

News & Analysis



HSUS

Pound Animals for Research Institutions?

Ever since the first animal procurement (pound seizure) laws were passed in the late 1940's and early 1950's, the question of the use of pound animals by research institutions has raised passionate opposition from humane societies and other animal welfare groups. In the 1950's, the public apparently favored the practice, judging by votes in Los Angeles and Baltimore, but there are signs that opinion has begun to shift in the 1980's. For example, groups have been fighting to repeal the Metcalf-Hatch Act in New York for many years, but it was not until 1979 that they were successful. One year later, a new Connecticut bill repealed the old animal procurement law and prohibited the release of pound animals to research institutions.

At present, there are battles underway in California, Massachusetts, and Minnesota to prohibit the release of pound animals to research institutions or to repeal old animal procurement laws. However, the fight is not restricted to state legislatures—it takes place at the municipal and local levels as well. The following accounts of events in Florida and Chicago are examples of a nationwide trend.

Florida

For 19 years, the Jacksonville, Florida, municipal pound has been supplying the University of Florida in Gainesville with dogs. However, early this year a group of activists in Gainesville, led by Professor Tom Simon of the university's philosophy department, called attention to this traffic in animals and raised objections to it. A general debate about the practice ensued.

After the debate had proceeded for about a month, the university invited Jacksonville officials, including representatives from the local newspaper, the *Jacksonville Journal*, to tour the facilities. Bob Phelps, a columnist with the newspaper, noted that "the animals appeared to be clean, well fed, relatively free of parasites and healthy. The facilities were excellent, clean and expensive." However, Phelps also observed that there were aspects of the tour that aroused his suspicions and cited several locked rooms (individuals were invited to put on sterile garb and enter the rooms, but nobody took up the offer) and unexplained animal cries. The veterinarian in charge of the facility also refused a request from the press to drop in unannounced on some future date, arguing that he was too busy to accommodate them. Nevertheless, such an invitation was offered later. Phelps accordingly returned to the facilities unannounced at the end of March and found a dog bleeding to death in an unattended cage. He called for help but it was too late to save the animal. The death of this dog provided the critical evidence for action by the Jacksonville city officials. Jack Goldberg, the mayor, announced a few days later that he was suspending further shipments of animals to Gainesville, pending a full-scale report from the University of Florida.

The committee at the University of Florida that has been investigating the incident has now decided to recommend basic changes in the care of animals used in experiments. Under former procedures, the veterinary staff of the animal resources facilities left all decisions on postoperative care of animals to those who were conducting the research. Now, staff veterinarians are authorized to review all postoperative procedures, and it is recommended that they have absolute control over what is done to the animals. In the case of the particular dog found by Phelps, the researcher concerned had removed it from the intensive care unit 3 to 4 days earlier than is recommended under standard operating procedure. According to reports, he stated that he felt unhappy that the animal was being confined in a small cage (however, this procedure is done purposely so that dogs do not strain their surgical wounds) and therefore moved it to a larger cage, so that it could have more room to move.

A similar battle has broken out in Pensacola, Florida, where the local animal shelter has been providing over 2,000 animals a year to Tulane University (Louisiana) via Wayne Fowler, an animal dealer in Alabama. At the present time, Fowler pays \$5 per dog and \$3 per cat, which produces an income of approximately \$10,000 a year for the shelter. Fowler has declined to provide the shelter with any information about his resale rate, but on the East Coast pound dogs are currently being resold for \$50 to \$85 per animal.

Not surprisingly, Tulane University and Fowler have been campaigning to preserve their trade in animals. In fact, Tulane University reports that the Pensacola pound is its sole source of supply (local shelters in New Orleans apparently have refused to turn over animals to research institutions). Representing the humane viewpoint, groups in both Florida and Alabama have been campaigning to stop the practice. The Board of Commissioners is currently examining a proposal to develop a comprehensive contract or agreement with Fowler and Tulane Uni-

versity, setting out the following terms. The animals should be sold only to Tulane University. The price should be increased to \$10 for dogs and \$5 for cats. Mr. Fowler should send copies of all inspection reports made by the USDA to his facility. Tulane University should provide a copy of a comprehensive agreement indicating their needs and purposes for obtaining the animals purchased. Finally, the sale of animals by the shelter should cease if it is determined that conditions are inhumane, either at Mr. Fowler's establishment or at Tulane University. This is where the situation stands at present, but the lobbying to end this trade in animals continues.

