

# Current Events

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## MEETING REPORTS

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### Society for Neuroscience — 1982 Annual Meeting

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One of the symposia at the Neuroscience Society meeting covered the topic of the use of animals in research (November 2, 1982).

The opening speaker was Dr. Arthur Caplan of the Institute for Society, Ethics and the Life Sciences in Hastings, NY. He outlined the basis of moral philosophy and some of the arguments regarding the moral status of animals. He asserted that sentience was not a sufficient criterion for granting or removing moral status — instead, he proposed purposeness and intentionality as the most critical requirement. He also noted that moral interests do come into conflict and that we can, under some circumstances, frustrate a moral right if we can claim to be acting on behalf of a higher-order right.

As a rule of thumb, he proposed that, in animal research, the burden of proof should *always* fall upon the experimenter (or those who would interfere with animal goals), but also that, no matter what goods may stem from animal research, some creatures will always have some of their drives frustrated by the constraints of experimentation. Therefore, we should aim to reduce animal use, to develop alternatives, and to educate the public as to the trade-offs.

The next speaker was Dr. T.H. Bullock of the University of California in San Diego. He discussed the evolutionary continuum of animal awareness and noted that we are not completely unique in our ability to think, will, and feel, although we have these abilities to an extraordinary degree in comparison with other animals.

(In true anthropocentric fashion, he stated that brain and behavior are the principle achievements of evolution.) Our knowledge of awareness is very inadequate, he said, but we can make some rudimentary judgments from our knowledge of anatomy and physiology. Thus, in his scheme, it appears as though seals would score higher than manatees and teleosts higher than frogs.

Dr. R. Dubner of the National Institute for Dental Research (Bethesda, MD) then discussed research on pain mechanisms and the special problems (ethical) of such research. He noted that there are a number of different categories of models for pain research, including the use of reflex behavior (e.g., tail flick, limb withdrawal, jaw opening), the use of complex unlearned behavior (escape, face rubbing, vocalization) and the use of learned behavior (escape, detection, discrimination, response suppression). He discussed the tail flick reflex and emphasized the fact that it is not a particularly reliable test for pain. In learned behavior, he stated, the magnitude of the behavioral change reflects the stimulus intensity.

A monkey model indicates the sort of experimental system that can provide us with some parameters on animal pain. A thermode is first placed on the monkey's upper lip, and the temperature is allowed to rise (to a maximum of just over 50°C). If the monkey completes the trial successfully, it is given some fruit juice as a reward. Nevertheless, the monkey is allowed to terminate the experiment at any time. Using this system, it can be shown that monkeys terminate the experiment at a temperature between 47 and 50°C (the same range as has been found in humans).

There are additional problems with animal models of chronic pain and in analgesia research, where one must use continuous pain stimuli, because here we must ensure that intensity of pain is not too great. Examination of behavioral parameters (e.g., feeding, drinking, sleep/waking cycles, grooming) is one method of checking on toleration of pain. One

can also establish the animal's acceptance threshold for noxious stimuli and not use stimulus levels that exceed that threshold.

The opportunity to conduct pain research in animals, he reminded the participants, is a privilege granted to us by society—we must respect this privilege by doing all we can to guarantee the welfare of animals. This includes careful assessment of cost-benefit ratios, assessment of pain intensities and durations, and determination of the minimal pain levels necessary for the success of the experiment.

Dr. R.E. Burke of the National Institute for Neurological and Communicative Disorders and Stroke (Bethesda, MD) discussed the development of guidelines. He noted that the ad hoc committee had decided that more specific guidelines were necessary because of the skepticism expressed by many critics and because this is an issue where "criticism will probably get worse before things get better."

Dr. H. Edinger of the University of Medicine and Dentistry of New Jersey next discussed legal and legislative aspects. He was asked whether an experiment can be "cruelly injurious" if cruelty is defined as every act or omission that unjustifiably causes pain and suffering. He described a New Jersey case (1964) in which an East Orange high school student who had injected two chickens with Rous sarcoma virus and displayed the tumors as part of his science project was acquitted by the court. The judge ruled that the procedures were not unnecessary or unjustifiable, even though the procedure was only educational.

There are two forms of cruelty—active and passive—and scientists are most vulnerable on the question of omission or neglect. In addition, most state anti-cruelty statutes do not include malicious intent clauses.

He then discussed the drafting of the "infamous HR 556" and subsequent events. He noted that Senator Dole's introduction of a bill in the senate came as a surprise. He said that we are now seeing an increasing amount of "intrusion and regulation" of animal research.

These profound policy shifts reflect the growth of the power of the animal activist groups. Scientists have usually underestimated the power and funding of such groups. He believes we will see increasing activity by animal activists, especially of a legal nature, and more picketing and demonstrations.

