	39,263	43,987	49,114	54,148	59,246	–	12.0	11.7	10.2	9.4	–
2833 Medicinals & botanicals	3,350	4,150	4,753	5,133	5,595	–	23.9	14.5	8.0	9.0	–
2834 Pharmaceutical preps	32,094	35,825	40,028	44,483	48,931	–	11.6	11.7	11.1	10.0	–
2835 Diagnostic substances	2,205	2,261	2,325	2,383	2,431	–	2.5	2.8	2.5	2.0	–
2836 Bio prod ex diagnostic	1,614	1,750	2,008	2,149	2,289	–	8.4	14.7	7.0	6.5	–
Value of shipments (1987$)	39,263	41,351	42,922	45,210	46,897	48,292	5.3	3.8	5.3	3.7	3.0
2833 Medicinals & botanicals	3,350	3,963	4,292	4,464	4,781	4,925	18.3	8.3	4.0	7.1	3.0
2834 Pharmaceutical preps	32,094	33,438	34,493	36,507	37,784	38,956	4.2	3.2	5.8	3.5	3.1
2835 Diagnostic substances	2,205	2,211	2,237	2,259	2,282	2,300	0.3	1.2	1.0	1.0	0.8
2836 Bio prod ex diagnostic	1,614	1,739	1,899	1,980	2,050	2,111	7.7	9.2	4.3	3.5	3.0
Total employment (000)	172	175	184	190	191	193	1.7	5.1	3.3	0.5	1.0
2833 Medicinals & botanicals	11.6	11.3	11.4	11.5	12.0	12.0	–2.6	0.9	0.9	4.3	0.0
2834 Pharmaceutical preps	132	133	142	147	147	149	0.8	6.8	3.5	0.0	1.4
2835 Diagnostic substances	15.4	16.2	16.1	16.3	16.3	16.3	5.2	–0.6	1.2	0.0	0.0
2836 Bio prod ex diagnostic	13.3	13.7	14.5	15.1	15.7	15.7	3.0	5.8	4.1	4.0	0.0
Production workers (000)	79.6	81.0	82.8	84.5	85.2	89.0	1.8	2.2	2.1	0.8	4.5
2833 Medicinals & botanicals	6.1	6.2	6.6	6.8	6.9	6.9	1.6	6.5	3.0	1.5	0.0
2834 Pharmaceutical preps	59.9	60.8	62.4	63.6	64.0	67.8	1.5	2.6	1.9	0.6	5.9
2835 Diagnostic substances	6.8	7.5	6.8	6.9	6.9	6.9	10.3	–9.3	1.5	0.0	0.0
2836 Bio prod ex diagnostic	6.8	6.5	7.0	7.2	7.4	7.4	–4.4	7.7	2.9	2.8	0.0
Average hourly earnings ($)	12.22	12.67	13.48	–	–	–	3.7	6.4	–	–	–
2833 Medicinals & botanicals	15.32	16.09	16.29	–	–	–	5.0	1.2	–	–	–
2834 Pharmaceutical preps	12.42	12.93	13.83	–	–	–	4.1	7.0	–	–	–
2835 Diagnostic substances	10.74	10.93	11.54	–	–	–	1.8	5.6	–	–	–
2836 Bio prod ex diagnostic	8.87	9.13	9.30	–	–	–	2.9	1.9	–	–	–
Capital expenditures	1,749	2,058	2,392	–	–	–	17.7	16.2	–	–	–
2833 Medicinals & botanicals	115	151	219	–	–	–	31.3	45.0	–	–	–
2834 Pharmaceutical preps	1,471	1,725	1,933	–	–	–	17.3	12.1	–	–	–
2835 Diagnostic substances	93.5	93.3	117	–	–	–	–0.2	25.4	–	–	–
2836 Bio prod ex diagnostic	69.9	89.1	124	–	–	–	27.5	39.2	–	–	–
Product Data											
Value of shipments[5]	35,283	39,574	43,797	–	–	–	12.2	10.7	–	–	–
2833 Medicinals & botanicals	4,224	4,991	5,447	–	–	–	18.2	9.1	–	–	–
2834 Pharmaceutical preps	26,610	29,555	32,713	–	–	–	11.1	10.7	–	–	–
2835 Diagnostic substances	2,683	3,063	3,418	–	–	–	14.2	11.6	–	–	–
2836 Bio prod ex diagnostic	1,765	1,966	2,220	–	–	–	11.4	12.9	–	–	–
Value of shipments (1987$)	35,283	37,181	38,279	–	–	–	5.4	3.0	–	–	–
2833 Medicinals & botanicals	4,224	4,782	4,879	–	–	–	13.2	2.0	–	–	–
2834 Pharmaceutical preps	26,610	27,451	28,013	–	–	–	3.2	2.0	–	–	–
2835 Diagnostic substances	2,683	2,994	3,288	–	–	–	11.6	9.8	–	–	–
2836 Bio prod ex diagnostic	1,765	1,954	2,100	–	–	–	10.7	7.5	–	–	–
Trade Data											
Value of imports	–	–	3,513	3,863	4,810	5,008	–	–	10.0	24.5	4.1
2833 Medicinals & botanicals	–	–	2,336	2,282	2,833	2,946	–	–	–2.3	24.1	4.0
2834 Pharmaceutical preps	–	–	868	1,103	1,383	1,447	–	–	27.1	25.4	4.6
2835 Diagnostic substances	–	–	118	207	280	291	–	–	75.4	35.3	3.9
2836 Bio prod ex diagnostic	–	–	191	271	314	324	–	–	41.9	15.9	3.2
Value of exports	–	–	4,346	5,062	5,755	5,983	–	–	16.5	13.7	4.0
2833 Medicinals & botanicals	–	–	1,797	1,921	2,131	2,220	–	–	6.9	10.9	4.2
2834 Pharmaceutical preps	–	–	974	1,258	1,507	1,579	–	–	29.2	19.8	4.8
2835 Diagnostic substances	–	–	739	909	1,126	1,173	–	–	23.0	23.9	4.2
2836 Bio prod ex diagnostic	–	–	837	973	991	1,011	–	–	16.2	1.8	2.0

[1]Estimated, except exports and imports.
[2]Estimate.
[3]Forecast.
[4]Value of all products and services sold by establishments in the drugs industry.
[5]Value of products classified in the drugs industry produced by all industries.

SOURCE: U.S. Department of Commerce: Bureau of the Census, International Trade Administration (ITA). Estimates and forecasts by ITA.

and process patents, copyrights, and trademarks, the pharmaceutical industry has initiated a number of actions against foreign countries under Section 301 of the 1974 Trade Act to obtain stronger intellectual property protection. As a result, the U.S. Government has negotiated improved patent protection in a number of countries, but there is still much work to be done on the issue of intellectual property rights.

The U.S. pharmaceutical industry does more than half of its foreign business in Western Europe. Since the European Community (EC) represents a market of 340 million consumers, the industry is closely monitoring the move toward a single EC market in 1992. A critical issue will be how the wide range of pharmaceutical pricing and reimbursement constraints in the member states are consolidated into EC regulations.

Japan is the United States' largest pharmaceutical customer after Western Europe. With more $30 billion in domestic pharmaceutical sales, Japan also is the world's second largest drug market, exceeded only by the United States. Japan exports less than 5 percent of the drugs produced locally and has the highest per capita consumption of drug products in the world. Japanese spend 40 percent more per capita on prescriptions than Americans. Drugs make up 17 percent of health spending in Japan, compared with 7 percent in the United States.

Although the United States has a pharmaceutical trade surplus with Japan, U.S. firms find it increasingly difficult to compete because of Japan's drug pricing system. The Japanese government not only reduces health insurance reimbursements for pharmaceuticals every two years, but also makes it extremely difficult for the industry to raise prices to offset inflation. Japan is currently reviewing its mechanism for price setting and price management of pharmaceuticals, and has scheduled a full-scale price revision of its drug industry for April 1992.

Outlook for 1992

The drug industry is expected to continue to grow at about 9 percent during 1992. In constant dollars, industry shipments are expected to increase about 3 percent, while product shipments will increase more than 3 percent. Employment will rise only slightly. Exports are expected to rise to nearly $6 billion, and imports are projected to increase to $5 billion.

Long-Term Prospects

The drug market is expected to continue to expand over the next five years, but rate of growth may be somewhat slower. During this period, $8 billion to $10 billion worth of brand-name drugs are set to come off-patent. How the generic producers market these drugs and how the brand-name drugs compete will influence the growth of the industry. Cost cutting efforts by hospitals, major health-care institutions, the Federal Government, and insurance companies all will have important implications for the industry.

U.S. Trade Patterns in 1990
Drugs
SIC 283
(in millions of dollars, percent)

Exports			Imports		
	Value	Share		Value	Share
Canada & Mexico	644	12.7	Canada & Mexico	128	3.3
European Community	2,347	46.4	European Community	2,221	57.5
Japan	877	17.3	Japan	360	9.3
East Asia NICs	252	5.0	East Asia NICs	91	2.4
South America	191	3.8	South America	14	0.4
Other	751	14.8	Other	1,049	27.2
World Total	5,062	100.0	World Total	3,863	100.0
Top Five Countries					
	Value	Share		Value	Share
Japan	877	17.3	United Kingdom	654	16.9
Germany, West	549	10.9	Germany, West	574	14.9
Canada	539	10.6	Switzerland	477	12.4
France	350	6.9	Japan	360	9.3
Italy	343	6.8	Ireland	304	7.9

See "How to Get the Most Out of This Book" for definitions of the Country Groupings.
SOURCE: U.S. Department of Commerce: Bureau of the Census; International Trade Administration.

The drug market will continue to grow over the next five years, but at a more moderate pace.

MEDICINALS AND BOTANICALS

In 1991, shipments of medicinals and botanicals were valued at more than $5 billion, an increase of about 7 percent in constant dollars. Exports increased about 11 percent to more than to $2 billion, while imports rose 24 percent to about $3 billion.

Medicinal and botanical establishments are primarily engaged in manufacturing bulk organic and inorganic medicinal chemicals and their derivatives and in processing bulk botanical drugs and herbs. As more product patents expire, the original patent holders have begun producing medicinal chemicals formerly covered under their patent and selling the chemicals to generic producers. This may increase domestic production of medicinal chemicals and reduce the level of imports under SIC 2833 in the future. These firms will continue to explore compounds among natural products to cure diseases and to develop new and more efficient approaches to new drug discovery.

PHARMACEUTICAL PREPARATIONS

Shipments of pharmaceutical preparations were valued at nearly $49 billion in 1991, an increase of more than 3 percent in constant dollars. Exports and imports were more than $1 billion.

The establishments in this industry are primarily engaged in manufacturing, fabricating, and processing drugs into pharmaceutical preparations for human or veterinary use. The products of this group are usually finished in the form intended for final consumption.

Prescription drug costs in the U.S. continue to remain a much smaller percentage of total health-care costs than in other industrialized countries. While spending on health care has been increasing rapidly as a percentage of the Gross National Product, spending on prescription drugs has remained substantially under 1 percent of GNP, just as it has for the past 25 years.

Senior citizens consume 30 percent of all prescription medication dispensed in the United States. The U.S. pharmaceutical industry continues to devote a considerable amount of its resources to discovering new medicines for the cure and treatment of diseases that debilitate older Americans, such as Alzheimer's, arthritis, and osteoporosis.

In the veterinary sector, new products will be sought to enhance animal growth, to prevent bacterial contamination during processing of carcasses, and to reduce the amount of fat in meat while maintaining tenderness.

DIAGNOSTICS SUBSTANCES

In 1991, shipments of diagnostics substances were valued at more than $2 billion, an increase of 1 percent in constant dollars. Exports for 1991 were more than $1 billion, an increase of 24 percent. Imports of $280 million were negligible by comparison.

Diagnostic firms are primarily engaged in manufacturing chemical, biological, and radioactive substances that are used in diagnosing or monitoring the state of human or veterinary health.

The blending of chemistry, biotechnology, and computer science is reshaping the diagnostics substances industry. Researchers are now able to magnify genes to the point where they can and copy their DNA sequences, a valuable tool in AIDS and cancer research.

In 1991, the U.S. Patent Office issued patents for oral diagnostic testing processes, including one for AIDS screening. Patents also were granted for several rapid diagnostic test formats, including rapid tests on whole-blood specimens, which produce results much faster than older methods.

The market for laboratory testing of genetic diseases is strong and promises to grow substantially over the next five years. More than 3,000 diseases are believed to be caused by genetic deformation, but gene sequences are known for only 100. Once a gene sequence is known, it can open the way to new treatment methods.

The world market for diagnostic test kits also is growing and estimated to reach about $1 billion by 1996.

BIOLOGICAL PRODUCTS

Shipments of biological products were valued at more than $2 billion in 1991, an increase of more than 3 percent in constant dollars. Exports in 1991 totaled $991 million, an increase of 2 percent over 1990. Imports were $314 million, an increase of 16 percent over 1990.

Biologicals establishments are primarily engaged in the production of bacterial and virus vaccines, toxoids, and analogous products (such as allergic extracts), serums, plasmas, and other blood derivatives for human or veterinary use. Vaccines continue to be one of the cheapest and most effective ways to eradicate certain diseases. The likelihood is that over the next five years vaccines will be developed to modify the body's immune response to chronic disease.—*William Hurt, Office of Chemicals and Allied Products, (202) 377–0128, August 1991.*

Additional References

(Call the Bureau of the Census at (301) 763–4100 for information about how to order census documents.)

Pharmaceutical Preparations, Except Biologicals, Current Industrial Report, MA 28G(89)–1, Bureau of the Census, U.S. Department of Commerce, Washington, DC 20233.

Annual Survey of Manufacturers, M86(AS)–2 Bureau of the Census U.S. Department of Commerce, Washington, DC 20233.

AHFS Drug Information 1989, American Society of Hospital Pharmacists, Inc., 4630 Montgomery Ave., Bethesda, MD 20814. Telephone: (301) 657–3000.

Approval Drug Products, 8th edition, Public Health Service, U.S. Department of Health and Human Services, 200 Independence Ave., SW, Washington, D.C. 20204. Telephone: (301) 443–3700.

Pharmaceutical Manufacturers Association, 1100 15th St., NW, Suite 900, Washington, DC 20005. Telephone: (202) 835–3400.