Chicago

The University of Chicago Medical School has recently been attacked for using pound dogs in student exercises. One alderman, Mr. Rittenberg, took action by drafting a proposal to reform animal control in the city, which included prohibition of any further release of animals to research facilities.

The fight was started as a result of a complaint by an anonymous medical student at the University of Chicago, who objected to the use of dogs in training exercises. The Medical School is no stranger to such protests—their introductory practical manual notes that:

Animal experimentation has produced great and lasting benefits to medicine and to mankind, as all educated people know....Students and investigators at this and other universities where dogs are available for teaching and research should realize that this privilege was hard-earned by their predecessors, but will be threatened again and must be fought for again in each generation.

The manual also notes that

Until the passage of laws permitting dogs to be made available from city pounds, medical schools in certain parts of the country were able to

use dogs to only a limited extent in teaching, and less extensively in research than they would have desired. Thanks to the efforts of the late Dr. A.J. Carlson, the University of Chicago and other medical schools in Chicago have been able for many years to utilize dogs extensively in teaching and research, greatly to the benefit of all persons concerned.

It is apparent that the medical profession is once again being forced to fight for the privilege of using dogs, as humane groups throughout the city are lobbying the city council to support Rittenberg's proposed amendments.

Conclusion

The events in Florida and Chicago are examples of similar activities that are taking place all over the U.S., as pound "seizure" once again becomes a rallying cry for national and local animal welfare groups. On one hand, research interests argue that millions of dogs are killed annually by pounds and shelters, and that this loss of animals represents a tragic waste. The implication is that it would be wiser policy to make use of some of these animals for research and teaching (*ILAR News* 25:15, 1981). On the other hand, humane societies object to the use of former "pets" in laboratories. At this stage, it is unclear who will prevail in the struggle for public support. However, Abbott D'Ver, a member of the Research Beagle Breeders Association, has predicted that "the pound dog will be in scarce supply within 4 years and prohibited from use entirely within 10 years" (*Lab Anim* 10(5):25, 1981).

Fish Relieved to Find They Are Animals

The sigh of relief that echoed throughout Cape Cod Bay may not have been audible to the rest of the nation, but in Massachusetts, fish have been legally declared as animals. This point became

the central issue in a landmark decision by a state appeals court, when the court upheld the contention of the Massachusetts Society for the Prevention of Cruelty to Animals that fish are indeed animals, since they require an appropriate environment and regular human care (like dogs and cats), and that they must therefore be provided protection under the state's anti-cruelty law. Specifically, the MSPCA had gone to court to stop a traveling concessionaire from awarding live goldfish in plastic bags as prizes. The Society further argued that random winners of the goldfish might not be prepared or willing to provide adequate care for the fish, and that negligence and suffering might therefore result.

The definition of what, in the legal sense, constitutes an animal varies widely from state to state. In Oklahoma, for instance, the courts persist in denying that chickens are animals. The birds are thus locked out of protection under the state's anti-cruelty law. This is one reason why the undeniable cruelty of cockfighting continues to flourish in Oklahoma.

Further Work on EEC Standards for Battery Cages

In the last issue of the *Journal*, we reported that the EEC Council of Europe had formulated new specifications which it believed represented a sound compromise between humane considerations for laying hens and the constraints of economic necessity. The most salient specification was the minimum cage area of 500 cm² to be allotted to each bird. Producers with cages already in use were given until 1995 to comply; new units were to comply by July 1, 1983. However, considerable variation was noted among member countries: the British Welfare Code had already recommended a 550-600 cm² standard, while, for example, Denmark required 800 cm² as its legal minimum.

Now, the Committee on Agriculture has begun to consider the finer details of

implementation of the new standards, including the economic ramifications. Since introduction of the new requirements will increase production costs, the Committee has recommended that the Commission propose measures to prevent economic disruption of the internal EEC market due to importation of cheaper eggs from non-member countries, where these standards do not apply. The committee also noted that the pace of studies on how to upgrade the welfare of laying hens should be increased, to provide a sound factual basis for establishment of the specific details of the standards.

The Committee also recommended that immediate measures should be taken to improve the lot of the hens who must now endure extreme crowding: in some farms, the birds are provided with as little as 300 cm² per animal. It was considered that 450 cm² would represent a reasonable figure for this short-term phase of the program.