The panel discussion started with a presentation by Dr. A. Morrison (University of Pennsylvania Veterinary School), who noted that he works "on cats, which I also use as pets and enjoy very much." He disputed Caplan's statement that the burden of proof lies entirely with the researcher, asserting that the antivivisection movement must produce some rebuttal to researchers' claims that they are working to relieve anguish in children. He also queried Caplan on how he would have concluded his talk if it had been given before an antivivisection group (the point of this statement was not exactly clear).

Caplan noted that, in balancing animal suffering versus human benefit, one was dealing with a *known* harm versus only a *possible* benefit. This balancing is, therefore, asymmetrical. The scientists have failed to take antivivisectionists' concerns seriously, and their refusal has thus become a major bone of contention.

Dr. C.R. Gallistel (University of Pennsylvania) then noted that one should consider cost-benefit at a global level and that, at this level, scientific research on animals has been of undoubted benefit. In fact, the progress made in the last century represents one of mankind's greatest achievements. However, at the specific level of individual cost-benefit assessment, the problem becomes imponderable, because only God can know what any particular experiment will contribute to scientific advancement.

Caplan responded by saying that he gets very nervous when people argue that it is impossible to determine beforehand what is going to be "good" science and produce useful data. We do not function on this basis now, he noted; otherwise, what would peer review be all about, and how would we determine whether

somebody was good enough to hire, etc.

An unidentified psychopharmacologist then commented that anyone who thinks we are going to come up with alternatives to replace all animals in research is very naive. Furthermore, those who request funds for alternatives research must bear the burden of proof that such funding is realistic.

Edinger then responded that the requirement that NIH fund alternatives need not be abused if it is done properly.

Caplan noted that he had been involved in the establishment of human IRB's and that he had subsequently become unhappy with the notion of localized controls. He felt that centralized control would be a far better way to proceed.

Dr. Manfred Zimmerman (from Germany) said that he had been instrumental in developing pain research guidelines, but that the attitude the scientist takes toward the research animal is much more important than anything mere guidelines can convey. Over the years, human/animal interaction has been deep and committed, but in modern society it has become perverted by the inability of urban dwellers to interact with animals. This is evident from both the attitudes and emotions of animal activists, as well as the cruel experiments (which he has personally observed) being performed in various laboratories.

Dr. Peter Hand (University of Pennsylvania Veterinary School) noted that he had observed people in laboratories who do not have sufficient experience or knowledge to judge when an animal is ill or in pain, so there must be more dialogue between researchers and veterinarians.

Dr. Murray Goldstein (from NIH or NIMH) was very surprised, during the last year, to learn how few scientists have even looked at their animal facilities. He has come to realize to what extent the public considers scientists to be elitist. Unfortunately, scientists often make it harder for themselves by considering it beneath their dignity to get involved with the media.

Caplan pointed out to those who were calling for more consistency from the antivivisectionists that they have im-

proved their methods of operation, and that today's pressure for moral consistency on veal, furs, animal research, etc., has generated unusual unity within the movement.

Dr. Edward Taub (Institute of Behavioral Research, Silver Spring, MD) then commented that Congress will probably do something about animals, and that we will simply have to learn to live with whatever action Congress decides to take. We will probably find that we can live with veterinary intrusions and the criticisms from a representative from the local community. Although creativity requires as free an environment as possible to flourish, it can still survive in an environment that has some constraints.

The meeting was very interesting in that a good mix of viewpoints was represented by the participants, with a number of them taking an enlightened stance on animal welfare. There was also considerable use of the terms "animal rights" and "animal rightists." A number of the questions from the floor did show some petulance about the way scientists are misunderstood and picked on. On the whole, however, I thought that there were encouraging signs of progress at the meeting.

A.N. Rowan

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### ISAP Symposium — November 3, 1982

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In his landmark book on animal mentation, *The Question of Animal Awareness*, Donald R. Griffin addressed some of the innumerable conundrums about what animals may be thinking and feeling, whether they are consciously aware of these thoughts, and whether they may even be aware of themselves as distinct entities. In that work, he detailed much of the collected data which seems to suggest, provocatively, that animals do indeed fulfill many of the criteria for awareness established by several schools of psychology, such as utilization of a sophisticated communication system.

Griffin's book first appeared in 1976, and a great deal of work has been done since that time. First, researchers have

attempted to devise meaningful ways of conceptualizing the varied nature of awareness in diverse animal species and second, have come up with means for testing whether our new criteria and definitions of awareness are being met by animals and, if so, in what ways. To analyze and debate the myriad aspects of animal perception, a symposium, "Animal Awareness-Human Perceptions: Implications for Animal Welfare," was held in Danvers, MA, on November 3, 1982 by the Institute for the Study of Animal Problems.