Health Industry Manufacturers Association, 1030 15th St., N.W., Washington D.C. 20005. Telephone: (202) 452–8240.

Animal Health Institute, Box 1417–D50, Alexandria, VA 22313. Telephone: (703) 684–0011.

Gerald J. Mossinghoff
PRESIDENT

Pharmaceutical Manufacturers Association

March 5, 1992

WELCOME TO THE RITZ-CARLTON!

The senior staff and I look forward to the activities and events planned for this weekend. I am enclosing a list of attendees for your information. Also enclosed is a Spouses Schedule.

Sincerely,

Gerald J. Mossinghoff

Enclosures

PMA BOARD STRATEGIC PLANNING MEETING
The Ritz-Carlton, Palm Beach, Florida
March 6-8, 1992

ATTENDEES

Paul E. Freiman
Duane L. Burnham
Theodore and Vivian (Patsy) Cooper
Sheldon and Irma Gilgore
Gavin and Ninetta Herbert
Richard J. Kogan
Irwin and Blanche Lerner
Jan and Lotte Leschly
Fred and Dee Lyons
Richard and Susan Markham
G. Kirk Raab
Charles and Ann Sanders
John and Inge Stafford
William and Lynda Steere
Eugene and Hannah Step
Douglas and Linda Watson
Robert and Anne Wilson

Gwynn C. Akin
Daniel J. McIntyre
Frederick and Barbara Telling

Kathy Bloomgarden
Robert and Elizabeth Dole
David and Laura Finn
Mark R. Knowles

Gerald and Jeanne Mossinghoff
Robert and Jan Allnutt
Bruce J. Brennan
John F. Beary
Harvey E. Bale
Marianne Mann
Lynda Nersesian
Terry Parsons
Richard D. Stone
Jeffrey C. Warren
Karen Williams and Tim McKee

SPOUSES SCHEDULE
PMA BOARD STRATEGIC PLANNING MEETING

THE RITZ-CARLTON
Palm Beach, Florida
March 6-8, 1992

FRIDAY, MARCH 6

6:30 p.m.	Reception *	Poolside
7:30 p.m.	Dinner *	Poolside

* *Dress is casual, no tie; women may wish to bring a light wrap. In case of rain, the reception will be held in the Plaza Foyer and dinner will be held in Plaza I.*

SATURDAY, MARCH 7

9:30 - 10:30 a.m.	Buffet Breakfast	Poolside at PMA Cabanas

NOTE: *At 10:00 a.m., during breakfast, a hotel concierge will present an overview of the hotel and area attractions. Terry Parsons, of the PMA Staff, will assist individuals or groups in making arrangements, i.e. shopping. (Arrangements for tee times or tennis courts should be made directly with the hotel as soon as possible.)*

12:15 - 1:30 p.m.	Optional Luncheon with Meeting Participants	Plaza II
6:30 p.m.	Reception	Plaza Foyer
7:00 p.m.	Dinner	Plaza II

SUNDAY, MARCH 8

There are no scheduled activities for spouses on Sunday morning.

11:30 a.m.	Meeting Adjourns

HOW AMERICAN INDUSTRY STACKS UP

Quality and exports are rising. But the U.S. is still losing ground in many markets that promise the fastest growth. Who's ahead—and who's likely to fall behind? ■ *by Andrew Kupfer*

YOU ARE LOOKING for signs that U.S. manufacturers have regained their muscle after a decade of Wall Street–inspired financial fiddling. You are tired of hearing how the country has lost its knack for making things—and especially tired of unsolicited advice from Japanese politicians who claim that the problem is "lazy" U.S. workers. Like millions of recession-weary Americans, you yearn to be an optimist again.

As Charlie Brown would say, "Sigh." For a cold, hard look at the numbers brings with it a cold, hard reality: On balance, the pain endured by American industry in the 1980s has yet to translate into major gains, either in market share or in relative competitiveness.

Yes, the quality of many products—from customized computer chips to recycled toilet paper—has vastly improved. The U.S. also exports far more airplanes, instruments, and other capital equipment now than it used to—45% of capital goods output, vs. 20% in the late 1960s, when America's industrial predominance was unchallenged.

But Asian and European rivals have been polishing their product lines just as vigorously. And some of the credit for that capital goods export boom goes to foreign manufacturers, which have invested heavily in U.S. operations since 1980. Finally, though the rapid decline of once great, made-in-the-U.S.A. industries like steel and autos may have slowed, American companies continue to lose ground in many markets that promise the fastest growth—and biggest profits—over the next decade.

How *does* the U.S. stack up? The scorecard gives our bottom line on the strength of 13 industries. An A implies a dominant position in the world, one not likely to erode significantly in the 1990s. B suggests solid leadership, shared with others. C connotes vulnerability and the risk of continued decline. D means a business is basically on its back.

What's troubling is not that this report card is so bad—after all, it does contain two A's and six B's. But ten years ago, computers and telecommunications equipment would have been arrayed, along with pharmaceuticals and forest products, in the top-rated category. Cars, aerospace, and industrial equipment would also have scored higher.

Since no single measure of competitiveness gives the whole picture, FORTUNE looked at three types of evidence to arrive at its ratings.

We began by examining industrial production by country, using data collected by the Organization for Economic Cooperation and Development in Paris, the definitive clearinghouse for such statistics. Comparing 1980 with 1989, the latest year for which figures are available, we asked what was the total value, in local currencies, of the electrical equipment or computer hardware made in the U.S., Japan, and ten European countries. We then converted that production to dollars and calculated the share of the total that each claimed. The charts that dot subsequent pages of this story reflect those shifting shares.

This way of dicing the data told us plenty about the relative attractiveness of the U.S. as a place to manufacture. But it blurred the performance of U.S. companies because it includes the output of foreign-owned plants. For example, GM's factories in Rüsselsheim get tallied as German production, while Nissan's plant in Smyrna, Tennessee, counts as American.

To focus more closely on the competitiveness of America's multinational corporations, we looked to research by management professor Lawrence Franko of the University of Massachusetts. Franko relies on another important international database—FORTUNE's lists of the 500 largest U.S. and global companies. For each year from 1960 to 1990, he has tallied the combined annual revenues of the 12 largest companies in various industries and calculated the U.S. share of that total.

When both Franko's company data and the OECD's country data are declining in tandem, you can be sure you've got trouble—right here in River City, or wherever. Conversely, when both are rising, you're in Fat City. Unfortunately, American companies have increased their share of sales in only two of our 13 industry groups—food and scientific and photographic equipment.

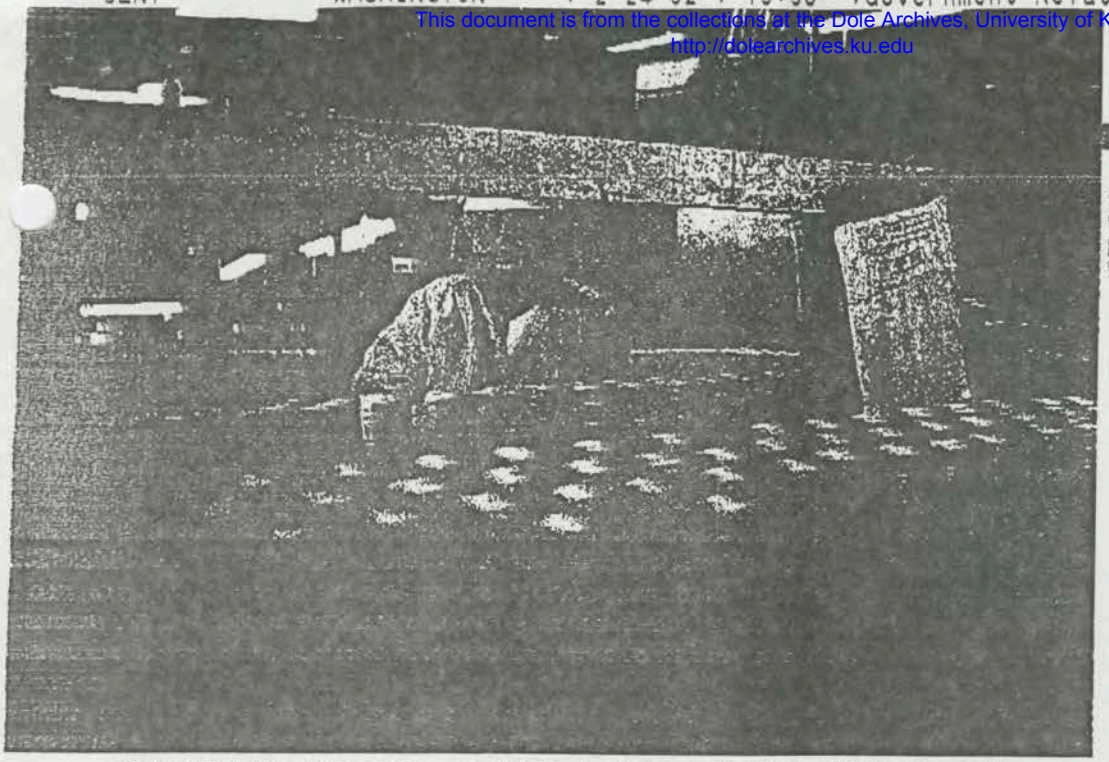
To round out the picture, FORTUNE in-

SCORECARD in 13 Key Industries

Grades measure U.S. competitiveness relative to Japan and Europe. They reflect production data, company performance, and expert opinion.

A	PHARMACEUTICALS
A	FOREST PRODUCTS
B+	AEROSPACE
B	CHEMICALS
B	FOOD
B	SCIENTIFIC & PHOTOGRAPHIC EQUIPMENT
B	PETROLEUM REFINING
B–	TELECOMMUNICATIONS EQUIPMENT
C+	COMPUTERS
C	INDUSTRIAL & FARM EQUIPMENT
C	MOTOR VEHICLES
C–	METALS
D	ELECTRONICS

PHOTOGRAPH BY JAMES SCHNEPF



As ketchup bottles fly by, a Heinz worker in Ohio checks labels. The U.S. leads in food production.

terviewed dozens of industry analysts, trade association representatives, academics, and corporate executives. The experts filled in what has happened to these 13 industries since 1989 and helped us assess not just where they've been but also where they are going.

The experts' observations, in turn, gave rise to a few broad themes that politicians and business leaders should heed if they hope to lift American competitiveness. First, U.S. manufacturers must somehow stop playing a perpetual game of catch-up with Japan. In the 1970s, while Americans concentrated on volume, the Japanese focused on cost. When the U.S. turned its eyes to cost, Japan moved on to quality. Now that the quality revolution has taken hold here, Japan is embracing what Harvard business school professor David Garvin calls "post just-in-time manufacturing." This involves speeding product development as well as production, with the goal of halving the time it takes to roll out a new manufactured good.

Second, the U.S. has to clarify its thinking about foreign investment in American business. The fivefold growth in that investment since 1980 has given rise to enormous anxiety. But more often than not, foreign ownership of U.S factories is a boon.

Consider what happened when Thomson of France bought GE's consumer electronics businesses. Marty Holleran, formerly with RCA and now head of Thomson's U.S. consumer electronics business, claims that GE "never had the commitment" his business required. By contrast, Thomson has spent over $300 million in the past three years to upgrade its U.S. manufacturing facilities, which include the world's largest TV factory, in Bloomington, Indiana.

Still, welcoming foreign investment doesn't mean the U.S. should blithely accept becoming a mere assembly site for companies that make technologically critical parts elsewhere. In 1988, the most recent year for which data are available, U.S. affiliates of foreign corporations imported $150 billion worth of merchandise—over a third of total U.S. imports. About 30% of those imports were auto parts, many of them high-tech. "Where in a car is the value added?" asks Maryann Keller, a top-rated analyst with Furman Selz, a New York investment bank. "In the production and knowledge of its components—the suspensions, engines, electronics. The country as a whole is a little richer from having that capability within its borders." That's why she advocates a strong domestic-content law for cars.

One of the best ways to strengthen America's technological leadership is to figure out how to speed the development and dissemination of new ideas among U.S. companies—and not just high-tech ones. The rapidity with which the Japanese adapt technology to manufacturing processes is a big reason why their productivity growth has outstripped America's by more than a third since 1979. (The other reason, which reflects Japan's higher savings rate, is a fourfold edge in capital formation.) Europe's productivity growth, savings, and investment have also outpaced America's—and that rate should pick up as European unification advances.

REPORTER ASSOCIATE *Jessica Skelly von Brachel*

COMPETITION

RANDY OLSON

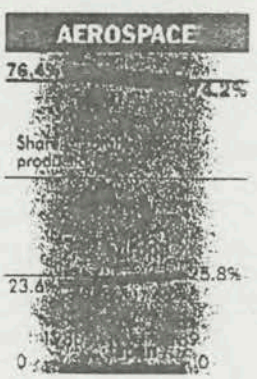
Now, for a trench-level view of how U.S. will fare in future battles for glc market share, let's look closer at those industries, in alphabetical order.

AEROSPACE. In the air the U.S. s rules. American manufacturers produce record $43 billion of aerospace exports 1991—tops of any American industry b wide margin. Boeing alone accounted roughly $18 billion of those sales. Ae space also generates America's larg trade surplus—$30 billion. Despite t prospect of declining defense sales, the u derpinnings of this business look stro Forecasters expect world airline capacity double by 2005.

Even so, turbulence is building. T main threat: Europe's Airbus Industr jointly owned by aerospace compan from Britain, France, Germany, and Spa Launched in 1969, Airbus now claims 30 of the market for commercial jets and h more than 100 customers. Propelling its a cent are solid design, aggressive marketir and some $26 billion in government sub dies, according to Gellman Research Ass ciates, which studied this issue for the U. Commerce Department. Says econom David Vadas of the Aerospace Industri Association of America: "When Airb started, they said they wanted only a 20 market share. They have now targeted 37 by the end of the decade."

Frank Shrontz, chief executive of Boein sees another cloud forming as a result of th recent decision by McDonnell Douglas, th second-largest U.S. planemaker, to sell 40 of its commercial aircraft business to Ta wan Aerospace for $2 billion. McDonne needed the money to afford the cost of de veloping a new wide-body airplane. Say Shrontz: "Our concern is that the ne Douglas entity might become another subs dized competitor shielded from market re ality—an Asian Airbus."