Measures that were considered and rejected included: (1) a higher minimum standard (600 or 750 cm² per bird); (2) earlier implementation of the directive; (3) assistance to farms affected by the standards; and (4) fines for infringement. It was also decided that inspections of farms were necessary to ensure compliance with the new regulations.

Between a Rock and a Hard Place

In the course of "rescuing" dogs from the fate of euthanasia or life in a research lab, William A. Snyder of Baltimore, president of the Maryland Anti-vivisection Society, has created a hellish situation for the very animals he claims to be trying to protect.

On his farm in rural Maryland, Mr. Snyder has been keeping 237 dogs within a 1-acre enclosure. County authorities have filed a civil suit to remove the dogs from Snyder's property, on the grounds that conditions on his farm are unsanitary and rampant with health problems.

James S. Pilachowski, the Harford County animal control chief, remarked that "I've never seen anything like that in my life and I've been doing this for 12 years....I think four or five animals are adoptable and the rest will have to be put to sleep." He found that the 1-acre tract was covered with dead rats, deep rat holes, and animal feces. And the dogs themselves were in terrible shape. Many were almost hairless from mange, while others had missing legs and no eyes; they traveled in packs and fought constantly.

Snyder, in his rebuttal to the county's suit, claims that "his sole and paramount concern has been for the humane care, containment, and treatment of animals, in vehement opposition to the use of such animals for medical experimentation or their otherwise premature death."

But the horrifying conditions on the farm seem in no way commensurate with these kinds of idealistic sentiments. It is the unfortunate task of those concerned for animal welfare that they are sometimes forced to make choices between nearly equivalent sets of repugnant conditions.

Taking a More Accurate Census

One of the most difficult—and controversial— aspects of the practice of game management is determining just how many of each kind of species are left in a particular region. The first, and crudest, method for limiting the "harvest" of animals was the legal imposition of limits that each person could take of a particular species, or limiting the length of the season when animals could be killed. But it soon became obvious that knowing how many animals you had killed in a given year gave scant information on crucial items like distribution and general health.

Over the years, the Commonwealth of Virginia has slowly been refining its methods for checking on animal populations. Their first step was establishing a

requirement that all fur buyers submit an annual report showing the total numbers of furs or pelts bought and sold. Then, in 1965, a new regulation stipulated that all beavers (and later, bobcats and otters) must be tagged by game wardens before they could be sold. Other data compiled included information from trapper and hunter surveys and trapper license sales reports.

But all of this was still virtually useless in trying to figure out just how many animals were left after a particular year's kill had ended. Therefore, a recent state-wide study has begun, to get more accurate population counts. Permanent routes or transect lines are established in selected areas, at 2/10-mile intervals. On 2 consecutive days in October, wildlife management area supervisors sample approximately 3,500 stations, by counting the tracks of animals that visit the stations.



DICK RANDALL

A similar technique has been introduced over the last 2 years to count aquatic furbearers. Streams and bridges are randomly selected, and scent stations are placed within 30 feet of the bridges. Again, as with the land animals, counts of tracks are taken. However, after the 2 years of using this method of censusing, there is still some doubt as to whether it gives as accurate a picture of

population sizes as it does for land furbearers.

To gain some insight into other aspects of wildlife status, graduate students at Virginia Polytechnic Institute are obtaining carcasses from cooperating trappers and examining them for evidence of breeding age, litter size, and reproductive history. Life tables are being constructed, and tissue samples will be analyzed for levels of the toxic substances PCB's, Kepone, lead, and cadmium.

Sociology and Wildlife: The Tuna-Porpoise Controversy

Among other things, the tuna-porpoise controversy that was the subject of so much publicity during the 1970's brought to light one of the fundamental problems in solving disputes about the "harvesting" of animals. During this debate, as in few other cases, the outlines of a classic dichotomy of point of view became clear. The fishermen represented a principally lower-class group whose lives were guided by principles that included the validity of the work ethic, close family ties, and the importance of independence and freedom—the right to act as your own boss. Another predominant aspect of the fishermen's perspective on things was a concentration on short-term profits, in order to keep afloat financially from one year to the next. Little concern was given to the longer-term problem of eventual overfishing. Nor was there much thought given to fish populations other than those selected for harvest and sale. In short, fish were seen as economic resources, rather than as fellow creatures with certain natural rights.