Interestingly, our appraisal of the diversity and richness of awareness in animals has risen and fallen with changes in cultural (especially scientific) fashion. The first speaker, Bernard Rollin (Colorado State University, Fort Collins) traced the ebb and flow of the historical context that has, in great measure, determined our *a priori* estimates of animal capabilities. In 1872, Darwin, in his *Expression of Emotion in Man and Animals*, felt perfectly comfortable ascribing both consciousness and emotions to animals. Animals were also assumed to have a whole panoply of subjective experiences that were closely parallel to those of humans. But by the late 1920's, the reductionist scientific philosophies of behaviorism and positivism had begun to dominate scientific thinking and methodology. In the process, the lid was clamped shut tightly on any speculation about animals' mental states. Under the new behaviorist decree, only overt observable phenomena were to be recorded and analyzed.

What Rollin underlined about this dramatic shift in scientific emphasis was that it was *not* based on any new discoveries, or even any real theoretical breakthroughs but, rather, a subtle but pervasive alteration in assumed, initial postulates.

Such unspoken postulates, Rollin noted, go back to Aristotle, who assumed in all of his works on natural history that the senses are the only reliable source of data about the real world. Then, in the Renaissance, thinkers like Galileo and

Descartes upset the Aristotelian applecart by asserting that sense data were often unreliable—only what was quantifiable and reducible to mathematical equation was real. Again, as had occurred in the shift to behaviorism in the 1920's, no new facts had instigated the change in scientific orthodoxy. Quite simply, an arbitrary decision had been made to place a higher value on math than on biology.

By the 1970's, the inherent limitations in much of behaviorism had become obvious, and work by investigators like Griffin, Shepard and Cooper had begun to reopen the door to questions about mental states in animals. Even in journals on animal sciences, subjective experience in animals now seems to be taken for granted. More and more research is showing us that many forms of life share a great deal, in both structure and function. The trick will be to see that the pendulum does not begin to swing back the other way at some time in the future. For, on the basis of what we already know about animal minds, Rollin argued that animals have inalienable interests and ethically based rights, regardless of what conceptual view of science is in fashion.

Dr. Michael Fox (Institute for the Study of Animal Problems, Washington, DC) spoke next on some ethological issues that are relevant to the topic of animal awareness. He observed that, for many cultures, the notion that animals *lack* subjectivity would probably seem somewhat silly. Hunter-gatherers, for example, learn animal behavior by long hours of close observation. Eventually, they achieve complete identification with the animals and can therefore predict their behavior.

It is unfortunate, said Fox, that the rich suggestiveness of this kind of anthropomorphic projection is closed off to most modern scientists, who quest for ever more quantifiable data. These investigators fail to recognize animal cognition and mental states because they lack the simple component of empathy with the creatures they study.

Like Rollin, Fox interpreted this mentality as a legacy of the mechanistic Cartesian world view — another manifestation of our hubristic, dominionistic attitude toward all of nature. In fact, Fox claimed, it is logical to assume that our premises about animal minds must be commensurate with those we hold about human minds: Subjectivity in animals can't be denied unless we deny our own subjectivity. The idea of a mechanistic universe collapses as soon as we become aware of the interconnectedness and commonality in all life forms.

One way out of this trap, which equates sterile, piecemeal mensuration with science, may be a rigorous examination of the human-companion animal bond, since this phenomenon has recently become socially acceptable as a subject of study for the mainstream of scientists.

Another source of data on animal minds may be anecdotal data, which has usually been met with skepticism in the past. Yet, nearly everyone who knows an animal well has seen some persuasive evidence of animal mentation: manipulative control of humans, feigning of injuries to get attention, altruistic behavior, sense of humor, and even symbolic behavior, as when a dog brings its owner a leash to indicate that it wants to go for a walk. Fox claims that carefully designed studies of these kinds of behaviors using the standard scientific method would be highly feasible; the real problem in getting this sort of work started is the negative mind-set of investigators.

Sapience and sentience in animals are inseparable, said Fox: the more sentience an animal has, the more likely it is to form mental constructs of fear, of pain, and of death, as well as develop generalized anxiety. Also, he asserted, sapience is built up upon a creature's accumulating emotional substrate. As evidence, Fox cites the case of elephants, who quickly become quieted on discovering the bones of a dead elephant.

Development of collaborative relationships with nature is an important element in healing the wounds created by

our recent breach with nature, but part of this new collaboration must entail a new and more open-minded attitude toward animals on the part of the scientists who work with them every day.

For Gordon Gallup (State University of New York, Albany), a critical question was: Where do we draw the line between that cohort of species that can be said to possess true awareness, as opposed to those that do not? One deceptively simple task in responding to this question involves concocting definitions for the basic terms employed. At an earlier conference in England, no one had felt confident enough to attempt an explicit explanation of fundamental terms like "awareness" or "consciousness." But these definitions constitute the building blocks upon which our conceptual paradigms about animal mentation must be constructed. For Gallup, the success of definitions for basic terms should be judged on the basis of their utility for empirical experiment. Therefore, any definition must meet three criteria:

1. It must have an empirical complement.
2. It should help to achieve integration and synthesis of the existing data.
3. It should be couched in terms that allow us to test it empirically.

