abroad, although this amounts to only 9 percent of their total R & D expenditures. The pharmaceutical industry, Simmons averred, "remains one of the healthiest and most profitable industries of the nation."

Other witnesses at the Senate hearing generally supported the FDA, the consensus being that the agency's execution of the 1962 amendments had done far more good than harm. Even Joseph Stetler, president of the Pharmaceutical Manufacturers Association (PMA), said he was not calling for repeal of the 1962 laws. Stetler did point out that, of 70 new drugs discovered by American companies between 1967 and 1971, 47 were first marketed abroad, to be accepted in this country only after delays of months or years and that "even if everything we do here is necessary and correct, it is agonizingly and unnecessarily slow."

Another witness, Daniel L. Azarnoff, professor of medicine at the University of Kansas Medical Center, said that the United States approves new drug applications significantly later than does England, and the American public is obviously deprived of these agents for varying periods of time. But the physical harm done to the public, Azarnoff said, is "probably minimal, although the monetary cost I suspect is significant."

In a recent spat in the letters columns of *Newsweek*, Friedman accused FDA Commissioner Edwards of answering his article with a "bureaucratic conditioned reflex." The FDA is more used to being attacked, in public anyway, from the consumer rather than the industry side. Peltzman's "brilliant" analysis has not yet been published, which saved the FDA from having to answer on possibly embarrassing points of detail. But as for answering the general thesis at least, its reflexes seem to have been quite effective.—NICHOLAS WADE

Endangered Species: Diplomacy Tries Building an Ark

For the humpback whale, a host of spotted cats, and a passel of rare orchids—among dozens of other endangered animals and plants—an international diplomatic conference at the State Department in Washington this month may provide the last, best hope for survival as a species.

Formally, the meeting is described as the Plenipotentiary Conference to Conclude an International Convention on Trade in Certain Species of Wildlife. Less formally, it is a semipublic conference to complete some of the unfinished business left over from the United Nations' environmental meeting at Stockholm last June; it began on 12 February, and from then until 2 March, the delegates from some 100 nations will spend several hours a day thrashing out the final and, in many respects, most crucial details of an agreement to protect endangered species that has been evolving at the glacial pace of international diplomacy since 1963.

If it all goes as U.S. officials hope and expect, the 100 nations, including East Germany and the Soviet Union, will formally initial on 2 March an agreement to establish the most sweeping global mechanism yet devised for regulating international commerce in specimens and products of rare wildlife. The "working draft" convention presently on the table contains obvious limitations and some latent loopholes whose breadth will be determined by the conference delegates and their technical advisers over the next 2 weeks. The final product "probably won't satisfy everybody by a longshot," Russell Train, the chairman of the President's Council on Environmental Quality, told a recent news conference. "But it must be viewed as a tremendously important beginning."

Or, as an Interior Department official described his expectations, the convention "will not be solely responsible for salvaging anything. But we hope it will help save something."

In essence, the proposed convention would establish an internationally run system of export and import permits to regulate trade in plants and animals specifically listed in the agreement as being endangered. As it is now worded, the agreement proposes neither quotas for the "harvesting" of endangered wildlife nor direct prohibitions on the killing or collecting of protected animals and plants. In two alternative preambles, however, the agreement does express a need to recognize the esthetic, economic, nutritional, and scientific value of wildlife and the consequent need to preserve it.

To accomplish this, the agreement proposes two parallel sets of controls—one pertaining to a list of animals and plants that are declining in numbers but not threatened with extinction and a second, stricter set of controls pertaining to species whose survival is in question.

In either case, each individual nation (or an internal agency it designates as a "scientific authority") is left free to decide how many export and import permits it will issue for each listed species. The agreement does, however, endeavor to set limiting circumstances. Thus, delegates are presented with a choice of the following two major rules for nearly extinct species:

> No export permit shall be granted until the scientific authority of the State of export determines that such export shall not be detrimental to the survival of the species. . . .

Or, alternatively, no permit shall be issued until an exporting nation:

> . . . determines that such export will be for purposes which are not detrimental to the survival of the species, and which will further the restoration of the species or which are essential for human health research. . . .

The draft agreement goes on to say that the permit system is intended to impose a virtual ban on trade in nearly extinct wildlife and to exercise "strict control" on trade in those animals and plants deemed to be declining but not on the brink of extirpation. In addition, the U.S. delegation is pressing for adoption of a clause creating a special category of nearly extinct wildlife for which signatory nations would agree to issue no export permits at all. There is, however, some doubt as to whether this stricture will survie in the coming days of debate.

As it is currently worded, the agreement would depend for its success largely on the goodwill of signatory nations; there are few if any teeth for enforcement. At the same time, though, there are provisions for gentle pressures on nations that prove themselves overly generous in issuing export permits. For one, the convention would prohibit the issuance of an export permit until an applicant—say, a commercial game catcher in Brazil—came up with a certified promise of an import permit from another nation. An international secretariat would be established to monitor the permit system (who it would be and where is yet to be decided, but the U.N.'s newly formed environmental unit is a leading candidate). This "wildlife secretariat" would not be empowered to limit the number of permits issued, but, if it perceived that trade in a particular species were too brisk for survival, the secretariat could so advise the nations involved. Presumably it could also curb an exporting nation's generosity by discreetly lobbying for restraint among the importing nations, thus limiting demand if not supply.

