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NEWS AND COMMENT

Auto Safety: Coleman to Act on Controversial Air Bag Issue

I had dozed for a moment after a hard day in the office, but awakened in time to see that I was driving into a large city metro bus. . . . I never saw the air bag inflate or deflate, nor did I feel or hear it, it was so fast. My glasses were not broken. I felt stunned and amazed to be uninjured and alive.—ARNOLD V. ARMS, a Kansas City physician, testifying on 3 August at a hearing conducted by the Secretary of Transportation on possible amendments to standards issued under the National Traffic and Motor Vehicle Safety Act of 1966.

Since crashing head-on into that city bus in October 1975, Arnold Arms has been trying to get air bags for his new car, but without success. Neither General Motors—which for a few years offered air bag systems as a $315 option on some of its luxury cars—nor any other automobile manufacturer is now offering these protective devices, either as standard or optional equipment. "I decry the lack of human interest [by the auto manufacturers] in the death and mutilation on the highways," Arms said.

As an answer to societal problems, the "technological fix" has often been oversold. But many advocates of highway safety have been convinced for nearly a decade now that the air bag system—a relatively simple system consisting of a deceleration sensor and inflatable bags that cushion the driver and front seat passengers in frontal collisions—is one very real answer to the carnage on the highways.

Highway smashups are such a common, everyday phenomenon that there are probably few adults living in America today who, even if they have escaped involvement in a serious accident themselves, have not known a relative or friend either to die in one or suffer cruel and perhaps crippling injuries. Although highway deaths and injuries have been reduced in number by the 55-mile-per-hour speed limit and the vehicle safety improvements mandated in recent years by federal law, the annual toll remains high, with more than 45,000 persons killed and several million injured.

The National Highway Traffic Safety Administration (NHTSA) estimates that about a third of the some 27,000 fatalities suffered by drivers and passengers in automobile accidents in 1975 could have been prevented had air bags and automatic safety belts—another "passive restraint" system that does not have to be buckled up by front seat occupants—been in general use.* The 400,000 serious injuries that occurred could also have been greatly reduced.

The automobile industry's unwillingness to put passive restraint systems into all their cars forthwith, and the fact that the federal government has not yet required them to do this, has been regarded as an outrage by some public health epidemiologists and insurance underwriters, as well as by activists such as Ralph Nader and Clarence M. Ditlow III, executive director of the Nader-founded Center for Auto Safety.

Secretary of Transportation William T. Coleman, Jr., has now promised to act on this issue before the year is out. But, while a ruling directing the automobile industry to begin installing passive restraint systems by the 1980-model year is a real possibility, it is by no means a foregone conclusion. The automobile industry strongly opposes issuance of such a ruling and its leaders carry plenty of political weight at the White House.

The first air bag system was patented in 1952, and, since then, this system's technical feasibility seems to have been established. Air bags have been installed in some 12,000 cars—about 10,000 of them sold by General Motors—and the experience to date, while limited, indicates that they are dependable and effective in frontal and front-angle crashes, which are the only kind for which they are designed to cope.

Why Detroit is opposing issuance of a safety standard requiring air bags is not altogether clear, for the industry's stand may stem as much from an aversion to regulation as from any real or alleged disadvantages associated with the devices. A major disadvantage cited by the industry is that the air bag does not constitute a truly passive restraint system requiring nothing of the driver or front seat passenger to be effective.

All agree that lap belts should be used with this system for the protection of front seat occupants in side-impact and rollover crashes and in those frontal crashes occurring at speeds too low to trigger the bag's deployment. Indeed, a safety standard making air bags standard equipment on new cars would be coupled with one retaining lap belts.

Industry spokesmen argue, therefore, that the air bag system demands as much of drivers and passengers as the lap and

*The automatic belt, which plays in and out on an inertial reel and locks in place when the driver or passenger closes the door, is now offered as standard equipment on the deluxe model of the Volkswagen Rabbit; this system is adaptable, however, only to cars with bucket seats.

shoulder belt combination, which they regard as much cheaper and about equally effective in the protection offered in frontal crashes. The industry also objects to issuance of a standard requiring air bags on various other grounds, some having to do with equity and "freedom of choice" for those car buyers who would prefer to rely on safety belts.

