well as those of its own choosing. Other areas that the panel is to study are: requirements for informed consent of patients undergoing medical testing in research and nonresearch procedures; the availability of medical services; privacy of medical records; and programs for genetic testing, counseling, and education.

The law requires the 11-member commission, which was sworn in last January, to have three persons from the biomedical research community, three physicians or other health care professionals, and five people from disciplines such as ethics, theology, or the humanities.*

The commission succeeds two federal panels—the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, which served from 1974 to 1978, and the Ethics Advisory Board that was created in 1975 under the former Department of Health, Education, and Welfare. The ethics board is to be phased out in September.

—MARJORIE SUN

*Current commission members are: Morris Abram; Renee C. Fox, a sociologist at the University of Pennsylvania; Dr. Mario Garcia-Palmieri, chairman of the Department of Medicine, University of Puerto Rico; Albert R. Jonsen, chairman of the bioethics group for the five University of California Schools of Medicine; Mathilde Krim, Sloan-Kettering Institute for Cancer Research; Donald N. Medearis, chief of Children's Service, Massachusetts General Hospital; Dr. Arno G. Motulsky, geneticist, University of Washington School of Medicine; Dr. Frederick C. Redlich, professor of psychiatry, University of California at Los Angeles; Anne Scitovsky, chief of Palo Alto Research Foundation's health economics division; and Dr. Charles Walker, a physician from Nashville, Tenn.; and Patricia King, a law professor at Georgetown University, recently resigned to take a position with the Justice Department. Her successor has not been named.

Condor Flap in California

Death of chick during nest visit intensifies dispute over how to save the species

In ancient times the California condor, the largest bird in North America, soared the skies along the Pacific Coast from British Columbia to Baja California. Now this quintessential California symbol is reduced to a population of about 30, plying a 50,000-square mile area in the mountains of central California.

Treated as an endangered species since 1949, the carrion-feeding condors have nonetheless been diminishing in number. Last May the state approved a desperate last-ditch program, involving radio tracking and captive breeding, to revitalize the condor population—despite intense opposition from some conservation groups who believe that any "hands-on" intervention with the species is doomed to failure. Now the death of a baby condor on 8 June, caused by stress induced during a "nest check" by biologists, has resulted in suspension of the permit for the salvation program pending a decision by California's Fish and Game Commission on what to do next.

The California Condor Recovery Plan is one of the most elaborate, highly publicized, and expensive programs ever to be mobilized on behalf of an endangered species. Money earmarked for it comes to $1.25 million, with $500,000 over 5 years from the National Audubon Society, and a commitment of $750,000 over the next 2 years from the federal government.

Department of Interior Photo

California originally launched a Condor Recovery Plan in 1975. A "draft contingency plan" the following year first broached the idea of capturing wild condors for captive propagation. Early last year the U.S. Fish and Wildlife Service (FWS) approved implementation of the contingency plan, and at the end of 1979 the program was signed by several federal agencies, the California Fish and Game Department, and the National Audubon Society. At a hearing before the Fish and Game Commission on 30 May various biologists and wildlife experts testified that the program was essential for preventing further decline of the condor population, which, with linear extrapolation of current trends, will reach zero by 1995.

The program, to be conducted by the FWS and the National Audubon Society, has two phases. The first involves trapping two adult condors—a feat that has never been performed with the California variety—examining them, measuring them, and sexing them, a procedure that involves laparoscopy since there is no external way of identifying their sex. Then they are to be equipped with radio tags at the base of the wing with 14-inch antennas that fit along the leading edge of the wing. The tags will emit beeps at different frequencies which can be picked

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up by receiving towers located in their range. Up to eight additional birds are to be tagged by early 1981. If that part proceeds smoothly, the next step is to identify nonbreeding birds. A bird that spends at least 6 months without developing a close association with another bird will be assumed to be a nonbreeder and efforts will be made to trap him or her for the purpose of starting a captive breeding program. (At the very least, a female mate is needed for Topa Topa of the San Diego zoo, the only California condor now in captivity.) Long-term plans call for radio-monitoring and captive breeding until the year 2015.