Gallup cautioned that in making judgments on the quantity and quality of awareness in animals, we must never forget that "the only thing that defines man is better is man; the old notions about human uniqueness have been seriously challenged by new data on animals." Also, the whole idea of drawing any line between two groups of animal species, he noted, goes against the grain of the continuum that is assumed by traditional evolutionary theory. But in some newer hypotheses on evolution, sudden, step-wise changes in animal capability are accepted as orthodox — this hypothesis would thus provide us with a biologically based rationale for line-drawing.

Given these considerations, Gallup suggested several working definitions for

fundamental concepts (note, however, that he considers all of these to be but different aspects of the *same* process):

- Self-awareness — the capacity to become the object of one's own attention
- Consciousness — awareness of one's own existence
- Mind — the ability to monitor one's own mental states.

Gallup then summarized his own research with apes, in which recognition of self in a mirror is used as a criterion to indicate self-awareness and, with self-awareness, consciousness and mind as well. To date, only chimpanzees and orangutans have evidenced the capacity to see their image in a mirror as a reflection of themselves. Such an illustration of self-awareness represents, to Gallup, one of the "software" markers of mind (which include attribution, deception, empathy, recognition, and pretending) that must be contrasted with hard-wired analogs like a chick's instantaneous reaction to the shadow of a hawk.

Self-awareness, Gallup concludes, implies other states of introspective mentation as logical corollaries: for instance, an awareness of one's own past and future, including one's death, and an ability to use one's own mind to interpret and predict the behavior of others.

Other likely candidates for future empirical tests of self-awareness include the cetaceans, in particular, dolphins.

Gordon Burghardt (University of Tennessee, Knoxville) observed that human prejudice about human superiority continues to act as a barrier in preventing us from learning about the distinctive qualities of awareness in the many animal species. Each time a species meets one of our hard-and-fast standards for inclusion within the "awareness family," such as a capacity for using language, humans simply react by shifting the standards.

Burghardt himself has done extensive research on snakes to try to get a window into the workings of the animal mind. In particular, he has been observing a highly unusual specimen — a two-headed boa — to see what patterns of co-

operation (or competition) emerge. In fact, the two heads have seldom been observed to show any cooperation at all in efforts like feeding. Yet, fascinatingly, data recorded over 5 years show that some sort of reciprocal agreement has been operating between the heads: the left head swallowed more, but *smaller* animals as opposed to the right. So the total number of grams ingested by each head over a 5-year duration was virtually identical.

Speaking in a more philosophical vein, Burghardt remarked on the extreme difficulty of striking a balance between anthropomorphic projection and strict behaviorism in interpreting the implications, for the issue of animal awareness, of an animal's behavior. His solution is that both anthropomorphism and behaviorism must be used, but in a specific temporal order: anthropomorphic and empathetic speculation about what an animal may be feeling is useful as a preliminary exercise in generating hypotheses. But the second phase of study must involve empirically testable models, like Gallup's mirrors.

Elizabeth Lawrence (Tufts University, Boston), a veterinarian and anthropologist, contrasted our European-derived attitudes and treatment of animals with those of the American Indian cultures. For these peoples, unity and equality are the more fundamental precepts. No form of life is thought to be superior to any other, nor is any dualistic distinction made between the material and spiritual realms. The Plains Indians believe that they live in a constant state of direct communication with Nature: Sitting Bull narrated that he had once been warned about an attack by a bear.

Lawrence has worked with the Crow Indians and uncovered unique attitudes toward horses among them. To a Crow, horses are considered as "admired partners," which convey special knowledge and power. There is therefore a sense of reciprocity between the horse and his owner. One Crow remarked: "My horse must know my heart, and I must know his. I have in my time seen my horse's

soul in his eyes."

There are also vast differences in opinion between Crows and Whites concerning man's role in regulation and relationship between the horses and the land. Whites accuse the Crows of negligence for permitting the horses to overgraze the land, and of cruelty for allowing them to winter on the bleak mountains in Montana. In fact, Lawrence has found that this way of wintering horses is perfectly adequate for the horses' diet and general condition.

Cultural values in White society also influence how animals are treated. In *Let Us Now Praise Famous Men*, which documents the brutally harsh life of rural Appalachia in the 1930's, James Agee described the intensely cruel, dominating way farmers handled their mules. And yet, at the same time, there was clearly a sense of identification between the mules and their owners.

Lawrence observed that the kinds of welfare problems that are created by values are particularly difficult to combat, since it is almost impossible to contravene practices accepted as normal in a given culture.

A panel discussion was then initiated by comments on the proceedings, from Robert Solomon (University of Texas, Austin) and Ellen Rees (Mt. Holyoke College, Massachusetts). Solomon, a philosopher, observed that in posing the question of whether animals have minds, we tend to set the requirements for "mind" at such a sophisticated level that most animals can only come off as failures. And this tendency may well have implications for animal rights, since rights are often linked, in an unjustifiable way, to anthropomorphic capacities like self-awareness. In addition, this propensity may eventually have dire consequences, if all of the species that cannot meet our arbitrarily chosen standards for awareness come to be excluded from any consideration before the law. Solomon suggested that it might therefore be wiser—and more fruitful—to consider the whole spectrum of possible mental activities in animals,

and not limit our consideration to the extremes such as reactivity to pain (at one end) and self-awareness (at the other).