Japan is not a big factor in this industr yet. Japanese companies are gearing up to make engines, electronic systems, and parts. The Commercial Aircraft Co., a consortium formed by Mitsubishi, Kawasaki, and Fuji Heavy Industries, now makes the fuselage for the



kept their profits up because their markets are still protected by regulation.

In the next decade the edge will go to companies that are good at securing new reserves. Developing nations, including Russia, will be inviting companies in to get their resources out. When pressed to name a first among equals, Picchi picks British Petroleum as a finder of oil. As for the technology of enhanced recovery, such American companies as Marathon and Atlantic Richfield are first-rate when it comes to massaging oil from the rock that contains it.

■ PHARMACEUTICALS. For worriers about U.S. competitiveness, America's drugmakers deliver a natural high. In this fast-growing market, U.S. production rose 145% between 1980 and 1989, outpacing both Europe (107%) and Japan (121%). Among professor Franko's top 12 pharmaceutical companies, Switzerland's Ciba-Geigy heads the list. But six U.S. companies, led by Johnson & Johnson and Bristol-Myers Squibb, have about 50% of the sales pot. And the U.S. remains the world center for research in the field, spurred in part by America's status as the only industrialized country where doctors and hospitals can charge pretty much what they like.

In the 1990s the European industry will get a boost from political and economic unification. Myriad national regulations have made it hard for Old World drugmakers to introduce new products across the Continent. But any easing of trade barriers in Europe should also benefit U.S. suppliers, which will be facing mounting political pressure back home to help hold down health care costs.

Japan currently has no representatives among the top 12 pharmaceutical companies. That may change in the 1990s; the Japanese share of new drug patents has doubled in the past 15 years, to 14%. Companies to watch: Takeda Chemical and Sankyo. Still, this is one industry where the U.S. lead looks unassailable.

■ SCIENTIFIC AND PHOTOGRAPHIC EQUIPMENT. U.S. companies have more than held their own in this grab bag category, which includes a few familiar names, like Eastman Kodak, Xerox, and 3M, and a far larger list of smaller fry, such as Millipore of Bedford, Massachusetts. (Millipore makes instruments and membrane filters used for everything from testing wine to sterilizing pharmaceuticals.)

Indeed, this is a rare example of an industry where production in the U.S. has grown faster than in Europe and Japan, even as America's share of the largest companies' sales also climbed—from 78% in 1980 to 86% in 1990. There is some doubt that these welcome trends will continue, however. A recent Commerce Department study identified medical devices and sensor technology as two areas in which the U.S. edge could be dulled by growing Japanese and European competition.

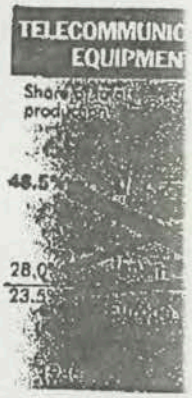
■ TELECOMMUNICATIONS EQUIPMENT. This group generates mixed signals. AT&T is still the world's biggest telecommunications company, accounting for 13% of the global industry's R&D spending. And U.S. companies still dominate the market for installing private networks for businesses.

But Alcatel of France has surpassed AT&T in worldwide sales of all telecommunications equipment. Other European and Japanese companies are also growing faster, which partly explains the steep decline in America's share of total production—down from 48% in 1980 to 34% in 1989. The other reason: U.S. equipment makers moved operations offshore, mainly to Asia, and now import a lot of their components. On balance, America is now running a $2 billion trade deficit in this industry.

As profit margins on standard phone equipment continue to shrink, new technology will separate winners from also-rans. FCC Chairman Alfred Sikes maintains the best thing he can do to help U.S. companies compete in new technologies like high-definition TV and personal communication networks is to remove some of the obstacles that now keep various players—local phone companies and cable TV companies, for example—off eac turf.

Even with those barriers, A equipment makers are better pre thrive in a less regulated global munications market than most of eign counterparts, which until rece either state-owned or protected s NTT America President Taketo who buys equipment for the J phone system overseas, recalls years ago he couldn't even find h multiplexers in Japan to route phor over the new digital telephone company was installing. He bought the U.S.

What could cost the U.S. dearly, er, is its halfhearted embrace of fibe and advanced telephone service, o (for Integrated Services Digital Ne ISDN allows users to send differer of information—voice, data, graphi video—over a single phone line at th time. By the end of this year all phor in France, Hong Kong, and Singap have ISDN capability, as will 87% o in Japan. And in the U.S.? Only 19



reluctance of phone companies to invest until the returns are clear may hamper the ability of U.S. equipment suppliers to keep pace. Suzuki of NTT says: "In the U.S. ISDN and optic fiber to the home is almost thought of as nonsense. In Japan it's a slogan. ISDN is a worldwid nomenon. Without it, the U.S. cannot world leader in telecommunications."

HERE'S ANOTHER WAY t what Suzuki is saying to A can companies: Invest and vate—not an easy job in a changing global market, where techn ical competence is proliferating and challengers are increasingly emer from countries that many in North An ca, Japan, and Europe still condescen call the Third World. But America's dustrial competitiveness—and the s dard of living it can offer its citize ultimately hinges on how well U.S. m agers and entrepreneurs, workers and iticians, do just that.

Pharmaceutical Manufacturers Association

Lynda L. Nersesian
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SENATOR BOB DOLE

BRIEFING BOOK

FOR

PMA STRATEGIC BOARD MEETING

MARCH 6-8, 1992

THE RITZ-CARLTON
PALM BEACH, FLORIDA

PMA BACKGROUND

1991 Annual Report

Pharmaceutical Manufacturers Association

Waving shoddy analysis, a U.S. senator is trying to impose price controls on one of the country's most dynamic industries.

An unproductive war against drugs

BY ALAN REYNOLDS

Alan Reynolds is the director of economic research for the Hudson Institute of Indianapolis, Ind.

AN OLD TRICK among congressmen seeking free advertising is to have their committee staffers issue a sensationalist report bashing some industry or another. Senator David Pryor (D–Ark.) has thus released a report on the "unconscionable profits" of U.S. pharmaceutical companies. The senator plans to introduce legislation that would create prescription drug price "guidelines." In reality these guidelines would be price controls: Pryor's proposal would also repeal patent protection and tax credits for companies that don't toe the guidelines.

The report that occasioned Pryor's photo opportunity is a case study in sloppy analysis and cynical inference. One table, for example, compares a "weighted average" of prices of different assortments of "branded drugs" in several countries. The table purports to show that drugs are cheaper in poor countries than in the U.S. Ergo, the U.S. drug companies must be ripping off consumers. Yet a moment's reflection would have reminded the Senator that any such weighted average must be lower for poorer countries precisely because they are poorer: People in such countries cannot afford to buy as many of the better (more expensive) medicines.

Another table compares U.S. retail prices of a few drugs with the discounted wholesale prices negotiated by Canada's largest provincial drugmakers. It's an apples-and-oranges comparison, of course, but the report gamely concludes that "Canadian consumers" pay much less for drugs than do Americans. In fact, Canadians pay much more out of pocket than Americans. This is because Canada's nationalized "universal" health scheme does not generally cover prescription drugs, while most private U.S. plans do. Canadians thus skimp on preventative drugs, holding average drug prices down but overcrowding the hospitals.

The fact that U.S. drug firms are profitable is largely because of cost-cutting and efficiency, not price-gouging. The June issue of the *Monthly Labor Review* notes that "the U.S. pharmaceutical industry has been very price competitive. From December 1985 to December 1990 export prices rose only 10.9%. Import prices, in contrast, rose 63.4%."

Much has been made—in the Pryor report and elsewhere—about rising price indexes for drugs. But research by Zvi Griliches for the National Bureau of Economic Research shows that the producer price index exaggerates actual drug prices by as much as 50%, because it fails to include increasing discounts to health maintenance organizations and other such high-volume buyers. Remember, too, that changes in any price index for drugs over long periods are meaningless, because it is impossible to account for improvements in quality. A 1991 drug that saves your life may cost a bit more than the 1980 equivalent that left you dead, but that is qualitative progress that cost money to achieve; it is not inflation.

The people of Puerto Rico will enjoy the section of the Pryor report that attacks the Section 936 tax credits. Drug companies and others have used this "enterprise zone" part of the tax code to reduce taxes and create jobs in Puerto Rico. But the Pryor report threatens to deny these tax credits at whim, to enforce arbitrary compliance with his drug price "guidelines."

Senator Pryor has bashed the drug companies before. Last year he actually got a law passed that forces drug companies to rebate to Medicaid the difference between its drug charges and the lowest quantity discounts offered to the Defense Department or Veterans Administration. But Medicaid drugs are purchased in thousands of local drugstores. Trying to force drug companies to give bulk discounts to nonbulk customers is having the predictable effect of forcing them to stop giving discounts to anyone.

Private insurers, particularly HMOs, understand very well that modern drug therapies are helping to cut, not raise, the overall cost of health care. Another recent study in the *Monthly Labor Review* observes that, "in terms of constant dollars, expenditures on prescription drugs accounted for 3% of all health care expenses in 1989, a drop from 5% in 1979. . . . Providing prescription drug benefits for preventative maintenance, for high blood pressure and high cholesterol, can help avoid or minimize hospital costs."

The evidence is plain that price controls boost demand, discourage supply, encourage monopolies and create shortages that result in waiting lines and yet more meddling by the politicians. No country that has imposed price controls on pharmaceutical products, or has unreliable intellectual-property rights and tax policies, has ever enjoyed an innovative pharmaceutical industry. What is unconscionable is not high profit, but a demagogic political attack that aims to convert one of this country's most competitive industries into a regulated utility, on a par with the Postal Service. ■

United States Senate

SPECIAL COMMITTEE ON AGING
WASHINGTON, DC 20510-6400

Pryor "Dear Colleague"

February 3, 1992

Dear Colleague:

We are writing to invite you to join Senators Sasser, Baucus, Bryan, Burdick, Conrad, Exon, Kerrey, Leahy, Metzenbaum, Wellstone, and ourselves in cosponsoring S. 2000, the **Prescription Drug Cost Containment Act of 1991.** This bill offers workable, practical, and comprehensive proposals to make prescription drug products more affordable for all Americans, especially our nation's elderly and poor.

The time for legislative action on the prescription drug front has definitely arrived. For well over a decade, prescription drug manufacturers have forced our nation's citizens, especially the elderly, to swallow prescription drug price increases that have tripled the rate of general inflation. From 1982 through 1991, while the cumulative general inflation was only 46 percent, prescription drug price inflation more than tripled this amount -- 143 percent. Just last year, while general inflation was only 3.1 percent, pharmaceutical inflation was 9.4 percent. To add insult to injury, Americans pay the highest prices for drugs among the industrialized nations of Europe and Canada. According to a 1991 HHS Inspector General's report, the average American pays 62 percent more for their medications than the average Canadian, and 54 percent more than the average European for the very same medications. (Please see enclosed charts).

What impact has the pharmaceutical industry's pricing policies had on the ability of Americans to afford medications? The latest statistics tell the story in dramatic human terms:

- Prescription drugs represent the highest out-of-pocket medical expenditure for 3 of 4 elderly. According to an August 1991 CBO study, 60 percent of the elderly are at risk for catastrophic out-of-pocket medical costs because of prescription drug bills.

- Because of skyrocketing prescription drug inflation, many private health insurance plans for the elderly offer no prescription drug coverage. Over half of all Americans age 65 and over -- about 16 million elderly people -- have no insurance protection against medication costs.

- Over 5 million Americans over 55 now say that they have to make choices between buying food or fuel for heat and paying for prescription drugs.

As you know, Congress has tried several times to send a strong, bipartisan message to the drug industry that their price increases were out of control. However, the industry continues to use its tired, worn-out argument that any attempt to contain the cost of pharmaceuticals would stifle drug industry research and development. Nothing could be further from the truth. The drug manufacturing industry already receives hundreds of millions of dollars in direct tax write-offs from the federal government to do its research. In addition, evidence continues to mount that the drug manufacturers that are raising prices the fastest are the ones that are doing the least innovative research. Please take the time to review the enclosed fact sheet, which will help debunk the industry's mythical argument that these skyrocketing prices are going to fund research and development.

There are additional reasons, however, why pharmaceutical cost containment is important and needed. In 1990, prescription drugs accounted for about 10 percent of this nation's total expenditures on health care -- about $67 billion dollars. Unless Congress takes meaningful steps to curb the cost of pharmaceutical products, estimates are that outlays for drugs and biologicals will be well over $120 billion dollars by the year 2000. This is because many new, expensive biotechnology products are expected to come to market over the next few years with price tags in the thousands of dollars.

Recognizing the impact of current and future pharmaceutical inflation crisis facing the American health care system, 40 national organizations (list enclosed) have already endorsed S. 2000. These groups include representatives of small business, older Americans, children, health care providers, consumers, rural communities, insurance agents, and labor unions.

In conclusion, let us suggest that meaningful reform of this nation's health care delivery system can only be achieved if Congress enacts effective measures to control the skyrocketing growth of health care services. Because prescription drugs have been the fastest increasing component of the medical care inflation index for the past decade, it makes perfect sense to begin reform by focusing on pharmaceutical cost containment. Drugs help no one if they are unaffordable, no matter how cost-effective they are.

If you or your staff want additional information about the Prescription Drug Cost Containment Act of 1991, or if you would like to cosponsor the legislation, please have your staff contact Chris Jennings or John Coster at X-45364. We look forward to working with you to bring down the costs of prescription drugs for all Americans.