More generally, the industry simply holds that, if air bags are ever to be required as standard equipment on most new cars, it should not be until there has been much more practical experience with them. And, to that end, the industry appears generally to favor the idea of the government's undertaking a major test of air bag and other passive restraint systems, perhaps by ordering a large number of air bag–equipped cars for government fleets and monitoring the experience with them over a period of 5 years or so.

Yet, even if Secretary Coleman gives great weight to the industry arguments against requiring early installation of air bags, he may find that he faces a Hobson's choice, for substantial doubts have been raised as to the efficacy of the other alternatives open to him.

The auto manufacturers want the secretary to allow them to continue providing only the current "active" restraint system: the lap and shoulder belt combination which has to be buckled up. Besides being cheaper than the air bag, this system offers the advantage of holding vehicle occupants in place in all types of crashes. But its great disadvantage is that it is actually used by not more than 20 to 30 percent of drivers and passengers, according to the best available estimates. The industry maintains that, with improved and more comfortable belt systems, usage is increasing, but the NHTSA estimates that, at best, voluntary usage will never exceed about 40 percent.

The secretary could urge Congress to make seat belt usage mandatory, but in light of Congress' recent record, this would appear futile. Responding to angry and exasperated protests from constituents, Congress in 1974 did away with the "ignition-interlock" that kept motorists from starting their cars without buckling their seat belts; at the same time, it declared that, in the future, no safety standard pertaining to passenger restraint systems shall go into effect until Congress has had time to review and perhaps disapprove it. This year Congress has prohibited the Department of Transportation from requiring motorcyclists, among whom serious and often fatal head injuries are endemic, to wear helmets.

Coleman's other few alternatives also have serious drawbacks. He could require the auto manufacturers to offer passive restraint systems as optional equipment; but this would offer only a very limited advantage because, in the case of air bags, the per unit cost would probably be discouragingly high.

Or he could propose—at the same time he announced a continuation of existing standards—a $50-million to $150-million program of field testing of the kind referred to earlier. Here the drawback is that, for the most part, realization of the air bag's life-saving potential would be long deferred.

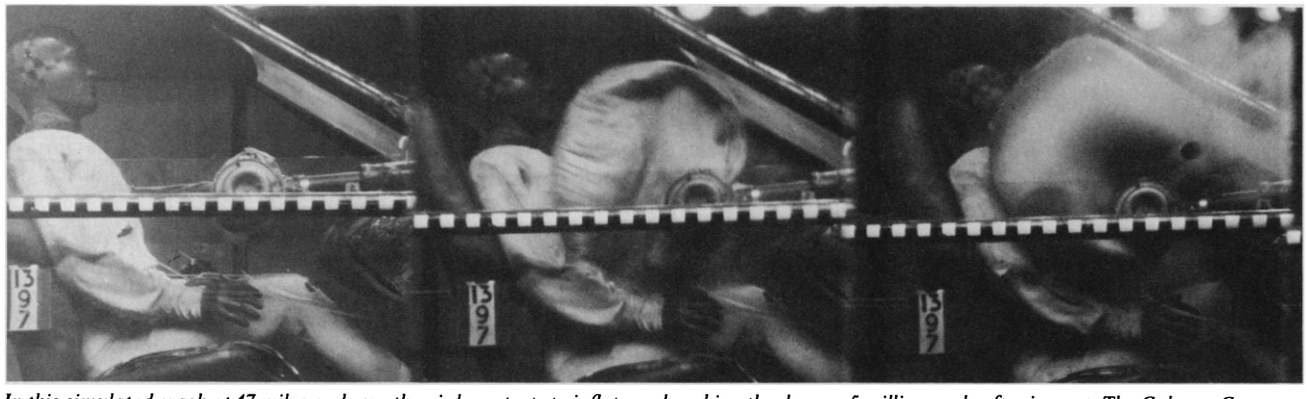
The last three directors of the NHTSA or its predecessor agency have wanted installation of air bags made mandatory. In fact, in 1971 the then secretary of transportation, John Volpe, decided on the advice of his traffic safety administrator that all new cars would come equipped with these devices, beginning with 1973 or 1974 models. But while a federal appeals court—acting in a lawsuit brought by the Chrysler Corporation—approved the new safety standard requiring air bags in principle, it ruled that this standard could not be imposed until inadequacies in the dummy tests used to assess the air bag's effectiveness were overcome.