Rees discussed the methodological loopholes that may confound our experiments on animal awareness. For example, standard behavioral experiments in which dogs were trained to discriminate between odors using lever-pressing and food rewards are probably not appropriate to the dogs' behavioral repertoire. A better experimental design might involve using tracking dogs out of doors, for example. We could then test to see whether dogs can tell the difference between the odors of identical twins.

Further, Rees asserted that assessments of self-awareness comprised a seriously flawed basis for advancing animal welfare since, to behaviorists, all of the notions related to the idea of mind are unacceptable, because they cannot be quantified. Instead, she advocated a return to Peter Singer's Benthamite premise, that it is an animal's potential for suffering that endows it with inherent rights. Rees' rationale for backing Singer's position is that there are quantifiable indices of suffering like general health, behavior (including choice tests), and indicators of stress like ACTH levels.

Finally, in a closing discussion, Solomon made a statement that could stand as a summarization, albeit a provocative one, of the days proceedings: "Defining and learning about animals' capacities can serve to define our ethical responsibilities toward them." In this way, through new research, we can progress beyond the considerably simpler dictum that *physical* suffering of animals is the only consequence of man's interaction with animals that we need be concerned about.

## FORTHCOMING MEETINGS

**ASTM Committee E-47 on Biological Effects and Environmental Fate:** 7th Symposium of Aquatic Toxicology, April 17-

19, 1983, Milwaukee, WI. Papers are now being solicited for this meeting in the following subject areas: new methods and concepts for testing and assessing the aquatic hazard of materials (e.g., chemicals, effluents); sublethal effects; bioavailability and recent advances in environmental chemistry; biological and ecological implications of responses of organisms to materials; and lab vs. field—how good is our predictive capability and what confounds extrapolation and assessment *in situ*. Contact Program Chairman, Dr. Rick D. Cardwell, EnviroSphere Company, 400 112th Avenue N.E., Bellevue, WA 98004.

**Association of Institutes for Tropical Veterinary Medicine:** International Conference on Impact of Diseases on Livestock Production, May 9-13, 1983, Kissimmee, FL. Contact Dr. M.J. Burrige, Director, Center for Tropical Animal Health, College of Veterinary Medicine, Box J-136, University of Florida, Gainesville, FL 32610.

**NACA 5th Annual National Training Conference:** May 12-15, 1983, Mackinac Island, Michigan.

**Latham Foundation, AVMA, and CVMA:** Conference on the People/Animal Bond, June 17-18, 1983, Irvine, CA. Interdisciplinary perspectives on people-animal relationships and environments will comprise the focus of this event. Contact William J. Winchester, DVM, Department of Animal Resources, University of California, Irvine, CA 92717.

**Latham Foundation, AVMA, and CVMA:** Conference on the People/Animal Bond, University of Minnesota, June 13-14, 1983, St. Paul, MN. This meeting will also provide a forum for an interdisciplinary discussion of "the bond"; many of the disciplines represented have not previously addressed the topic of human/animal bonding. Contact William J. Winchester, DVM, Department of Animal Resources, University of California, Irvine, CA 92717.

**International Council for Laboratory Animal Science:** "The Contribution of Laboratory Animals to the Welfare of Man and Animals: Past, Present, and Future," July 31-August 5, 1983, Vancouver, BC, Canada. Topics covered will include: a geographic overview of laboratory animal science; the animal model in gerontological studies; the development, status, and future of international quality in laboratory animals (standardization); and new and future trends in biotechnology. Contact Mr. D. Jol, ICLAS/CALAS 1983, Box 286, 810 West Broadway, Vancouver, BC, Canada V5Z 1J8.

**Austrian Ludwig Wittgenstein Society:** 8th International Wittgenstein Symposium, August 15-21, 1983, Kirchberg/ Wechsel, Austria. The theme of this year's symposium is "Aesthetics—Philosophy of Religion" and papers are now being solicited in the following subject areas: Wittgenstein, recent developments in aesthetics, methods in aesthetics and in philosophy of religion, knowledge and belief, science and religion. Contact Dr. A. Hübner, President, Austrian Wittgenstein Society, Markt 234, A-2880 Kirchberg am Wechsel, Austria, or Professor Werner Leinfeller, University of Nebraska, Dept. of Philosophy, Lincoln, NB 68508.