Sincerely,

William Cohen
Ranking Minority Member

David Pryor
Chairman

Organizations Endorsing

THE PRESCRIPTION DRUG COST CONTAINMENT ACT OF 1991
(S. 2000)
Senator David Pryor (D-Ark)
February, 1992

AFL-CIO
AIDS Action Council
American Association for International Aging
American Association of Homes for the Aging
American Association of Retired Persons (AARP)
American Nephrology Nurses Association
American Pharmaceutical Association
AFSCME Retiree Program
American Public Welfare Association (APWA)
Asociacion Nacional Pro Personas Mayores
Association for Gerontology in Higher Education
Association for Gerontology and Human Development in Historically Black Colleges and Universities
Catholic Golden Age
Childrens Defense Fund (CDF)
Consumers Union
Families USA
Gray Panthers
Green Thumb
Independent Insurance Agents of America
International Ladies Garment Workers Union (ILGWU)
Leadership Council of Aging Organizations (LCAO)
National Association of Area Agencies on Aging
National Association of Foster Grandparents Program Directors
National Association of Life Underwriters
National Association of Meal Programs
National Association of Older American Volunteer Program Directors
National Association of Retired Federal Employees
National Association of RSVP Directors
National Association of Senior Companion Project Directors
National Association of State Units on Aging
National Caucus and Center on Black Aged (NCBA)
National Committee to Preserve Social Security and Medicare
National Consumers League (NCL)
National Council of Senior Citizens
National Hispanic Council on Aging
National Indian Council on Aging
National Rural Electric Cooperative Association
National Small Business United
North American Transplant Coordinators Organization
Older Womens League
Pennsylvania Council on Aging
Small Business Legislative Council
United Auto Workers Retired Members Department

020192

FACTS COUNTERING DRUG INDUSTRY FICTION REGARDING RESEARCH AND DEVELOPMENT

U.S. Senate Special Committee on Aging
Senator David Pryor, Chairman
February, 1992

BACKGROUND: Anytime Congress is critical of the enormous profit margins of the pharmaceutical industry, or questions the need for the industry to raise prices in excess of three times the rate of inflation, the industry argues that they need these exorbitant profits and high prices to finance research and development. However, it is clear that their well-worn and re-recycled research and development argument is not going to sell anymore. Consider these facts:

FACT 1: Americans are already providing hundreds of millions of dollars in tax breaks annually for the industry's R&D investment.

FACT 2: According to a 1991 Forbes Magazine article, the drug industry is spending a BILLION DOLLARS MORE a year on marketing than it is on research; that is, the industry will spend $10 billion on marketing and advertising this year, but only $9 billion on research and development.

FACT 3: After accounting for the investment in research and development, the pharmaceutical industry still earns an annual Fortune 500 industry-leading profit of 15.4 percent. This industry profit average is TRIPLE that of the average Fortune 500 club member, which is 4.6 percent.

FACT 4: The drug industry says it needs such profits to attract capital, yet they certainly do not need a return on shareholder investments (return on equity) that industry analysts say is consistently 50 percent higher than the average Fortune 500 company to attract capital. Other Fortune 500 companies, whose profit margins are one-third that of the drug industry, do not appear to have trouble attracting sufficient capital.

FACT 5: In addition to the hundreds of millions of dollars in direct research and development tax breaks given to the drug industry each year, a significant amount of research on new drug products occurs in federal facilities or with grants provided by federal agencies. For example, most of the research on the drug AZT, used to treat symptoms of AIDS, was conducted at the National Institutes of Health (NIH), yet a private drug company holds the patent on the product and has used the patent to charge exorbitant prices for the drug.

FACT 6: The drug companies whose R&D investment has brought no new breakthrough drugs to market are the very same companies that are increasing prices at some of the highest rates. Therefore, while there are some drug companies who are research intensive, the majority are using the "research" argument as the excuse to raise prices, yet their research pipeline is dry. For example:

- o Dilantin (an antiepileptic drug) manufactured by Parke-Davis, has been on the market since 1953. Since 1985 it has gone up in price 69 percent, an annual average increase of over 11 percent. Parke-Davis has not brought one new molecular entity to market in the last 5 years.

FACT 7: For a pharmaceutical company that spends 15 percent of its revenue on research to increase their research expenditures by 10 percent, it would only require a 1.5 percent increase in their drug prices each year. However, drug manufacturers have been increasing prices, on average, at three times the rate of inflation for the last eleven years.

FACT 8: One of the largest investors in R&D in the industry -- Merck -- is holding their price increases to inflation. Merck Sharp and Dohme has been one of the most research productive companies over the last decade, yet they have adopted a public policy position that restricts their price increases to changes in the CPI-U. If the world's most research-intensive drug company can adopt this responsible public policy, the others should be able to do the same.

FACT 9: In Canada, the drug industry has voluntarily agreed to limit its price increases to the inflation rate, while substantially increasing its investment in research.

* While the industry's arguments about the relationship between high profits and research are clearly questionable, the "Prescription Drug Inflation Containment Act", introduced by Senator David Pryor, <u>WILL NOT</u> reduce the research tax credits of drug manufacturers. The legislation uses the industry's $2 billion annual non-research and development tax credit, which is bestowed on the industry each year by American taxpayers, as an incentive to contain prescription drug price inflation at or below the rate of general inflation.

011492

Pharmaceutical Manufacturers Association

FACT SHEET

SECTION 936 OF THE INTERNAL REVENUE CODE SHOULD NOT BE CHANGED
December 20, 1991

Legislation (S. 2000) has been introduced that would reduce tax credits under Section 936 of the Internal Revenue Code for pharmaceutical companies that raise prices at a rate greater than increases in the Consumer Price Index (CPI). The legislation would undermine long-standing and highly successful U.S. policy, is unwise and discriminatory and would violate the three main tenets of U.S. tax policy -- fairness, simplicity and economic growth.

BENEFITS OF SECTION 936

Section 936 has offered tax incentives to U.S. companies since the late 1940s to encourage manufacturing investment and job creation in Puerto Rico. Section 936 has been a huge success in doing precisely what Congress intended it to do:

- Puerto Rico's Gross National Product has soared from $3.7 billion in 1950 to more than $20 billion today.

- Employment on the island has grown by more than 50 percent since 1950, from 596,000 to more than 900,000.

- Section 936 corporations employ about 72 percent of all manufacturing employees in Puerto Rico, while the benefits associated with the Section account for about one-third of the total employment in the Commonwealth.

- Imports and exports have topped $25 billion, more than all the other Caribbean islands combined.

DISCRIMINATORY

S. 2000 is discriminatory because:

- It would apply only to pharmaceutical companies that use Section 936 -- and not all drug companies do so. And it would

1100 Fifteenth Street, N.W. Washington, D.C. 20005 (202) 835-3400

apply only to pharmaceutical companies and not to companies in other industries that use Section 936 and whose prices may increase at a faster rate.

o It would apply to companies whose price increases exceed the rate of inflation solely because of unavoidable rising costs, including the costs of research and development and production.

TOO COMPLEX

S. 2000 would be extraordinarily arbitrary and complex to implement.

o The legislation would establish an uncertain variable in corporate and government planning. The CPI -- which has little to do with the cost of developing, manufacturing and distributing drugs -- is only published following the end of a year, long after companies establish their prices for that year. Pharmaceutical companies thus would not know until well after the fact whether some or all of their 936 credit would be disallowed for any taxable year.

o The calculations required by S. 2000 would impose substantial administrative and compliance costs on both Government and industry.

ADVERSE ECONOMIC IMPACT

S. 2000 would have a significant adverse impact on the competitiveness of one of the country's premier high-technology industries that has consistently maintained a favorable balance of trade.

o Section 936 is the only tax advantage available to U.S. multinational corporations comparable to the "tax-sparing" agreements that many other industrialized nations have with developing countries. These agreements enable foreign-based companies to operate with much lower costs than U.S. firms.

o Cutbacks in Section 936, even if only threatened and not enacted, have in the past caused major reductions in investment in Puerto Rico, contrary to Congress' stated reason for retaining the provision in the 1986 Tax Reform Act -- to foster economic development on the Island and in the other countries of the Caribbean Basin, a vital U.S. national interest.

Who's Against Price Controls on Prescription Drugs?

Leading newspapers across the United States have gone on record in opposition to S.2000, a bill that would discourage drug research by imposing price controls on prescription medicines.

"The side effects of drug price controls aren't hard to predict, and they aren't healthful. Drug research would atrophy, as it has in Canada and other countries with drug price controls; and one of America's most vigorous industries, which develops nearly half the world's new drugs, would be maimed."

PIONEER PRESS
EDITORIALS

January 2, 1992

"The United States today is responsible for 40% of the internationally marketed new drugs. All that could change, of course, with price controls. The losers would be those whose lives are being prolonged by existing drugs or whose hopes are nourished by the studied pace of pharmaceutical research aimed at unraveling the mysteries of cancer, diabetes, muscular dystrophy, heart disease and AIDS."

THE CINCINNATI ENQUIRER

November 23, 1991

"R&D is the heart blood of the drug industry. Though the entire industry is smaller than any of our corporate giants, it puts more into R&D than any other industry: Half again as much as IBM, four times more than GM . . . Price controls seldom solve anything. For the drug industry, they could be disastrous."

Arkansas Democrat Gazette

December 22, 1991

"If Pryor's legislation becomes law, the effects are quite predictable. Drug companies would risk fewer resources on research and development, because there would be little payoff—maybe even probable losses—attached to such risky investments. Thus, fewer life-saving medicines would be developed."

The Intelligencer.

Wheeling, West Virginia
January 7, 1992

"The likely effect of such regulation would be to discourage research and development of new, potentially life-saving drugs."

Richmond Times-Dispatch

December 12, 1991

"Sen. Pryor's bill is bad for the consumer and bad for the economy."

Dallas Times Herald

November 25, 1991

"Unfortunately, Mr. Pryor's proposal . . . heads dangerously down the disastrous road toward price controls; gas lines when government imposes controls on oil prices are bad enough, but if it's prescription drugs that become unavailable, it's literally a matter of life and death."

The Washington Times

December 30, 1991

"The U.S drug industry is the world's largest and most innovative. It continues to discover new drugs to battle heart disease, cancer, AIDS and other illnesses. Why would anyone want to introduce Soviet-style price controls?"

The Orange County Register

November 19, 1991

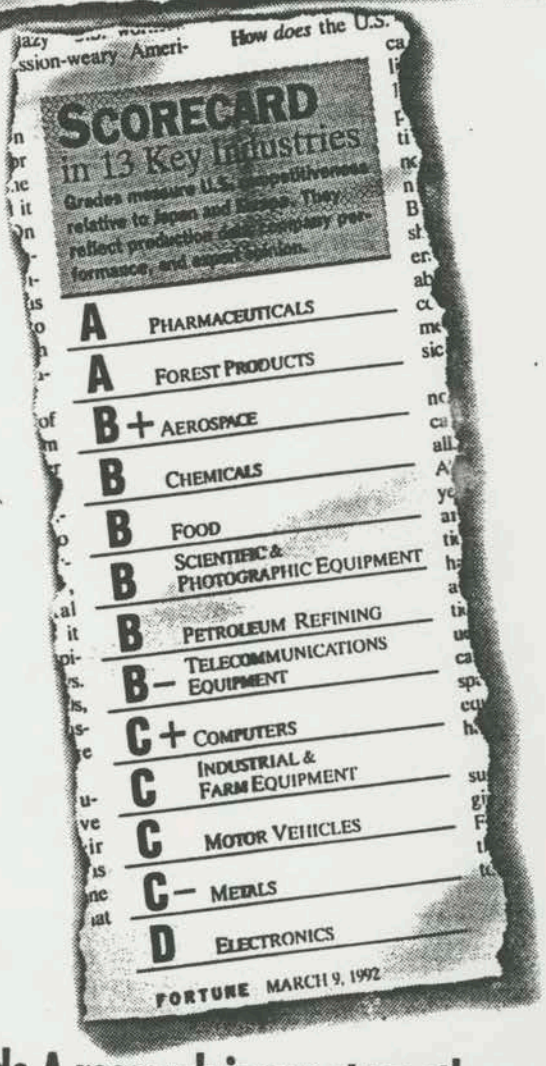
"Lowering the time it takes for drugs to be approved for the American market would probably go much farther in reducing drug prices than instituting new regulations to tighten the screws on an innovative industry."

The Evening Bulletin

Providence, Rhode Island
November 21, 1991

COMPETITION/COVER STORY FORTUNE

HOW AMERICAN INDUSTRY STACKS UP



Grade A research is our strength. In the past 50 years, U.S. drug companies have pioneered a remarkable 62% of the new drugs introduced worldwide. Our American pharmaceutical industry currently accounts for 40% of the world market for ethical drugs — a share equal to all of Western Europe's and twice as large as Japan's. And we're still doing our homework — nearly $11 billion in R&D this year alone.

Pharmaceuticals. Good medicine for America.

To receive more information about what pharmaceuticals really contribute to saving lives and health costs, call or write The Pharmaceutical Manufacturers Association, 1100 Fifteenth St., N.W., Box W, Washington, DC 20005, 1-800-538-2692.

"My mother can't remember her own address, and she's lived in the same house for 53 years.

Isn't someone doing something about Alzheimer's disease?"

We are. American pharmaceutical companies are investing tens of millions of dollars in research for this mysterious, heartbreaking illness, and have 13 promising new drugs in test. Alzheimer's afflicts more than 4 million people and costs our nation over $88 billion every single year. Think of the benefit in lives and costs that just one drug breakthrough would mean.

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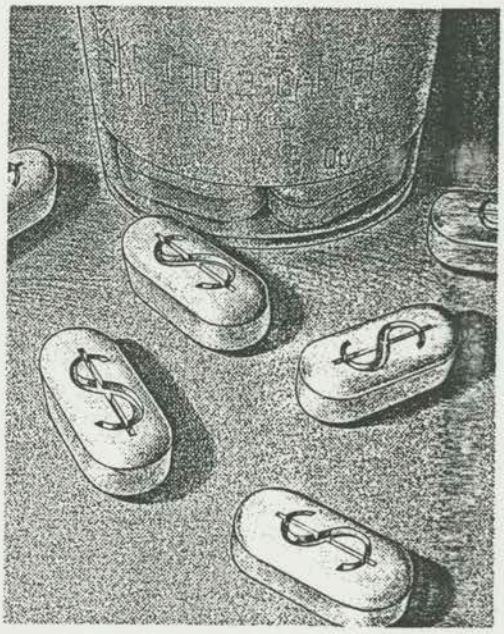
"Every time I take my heart medication, I ask myself...how can something so small cost so much?"



It's a fair question. First, there's time. It takes approximately 12 years for a new drug to make it from a pharmaceutical company's laboratory to the patient. Then, there's cost. On average, it costs pharmaceutical companies more than $230 million to develop a new drug. For every new compound that succeeds, thousands don't. But the end result is knowing that quality medicines will be there when you need them. And just think of the cost if they weren't.

Pharmaceuticals. Good medicine for America.