After this setback, a stopgap measure was adopted for 1973 model cars—front seat occupants who failed to buckle their seat belts were subjected to a continuous buzzer unless they contrived (as many car owners did) to disconnect or otherwise outwit this device. Then, as the NHTSA and the Department of Transportation began moving toward the issuance of an air bag standard for 1974-model cars, the Nixon White House, at the urging of auto industry officials, directed that the ill-fated ignition-interlock system be required instead.

Secretary Coleman is aware that, if he does rule that passive restraint systems must be installed (for most cars, this probably would mean air bags), Congress or the courts may undo what he has done. But, with the impending shift to smaller cars mandated by new federal fuel economy standards, the problem of highway safety is becoming increasingly urgent.

At the August hearing on safety standards, John Z. De Lorean, formerly a top executive with General Motors who (unlike GM's present leadership) strongly advocates air bags, reported on a study done for Allstate Insurance by his new enterprise, De Lorean Motor Company. "Unless we act now to guarantee passive restraint protection," he said, "this country will experience a 35 percent increase in injuries and deaths over the next 10 years, contributed to significantly by a switch to smaller cars."

The industry argument that air bags are not really an effective passive restraint system is, as auto safety activists maintain, something of a canard. More than half of all highway fatalities occur in frontal or front-angle crashes, and there is simply no question whatsoever but that, in the event of such a crash, a motorist is far more likely to survive or escape serious injury if his car has air bags



In this simulated crash at 47 miles an hour, the air bag starts to inflate and cushion the dummy 5 milliseconds after impact. The Calspan Corporation of Buffalo, New York, conducted the test on its high-energy impact machine.

than he is if protected by no restraint system at all. Moreover, to judge from sled impact tests conducted by highway safety laboratories, he is at least somewhat safer than he would be if he were wearing the lap and shoulder belt combination. An air bag absorbs impact forces more gently than do belts and from a larger area of the body—and, the greater the impact speed, the more important this is believed to be.

It is true, however, that no statistically significant comparison between the effectiveness of air bags and that of belts can be drawn from the experience with the limited number of cars equipped with air bags to date. About all one can say is that, in the 89 crash situations in which air bags are known to have deployed, most of the drivers and front seat passengers escaped with either no injuries or only minor ones.

Four persons were killed in these crashes, but none of the fatalities was at-

CEQ Chairman to Head Citizens Lobby on World Problems

Russell Peterson, chairman of the Council on Environmental Quality (CEQ) plans to leave his position at the end of this month and become director of a new citizens lobbying group called New Directions.

"I'm quitting because of a great opportunity," Peterson told *Science*. Up until some weeks ago he had never even heard of the nascent organization. He found out during a lunch with World Bank president Robert McNamara, one of the original minds behind the operation. A whirlwind courtship with the founders ensued, which culminated with plans for Peterson to take over presidency of the organization on 1 October.

New Directions is to be closely modeled on Common Cause, the citizens lobby set up by John W. Gardner in 1970. The new group, however, will concern itself with global problems. "We plan to fly under four banners," said Peterson. The goals are "to help the poorest of the poor to help themselves; to protect and enhance the environment; to reduce the risk of war and violence; and to safeguard basic human rights." The organization plans to zero in on a few major "targets" at a time—arms sales, for example, or problems of plutonium recycling—and mobilize members to put pressure on legislators and do whatever else they can think of. Peterson says the goal is to get 100,000 members in the first year of operation. The organization plans to support itself on annual dues of $20 apiece. Peterson says New Directions wants to form links with citizens organizations around the world and hopes to stimulate the development of New Directions–type groups in other lands.