The complexities and between-the-line subtleties of these arrangements attest to the years of excruciatingly slow and tortuous negotiations invested in the proposed agreement. Russell Train, the CEQ chairman, traces its origin to a meeting on endangered species held in Tanzania (then Tanganyika) in 1959 by the International Union for the Conservation of Natural Resources and Nature (ICUN), an umbrella organization of government agencies and private conservation groups with close ties to the U.N. secretariat. Thereafter, the IUCN ushered the agreement through four draft versions. The first came from a wildlife conference in Nairobi in 1963, which Train attended. The next draft was circulated for comment to some 90 member nations of the United Nations in 1967. The third made the rounds in 1969. Still another was circulated in early 1971.

Over the years, Kenya and the United States—one a major exporter of wildlife, the other a major importer—emerged as the prime movers behind the convention. The U.S. Endangered Species Act of 1969 required the Administration to host an international conference in 1971, but wide agreement on substantive protections could not be reached and that deadline slipped by. For a time, it was hoped that an agreement could be concluded at the Stock-

POINT OF VIEW

Energy: Drain on America First?

Fuel shortages this winter have prompted several high-ranking Administration officials to recommend removing price controls on natural gas and allowing an increase in oil prices, all to encourage exploration for new domestic sources. An outspoken opponent of these remedies is the former chief of energy policy in the White House Office of Science and Technology, S. David Freeman, who maintains that this winter's shortages were "manufactured right here in Washington" and could have been averted "with a stroke of the President's pen"—by scrapping oil import restrictions. Freeman currently is directing a Ford Foundation study of energy policy. Following are excerpts from his speech on 25 January to the Consumer Federation of America.

There is no doubt that the price of energy should reflect its true cost to society. But we must not forget that the consumer still has to pay the bill, and that higher prices will impose real hardships on lower and middle income families for whom energy represents a significant part of their cash outlay. We must not fall into the trap of believing that the way to solve the energy crisis is to soak the consumer. There is all the difference in the world between paying for what energy really costs and adopting a policy that will bring billions of dollars of windfall profits into the hands of the energy companies.

Before we push the panic button, we should take a hard look at the remedy to the "energy crisis" which is being put forward by some industry and government people. It is, in effect, a crash program to boost our production of energy fuels—particularly oil, natural gas, and coal. How do they propose to accomplish this goal? By maintaining our oil import quota system, by decontrolling natural gas prices and raising oil prices, by continued and even accelerated strip mining of coal, by intensive drilling for oil off our Atlantic and Pacific coasts, and, in general, by giving the energy industry a "greater incentive" to explore and develop domestic resources. . . .

[This] program is a continuation of a "drain America first" policy. It means multibillion-dollar increases in fuel prices to continue full speed ahead in a wasteful pattern of energy consumption. And the fuel supply will be expensive and dirty. . . . And there would be no assurance that the extra funds would be invested in gas or domestic petroleum exploration at all.

The "energy crisis" could well serve as a smoke screen for a massive exercise in picking the pocket of the American consumer to the tune of billions of dollars a year. Energy is going to cost much more in the future, but how much more is a multibillion-dollar issue. Yet I hear few voices in government raised to assert the consumer's concern in this critical area. . . .

There are alternatives to this policy of "storming the beaches and stripping the hills." For the next few years oil can be imported at lower than existing prices by scrapping the oil import quota system. And we can reduce energy demand growth by abandoning our more wasteful patterns of consumption. These represent a practical, short-term energy strategy, a delaying action to buy enough time to enable us to develop new sources of energy. . . .

As we move into an era of scarcity and higher prices, the slogan for consumers should be "save energy—save money." And government should fashion a policy of energy conservation to replace the policies of promotion, protection, and privilege which dominate our present government energy policies.

holm environmental conference last June, but that was not to be, either.

As time went by, a number of the rare animals that a strong convention might have protected declined precipitously. In 1968, for example, the number of ocelots imported to the United States alone (counting pelts and live animals) reached 129,000. Even as the numbers of ocelots surviving in the wild diminished, the number imported in 1969 rose to 133,000. Then, in the following year, it turned down to 88,000 as a shrinking supply took the measure of demand. Many of these animals were sold as pets, and it is worth noting that the number of pet stores in the United States nearly quadrupled (from 2300 to 8500) during the period of the wildlife convention's slow evolution.

At the same time, though, some U.S. officials see an overall benefit in the years of delay. In concert with a rising level of international concern for the environment and a waning of the cold war, more nations became willing to subscribe to a stronger system of protection. Train, for whom the convention has been a personal project for more than a decade, views the Stockholm conference as a major watershed in this respect. And, indeed, 2 years ago, it probably would not have been possible to bring together the delegates of 100 nations (the only major absentee is the People's Republic of China) under one roof to talk about the destiny of the hook-billed hermit and the orange-footed pimpleback clam, not to mention polar bears and whales and spotted cats.