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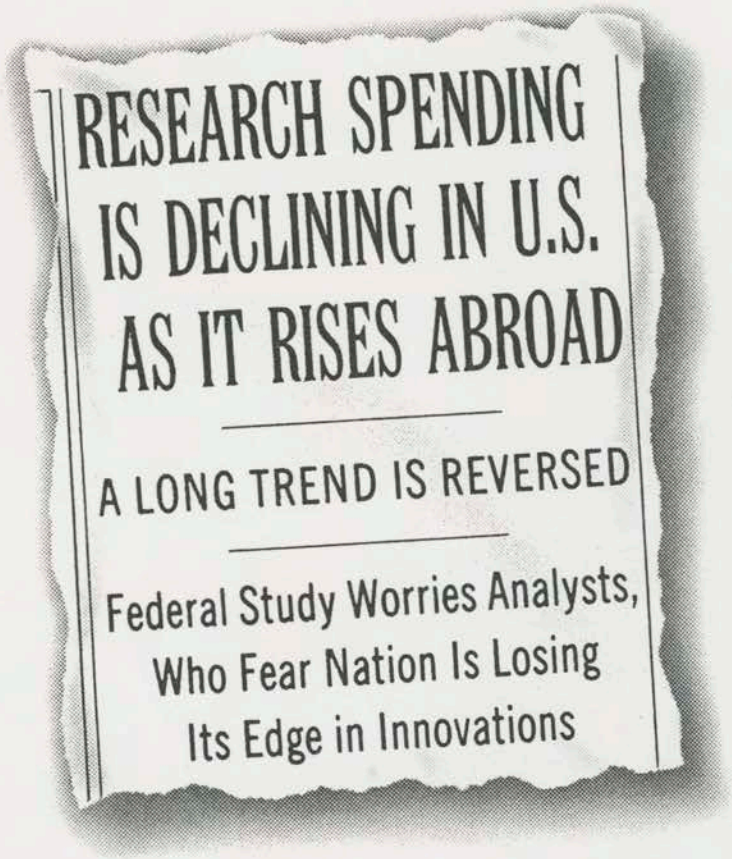


Reprinted from the New York Times, Feb. 21, 1992

There's a notable exception. The investment in research and development being made by member companies of the Pharmaceutical Manufacturers Association is up 13.5% this year alone. R&D expenditures have doubled every five years since 1970 . . . to nearly $11 billion in 1992. That's how we lead the world in new pharmaceutical breakthroughs. And that's how we maintain a positive balance of trade.

Pharmaceuticals. Good medicine for America.

To receive more information about what pharmaceuticals really contribute to saving lives and health costs, call or write The Pharmaceutical Manufacturers Association, 1100 Fifteenth St., N.W., Box W, Washington, DC 20005, 1-800-538-2692.

THE NEW YORK TIMES, FRIDAY, FEBRUARY 21, 1992 (PAGE A1)

RESEARCH SPENDING IS DECLINING IN U.S. AS IT RISES ABROAD

A LONG TREND IS REVERSED

Federal Study Worries Analysts, Who Fear Nation Is Losing Its Edge in Innovations

By WILLIAM J. BROAD

American spending on research and development has begun to fall for the first time since the 1970's, even as foreign rivals increase their investments in research, a Federal science agency said yesterday.

The amounts spent on research by the Federal Government and private industry each fell, worrying many analysts. They fear that the nation is losing its edge in the international race for discoveries and innovations that can form the basis for new goods and services.

The National Science Board, in its biennial report on the health of the nation's research enterprise, said overall spending on research by the Federal Government, industry, universities and private patrons slowed during the second half of the 1980's and began to fall in 1989, ending an era of extraordinary growth.

Recession and End of Cold War

A Federal analyst, who spoke on the condition of anonymity, said the decline was caused by cutbacks in military research with the end of the cold war and by industrial reductions prompted in part by the recession.

Dr. James J. Duderstadt, president of the University of Michigan and chairman of the National Science Board, said in a statement that the decline, when coupled with educational woes, "should give us real concern for the continued vitality of our research enterprise."

He noted that the United States, despite the drop, still leads the world in overall spending on scientific research.

Yet analysts already edgy about America's status in the global contest for economic advantage expressed worry about the research decline. American spending is falling, they said, as similar investments by Japan and Germany are rising rapidly.

"Clearly it's another warning sign," said Kent H. Hughes, president of the Council on Competitiveness, a private group in Washington that seeks policies to promote industrial vigor. "Especially on the private side, I'd be concerned. That's the research closest to commercialization and marketable products."

Dr. Frank Press, president of the National Academy of Sciences, a federally chartered organization of scientists that advises the Government, agreed. "We especially need to ask why industrial research is down when for other countries it's going up," he said. "That's a matter of concern."

News of the overall drop came in a 487-page report, "Science and Engineering Indicators." Its author, the National Science Board, is the policy-making arm of the National Science Foundation, a Federal agency that supports science research and is responsible for monitoring the nation's overall scientific health.

The biennial report is meant to give decision makers in Government, industry and academia concise information about national trends in science spending, education, manpower and the various fruits of the research enterprise, including patents, scientific papers and new technologies.

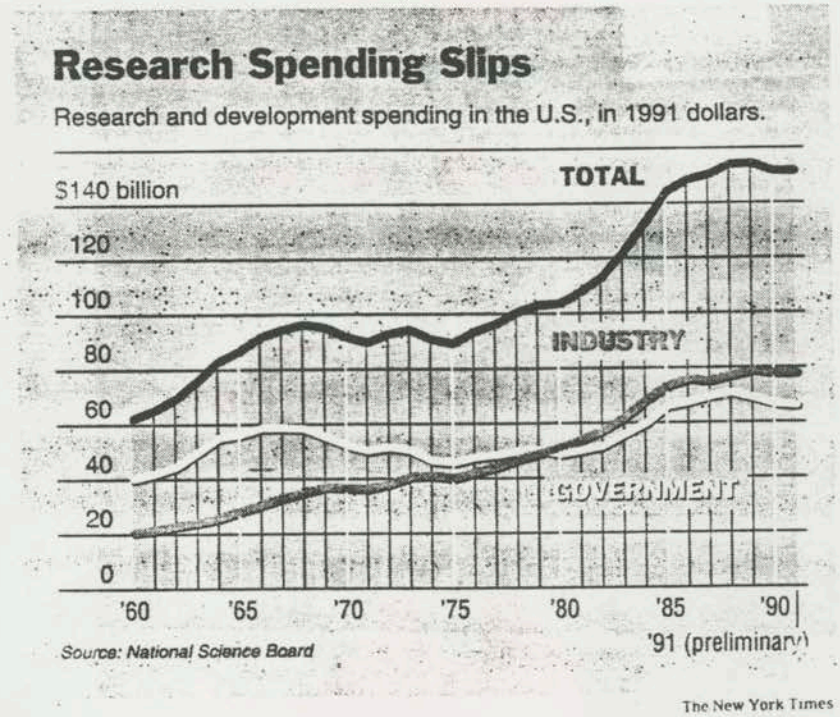
In recent decades, the only other drop in overall science spending occurred in the early 1970's as the United States reduced space research after the Apollo moon landings and cut back on military research amid an early thaw in the cold war.

The new report shows that the United States, beginning in 1975, embarked on a spending spree that climaxed in 1989 with an annual national expenditure for research and development of $154.31 billion. After that peak amount for 1990 fell to $151.57 billion. The figures are in constant 1991 dollars to cancel the effects of inflation.

The report said that preliminary data suggest that the total for 1991 will be about the same as 1990. But one Federal analyst working on the data suggested that the 1991 total might go down further.

"The dip," said the Federal analyst, who spoke on the condition of anonymity, "is not simply in Federal dollars but in almost all sectors.

"The bottom line for industry is that they had tremendous growth in the first half of the 80's," the analyst said. "And now, with a change of expecta-



The New York Times

tions in profits and sales, and a certain amount of consolidation, there's been a slowing in research and development."

From a peak in 1989 of $78.83 billion, annual research spending by American industry dropped to $77.84 billion in 1990, according to the report. It was the biggest drop in three decades.

'Probably Will Get Worse'

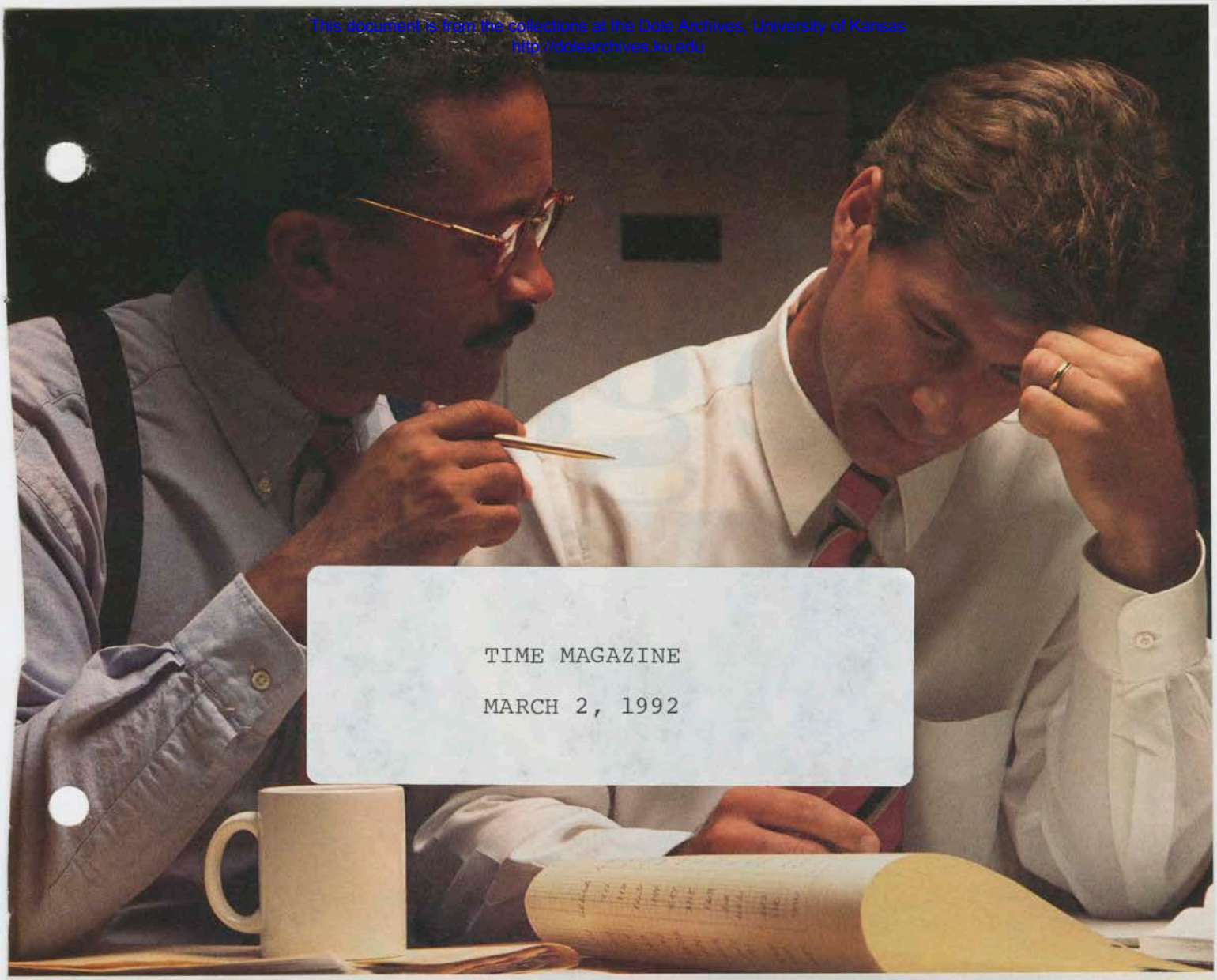
"It's bad news," said Erich Bloch, former director of the National Science Foundation. "And it probably will get worse. A couple of years ago, the leveling off had to do with restructuring. But the drop now has to do with the recession and restructuring."

Even before the decline, the rate of growth had fallen sharply. Between 1980 and 1985 the rate of annual growth for industrial research was 6.9 percent in inflation-adjusted dollars, the report said. Between 1985 and 1990, it fell to 1.2 percent.

The report also noted that the American share of the global market for high-technology goods had fallen from 40 percent in 1980 to 37 percent in 1988.

The report, which is required by Congressional legislation, is submitted by the National Science Board to the President, who in turn provides it to Congress. The current volume is the 10th in a biennial series begun in 1972.

In a preface to the report, Dr. Duderstadt of the National Science Board noted the rapid changes around the globe and warned that American research priorities and programs must be "refined and reshaped to adapt."