Now plans have been thrown into disarray and emotions are running high as a result of the death of the baby vulture. Biologists have long been doing nest checks on other species, such as the peregrine falcon, to gather information about diseases, nutrition, and presence of pesticides in baby birds' environments. But no one has tried this before with the California condor because of the prevailing hands-off sentiment toward a bird whose existence has been precarious for decades. In early June, however, biologists located two baby birds in the condor population. After obtaining permission from the Fish and Game Department (permission that is now in hot dispute), they set out to visit the two nests. The nest check includes collecting eggshell fragments and feathers lying around the cave to examine for the presence of pesticides and heavy metals. It also involves grabbing the bird and inspecting it for external parasites; measuring the bill length, wing span, and length of the primaries (the longest feathers at the tip of the wings); and weighing it, which is done by putting it in a feed bag and suspending it from a spring scale. All this was accomplished without incident with the first chick, which after initial hissing and squirming became fairly calm. But the second chick began to wobble and grow faint during the tests and finally collapsed, resulting in the death of 50 percent of this year's known baby condor population.

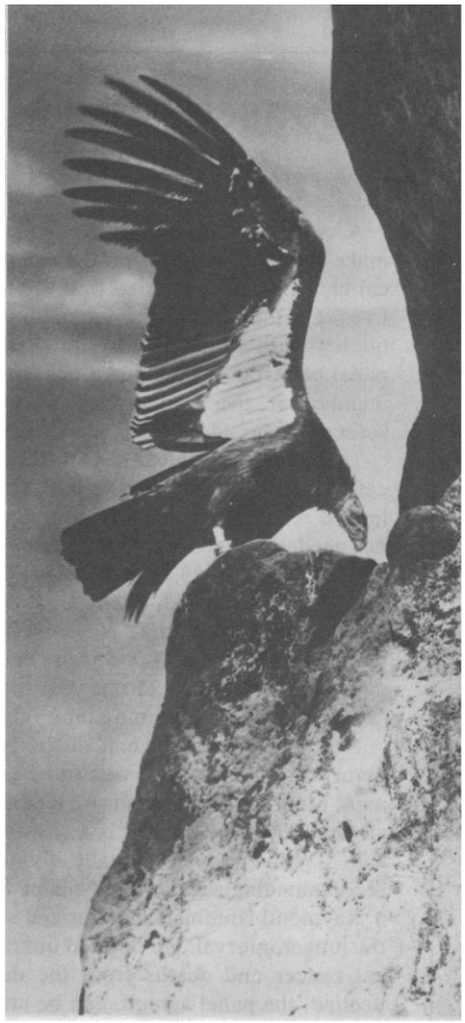
The chick death has generated an enormous hue and cry. The biologists involved stoutly defend the procedure, saying the death was a fluke, likely to happen in one-tenth of one percent of cases. John Borneman of the Condor Research Center in Ventura (which is jointly run by the Audubon Society and FWS) says that this was a purely routine biological check, the likes of which has been carried out with close to 2000 nestlings of other species. He says that, contrary to popular belief, California condors are not especially high strung and there are other species, such as wood storks, that are more delicate.

Nest checks, he says, are crucial to the conservation program, to give clues about why the population continues to drop. Habitat preservation has not proved to be enough to save the condors, and will not be in the future if, say, it is parasites that are doing them in.