In strong contrast, those who are most committed to protection of whales and porpoises are most likely to come from middle-class backgrounds, and believe that populations of these animals must be maintained at levels that will be conducive to the support of healthy eco-

systems. This group is also highly supportive of efforts that support the concept of animal rights, in particular the right to protection from cruelty, suffering, and extinction. This principle is especially important in the instance of specific animals such as wolves, whales, and porpoises, where guilt for past human actions is a significant emotional factor.

To make matters more complicated, this divergence of viewpoint has been institutionalized in a parallel divergence of governmental policy. On the one hand, fishery management has emphasized the maintenance of specific fish species, for human exploitation. The theory used in preservation of specific stocks was that fish would continue to replenish themselves as long as their numbers were kept at peak reproductive levels (approximately 50 percent of the unexploited population level). On the other hand, the 1972 Marine Mammal Protection Act, which declared a moratorium on the killing of virtually all species of marine mammals, was oriented toward the preservation of the total ecosystem. "Optimum sustainable population" levels were the goal of this program, and the short-run economics of the fishing industry received far less attention.

The practical problem of the killing of porpoises during tuna fishing has pretty much been solved. But the differing systems of values represented by the two groups, the fishermen and the ecologists (and the correspondingly different theories of wildlife management) will inevitably result in similar clashes of interests, both in the courts and in the media.

Alternatives in Canada

In the last issue, it was reported that the Natural Sciences and Engineering Research Council of Canada was providing a small sum of money to support a tissue culture training course at the University of Saskatchewan. However, the

Council has recently taken even more vigorous action to promote the development of alternative techniques. According to an NSERC publication (*Contact*, 1982, 7(1):26) the Council has responded to suggestions from the Canadian SPCA that alternatives should be promoted. Therefore, its grant selection committees will discuss the use of alternatives with applicants and will encourage grantees to explore the possibility of using alternative methods. They comment that:

Many researchers holding NSERC grants already use alternative methods in their research projects, but few are actually working on research aimed at improving existing non-animal testing models, at developing new models, or at validating the usefulness of such models.... Council supports the development of alternative methods and wishes to alert qualified members of the community to this research topic.

Protecting Laboratory Animals

It is the contention of J.R. Held and V. Milochine that man's use of animals entails several distinct kinds of responsibilities. In the instance of research animals, these fall into three categories: (1) technical, (2) ethical, and (3) legal. Technical concerns include factors such as selecting the proper animal species, providing the proper kind of environment and care, and designing experiments so as to use the fewest possible animals. Ethical considerations, on the other hand, are grounded in an inherent respect for life that must be one of the chief principles held by anyone who uses animals. Humane treatment and proper care are aspects of such ethical considerations. Legal requirements are, in part, derived from these ethical concerns. This article, then, provides a broad framework for conceptualizing and discussing the myriad of considerations that are germane to the question of using animals in research and testing. (Abstracted from *Anim Reg Stud* 3:273-299, 1980/1981.)

No British Aid for LD50 Alternatives

Mr. David Steel (of Lib, Roxburgh, Selkirk and Peebles) had asked the government to consider making a contribution to a research program aimed at funding non-animal alternatives to the LD50 and Draize tests, especially in light of the considerable support already given to this effort by several cosmetic and drug manufacturers.

Mr. Timothy Raison, Minister of State for the Home Office, explained that the government had no plans to contribute any funds, on the grounds that "alternatives to the use of live animals are best developed by scientists in the course of their own work" and added (somewhat vaguely) that "the government regularly uses licensees under the Cruelty to Animals Act of 1876 to consider the possibility."

The BVA and Animal Experimentation

In last quarter's issue of the *Journal*, Judith Hampson of the RSPCA outlined the intricate and occasionally tortuous process by which a number of groups—many of whom have been inimical to each other in the past—are working toward collaboration to push for a speedier update of the British 1876 Cruelty to Animals Act. As proposed in 1979, the main reform proposals drafted by this collaborative effort include the need to:

- Restrict pain
- Ensure a substantial reduction in the number of animals used
- Develop and use humane alternative methods of research
- Ensure public accountability.

Meanwhile, the RSPCA itself has advocated a stance of complete opposition to painful experiments but, at the same time, defines "pain" and "suffering" somewhat loosely. While the Society accepts the fact that there is considerable ambiguity in its definitions, it still believes that reasonable ways for judging severity of pain can be established.