**Australian Society for the Study of Animal Behavior and the Australian Academy of Sciences:** 18th International Ethological Conference, August 29-September 6, 1983, Brisbane, Australia. Potential participants are being given early notification for this conference, since this is the first time an International Ethological Conference has been open to all behavioral scientists, and therefore no channels of communication have been established to reach all those who might be interested in attending. The content of the plenary sessions has not yet been determined, and the committee sponsoring the conference would welcome any suggestions on possible session topics. Plenary sessions will be strongly didactic, but will also provide a general overview



of recent developments and highlight any problems or controversies. Contact Conference Secretary, Animal Behavior Unit, University of Queensland, St. Lucia, Australia 4067.

**IEMT:** International Symposium on Pets and Society on the 80th Birthday of Professor Konrad Lorenz, October 17-19, 1983, Vienna, Austria. Contact Secretary, IEMT, Johann-Blobner Gasse 2, A 1120, Vienna, Austria.

## ANNOUNCEMENTS

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### Political Action Groups for Animals

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Connie Kagan is a philosopher who specializes in theories on mental states of animals, but works in a rather unlikely setting, Washington's Capitol Hill. In the past, she has made novel use of her formal training to help in drafting various renditions of lab animal bills, and in furnishing gentle but irrefutably logical rebuttals to the assorted objections to animal legislation made by research scientists.

In recent months, she has registered an Animal Political Action Committee (or ANPAC) with the U.S. Federal Election Commission. She now intends to devote all of her time to this project. ANPAC will function, first, as a vehicle to solicit funds from individuals and corporations who care about animals and, second, to use those monies to assist candidates who support animal protection. As a "PAC," Dr. Kagan's organization will be compelled to give up any claim to tax-exempt status, but will be free to lobby and work for candidates openly and directly.

ANPAC will also serve as a clearinghouse for information, and will keep animal protection groups alerted about relevant legislation as soon as it is introduced. It will also carry out projects like analyzing the impact of budget cuts on animal-related problems and help in clarifying the myriad ramifications of the shifting sands of government regulations.

Meanwhile, in California, State Sen-

ator David Roberti, who worked earlier for repeal of the state's pound law, has set up his own animal PAC, designated as the "ROAR" — Respect Our Animals' Rights. Roberti has, to date, solicited funds from some 20,000 people who have supported his other efforts on behalf of pro-animal legislation. Observing the overflowing coffers of the "anti-animal" lobbies in Sacramento, Roberti decided that formation of his PAC was a vital move, in order to fight fire with fire (or dollars with dollars) in the task of backing candidates who focus on animal welfare issues.

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### Tissue Culture Course — Washington, D.C.

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An intensive summer course in tissue culture and *in vitro* toxicology will be held during the summer (July 5-9, 1983) at the Center for Advanced Training in Cell and Molecular Biology at Catholic University in Washington, DC. The American Fund for Alternatives to Animal Research (AFAAR) has contributed \$8,000 to provide scholarships to the course for 25 college freshmen and upper-division high school students.

The course will be comprised of 20 hours of lecture and 20 hours of laboratory work, with a field trip. Through the course, students will gain knowledge and technical skill in cell and tissue culture, *in vitro* mutagenesis, and transformation and cytotoxicity.

For more information about the course, write to Dr. Roland M. Nardone, Director, The Center for Advanced Training, Department of Biology, Catholic University, Washington, DC 20064.

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### Floor Rearing of Pullets — Pamphlet Available

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A booklet that provides advice on the floor rearing of replacement pullets is now available from the U.K. Ministry of

Agriculture. Information is offered on housing, equipment, management, and welfare considerations for large-scale operations. The publication, Leaflet 426, can be obtained from MAFF (Publications), Lion House, Willowburn Estate, Alnwick, Northumberland, NE66 2PF, U.K.

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### **Greenpeace Needs Able Bodies for Dolphin Campaign**

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Greenpeace is now recruiting a special team of individuals who can take on the task of assisting dolphin campaign organizers, in all phases of dolphin protection, on a local level. This team, which will be designated as the Dolphin Action Group, will serve to provide back-up support for Greenpeace's campaign in the Pacific Ocean, several hundred miles off the coast of Central America. There, the Greenpeace vessel "Rainbow Warrior" will attempt to intervene in the tuna fishing industry that kills tens of thousands of dolphins every year.

For an application form, write to Dolphin Action Group, Greenpeace, Box 6677, Portland, OR 97228.

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### **Call for Papers—Conferences on Human/Animal Bond**

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Two conferences on the Human/Animal Bond will be held this summer: at the University of Minnesota (June 13-14, 1983) and at the University of California, Irvine (June 17-18). The organizers of these meetings are now soliciting papers and poster presentations pertaining to research results in the following areas of human-animal relationships, as these effect:

- Mental and physical health throughout life
- The health and quality of life for the handicapped, people in long-term care facilities, health facilities, prisons, etc.
- Other concerns of society such as

family violence, child abuse, and problems of environmental health.

Suggestions for workshops, films, and "how-to" sessions will also be appreciated.

