

body-length aluminum shields, helmets and visors, hand and shin protectors, and backed up by armored trucks, high-pressure water hoses, and other equipment. The radical students had threatened to disrupt Sato's departure, but they never got close to the well-guarded airport. When they attacked a nearby train station, they were clobbered in what the press interpreted as a "lop-sided" battle.

Japan's educational system is clearly in a state of transition—beset by enormous strains and trying to find a path toward reform. Already some universities have announced radical innovations. Tokyo Institute of Technology, for example, announced a plan last June

whereby all faculty members would submit to periodic "aptitude examinations" by a committee of their peers to help determine whether they should be promoted or asked to resign. Other universities have been trying to increase student participation in campus decision-making. And virtually every major university and government agency concerned with education has a committee studying the need for reform.

Japan is probably suffering from a more serious "generation gap" problem than any other country in the world. Japanese society has traditionally been based on reverence for one's elders and on submersion of individual desires into the collective will. Now the Japanese

youth are demanding a share in institutional power and are asserting that they have individual needs which must be met. Whether the forces now at work in Japanese society will ultimately strengthen the nation, by ridding it of past rigidities, or weaken it, by lessening Japan's ability to harness its energies single-mindedly on a collective goal (such as war or economic growth) remains to be seen. But, to the extent that national power depends on a strong scientific research establishment and a first-rate university system, there seems little doubt that Japan's future progress will hinge on its ability to solve the current academic crisis.

—PHILIP M. BOFFEY

Endangered Species: Congress Curbs International Trade in Rare Animals

The Himalayan giant panda and the Nubian wild ass were granted a reprieve early in December when the President signed into law a bill (PL 91-935) to eradicate U.S. trade in endangered species of wildlife. Instead of relying on game wardens here and abroad to halt poachers at the production end of the rare animal trade, the law would eliminate the market for such rare animals as the Asiatic cheetah, woolly spider monkey, bush baby, and snow leopard.

Conservationists have long stressed the importance of preserving individual species of wildlife, both for possible genetic, behavioral, or medical research and for esthetic reasons. "The prospective picture of man, living alone on his planet except for domesticated food animals or pets, seems a rather dreary one," observed one Congressional subcommittee.

But with human expansion into former wildlife habitat, many wild animal populations have been reduced to the point where hunting pressure or climatic quirks could push them over the brink. Since the turn of the century, an average of one species a year has quietly made its exit somewhere in the world, and one endangered species list currently popular in government circles includes 275 mam-

mals and over 300 species of birds. The U.S. Department of the Interior fears that some North American animals, including the Southern bald eagle, the whooping crane, and the peregrine falcon might soon follow the passenger pigeon and Carolina parakeet to extinction if no action were taken to save them.

Over the last few years, a three-point federal welfare policy has emerged for endangered species, regardless of their economic worth:

- Since 1966, the Bureau of Sports Fisheries and Wildlife has maintained a captive propagation program at its Patuxent Research Refuge in Maryland. The Bureau is experimenting with breeding stocks of the Hawaiian nene goose, the Aleutian Canada goose, the Southern bald eagle, the whooping crane, and the masked bobwhite. The National Zoological Park and other zoos in the United States are emphasizing captive propagation rather than further collection of endangered foreign species.

- Rare animals have been traditionally protected by regulating hunting and by including critical habitat types in the 28-million-acre National Wildlife Refuge System. The bill authorizes an extra \$1.75 million for land acquisition in the endangered species

program, plus \$1 million annually for fiscal 1970-1972 for purchase of privately owned lands within the boundaries of areas administered by the Interior Secretary to preserve or protect endangered species.

- Under the new legislation, the pet and fur market for both native and foreign endangered species will be outlawed in the United States. The Secretary of the Interior will maintain a list of fish and wildlife threatened with worldwide extinction. Federal inspectors at ports of entry, warehouses, or retail stores could confiscate imported live specimens or any imported skins, coats, or manufactured items made from a species on the list. Federal law now prohibits the interstate commerce of birds, fish, or mammals poached in any state, whether or not they are rare. The new law extends this protection to reptiles, amphibians, mollusks, and crustaceans taken in violation of federal, state, or foreign laws, and to fish taken illegally in a foreign country.

The law provides an exception to the prohibition on importation of endangered species for zoological, educational, scientific, or propagation purposes.

In the past, the idea of preserving a species indirectly by restricting the consumption end of the trade has worked well with some native animals. In the early 1900's, the Audubon Society found that its game wardens were fighting a losing battle to save the American egret, a bird, common in the South, whose large white feathers were prized for ladies' hats. But once the federal government exercised its

authority under the interstate commerce laws to outlaw the trade (after a warden had been murdered), egret poaching came to a halt.