Recently, however, the BVA has conducted its own assessment of the problem of pain in experimental animals, and has drafted a list of 16 points on the subject (summarized in *Vet Rec* 110:241, 1982). Some of the most significant of these are:

- Recognition of the necessity of animal experiments
- Support for the now-famous three Rs—refinement, reduction, and replacement
- A requirement that all scientific procedures likely to cause pain be legally controlled (e.g., the production of antisera)
- In *exceptional circumstances*, the use of live animals should be permitted for attaining manual dexterity
- Anesthetized animals, not allowed to recover, should continue to be used in higher education
- Opposition to the practice of pound seizure.

Notably, however, the BVA has refrained from making any statements about *what kinds of experiments* should or should not be permitted.

The BVA has supported the idea of the equality of all species used in research, and would therefore delete the current passages of the law that designate special treatment for dogs, cats, horses, and monkeys. Rather, each species should be treated according to its particular physiological needs. This "democratic" position relative to the whole spectrum of animal species likely to be used in experiments is, to our knowledge, unique.

As a guideline for measuring pain, the Association advocates using the so-called Littlewood categories, first devised in 1965, which delineate three states of pain:

1. Discomfort (usually indicated by negative signs like poor health, lethargy, and decreased appetite).
2. Stress ("a condition of tension or anxiety predictable or readily explicable from environmental causes, whether distinct from or including physical causes").

3. Pain (indicated by positive signs like struggling, crying out, or convulsions).

In response to the "16 points," the Home Secretary commented that the BVA's work constituted "an especially important and informed contribution," but did not feel that the list offered a definitive basis for any new legislation on animal experimentation.

AVMA Animal Welfare Committee to Focus on "Veterinarian Awareness"

During its second meeting on March 10-11, The AVMA's Animal Welfare group adopted a set of what it calls "guiding principles." (The *Journal* reported on the Committee's first meeting in 3(2).) These principles, like its earlier policy statements, seem carefully formulated to allow the AVMA to gently sidestep virtually all of the major issues that most people associate with "animal welfare." For example:

- The Committee reiterated that "AVMA positions should be concerned primarily with the scientific aspects of the medical well-being of animals, rather than with the philosophic or moral aspects."

- "Enhanced utilization of veterinarians" was advocated, to "make a major contribution to improve animal welfare."

- Veterinarian awareness, however, was stressed as "the most urgent priority." Vets need to know the implications of animal welfare-related issues "for themselves, their communities, and society."

- The Committee saw no need for new legislation to protect animals used in research: "current laws and regulations, when properly enforced and implemented, are adequate to ensure humane care and treatment of animals."

- There was opposition to bills like H.R. 556: such diversion of funds to develop non-animal alternatives was seen as "expensive, restrictive, and nonproductive." Instead, the Committee opted

for less direct means of reducing the numbers of animals used in research and testing such as "education on experimental design and reduction of federal requirements for environmental protection."

- The term "animal rights," since it was judged to conflict with the Committee's goal of scientific objectivity, will not be used. The term was also considered to have little meaning in the current legal context, since "the law has not clearly recognized animals as having legal or moral rights."

- Support, by the AVMA Foundation, for studies on the "behavioral and physiological responses of animals in various environmental situations that affect their medical well-being" was recommended. However, no specific mechanisms for funding, or any target dollar amount, were suggested.

It must be granted that this is only the beginning of the Committee's efforts; a whole gamut of subcommittees is still at work formulating policy statements on 35 animal welfare issues. Nonetheless, the broad outlines of the Committee's intent seem to be clearly emerging: it represents a reactive response, to an already high level of awareness of animal problems among the general public. As such, its major work will focus on keeping veterinarians informed about how they can effectively diffuse any present or newly emerging concerns about animal welfare. For there is nothing in this set of "guiding principles" to suggest that the AVMA could, even potentially, take some sort of active role in the pursuit of ameliorating the problems that result from the thorny questions related to our exploitation of animals.

Adrenal Steroid Insufficiency in Racehorses

For years, common thinking has held that adrenocortical failure is a primary cause of poor performance in racehorses. So administration of adrenal steroids

themselves or of adrenocorticotropin, which induces production of these steroids, has been a standard treatment. However, scant evidence of low plasma cortisol levels in poor performers has ever appeared in the literature.

To determine whether adrenal insufficiency was truly a consequence of stress in horses, plasma cortisol levels were measured in two groups of horses, 6 that were stressed and performing poorly, and several that were racing well. Results showed that, although one healthy gelding had a low cortisol level, the mean values for the stressed groups of horses were not significantly different from unstressed horses, and none of the values in any individual horse was low.