Abstract forms can be obtained from Dr. R.K. Anderson, Center to Study Human-Animal Relationships and Environments (CENSHARE), 1-117 Health Sciences Unit A, 420 Delaware Street, S.E., University of Minnesota, Minneapolis, MN 55455, phone (612) 373-8032, or Dr. William J. Winchester, Assistant Dean, Continuing Veterinary Medical Education, College of Medicine, University of California at Irvine, Irvine, CA 92717, phone (714) 833-5464.

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### **Tissue Culture Course—Bronx, NY**

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The Biology Department of Manhattan College, Mt. St. Vincent Campus, Bronx, NY, is sponsoring a basic tissue culture course, with the option of one of two sessions: May 31-June 10, 1983, or June 21-July 1, 1983. Topics will include: cell ultrastructure and histology; physiology of the normal and tumorous cell; the care of cell lines and problems of contamination; karyology; primary cell culture; organ culture; use of tissue culture in the assay of chemotherapeutic agents; monoclonal antibodies; and an introduction to plant cell culture. Aspects of media preparation and standardization, cell characterization, aseptic techniques, cryogenic storage, and computer applications will also be considered. Laboratory techniques and procedures will be emphasized.

Participants may register for the complete course or individual topics, at a cost of \$800 for a complete course or \$95/day for individual topics. For application forms and information on the course schedule, dates for specific topics, and on-campus housing, contact Dr. Frances M. Cardillo, Department of Biology, Manhattan College, Mt. St. Vincent Campus, Bronx, NY 10471.

## AFAR Conference Planned

The First Annual AFAR Conference will be held at the Fort Mason Conference Center, San Francisco, CA, on April 9-10, 1983.

The 2-day conference will include workshops on Protection of Wildlife, Estate Planning and Animals, Exploitation of Animals for Food and Research, Land Lord-Tenant Issues, and other subjects. Further information can be obtained from AFAR, 33 Market Street, 23rd Floor, San Francisco, CA 94105.

# Book News

## BOOKS RECEIVED

**Avian and Mammalian Wildlife Toxicology: Second Conference**, D.W. Lamb and E.E. Kenaga, eds. (published by ASTM, 1916 Race St., Philadelphia, PA, \$18.50). The result of the Symposium on Avian and Mammalian Wildlife Toxicology held March 1980, in Louisville, Kentucky, this technical publication contains 12 papers designed to answer current problems concerning the effects and hazards of pesticides and other toxic materials on wildlife populations. Some of the topics addressed include: selection of surrogate species; predicting toxicity; matching concentrations of chemicals in various media with concentrations in organisms which cause various toxicological effects or responses; assessment of the hazard of chemicals to avian and mammalian wildlife species; and the reliability of laboratory tests in comparison with actual field conditions. This book will be an invaluable reference tool for wildlife toxicologists, ecologists, biologists, environmentalists, and those in research laboratories.

**The Practice of Wild Animal Immobilization (Die Praxis Der Wildtierimmo-**

**bilisation)**, Hans Heinrich, M. Hatlapa, and Henning Wiesner, eds. (published by Paul Parey, 461 Park Ave., So., New York, NY, \$21.00). The procedure of immobilizing wild animals from a distance is being widely used today in wildlife research and management, as well as in zoos and on reservations. The contributors discuss the available instruments and drugs, and their proper use. Following an introductory survey of the development of immobilization from a distance, injection methods and instruments and their applications are presented. The effects of different drugs are discussed, various combinations suggested, and their hazardous effects on humans pointed out. Dosage, effect and duration of immobilization, and injection sites in numerous wild animals are dealt with in detail.

**Iguanas of the World: Their Behavior, Ecology and Conservation**, Gordon M. Burghardt and A. Stanley Rand, eds. (Noyes Publications, Park Ridge, NJ, \$55). Iguanas are economically important as food and for recreational hunting in tropical cultures. For the scientist, however, they are pivotal in understanding the evolution of land vertebrates and the transitions needed for mammal and bird radiation from reptilian ancestors. Today, their population is rapidly declining and several species have become extinct; several more are threatened or endangered. Only in recent years have efforts been made to study their behavior, reproduction and habitat requirements. This book, the cumulative effort of many outstanding researchers in the field, brings together for the first time in-depth studies of the behavior and ecology of all kinds of iguanas throughout their range. It also discusses the diversity and distribution of iguanas, their feeding and food utilization, reproduction, social systems, communication and conservation. A complete distributional and taxonomic map is included. The book is an invaluable reference tool to all those interested in animal behavior, conservation, ecology, herpetology, amphibians, reptiles and zoology.

## BOOK REVIEW

**MAN AND BEAST**, 2nd ed., C.W. Hume (Universities Federation for Animal Welfare, 8 Hamilton Close, South Mimms, Potters Bar, England; 1982; \$9.00). This is a Memorial edition of a book that first appeared in 1962 and which incorporated a number of essays and articles by Major Hume, penned from 1946 until 1960. In spite of the fact that much of the material is dated, Major Hume's writing is delightfully direct and clear, and his essays convey much interesting information and argument about a wide range of topics. These include an analysis of people's blind spots on human and animal welfare, a discussion of the gin trap, several essays on vivisection, animal research and humane experimental technique, a chapter on electrical euthanasia, an essay in praise of anthropomorphism, and two chapters discussing the attitude of established religions towards animals.