Without the protection of an interstate commerce law, an animal such as the alligator could be poached in its home territory and then transported to a hide market in New York. A New York City ordinance recently signed by Mayor John Lindsay appears to end this situation. The alligator population in the United States has dropped to 200,000 and is declining rapidly in the face of heavy poaching and marsh drainage. The soft belly skin of the reptiles (the only part that poachers use) sells for as much as \$10 a linear foot, and reptile poaching is reportedly a \$1 million industry in southern Florida alone.

Last March Secretary of the Interior Walter J. Hickel publicized the alligators' plight with a visit to Everglades National Park. "A million alligators once abounded in the Park, and now only about 20,000 remain," Hickel said at the time. "Because of the limited manpower and equipment available to the National Park Service, poachers have been able to butcher the alligators by the thousands and sell the illicit hides at fancy prices." Hickel assigned seven extra rangers and a "conservation posse" of local residents to control poaching over the park's vast area. Interior officials expect the antipoaching drive to cost nearly \$100,000 this year; yet it will still offer incomplete protection.

The developing nations have experienced comparable problems in protecting endangered species in the field. For example, prior to 1966, orangutans were effectively protected only in their native Indonesia and Malaysia, and the wild orangutan population dropped to an estimated 4000 individuals under pressure from human settlements and zoo collectors. Once a collector reached Bangkok, Singapore, or Hong Kong with a contraband orangutan, the local game laws would not apply to his cargo.

Zoo directors in the United States watched the price of the wild apes climb to \$3000 apiece as the supply dwindled, and in 1966 they decided to preserve the wild population by cutting off the trade and relying on captive propagation for future zoo display. British, Japanese, and German zoo directors eventually joined the orangutan embargo, and the international market has been virtually elimi-

Yarborough's Role

Chief Senate sponsor of the Endangered Species Act was Senator Ralph W. Yarborough (D-Tex.). A conservation partisan, Yarborough's interest in endangered species seems to have been fired in part by his concern over the plight of the rare ivory billed woodpecker, a species under pressure in its habitat around Belmont, Texas.

nated. "We chose the orangutan because it is a very conspicuous animal," said John Perry, Assistant Director of the National Zoological Park in Washington, D.C., but the zoo directors have since extended their embargo to the Galapagos tortoise, the golden marmoset, and the woolly tapir.

However, women's fashion crazes and the demand for exotic pets pose a much greater threat to rare wildlife than zoo collectors do. Last year, U.S. fur brokers imported the skins of 1,283 cheetahs, 13,516 jaguars, and 9,556 leopards—a small harvest when compared with the total volume of the U.S. fur trade, but a number far larger than some subspecies of these big cats can sustain.

Some fur industry spokesmen, recalling the loss of jobs after a 1952 embargo on Russian and Communist Chinese furs, have not been overjoyed at the prospect of import restrictions.

New York, they claim, is the world's middleman for furs much as London is for gold, and unilateral U.S. legislation would simply eliminate this broker role. Unless the endangered species bill "is accompanied by some form of joint international action, it would have the effect of simply diverting these skins from our country to some other, while not one single endangered species would be benefited," said Herman Ringelheim, a New York fur dresser.

Supporters of the legislation argue that, if a species is rare enough to be put on the endangered list, it can be of little permanent economic importance. The new law's impact on any business, said John Perry of the National Zoological Park, would be "well under 1 percent of its existing volume." The International Union for Conservation of Nature and Natural Resources (IUCN), a semigovernmental group that keeps track of rare wildlife, has proposed an international convention to protect endangered species. The IUCN members expect the major consumer and producer nations to sign the pact by the end of next year. U.S. legislation "will give considerable impetus to the convention on a worldwide basis," S. Dillon Ripley, secretary of the Smithsonian Institution, told a Congressional subcommittee.

The new law directs the Interior Secretary, through the Secretary of State, to seek the convening of an international meeting on fish and wildlife prior to 30 June 1971, for the purpose of drawing up a binding international convention for the conservation of en-

1969 Medal of Science Winners

Six scientists and science administrators have been named recipients of the 1969 National Medal of Science by President Nixon. This is the federal government's highest award for distinguished achievement in science, mathematics, and engineering. The President's Committee on the National Medal of Science, a group of distinguished scientists currently headed by Dr. Max Peters, Dean of Engineering, University of Colorado, Boulder, assists in the selection of recipients.

Recipients are: Herbert Charles Brown, professor of chemistry, Purdue University, Lafayette, Ind.; William Feller, professor of mathematics, Princeton University, Princeton, N.J.; Robert Joseph Huebner, chief, Viral Carcinogenesis Branch, National Cancer Institute, National Institutes of Health, Bethesda, Md.; Jack S. Kilby, manager, Customer Requirements Department, Texas Instruments, Inc., Dallas, Tex.; Ernst Mayr, director and professor, Museum of Comparative Zoology, Harvard University, Cambridge, Mass.; and Wolfgang K. H. Panofsky, director and professor, Stanford Linear Accelerator Center, Stanford University, Stanford, California.

dangered species. Congress has authorized \$200,000 for this purpose.