However, testosterone levels were also monitored in the male horses of both groups, and these values were found to be significantly lower in stressed than in healthy horses. Similar findings have been noted in humans: testosterone levels drop when men are subjected to severe psychological or physical stress. The presumed causation is a temporary reduction in luteinizing hormone which, in turn, stimulates testosterone production.

Monitoring of testosterone levels is not recommended as a general procedure for assessing stress, though, since the levels of this hormone show a normal cyclical variation and, as a response to stress, the decrease in testosterone can only be considered a nonspecific response. (Abstracted from H.W.G. Baker *et al.*, *Aust Vet J* 58:70, 1982.)

Mixed Reviews for Automatic Poultry Walker

A newly patented device, not quite a robot, but more sophisticated than the standard scarecrow, has been designed for use as an "automatic poultry walker." A dummy is suspended from an overhead track such that it travels slowly through the poultry house, thereby simulating a human caretaker. The device is controlled by a time clock and also has a thermostat override.

The rationale behind the development of the device was based on the observation that birds which have more frequent contact with a caretaker seem to fare better, perhaps because the commotion created by his presence increases both feeding and dissipation of heat in hot summer weather.

But an evaluation of the system, by Daniel Hooze of Texas A & M University, gave equivocal results. Two sets of broiler houses were used, one equipped with the device and the other without it. First, although there were slight increases in flock weight, feed conversion, and mortality in the device-equipped broiler houses, these differences were not statistically significant. And, in monetary terms, investment in the device did not appear to be economic. Calculated grower payments were about \$15 more per year for the flocks provided with the simulated walker, but this additional \$75 a year (\$15 x 5 flocks per year) would not be sufficient to justify investment in the new equipment.

Standing on Their Own Two Feet

Consumers, of late, have shown an increasing demand for the larger roasting chicken, with a market weight of about 7 lb. But until recently, the growth in the roaster industry has been hampered by the problem of leg weakness among these heavier birds. Specific conditions have included twisted or crooked bones, shortened bones, enlarged and/or swollen hock joints, and slipped tendon. These conditions are often severe enough to result in debilitation and death.

W.H. Hulan *et al.*, as reported in *Poultry Science* (59:748, 1980; 60:172), 1981) set out to discover precisely what factors were involved in the development of leg diseases in chickens. Basically, they considered two variables: genotype and diet. In an initial set of experiments, diet composition was held constant, and seven different genotypes were compared for percentage mortality (to age 84 days) and body weights at 28,

56, and 84 days. In a second set of studies, two genotypes that had shown a significant difference in mortality were fed diets that contained protein contents that were lower than, equal to, or higher than that available in most commercial feeds.

It was found that genotype was an important variable. Two genotypes, in particular, had better feed conversion and significantly lower mortality (due to the lower frequency of leg problems). Monetary returns were higher as well, even though the birds in these groups were somewhat lighter in final weights.

But perhaps the most important finding was that, as the protein content of the diets decreased, feed conversion increased, too. At the same time, low-protein diets meant a decrease in occurrence of leg abnormalities and, consequently, lower mortality.

These studies represent an excellent example of how carefully controlled scientific studies can be used to create a better (and more economical) world, for both producers and livestock. Animal welfare and monetary return need not be permanent adversaries.

Survey Uncovers Americans' Ignorance About Animals

At the request of the Interior Department's Fish and Wildlife Service, Dr. Stephen Kellert of Yale University has interviewed 3,107 adult Americans to find out the extent of their knowledge about issues relevant to animals and wildlife conservation. While the original study was done in 1978, Kellert is still analyzing the data, and has recently published two new reports on his findings. Here are some of the salient points:

- Most animal-related activities are restricted to pet ownership (67 percent of those surveyed owned a pet), watching television, or visiting zoos.

- In a further breakdown, television emerged as the main vehicle for exposure to animals for 78 percent, where-

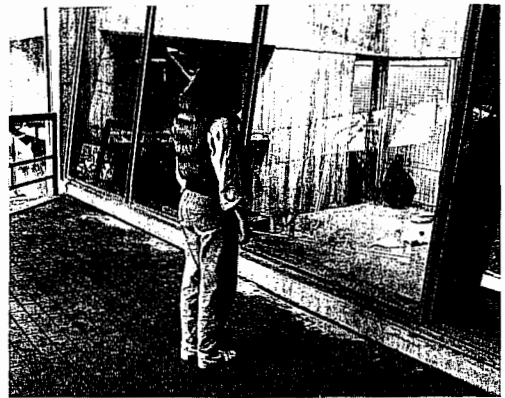
as zoo trips provided the primary contact for 46 percent.