Critics of the program, which include Friends of the Earth (FOE), the Sierra Club, the Golden Gate Audubon Society, and the director of the California Resources Agency, Huey Johnson, regard the nest check as a colossal bungle. They claim that chick number two was manhandled by someone unqualified to handle birds of prey and that the observations of past researchers—notably the recently deceased Carl Koford, who did the first research on condors in the 1930's and 1940's—show that only ill will come of touching condor chicks or visiting their nests. Resources director Johnson, who says the nest check proceeded without the knowledge of the Fish and Game director, has worked himself into a righteous wrath over the affair. Sounding like a true modern Californian, he speaks of the accident as a matter of "bioethics," of "reverence for life." Says he, "we are dealing with the heartbeat of a species," yet the baby condors "were treated like a cageful of chickens." He accused the biologists of "lack of willingness to embrace their error," adding "knowledge without wisdom was never more clearly reflected." Declares Johnson, "saving the species ultimately has to do with saving ourselves." Johnson intends to fire all the responsible parties and establish a review committee to "review the whole condor approach."

FOE spokesman Greg Serrurier believes that the biologists' big mistake was to proceed before adequate work had been done with surrogate species. In fact, biologists Noel Snyder and John Ogden are planning to go to South Africa in September to practice cannon-netting with South African vultures, and in October they hope to go to Peru to check the effectiveness of walk-in (maze) traps and radio-tagging of Andean condors. But Serrurier says nest checks should have been done with these species before being tried on the California bird.

The differences between the two factions have to do with both conservation philosophy and emotional beliefs about the condor. FOE and its allies believe that any hands-on intervention is unnecessary and could even speed the demise of the condor population. Since the well-being of a species is a reflection of the



National Audubon Society Photo

state of its habitat, they believe that field observations, combined with increased habitat protection, will save the day for the condor. They talk of reducing pesticide use in the range (farmers employ something called 1080 to kill ground squirrels), putting tighter controls on shooting in the area, and having the land surrounding the condor sanctuary, called the Sespe-Frazier Roadless Area, designated as wilderness in order to stop mining, damming, and other activities that may encroach on the condor life-style.

There is also an emotional objection to meddling with one of California's last symbols of free-flying wildness. As some conservationists were heard to say at the permit hearings in May, if the condor is doomed to extinction, let it "die with dignity" rather than with a tag on its wing. Ogden, senior staff scientist for the Audubon Society, puts it this way: "Deep down inside they just don't want us handling California condors. It is almost a mythical condor that Koford has created. A lot of people are trying to save the mythical bird. Their approach might work for the mythical bird but not for the real blood and guts and feathers bird."

Consensus—More or Less—on the Pap Smear

A consensus panel,* convened by the National Institutes of Health to make recommendations on the use of the Pap smear in screening for cervical cancer, has concluded that the test is both safe and effective in saving lives. On the most controversial issue concerning the test, that of the frequency with which healthy, low-risk women should have the smears, the panel had trouble reaching a consensus, however. The panel report recommends that, if a woman has had two negative smears 1 year apart, "rescreening should be repeated at regular intervals of 1 to 3 years."

The annual Pap smear has long been a fact of medical life for many American women. But the need to have the smears this frequently has been challenged recently, principally on the grounds that expensive annual tests are not needed for a cancer that develops as slowly as cervical cancer apparently does (*Science*, 13 July 1979, p. 177). Studies suggest that the progression from highly localized, easily treatable disease to invasive, and potentially lethal, cancer takes up to 35 years. The Canadian program currently recommends an interval of 3 or 5 years between tests, depending on the woman's age. And in February of this year the American Cancer Society came out in favor of a 3-year screening interval for low-risk asymptomatic women.

Nevertheless, about half of the NIH panel did not find the evidence in favor of the longer intervals to be persuasive, according to panel chairwoman, Maureen Henderson. As Kenneth Noller described the situation, "We all have the same data. It is a question of interpreting them . . . a judgment call." With the panel equally divided, the members finessed the issue by recommending regular intervals of 1 to 3 years.

Raymond Kaufman summarized some of the reasons for the doubts about the longer interval. He pointed out that the incidence of both invasive cervical cancer and deaths from the disease have been declining here. This decline, the panel agreed, can be attributed to current screening programs, which in the United States feature the 1-year interval. "If something is working well," said Kaufman, "why change it until we have good evidence."