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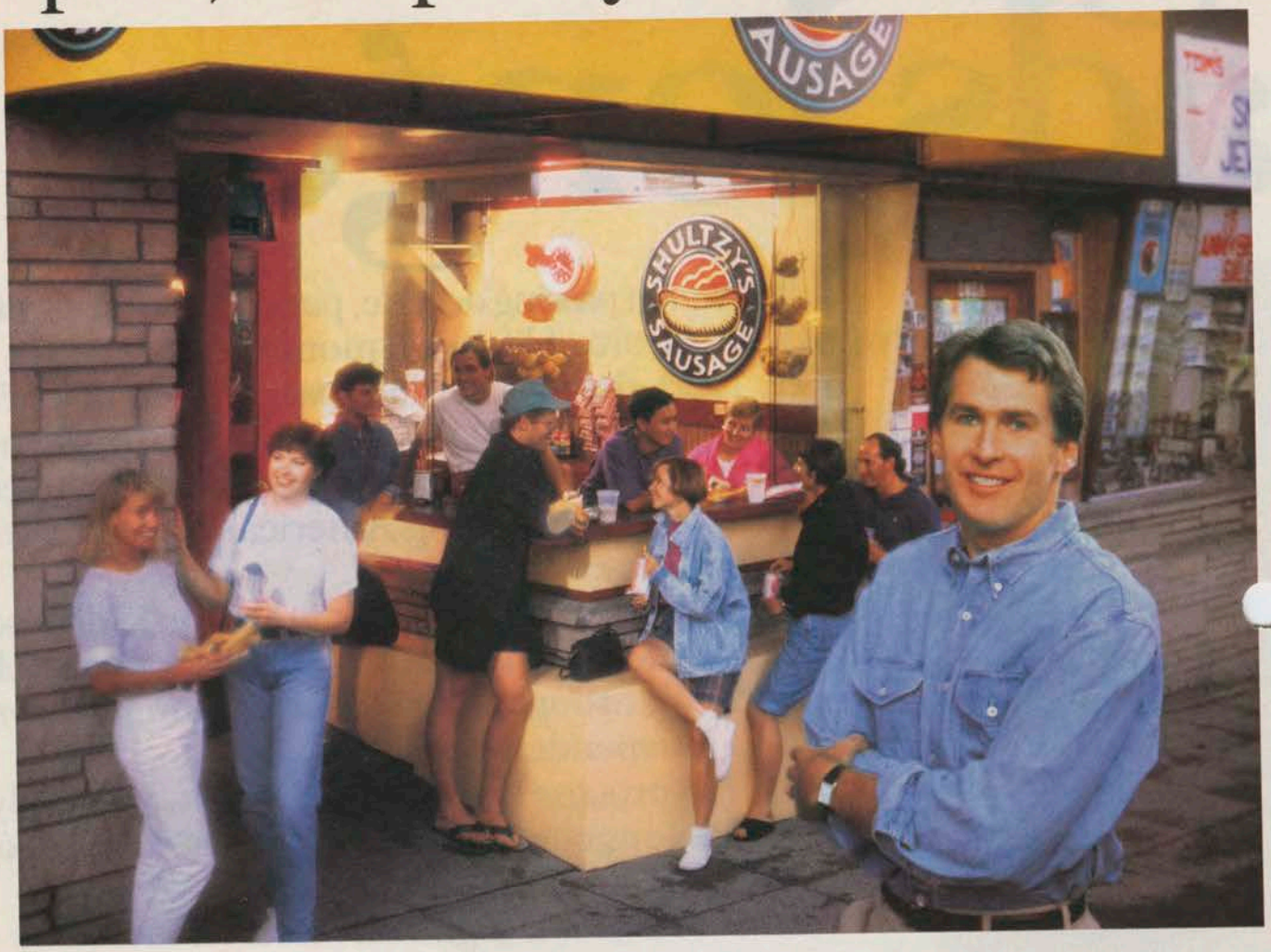

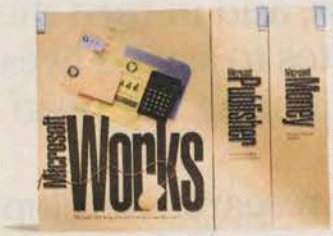

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PMA BOARD STRATEGIC PLANNING MEETING
The Ritz-Carlton, Palm Beach, Florida
March 6-8, 1992

ATTENDEES

Paul E. Freiman
Duane L. Burnham
Theodore and Vivian (Patsy) Cooper
Sheldon and Irma Gilgore
Gavin and Ninetta Herbert
Richard J. Kogan
Irwin and Blanche Lerner
Jan and Lotte Leschly
Fred and Dee Lyons
Richard and Susan Markham
G. Kirk Raab
Charles and Ann Sanders
John and Inge Stafford
William and Lynda Steere
Eugene and Hannah Step
Douglas and Linda Watson
Robert and Anne Wilson

Gwynn C. Akin
Daniel J. McIntyre
Frederick and Barbara Telling

Kathy Bloomgarden
Robert and Elizabeth Dole
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Robert and Jan Allnutt
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John F. Beary
Harvey E. Bale
Marianne Mann
Lynda Nersesian
Terry Parsons
Richard D. Stone
Jeffrey C. Warren
Karen Williams and Tim McKee

BIOGRAPHY

Paul E. Freiman

Paul E. Freiman is chairman and chief executive officer of Syntex Corporation. Mr. Freiman has been a member of the company's board of directors since January 1986.

Mr. Freiman joined Syntex in 1962 as a professional service representative for Syntex Laboratories, Inc., a Syntex company responsible for manufacturing and marketing human pharmaceutical products in the United States. He began his pharmaceutical career in 1958 as a sales representative with E.R. Squibb and Sons, and joined Syntex from that firm. Mr. Freiman subsequently held a series of increasingly responsible positions, including president of Syntex Laboratories, Inc., senior vice president of the corporation directing Syntex's worldwide pharmaceutical business, executive vice president, and president and chief operating officer.

Mr. Freiman earned a bachelor of science degree in pharmacy from Fordham University in 1955. He served in the United States Navy as a hospital corpsman from 1956–1958.

Mr. Freiman is active in pharmaceutical industry trade association activities. He is chairman–elect and a member of the executive committee and board of directors of the Pharmaceutical Manufacturing Association. He is also chairman of the American Pharmaceutical Institute. He is chairman of the American Leadership Forum (Silicon Valley Chapter), and is a member of the boards of directors of the National Conference of Christians and Jews, Inc. (Santa Clara County), the San Jose Museum of Art, the Berkeley Roundtable for International Economics, Santa Clara Manufacturing Group, and the Bay Area Council. He is also a member of the board of trustees of United Way of Santa Clara County, and a member of the Leavey School of Business Administration Advisory Board of Santa Clara University.

He received the 1991 Award of Distinction from the Pharmacists Planning Service, Inc., and in 1989, he was named the first recipient of the "Friend of the Academy of Students of Pharmacy Award" by the American Pharmaceutical Association. He also received an honorary doctorate granted by the Arnold and Marie Schwartz College of Pharmacy in June 1989.

CORPORATE OFFICER BIOGRAPHY

Duane L. Burnham
Chairman and Chief Executive Officer
Abbott Laboratories

Duane L. Burnham is chairman and chief executive officer of Abbott Laboratories and is a member of the company's board of directors. He joined Abbott in May 1982 as senior vice president, finance, and chief financial officer. In January 1985, he was promoted to executive vice president and elected to Abbott's board in April 1985. He was elected vice chairman in December 1986. Burnham was elected chief executive officer in December 1989 and was elected chairman of the board in March 1990.

Before coming to Abbott, Burnham was president and chief executive officer of Bunker Ramo Corporation, Oak Brook, Ill. He joined that firm in 1975.

Burnham serves as a director of Sara Lee Corporation. Burnham is on the board of directors of the Federal Reserve Bank of Chicago, Evanston (Illinois) Hospital, the Pharmaceutical Manufacturers Association, the Museum of Science and Industry, Chicago, Ill., the Lyric Opera, and the Chicago Council on Foreign Relations. He is a member of the Business Roundtable and The Commercial Club of Chicago, and on the board of the Healthcare Leadership Council. Burnham also is a member of the Board of Trustees of Northwestern University and of the Advisory Board of the J. L. Kellogg Graduate School of Management.

Burnham was born in Excelsior, Minn., on January 22, 1942. He earned both bachelor's and master's degrees in business administration at the University of Minnesota in 1963 and 1972, respectively.

Burnham resides in Northbrook, Ill.

1/92

Upjohn

The Upjohn Company
Kalamazoo, Michigan 49001

Executive Profile

Theodore Cooper, M.D., Ph.D.
Chairman of the Board
and Chief Executive Officer
The Upjohn Company

Theodore Cooper, M.D., Ph.D., is Chairman of the Board and Chief Executive Officer, The Upjohn Company. Dr. Cooper was born December 28, 1928, in Trenton, New Jersey. He received a B.S. degree from Georgetown University in 1949; his medical degree from St. Louis University School of Medicine in 1954 and his doctorate in physiology from St. Louis University in 1956.

Dr. Cooper's career has been diverse and distinguished. Among the positions he has held are: Professor of Surgery, St. Louis University; Professor and Chairman, Department of Pharmacology and Professor of Surgery, University of New Mexico School of Medicine; Director, National Heart and Lung Institute, National Institutes of Health (NIH); Deputy Assistant Secretary of Health, Department of Health, Education and Welfare; Assistant Secretary for Health, Department of Health, Education and Welfare; Professor of Surgery and Pharmacology, Cornell University Medical College; and Adjunct Professor, Rockefeller University and Visiting Physician, Rockefeller University Hospital. Dr. Cooper was appointed Dean, Cornell University Medical College in 1977. The following year he was elected to The Upjohn Company's Board of Directors. He joined the company as Executive Vice President in 1980. He was named Vice Chairman of the Board in 1984, and Chairman and Chief Executive Officer in 1987. In addition, Dr. Cooper serves on the boards of the Metropolitan Life Insurance Company; Borden, Inc.; Harris Bankcorp, Inc., Harris Trust and Savings Bank; and Bronson Healthcare Group, Inc., Kellogg Company, Pharmaceutical Manufacturers Association, Grocery Manufacturers of America, Inc., Research! America, National Center for Health Education, United Weight Control Corporation, Council on Family Health, St. Louis University and the University of Chicago.

The Upjohn executive's professional affiliations include: Alpha Omega Alpha Honorary Medical Society; American College of Cardiology; American Physiological Society; American Society for Clinical Investigation; and American Society for Pharmacology and Experimental Therapeutics. He also serves as a member at large, Board of Governors, American Red Cross.

Dr. Cooper has received ten honorary degrees and numerous professional awards and honors, including: the Gold Heart Award, American Heart Association; the Distinguished Service Award, American Institute of Biological Sciences; the Walter F. Patenge Medal of Public Service, College of Osteopathic Medicine, Michigan State University; the Harvey W. Wiley Medal, Food and Drug Administration; the Schwartz Award in Medicine, American Medical Association; the Albert Lasker Special Public Service Award; Honorary Fellow Award, American College of Preventive Medicine; and the Department of Defense Distinguished Public Service Medal.

Dr. Cooper and his wife, Vivian, have four children. They reside in Kalamazoo, Michigan.

SEARLE

DR. SHELDON G. GILGORE
Chairman of the Board and Chief Executive Officer

Dr. Sheldon G. Gilgore was elected President and Chief Executive Officer of G.D. Searle in February 1986, and Chairman of the Board in May 1986.

Prior to joining Searle, Dr. Gilgore served as President of Pfizer Pharmaceuticals for 15 years and as a member of the Board of Directors of Pfizer, Inc. He joined Pfizer in 1963 as Associate Director of Clinical Research. In 1965 he was named Director of Clinical Pharmacology, becoming Director of Clinical Research the following year. He was appointed Vice President and Medical Director of Pfizer Pharmaceuticals in 1969 and assumed the additional post of Director of Operations for the Roerig Division in 1970.

Prior to joining Pfizer, Dr. Gilgore was an attending physician at Jefferson Medical College Hospital in Philadelphia, Pennsylvania, where he also served as an instructor in medicine.

Dr. Gilgore served with the Army National Guard as battalion surgeon in a missile battalion from 1956 to 1963.

He is a member of the American College of Clinical Pharmacology and Chemotherapy, the American Diabetes Association and the American Federation for Clinical Research. He is also affiliated with the American Medical Association, the American Therapeutic Society and the New York Academy of Sciences and is a member of the Alpha Omega Alpha Honor Medical Society.

Dr. Gilgore is a member of the Boards of Directors of the Pharmaceutical Manufacturers Association, the Chicago Lyric Opera Company, the Evanston Hospital Corporation and the National Museum of Health & Medicine Foundation. He is Chairman of the Board of the Connecticut Grand Opera Inc. and the Pharmaceutical Manufacturers Association Foundation, Inc.

Dr. Gilgore received a B.S. in biology from Villanova University in 1952 and a medical degree from Jefferson Medical College in 1956. His internship and residency in internal medicine as well as fellowship training in endocrinology were also served at Jefferson from 1956 to 1961. He is licensed to practice medicine in Pennsylvania, New York and Connecticut.

Dr. Gilgore was born in Philadelphia February 13, 1932. He and his wife, the former Irma Swartz, live in Winnetka, Illinois. They are the parents of three sons.

GAVIN S. HERBERT

Gavin S. Herbert is Chairman of the Board of Allergan, Inc. -- a global provider of specialty therapeutic products.

Mr. Herbert helped found the company in 1950 and served as Chief Executive Officer from 1961 to 1991. In 1977, he was named Chairman and Chief Executive Officer. He was Executive Vice President of SmithKline Beckman Corporation from 1986 to 1989, and President of SmithKline Beckman Corporation's Eye and Skin Care Products Operations from 1981 to 1989.

Mr. Herbert is currently a trustee of the University of Southern California and on the Board of Directors of Research to Prevent Blindness, the Pharmaceutical Manufacturers Association, Cytel Corporation and Beckman Instruments.

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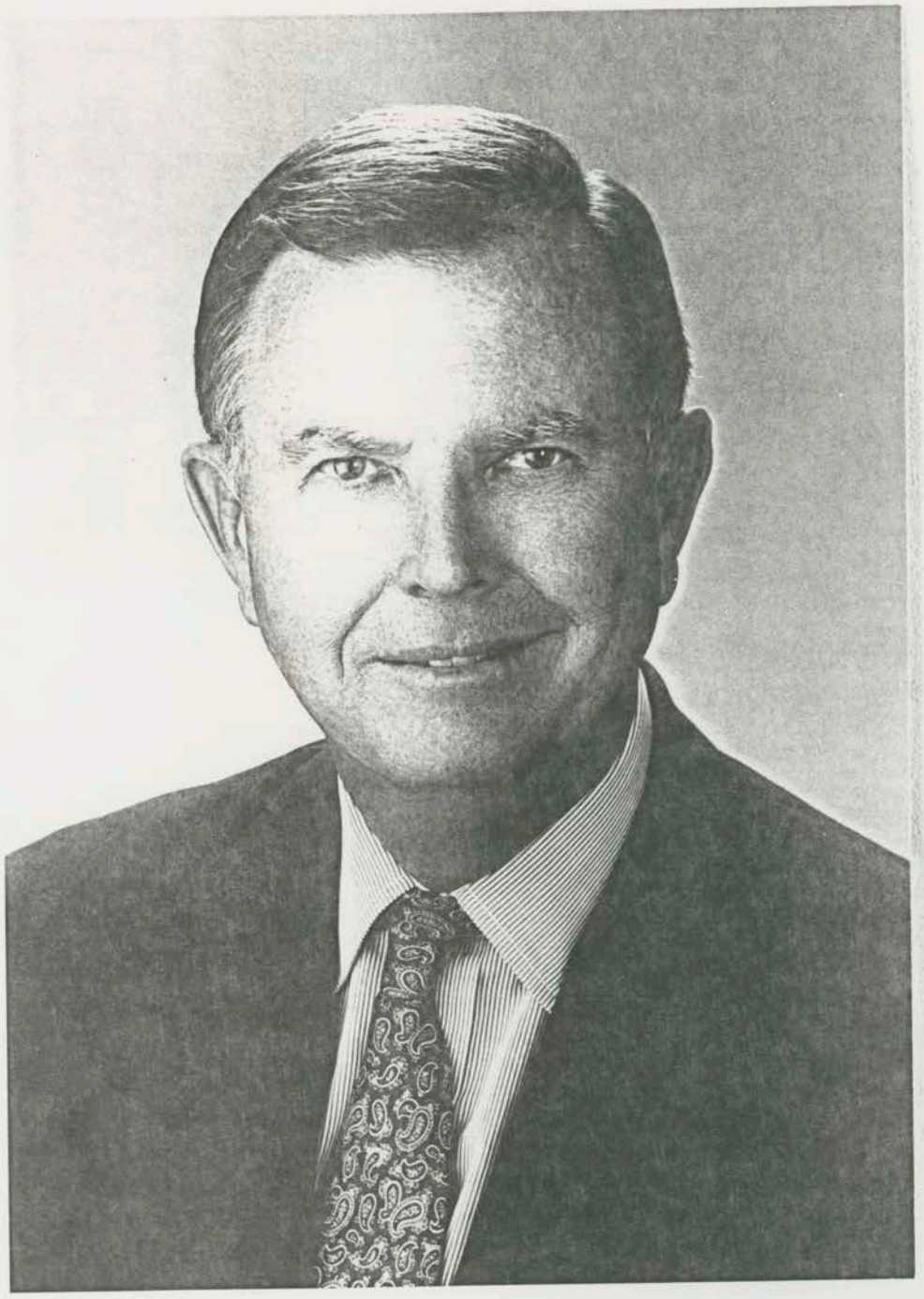

RICHARD J. KOGAN

President and Chief Operating Officer
Schering-Plough Corporation
Madison, New Jersey

Richard J. Kogan is president, chief operating officer and a director of Schering-Plough Corporation, a research-based manufacturer and marketer of pharmaceutical and health care products worldwide.