- An important finding for the animal welfare movement was that concern for *individual animals* was seen as more important than concern about species populations for 58 percent of those surveyed. This result has important implications for planning in wildlife management, which has traditionally focused on manipulating total population levels.

- Of those questioned, 75 percent did not know that the statement "spiders have 10 legs" is false, and only slightly more than half knew that veal does not come from lamb.

- Extent of education, as a demographic variable, emerged as the single most sensitive indicator affecting knowledge of animals.

NATIONAL ZOOLOGICAL PARK/JESSIE COHEN



Ray Arnett, Assistant Secretary for Fish and Wildlife and Parks, finds this display of ignorance troubling "because it indicates that the public is not prepared to make informed decisions about the complex wildlife problems and controversies that we will undoubtedly face in the remainder of this century."

Ironically, however, this lack of knowledge about wildlife may actually serve to protect animals, in some instances. The Department of the Interior has recently been pushing for what amounts to a small-scale war against the coyotes of the West, through its decision to resume the practice of denning and attempts to get EPA to repeal its ban on the poisonous Compound 1080. But Kellert's report indicates that a full 75 per-

cent of the individuals surveyed in 1978 thought that the coyote was an endangered species. Thus, a great majority of the population may be anything but receptive to Interior's efforts, and perhaps their sentiments can be marshaled as part of an effective campaign to initiate active opposition to the widespread destruction of these animals. (See *Int J Stud Anim Prob* 3(2):99, 1982 for detailed coverage of the 1080 controversy.)

Clever Modification of Ames Test Monitors Environmental Mutagens

To assess the relative mutagenicity of each of the chemicals found in a sample of air, scientists have been using a fairly complex two-step process. But A. Bjorseth *et al.* have recently devised a quick and easy, one-step process for separating and then identifying the mutagens, which are often also carcinogenic. The new method utilizes one element of the old technique—thin-layer chromatography (TLC) plates. The sample, mixed with a liquid solvent, is applied to the silica gel of the plate. Next, the solvent is allowed to soak upward over the plate. The various chemicals in the original sample move upward at varying rates, depending on their solubility in the solvent. Then, in the old method, each separate spot on the plate was scraped off and analyzed separately by one of several available techniques.

What Bjorseth has done is to utilize the intact plate in conjunction with the Ames test, a non-animal alternative procedure for assessing mutagenicity by using a strain of the bacterium *Salmonella* that cannot make the amino acid histidine (because of a simple genetic mutation). A sample of the *Salmonella*-containing culture medium is spread right over the TLC plate, after the chemical mix of the air sample has been sorted by the solvent.

Then, if any of the chemicals in the original sample is a sufficiently potent

mutagen, it will diffuse up through the layer of culture medium and cause a back mutation, *i.e.*, a reversion to the ability to make histidine, in the *Salmonella* organisms, and colonies of these bacteria will appear on the plate.

This new technique is an excellent example of an innovative non-animal method for doing routine testing. Its many advantages include simplicity, speed, and lower cost, as compared with older procedures.

Ban on Sperm Whaling May End

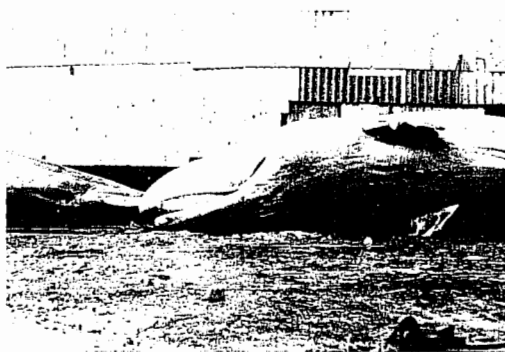
The intricate chess game of the International Whaling Commission continues to turn on moves and counter-moves that utilize economic sanctions, global politics and, on occasion, science.