For any one species, this international convention and the new U.S. law would come into play only at the last minute, if then. The rules would not curb the excesses that deplete a wildlife population in the first place. In East Africa, for example, much of the poaching is done for the domestic

meat market and not for the international fashion trade. In northern South America, the new regulations would not affect local live animal markets that supply the U.S. laboratory and pet supply industry. Some ecologists estimate that only 1 out of 50 birds survives the trip from the jungle to the U.S. market, and the Amazon River Basin, despite its lushness and size,

stands in danger of losing even its common fauna to satisfy U.S. demand for reptiles, monkeys, and parrots. For some animal populations, the endangered species bill may offer little hope for survival.—MARK W. OBERLE

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HEW: Blacklists Scrapped in New Security Procedures

In a major reversal of administrative procedure, Robert H. Finch, Secretary of the Department of Health, Education and Welfare (HEW), announced on 2 January changes that would lead to eliminating practices which had led to the "blacklisting" of noted scientists. Among knowledgeable members of the scientific community, the Finch decision was widely praised. Among scientists, the HEW reversal was also regarded as an important victory for scientists in their intimate and delicate relationship with the federal government.

The fact that many leading scientists had been barred from HEW advisory groups for personal and political reasons unrelated to their professional ability was first publicly revealed by *Science* (27 June and 18 July). In the months following the initial disclosure, there has been a rising tide of examination and criticism by the press and by scientists of HEW's investigations of scientists picked to help the department make its decisions on research and training grants. The scientific group which led the fight against HEW's security practices is the American Orthopsychiatric Association, Inc., which has its headquarters in New York City. The group started behind the scenes lobbying with HEW in mid-1968 and switched to a more public role in the autumn of 1969. Among the scientific organizations which gave a measure of support to the American Orthopsychiatric Association in its campaign were the American Psychological Association and the AAAS.

HEW's changes were a result of a study by Undersecretary John G. Vene-man, Jr., and of a report and recommendations written by Harlan Reed Ellis, 26, a research associate at Columbia University and a 1968 graduate of the Harvard Law School. Ellis was asked by HEW to begin his study of the security check system for part-time advisers in September of 1969. Another man who is reported to have played a large part in forcing the revisions through the HEW bureaucracy is Phillips Rockefeller, an assistant to Secretary Finch and a recent Harvard Law School graduate.

"It makes me ecstatic," Ellis said, "Finch has lots of courage. He has taken a step which will make HEW procedures the most reformed in government." Ellis said that Finch had accepted all the strongest recommendations that he had made.

The revisions announced by HEW for the selection and appointment of part-time advisers and consultants include the following changes: (i) The present practice of preappointment investigations by the HEW's Office of Internal Security will be discontinued. (ii) HEW's constituent agencies, such as the National Institutes of Health, The Office of Education, and the National Institute of Mental Health, will be responsible for evaluating prospective advisers and consultants. (iii) "Appointments will be made on the basis of professional competence, that is integrity, judgement and ability." (iv) If an agency has evidence that a prospective appointee has traits that would

so adversely affect the performance of his job as to disqualify him, that individual will be given the opportunity to challenge the evidence either in person or in writing. (v) Instead of the pre-appointment investigation for loyalty, the appointee will be required to sign an affidavit. On this affidavit, Ellis explained in an interview, the individual will signify whether he belongs to an organization advocating violent overthrow of the U.S. Government or personally advocates such action and, in either case, intends to carry out this objective. This affidavit will be subject to a veracity check of FBI files to determine if the prospective appointee has perjured himself. If evidence is found for perjury, the appointee will be given a chance to defend himself.

In announcing the new procedure, Finch said that Ellis's report had suggested that "much of the difficulty was self-imposed by the Department for years, but that we can overcome the difficulties by replacing archaic practices with pragmatic ones adequate to the job. Today's decision is the first step in a long overdue updating of our appointment procedures."

Nobelists Excluded

In his report, Ellis concluded that "no reasonable man would design the present system as it evolved." Ellis said that even if blacklists were officially condemned by HEW leaders that "the operation of the system itself encourages bureaucrats in the bowels of the appointing agencies to make them up and use them anyway." Ellis argued that when Nobel laureates are excluded from government service for whatever reason "The whole operation takes on a Kafkaesque aura in the public mind." M.I.T. microbiologist and Nobel laureate Salvador E. Luria was excluded from HEW advisory groups.

Among his objections to the current HEW security check system, Ellis listed the following arguments: (i) the procedures wasted money; (ii) unofficial