He is responsible for the Company's pharmaceutical and health care operations in 125 countries throughout the world, and he supervises worldwide pharmaceutical research and the human resources function.

Mr. Kogan was elected to his present position effective January 1, 1986. He had been executive vice president - pharmaceutical operations, a position he had held since joining the Company in April 1982.

He is a director of National Westminster Bancorp Inc. and Rite Aid Corporation. He is also a director of the Pharmaceutical Manufacturers Association and serves on the board of overseers of the Stern School of Business at New York University.

Before joining Schering-Plough, he was president of the pharmaceuticals division of Ciba-Geigy Corporation, where he also served as a corporate vice president and member of that company's corporate management committee.

A native of New York City, Mr. Kogan received his B.A. in economics from City College of the City University of New York and an M.B.A. in management science from New York

- more -

University Graduate School of Business Administration.

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6/91

IRWIN LERNER
PRESIDENT AND CHIEF EXECUTIVE OFFICER
HOFFMANN-LA ROCHE INC.
Nutley, NJ 07110

Irwin Lerner was elected President and Chief Executive Officer of Hoffmann-La Roche Inc. in 1980. He serves on the Board of Directors and is Chairman of the Executive Committee of the Nutley, New Jersey-based
health care company.

Affiliated with Roche for 30 years, Mr. Lerner is actively involved with numerous trade and professional associations. A member of the Board of Directors of the Pharmaceutical Manufacturers Association, Mr. Lerner has served as chairman of the Pharmaceutical Manufacturers Association Foundation. He presently serves as Chairman of the PMA Board Committee on FDA Issues.

Other affiliations include the Council on Family Health, Project HOPE, where he has served on the Board of Directors since 1980, and the International Life Sciences Institute-Nutrition Foundation. He also serves on the Board of Directors of the National Committee for Quality Health Care, Partnership for New Jersey and on the Board of Advisors of the Center for Advanced Biotechnology and Medicine. He has been a member of the Forum on Drug Development of the Institute of Medicine since its inception.

Mr. Lerner was one of the founding members of the New Jersey Governor's Commission on Science and Technology. He played important roles as both a member of the Task Force on Academic-Industrial Innovation Centers and as chairman of its Working Group on Future Fields. He was also a member of the Special Advisory Panel on Biotechnology.

Mr. Lerner received his B.S. and M.B.A. degrees from Rutgers University. He serves on the Rutgers University Board of Trustees, Rutgers University Foundation, Rutgers University Committee on Future Financing, as well as the Dean's Advisory Council of the Graduate School of Management. He also holds an honorary Doctor of Science Degree from the Arnold and Marie Schwartz College of Pharmacy and Health Sciences, Long Island University, and an honorary Doctor of Humane Letters Degree from Rutgers University.

JAN LESCHLY
Chairman
SmithKline Beecham Pharmaceuticals
Executive Member, Board of Directors
SmithKline Beecham

Before joining SmithKline Beecham in his present position in June 1990, Mr. Leschly served as President and Chief Operating Officer, Squibb Corporation. He joined Squibb in 1979 as Vice President, Commercial Development, following seven years with Novo, a Danish pharmaceutical company, where he served as Executive Vice President and President of the Pharmaceuticals Division. In 1984, he was elected Group Vice President and a member of the Board of Directors of Squibb with responsibility for the Worldwide Pharmaceutical Products Group. In 1986, he was elected Executive Vice President with responsibility for the Operating Group. Mr. Leschly is a Danish citizen. Born September 11, 1940 he received his B.S. in Pharmacy from the Copenhagen College and his B.S. in Business Administration from the Copenhagen School of Economics and Business Administration. Mr. Leschly is married and has four sons.

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1/91

MARION MERRELL DOW INC.

Biography

FRED W. LYONS, JR.

Fred W. Lyons, Jr., is president and chief executive officer of Marion Merrell Dow Inc. and a member of its board of directors. He also serves on the board of directors of The Dow Chemical Company.

Mr. Lyons joined Marion Laboratories, Inc., predecessor of Marion Merrell Dow Inc., in 1970 as vice president and general manager. He served in several executive capacities with the company including those of senior vice president, president of the Pharmaceutical Division, executive vice president and chief operating officer. Mr. Lyons was named president of Marion Laboratories in 1977 and chief executive officer in 1984. He became president of Marion Merrell Dow Inc. when the company was formed in December 1989 through the combination of Marion Laboratories, Inc. and Merrell Dow Pharmaceuticals Inc.

Prior to joining Marion, Mr. Lyons was with Alcon Laboratories, Inc. for 11 years, where he last served as vice president-general manager and as a director of Conal Pharmaceuticals, Inc., an Alcon subsidiary.

A graduate of the University of Michigan College of Pharmacy, Mr. Lyons received a master of business administration degree from the Harvard University Graduate School of Business Administration in 1959. In 1989, he was awarded an honorary doctor of Humane Letters degree by Long Island University.

Mr. Lyons served on the board of directors of the Federal Reserve Bank of Kansas City for six years, the last three years as chairman. He also serves on the board of directors of Project HOPE and on the board of trustees of the Midwest Research Institute. He is also a member of the Civic Council of Greater Kansas City. He serves on the Advisory Committee of the Mid-America Heart Institute, was a founding member of the Advanced Coronary Treatment Foundation and served as a director of the American Royal Association.

Mr. Lyons also is a member of the board of directors of the Pharmaceutical Manufacturers Association, is chairman of its Pharmacy Liaison Committee and has served on its Executive Committee and as chairman and treasurer of its Finance Committee.

Marion Merrell Dow is a global pharmaceutical firm whose business activities focus on the discovery, development, manufacturing and marketing of prescription and over-the-counter pharmaceutical products. The company markets more than 140 products, predominantly in the United States and seven other countries in North America, Europe and the Pacific Basin.

Richard J. Markham
Senior Vice President, Merck & Co., Inc.
and
President, Merck Human Health Division

Richard J. Markham was elected a Senior Vice President of Merck & Co., Inc., and President of the Merck Human Health Division in April 1991.

Mr. Markham joined the worldwide health products firm in 1973 as a Professional Representative for the Merck Sharp & Dohme (MSD) Division. At MSD, he held positions of increasing responsibility, including District Manager, Product Manager, Executive Director for Marketing Planning and Vice President of Marketing. In 1989, Mr. Markham was promoted to Senior Vice President-Europe for the Merck Sharp & Dohme International Division.

Mr. Markham received a bachelor's degree in Pharmacy from Purdue University in 1973 and is a member of the Sigma Alpha Epsilon Fraternity. He is a member of the Pharmaceutical Manufacturers Association Board of Directors. He also serves on the Dean's Advisory Council for the Purdue University School of Pharmacal and Pharmaceutical Sciences.

He lives in Annandale, New Jersey, and has two children. He is married to the former Susan Ray.

Mr. Markham was born on September 26, 1950, in Hornell, New York.

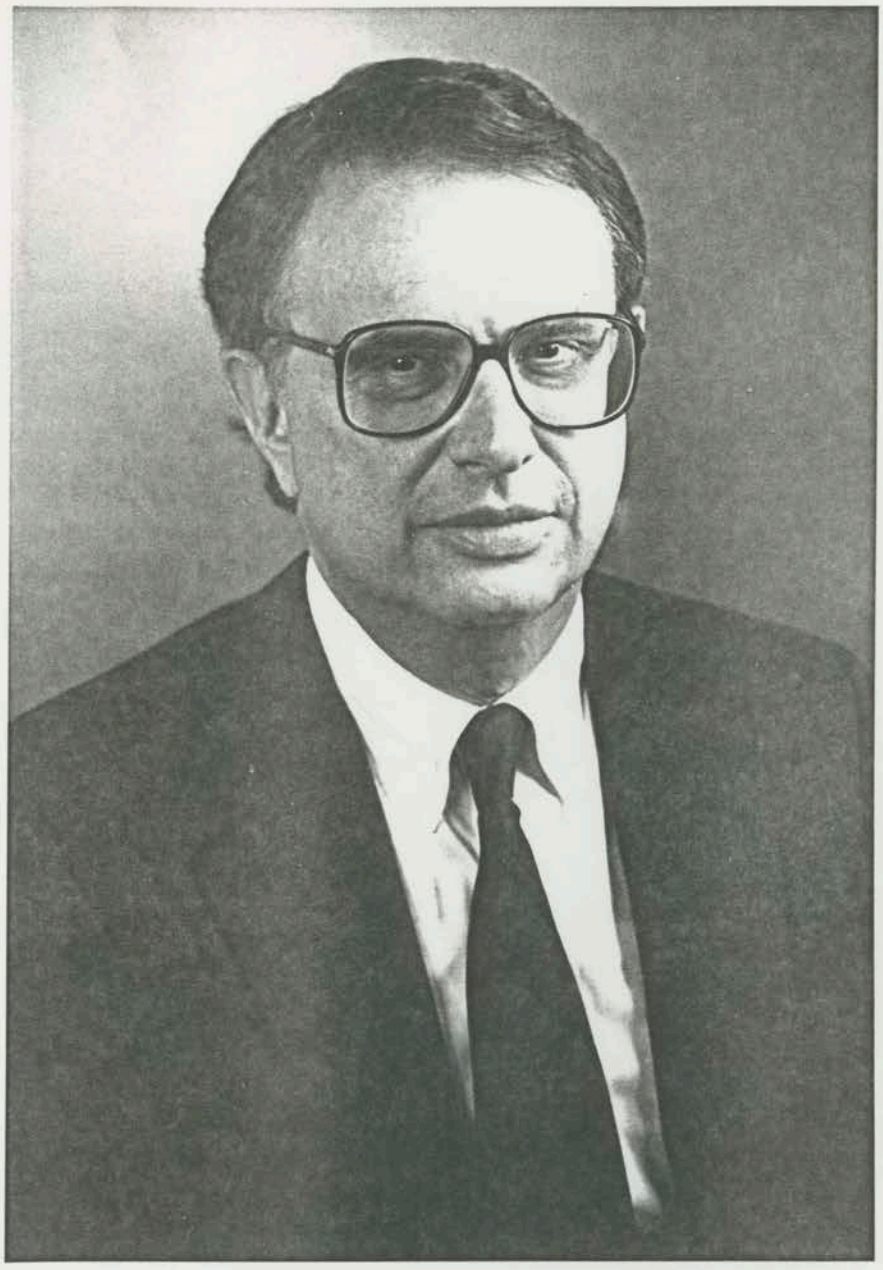
G. KIRK RAAB

G. Kirk Raab joined Genentech, Inc. in February of 1985 as president, chief operating officer, and a director. He was elected president and chief executive officer in February 1990. A 30-year veteran of the pharmaceutical industry, he has brought his experience in marketing various forms of health care products, managing manufacturing operations, research and commercial development and extensive international experience to build Genentech's strengths in those areas.

Prior to joining Genentech, Raab worked for Abbott Laboratories for 10 years, most recently as president, chief operating officer and a director. Prior to that appointment in July 1981, Raab was corporate executive vice president following positions as vice president, international operations and vice president, Latin America.

In addition, Raab held previous management and marketing positions at Pfizer, A.H. Robins and Beecham, respectively.

Raab has a bachelor's degree from Colgate University, in Hamilton, New York, where he is a member of the Board of Trustees. He serves on the Board of Overseers for the University of California at San Francisco, is a member of the board of directors of the California State University Foundation, is a trustee of the San Francisco Ballet, a member of the Board of Directors of Cholestech, Inc., Oclassen Pharmaceuticals and Shaman Pharmaceuticals, Inc.



CHARLES A. SANDERS, M.D.

Chairman and Chief Executive Officer, Glaxo Inc.

Charles A. Sanders, M.D., is chairman and chief executive officer of Glaxo Inc. He also is a member of the board of Glaxo Holdings p.l.c. and chairman of Glaxo Canada.

Before joining Glaxo Inc., Dr. Sanders spent eight years with Squibb Corp., where he held a number of posts including the position of vice chairman. He also served as chief executive officer of the science and technology group and chairman of the board of the Science and Technology committee. Previously Dr. Sanders was general director of Massachusetts General Hospital and professor of medicine at Harvard Medical School.

A native of Dallas, he is a graduate of Southwestern Medical College of the University of Texas. During his 25 years in academic medicine, he has served on the visiting committee to the Alfred P. Sloan School of Management at Massachusetts Institute of Technology and on the board of directors of the Associates of Harvard Business School.