An extraordinary meeting was held in late March to arrive at a decision on the specific issue of whether the general ban on sperm whaling (agreed to at the last full Meeting in July 1981) should be extended to cover the area off the coast of Japan. Looked at from this viewpoint, the 1981 ban was hardly an outright victory, since the actual agreement, while establishing zero quotas for all sperm whales in other areas, excluded those in Japanese waters. One member of the commission moved quickly to close this loophole by appending a footnote to the ban that would forbid any catch in this area until the commission had set a specific quota for Japanese waters. Japan then countered by objecting to the footnote; according to the commission's rules, Japan is not bound by the stipulation in the footnote. This, then, was the task of those at the March meeting: to set a scientifically based quota on the Japanese whale hunt. But if the full meeting of the commission, in July, fails—as the March meeting did—to establish a quota, Japan will be left free to keep on taking whales.

The question of establishing a quota revolves, in turn, on which of the two

current rival models you choose to adopt for estimating whale populations. One model, favored by the Japanese, is based on the animals' age at sexual maturity. Most scientists agree that this model fits poorly with the available data. A second model, developed by the International Institute for Economic Development (IIED) uses measurements of the length of the whales; it seems, at first, to offer much better agreement with the data.

While the Japanese assert that sperm whale populations number about 200,000 animals, and that they are proposing to slaughter only 0.5 percent of the total, special characteristics of whale procreative behavior make the situation somewhat more complex than this simple ratio would indicate. Whales are polygamous: one bull impregnates several females. Because the Japanese have recently taken a greater proportion of the more profitable bulls, pregnancy rates have declined. The model based on length of animal has been successfully used to predict this decline. It also supports the hypothesis that, as a further consequence, populations will continue to decrease for the next 10 years or so, even if no whales are killed.



HSUS

Yet the modicum of protection afforded the males in the last few years should, if the model is accurate, mean that an upsurge in pregnancy rates should soon show up in the data. So far, however, there has been little evidence of such a turnaround. So the IIED model, too, may have to be discarded.

However, when the full commission meeting is held in July, both models may

be relegated to oblivion, if there is a vote for a complete moratorium on commercial whaling.

Alternatives at NIH?

The Division of Research Resources (DRR) of NIH is considering a new activity in biomedical research model development. This program will explore opportunities and limitations to the development of model systems that have potential as general resources for the biomedical research community. DRR already supports the development of animal models but now seeks to expand its activities in modeling: it will explore the opportunities and limitations to the development of research models employing lower organisms, tissues/cells in culture, and mathematical and computer simulations.

DRR has begun to develop an information retrieval system that identifies the research materials or subjects used in extramural research projects. Research projects employing model systems other than higher animals can thereby be identified. The collected data defines "pools" of investigators who have expertise in the various modeling areas of interest. The NIH extramural grants portfolio for fiscal year 1980 has been subdivided into 16 categories, based upon the nature of the "research material" used in the project (see Table for summary).

This information will be utilized by DRR to develop appropriate workshops and symposia and to make plans for an information clearinghouse on models for biomedical research. The DRR comments that progress "in achieving these objectives would be enhanced were a discrete budget to be assigned to this activity. It could serve as a centralized activity in this area for NIH as a whole. The information available through this activity has already proved of value in response to the 'animal welfare' issue and could prove of greater value in the future."

TABLE 1 Research Materials Used in NIH Extramural Research Projects—FY 80

Classification	Dollars (%)	Projects and Subprojects (%)
Humans	669,235,383 (23.6)	8,960 (28.7)
Mammals	741,665,562 (26.1)	8,904 (28.5)
Humans and mammals	334,207,609 (11.8)	3,612 (11.6)
Other categories involving humans and some combination of vertebrates and invertebrates	34,816,814 (1.2)	378 (1.2)
Mammals and nonmammalian vertebrates	56,830,720 (2.0)	620 (2.1)
Mammals and invertebrates	23,551,005 (.8)	297 (1.0)
Mammals, nonmammalian vertebrates and invertebrates	5,949,303 (.2)	59 (.2)
Nonmammalian vertebrates	55,404,312 (2.0)	760 (2.4)
Nonmammalian vertebrates and invertebrates	6,502,857 (.2)	80 (.3)
Invertebrates	53,863,116 (1.9)	733 (2.4)
Non-animal	856,667,500 (30.2)	6,831 (21.9)
TOTAL	2,838,694,181 (100)	31,264 (100.3)

Total: Dollars = \$2,838,694,181
 Projects and Subprojects = 31,264