The situation in the countries where studies have shown that the longer intervals are adequate, he explained, can be very different from that here. In those countries, including Canada (British Columbia), Iceland, and Finland, the populations are more homogeneous. Perhaps more important, they have standardized central laboratories for examining the Pap smears, whereas in the United States the quality of laboratories may vary dramatically, thus increasing the likelihood of missing a cancer diagnosis on any given smear. (The possibility of such false negatives is the reason why all recommendations include the requirement that women have two negative smears, 1 year apart, before going to the longer intervals.) Moreover, early diagnosis, when the cancerous cells are still highly localized, may mean that the woman will not need extensive surgery—a hysterectomy is required for more advanced cancers—and can be treated as an outpatient.

On other aspects of screening for cervical cancer, the consensus panel had an easier time reaching agreement. They recommended that a woman have her first Pap smear shortly after beginning sexual activity. Virgins, who almost never get invasive cervical cancer, do not need the test. They further agreed that a woman who has two negative smears after age 60 could discontinue having the test because it is unlikely that she would develop invasive cancer in the remainder of her life-span. It was just the question of what to do in the time between the beginning and the end that caused problems for the consensus panel.—J. L. M.

*NIH Consensus Development Conference on Cervical Cancer Screening: The Pap Smear, held 23 to 25 July in Bethesda, Maryland. The Consensus Panel members were: Maureen Henderson (chairwoman), University of Washington Health Sciences Center; Catherine Carson, M.D., San Diego; Pelayo Correa, Louisiana State University Medical Center; Ellen Flannery, Covington and Burling, Washington, D.C.; John Frost, Johns Hopkins Hospital; Genevieve Hill, Atlanta University; Gerry Hill, Cross Cancer Institute, Edmonton, Alberta; Raymond Kaufman, Baylor College of Medicine; John Mikuta, University of Pennsylvania; Duncan Neuhauser, Case Western Reserve University School of Medicine; Kenneth Noller, Mayo Clinic; Estelle Ramey, Georgetown University School of Medicine; Ralph Richart, Columbia University; and Beverly Williams, University of Tennessee Center for Health Sciences.

The biologists in charge of the condor program say the habitat approach simply won't work. Borneman points out that civilization has already taken over large parts of what used to be condor range and there is no turning back the clock. He says designation of the Sespe-Frazier area as wilderness would not make much difference because condors have not nested there for years anyway, and if something is called wilderness it acts as a "people magnet." The telemetry and captive breeding plan is clearly an emergency, last-ditch attempt to save the species, and while it may not work it offers more promise than simple habitat protection. He says the problem with critics of the program is their "antitechnology" hang-up.

William Conway, director of the New York Zoological Society and member of the 3-year-old California Condor Advisory Panel, supports the salvage program. "The evidence to date very strongly points to extinction unless we do something pretty radical," he says. Conway says there is already ample evidence from work with related species to show that the program can work. "One of the problems people get into is they think there is something about the California condor that would make it more sensitive than any other bird," he says, but this is not true. The New York zoo has extensive experience with Andean condors, which are very similar to the California ones, including the long incubation period for eggs and the lengthy nestling period. "Our condor chicks are no more sensitive to handling than any other bird of prey chicks," he says. He believes captive breeding can be successful, judging from the performance of a pair of Andean condors, which produced 8 young in 4 years—a much higher rate of reproduction than in the wild, where, like the California bird, they only breed every other year. No California condor has yet hatched in captivity.

The bulk of scientific opinion appears to favor the condor salvage program as planned. But with investigations and recriminations now going on, it may be a while before the program is resumed. It is to be hoped that differences can be resolved expeditiously. The condor has become a powerful symbol for all endangered wildlife, and everyone agrees that success or failure in rescuing this species will have important implications for the whole conservation movement. Things must be done soon, and they must be done right. There is no margin of error for the condor. As one environmentalist said, "there are no extra condors."

—CONSTANCE HOLDEN

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