An Elite Cast

A fairly impressive selection of people, many of them veterans of past Democratic administrations, are behind the grandiose new plans. Convenors of the planning commission were Theodore Hesburgh, president of the University of Notre Dame, and publisher Norman Cousins. It was chaired by William Roth, a California businessman and environmentalist who ran against Governor Jerry Brown in the Democratic gubernatorial primary. Other participants, in addition to McNamara, are anthropologist Margaret Mead; former Treasury Secretary Douglas Dillon; John Gardner; former deputy defense secretary Cyrus R. Vance; Jack T. Conway, former president of Common Cause; and Joseph Slater, president of the Aspen Institute for Humanistic Studies.

Roth says the planners were looking for a leader who was "really devoted" to the issues in question and who also had experience in government and in dealing with legislatures. Peterson apparently filled the bill perfectly.

Peterson is all bright-eyed about his new job and says, "If I sat down to write what I wanted to do for the rest of my career I couldn't have done better." Peterson has been concerned about global problems, long-range planning, and the need for a "holistic" approach to decision-making since his days as a chemist at the Du Pont Company.

A former Republican governor of Delaware, Peterson has presided over CEQ during a time of its having relatively low visibility, in contrast to the period when the council was rushing to take new initiatives in the years immediately following the passage of the National Environmental Policy Act in 1969. Peterson said he thought the most important thing the CEQ has done during his 3-year tenure has been "to teach the country something about environmental economics." He said there has been "much misunderstanding" about the effects of environmental cleanup on the economy, but he now believes "the tide has turned," and Americans now realize that when the quality of life is put into the equation, implementation of environmental legislation has had a positive impact on the economy.

On the other hand there have been disappointments. The two major ones perhaps involve the failure of the Administration to support the kind of land use policy and toxic substances control laws Peterson has been pushing for. The Office of Management and Budget recently restated the Administration's opposition to a compromise toxic substances bill that has passed the House and has even been endorsed by the Manufacturing Chemists' Association.

New Directions does not as yet have any specific plans. Peterson says it will not have any research capability but wants to "tap the knowledge and proposals of existing research and educational organizations in the international field."

Roth said the new organization will "tie together a range of diverse issues" some of which are now the focus of special groups, and others which do not now have a coherent constituency in this country, such as poverty and the transfer of resources in underdeveloped countries. It would be in a position, he says, to develop stands on matters that go beyond the concerns of U.S. foreign policy. It would exert pressure on the Executive Branch of government as well as Congress. It would provide a recourse, for example, for someone interested in seeing a change in this country's food aid policies. It would also offer a channel for translating domestic environmental concerns into the international arena.

New Directions, to be headquartered in the same building as Common Cause, will have a small staff of no more than seven or eight and much of the work will be contracted out. Official announcement of its formation, including the membership of its board of directors, is scheduled for mid-October.—C.H.

tributable to a failure of the air bag system. In two instances, the crash was so severe the passenger compartment was destroyed; in another, a 6-week-old infant was fatally injured during pre-collision braking; and, in the fourth case, the victim was seen slumped over the steering wheel at the time of impact and may already have been dead.

Some people have worried that air bags might "go off" inadvertently, and this concern has been given some not very subtle encouragement from Detroit. A Ford Motor Company ad several years ago suggested: "Imagine driving along at 60 miles per hour and suddenly having an enormous pillow thrust in your face." The fact is, only six inadvertent deployments have occurred in some 240 million vehicle miles of experience with air bags. Three of the six occurred while the cars were being worked on by mechanics who were unfamiliar with the air bag system. One of the other deployments was attributable to a fire and explosion in the vehicle and the remaining two resulted from manufacturing defects.