Among his professional associations, Dr. Sanders is a member of the Institute of Medicine of the National Academy of Sciences. He is chairman of the New York Academy of Sciences, a trustee of the National Humanities Center, a director of Project Hope, and a director of the Commonwealth Fund. In addition, he is a director of Merrill Lynch & Co., Morton International Inc., and Reynolds Metals Company.

He and his wife, Ann, have four grown children. They live in Durham, N.C.

1/17/92

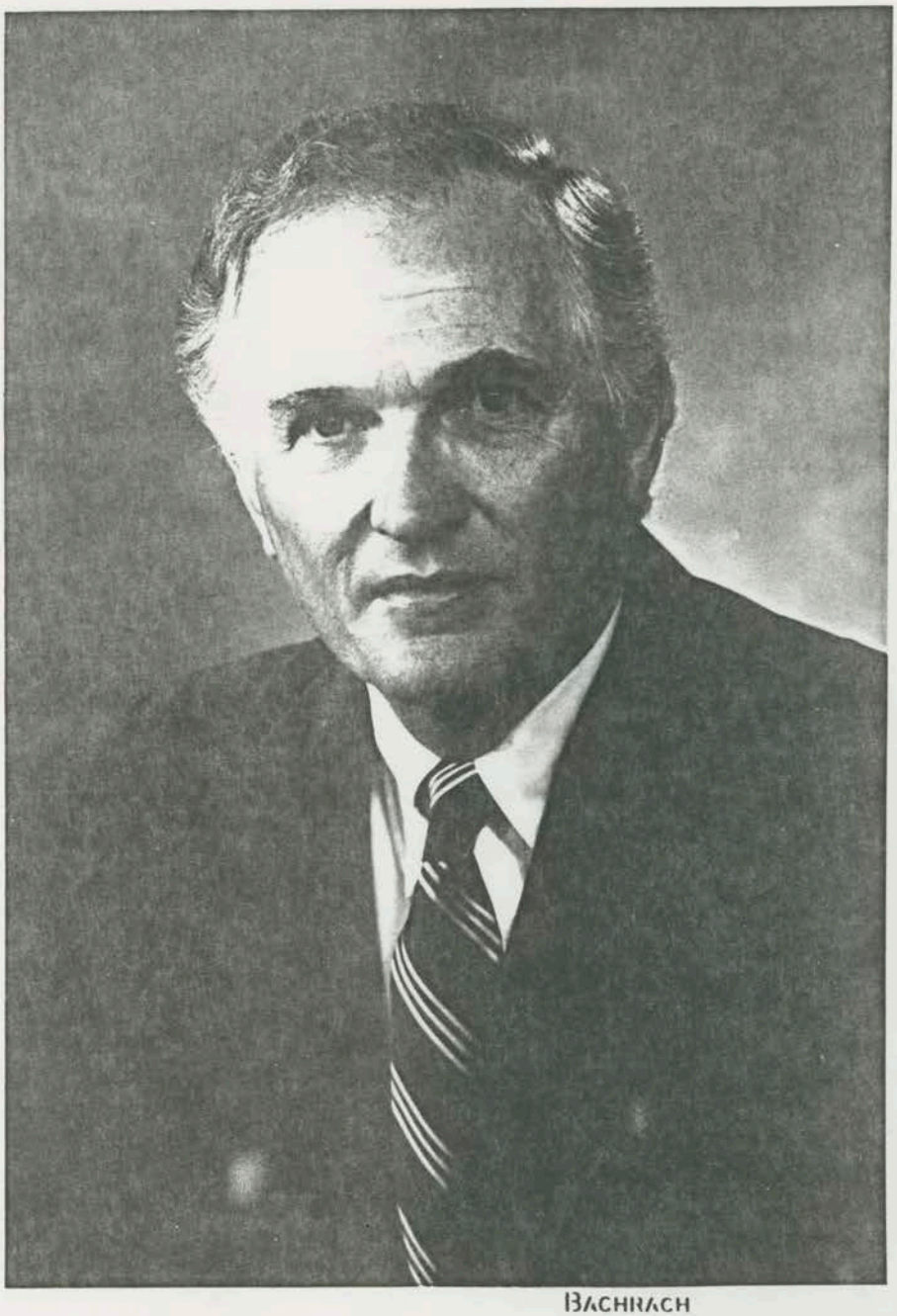
JOHN R. STAFFORD - BIOGRAPHY

John R. Stafford joined American Home Products Corporation in 1970 as General Counsel. He was elected a Vice President in 1972, a Senior Vice President in 1977, Executive Vice President and a Director in 1980, President in 1981, and in December 1986 acquired the additional titles of Chairman and Chief Executive Officer.

He is a 1959 graduate of Dickinson College, Carlisle, Pennsylvania where he played football and lacrosse. Mr. Stafford received his LL.B. with distinction at The George Washington University Law School where he served as Editor-in-Chief of the The Law Review and was elected to the Order of the Coif. From 1962 through 1966 he was associated with the Washington, D.C. law firm of Steptoe & Johnson. From 1966 through 1970, he was a member of the legal staff of Hoffmann-La Roche, Inc., Nutley, New Jersey.

In addition to American Home Products Corporation, Mr. Stafford serves on the Board of Directors of Chemical Banking Corporation, Manufacturers Hanover Trust Company, Chemical Bank, the Board of Directors of Metropolitan Life Insurance Company, the Board of Directors of NYNEX Corporation, the Board of Directors of the Pharmaceutical Manufacturers Association, the Board of Directors of the Grocery Manufacturers of American, Inc., the Board of Trustees of The Presbyterian Hospital in the City of New York, the Advisory Board of the American Paralysis Association, the Board of Directors of the Central Park Conservancy, and is a member of the American and District of Columbia Bar Associations.

Mr. Stafford lives in Essex Fells, New Jersey with his wife, Dr. Inge P. Stafford. They have four daughters.



WILLIAM C. STEERE, JR.

William C. Steere, Jr. is chairman of the board and chief executive officer of Pfizer Inc. He has been a member of the Board of Directors since 1987.

Mr. Steere began his career with Pfizer in 1959 as a medical service representative and moved through sales management and headquarters product management. His 1969 promotion to director of marketing for Pfizer Latin America expanded his business experience to include international marketing. In 1972, he returned to domestic pharmaceutical management as vice president-general manager of Roerig. He was promoted to vice president and general manager for Pfizer Laboratories in 1980 and elected a corporate vice president of Pfizer Inc in 1983.

He was named president of Pfizer Pharmaceuticals Group in February 1986. He was elected president and chief executive officer in February 1991 and chairman in March 1992.

Mr. Steere is chairman-elect of the Board of Directors of the Pharmaceutical Manufacturers Association. His other outside board memberships include the New York Botanical Garden, the American Diabetes Association, the Connecticut Mutual Life Insurance Co., the Regional Plan Association, the U.S. Council for International Business, WNET-Thirteen, the Business Council and The Business Roundtable.

Mr. Steere graduated from Stanford University with a B.A. in Biology in 1959. He and his wife, Lynda, have three sons and live in Darien, Connecticut.

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3/1/92

EUGENE L. STEP

Eugene L. Step has been executive vice president of Eli Lilly and Company since January 1, 1986. He is also president of the Pharmaceutical Division of Eli Lilly and Company. Mr. Step was elected to the company's Board of Directors and executive committee in 1973. He has responsibility for pharmaceutical operations in the United States and for the operations of Eli Lilly International Corporation. He is chairman of the board of directors of Eli Lilly International Corporation.

Born in Sioux City, Iowa, Mr. Step was graduated from high school in Omaha, Nebraska, in 1947. He received a Bachelor of Arts degree in economics from the University of Nebraska at Omaha in 1951 and a Master of Science degree in accounting and finance from the University of Illinois in 1952.

After serving in the Finance Corps of the United States Army for three years, Mr. Step was discharged in 1956 with the rank of first lieutenant. He joined Eli Lilly International Corporation that year as a staff auditor and later held various supervisory positions, including general auditor and manager of market research.

In 1964 Mr. Step was named director of marketing planning for Europe. He became general manager of operations in France in 1966 and area director for northern Europe in 1968. In 1969 he returned to the U.S. as Director of Elanco International. The following year he became vice president of marketing planning for Lilly International and assumed responsibility for operations in Continental Europe, North Africa, and the Middle East in May 1972. Mr. Step was named vice president of marketing development and planning for the parent company in September 1972. He became president of the Pharmaceutical Division in August 1973.

Mr. Step serves on the board of directors of the Pharmaceutical Manufacturers Association and is President of the International Federation of Pharmaceutical Manufacturers Associations. He is a member of the boards of directors of Paul Harris Stores, Inc., Voluntary Hospitals of America, Voluntary Hospitals of America Enterprises, and the American Foundation for Pharmaceutical Education, and is a trustee of the National Foundation for Infectious Diseases.

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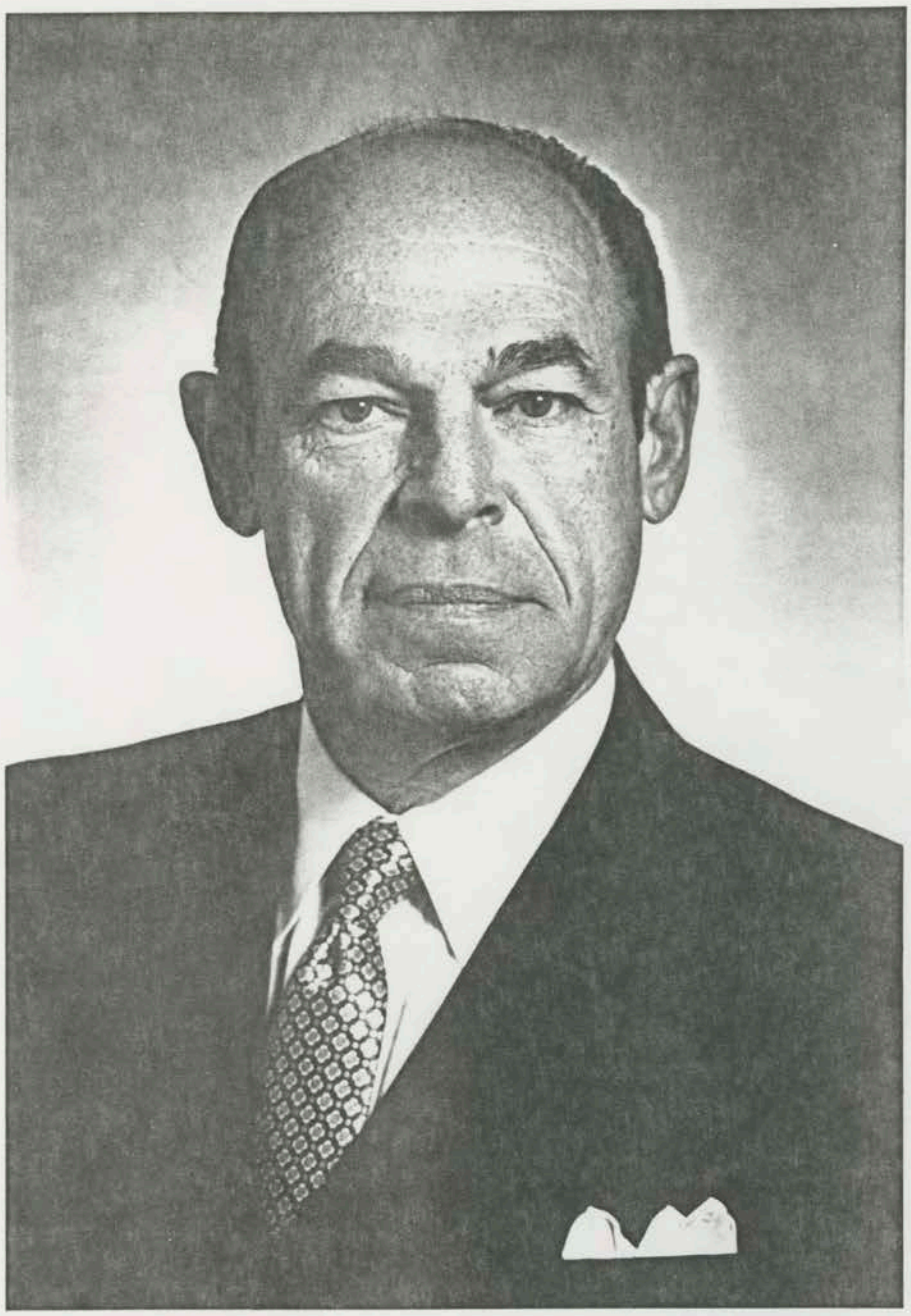
10/1/90



CIBA-GEIGY

Biography

DOUGLAS G. WATSON - VICE PRESIDENT
CIBA-GEIGY CORPORATION
PRESIDENT
PHARMACEUTICALS DIVISION

Douglas G. Watson became President of the Pharmaceuticals Division of CIBA-GEIGY Corporation, headquartered in Ardsley, New York, on April 1, 1986. At that time, he was appointed a Corporate Vice President and member of the Management Committee. Mr. Watson serves as Chairman of the Pharmaceuticals Management Committee and on January 1, 1991, became a member of CIBA-GEIGY's board of directors.

Born in Scotland, Mr. Watson studied mathematics at Churchill College, Cambridge University, graduating with an M.A. degree. He then joined Geigy (U.K.) Limited in 1966, first working in Operations Research and then in Corporate Planning. In the meantime, he studied and became a qualified accountant (ACMA).

Mr. Watson then spent one year working at CIBA-GEIGY Limited in Basel as the U.K. representative on an international accounting development team. He returned to the U.K. in 1973 as Accounting Development and Investment Appraisal Manager and subsequently Headquarters Management Accountant.

-over-

In 1978, he returned to Basel as Personal Assistant to the Chairman of the Executive Committee. In 1981, he joined the U.S. Pharmaceuticals Division as Senior Vice President of Planning and Administration and a member of the Pharmaceuticals Management Committee.

Mr. Watson was elected to the Board of Directors of the Engelhard Corporation in May 1991.

CIBA-GEIGY Corporation is a leading developer and manufacturer of pharmaceuticals, agricultural and specialty chemicals, and vision care products in the United States. It is a wholly-owned subsidiary of CIBA-GEIGY Limited of Basel, Switzerland.

June 1991