The lists of animals to be protected are, of course, the heart of the agreement. And it is here that most of the haggling and horsetrading, and deleting and adding, remains to be done. It is also in this area that the 1971 draft version has been most notably altered —by expanding the number and variety of species to be considered for protection. All told, the lists now tentatively encompass 133 species or genera of animals and 13 species, genera, or, in a few cases, whole families of plants. In addition, another 54 animals are listed "for purposes of discussion," although the IUCN says there are neither strong arguments for inclusion or exclusion at this time. The lists are based on a "red book" of endangered species compiled by the IUCN; selection of plants and animals from this list turns on whether international commerce plays a role in their decline, although there are some prominent exceptions to this rule.

Briefly, the first list of threatened species—those deemed on the brink of extinction and subject to the strictest controls—tentatively includes the following:

- ► Birds: 34 species, among them peregrine falcons; 14 parrots and parakeets, mostly from Latin America and the Caribbean; rock fowl; 7 exotic pheasants.
- ► Mammals: 51 genera and species, including the spotted cats; all lemurs; gibbons, orangutans, several monkeys, and the mountain gorilla; the fur-bearing vicuna; wild cattle except bison; bowhead, right, blue, and humpback whales; marine and tropical otters; 4 species of rhinoceros; 3 species of tapirs; and the Amazonian manatee.
- ► Reptiles: 33 species and genera, including 7 crocodilians; the Galapagos tortoise; 3 species of marine turtles; and the much maligned Komodo dragon.
- ► Mollusks: include 24 species of rare clams and one, emerald green, snail.
- ► Plants: the National Orchid of Colombia; welwitchia; and 3 species of cycad.

The second tentative list, of animals and plants to be accorded less strict control, includes all owls; Mexico's quetzal bird; the fin whale; chimpanzees; the remaining gorillas; the gray wolf; the Atlantic salmon; the American alligator; the polar bear; 3 more sea turtles; and the Gila monster of the American Southwest and its Mexican relative, the beaded lizard.

Considered for inclusion on one list or the other, but deleted, were several animals of commercial significance. Among them were sturgeon that support a diminishing Soviet caviar industry; kangaroos, whose meat and hide are the objects in trade for a sizable business, subject now to regulation by the Australian government and a ban on importation in the United States; and the sperm and sei whales, which, along with the finback, have come to bear the brunt of Japanese and Soviet whaling. Also absent and apparently not considered for protection are several rare and dazzling tropical butterflies whose fate lately has been to end up in alarming numbers of American homes, mounted in plastic and displayed as chic bric-a-brac.

The inclusion of whales in the proposed agreement is an improvement over the 1971 draft, and it raises the possibility of leashing the rapacious fleets of Japan and the Soviet Union where the International Whaling Commission—the only regulatory body extant—has largely failed. The protection of the endangered species convention may, on the other hand, be of less practical value to whales than meets the eye. Two of the three main species preyed upon by whalers are not being considered for protection. Moreover, some U.S. officials consider it unlikely that any new wildlife secretariat would be so bold as to press for fewer import permits than the IWC's killing quotas would imply. Between international regulators, politesse usually prevails; it is more likely that the wildlife secretariat would be satisfied with whatever number of permits the IWC's controversial —and, by almost universal agreement among conservationists, inordinately large—quotas require.

In any case, U.S. negotiators feel no compulsion, as one participant puts it, "to fall on our swords" for the sake of particular species. Compromises will be made, for the objective now is to build a legal ark of sorts for the earth's threatened flora and fauna; the passenger list can always be revised later, or so this strategy goes.

—ROBERT GILLETTE

APPOINTMENTS

James L. Liverman, professor of biomedical sciences, University of Tennessee, to director, division of biomedical and environmental research, U.S. Atomic Energy Commission. . . . **William M. Kays**, chairman, mechanical engineering department, Stanford University, to dean, School of Engineering at the university. . . . **Chandler A. Stetson**, chairman, pathology department, New York University, to dean, College of Medicine, University of Florida. . . . **Carl F. Long**, professor of engineering, Dartmouth College, to dean, School of Engineering at the college. . . . At the University of Pennsylvania School of Medicine: **William J. Mellman**, director, Genetics Clinic, Children's Hospital of Philadelphia, to chairman, genetics department and **Harry Wollman**, professor of pharmacology to chairman, anesthesia department. . . . **Peter Suedfeld**, chairman psychology department, University College, Rutgers University, to head, psychology department, University of British Columbia. . . . **Debdas Mukerjee**, director of basic research in pathology, University of Texas Medical Branch, Galveston, to director, Intermountain Cancer Institute. . . . **John J. Eisch**, chairman, chemistry department, Catholic University, to chairman, chemistry department, State University of New York, Binghamton.