Inasmuch as most of the operational experience with air bags goes back no further than 1974, the question has been raised whether they will remain ready to perform properly throughout the 10- or 11-year life of the automobiles in which they are installed. For instance, at the air bag hearing last month, Nicholas Perrone, director of the structural mechanics program at the Office of Naval Research, expressed the view that the public cannot be expected "to actively maintain the viability" of this system.

Yet, as air bag proponents point out, the problem of keeping air bag systems in working order might be no greater than that of maintaining belt systems, which can jam or fail if not properly looked after. In any case, the maintenance problem can perhaps be dealt with by the states through the same kind of vehicle inspection programs used in checking on brakes, lights, and other safety equipment. The air bag system offered by General Motors as an option came with a diagnostic circuit and warning light, and this would be an essential feature should installation of air bags be required.

If Secretary Coleman does in fact order air bags installed, it will necessarily lead to an increase in the price of new cars, and the only question is how much. Nader insists that it could be less than $100, while Ford Motor Company officials say it would be more than $300 (the NHTSA's estimates fall between $100 and $200).

Such an order by the secretary would also represent a restriction by government on the car buyer's, as well as the auto companies', freedom of choice. But much more is involved in auto safety regulation than the government's deciding for the car buyer what safety equipment will serve him best.

Car Poolers and Drunken Revelers

Cars are ridden in by the very young and the very old, by car poolers, by adolescent hell-raisers and drunken revelers, and by others who have had no say in how a particular vehicle is equipped. Moreover, small children and even many adults simply cannot or will not buckle up seat belts. In a collision, their fate may turn on whether the Secretary of Transportation has decided that every new car shall have passive restraint systems.

In addition, if hundreds of thousands of avoidable deaths and serious injuries occur every year from a failure of automobile safety regulation, the effects are widely felt, as in the added demand for health and welfare services and in the cost of insurance. At Coleman's hearing, Richard G. Chilcott, senior vice president of Nationwide Insurance Companies, said that his firm is allowing policyholders whose cars are equipped with air bags 30 percent off on coverage for personal injury, medical payments, and family compensation. "If air bags were installed in all cars for drivers and front seat passengers, consumers could save $1.9 billion in auto insurance costs annually," Chilcott said.

In taking his turn at the secretary's hearing, Nader was at his most provocative. What the pending rule-making on passive restraints really came down to, he said, was whether Coleman had "the moral fortitude to stand up to the giant auto companies and the White House that has served them so faithfully in the last few years."

As the situation is viewed by Clarence Ditlow, of the Center for Auto Safety, Coleman should even go beyond requiring installation of passive restraint systems by also calling upon Congress to make seat belt usage mandatory. Once passive systems are required, it will take more than a decade for cars equipped with such systems to replace those not so equipped. In the interim, a seat belt law might bring usage up from the present 20 percent to perhaps 70 percent, the level of compliance reportedly attained in Australia and some other nations that have enacted laws of this kind. Where new legislation is concerned, however, Secretary Coleman lacks the power of decision and can only resort to exhortation. But, as for issuing a passive restraint standard for new cars, the secretary already has the statutory authority to crack the whip over the lions in Detroit and all he need do is to use it.

—LUTHER J. CARTER

Crops and Climatic Change: USDA's Forecasts Criticized

How prepared is the United States for weather fluctuations and accompanying food shortages? This question is being raised more and more insistently by a number of leading climatologists who believe that weather in the Northern Hemisphere is worsening, and that the crop-estimating policies of the U.S. Department of Agriculture (USDA) are inadequate to deal with this new climatic situation.

The USDA makes monthly, seasonal, and annual forecasts of crop yields of the United States and the rest of the world. They constitute the most thoroughly researched and widely respected information on future food supplies available. USDA's projections are the model for similar ones made by the United Nations and other international groups. And, all the estimates are based on the assumption that the weather will be normal.

The forecasts, compiled at specific times in the growing season, are kept confidential until their release, when they have an undoubted impact on the commodity markets. The estimates of