While this book is not essential reading for the modern day activist, it is highly recommended for the insights it provides into the development of concern for the welfare of animals exploited by our technological society. UFAW, led by Major Hume, was a pioneer in drawing attention to many of the abuses which are now the concern of the modern activist. His scholarly articles and clear prose helped to raise the standard of animal welfare argument and to broaden the scope of animal welfare concern from dogs, cats, and obvious cruelty to include some of the subtler forms of animal exploitation.

A.N. Rowan

### **RESEARCH ANIMALS AND CONCEPTS OF APPLICABILITY TO CLINICAL MEDICINE**

K. Gartner, H. Hackbarth and H. Stolte, eds. (S. Karger, New York and Basel; 1982; \$88.75). A common animal welfare complaint about the use of animals in medical research is that one cannot extrapolate results from animal research to the human condition. However, this is not strictly true. While there are,

of course, differences from one species to another as well as differences between individuals of the same species, there are also numerous similarities. Thus, the genetic code is, give or take a few exceptions, the same for bacteria as for human beings. Certain proteins show remarkable homology across the living spectrum.

This book, containing a series of articles and abstracts from a 1981 symposium in West Germany, seeks to highlight specific similarities which can be exploited in the study of disease. The first section, for example, contains papers discussing dimensional analysis and some interesting relationships between mammals. Metabolic rate among mammals equals the 0.75 power of their body weight. There is a clear relationship between aortic length and the duration of one cardiac cycle. The book contains a range of articles and abstracts on specific organ systems in man and animal and on selected and interesting animal models. There are also a few chapters on cell culture and a comparison of various methods for identifying carcinogens. (It seems no publication can now be without a contribution on this topic.)

One chapter included a short analysis of the changing use of animals in physiology research. In 1960, there were 700 physiology abstracts in *Federation Proceedings*, 88% of which involved the use of dogs, rats, primates and cats. Twenty-one years later, there were 4,758 abstracts, the leading animal subjects being rats (31%), humans (17%), mice (17%), and dogs (10%).

The publication has an attractive format and is easy to read. It contains much interesting material for those interested in animal models but little for animal welfare activists. However, its price is likely to put it out of reach for all but the larger libraries.

A.N. Rowan

**RODEO: AN ANTHROPOLOGIST LOOKS AT THE WILD AND THE TAME**, Elizabeth Atwood Lawrence (University of

Tennessee Press, Knoxville; 1982). In a fascinating analysis of the sport and character of rodeo, Elizabeth Atwood Lawrence stresses the relationship of the cowboy to the natural environment. Her perspective is enhanced by the marriage of her dual career as veterinarian and cultural anthropologist, and perhaps her credentials make her uniquely qualified to delve into the ritual interplay between human and non-human rodeo contestants. Unavoidably, we are drawn to the conclusion that rodeo is a fundamental expression of the American frontier attitude. That is to say that all things which are wild and untamed are perceived as "the enemy" and must be conquered by man.

Winner of the coveted James Mooney Award, *Rodeo: An Anthropologist Looks at the Wild and the Tame* traces the settling of the West and the development of a ranching society as a backdrop for understanding the ranching/rodeo ethos. The qualities of the early cowboys are still revered in today's rodeo contestant—stoicism, a dominionistic attitude toward nature and "the wild," and individual toughness are highly esteemed male traits. Life on the cattle range was a life of incredible hardship and only those men willing to endure long periods of isolation, weather extremes and mental or physical deprivation were suited to the work of a cowboy. Violent encounters with wild animals, warring Indians and competing ranching interests shaped the cowboy's attitude of confrontation. Not surprisingly, the modern cowboy retains a belief that man is ordained to conquer and regulate the natural world to suit his personal needs: the rodeo contestant is inheritor of this ethos as a consequence of "cultural inertia."

One might have expected the character of Western ranchers to change as the West became more settled, fences parcelled off sections from the vast prairies, and more docile cattle breeds replaced the semi-wild Texas Longhorn. Gone are the days of thousand-mile cattle drives, periodic stampedes and range wars. Cattle can better be identified with freeze brands and ear tags, yet hot branding endures despite the fact that it dam-

ages a valuable hide. Indeed, the author suggests that hot branding today is largely ritual, representing "an almost universal association between the establishment of mastery and the infliction of pain upon the conquered."

Rodeo is our window to the Old and New West: it affords us the opportunity to see the cowboy portray himself and it is billed as a genuine reenactment of a way of life founded on necessity. Much of what we hear is in sharp contradiction to what we see. We have been told, for example, that cowboys exemplify the concept of individualism and non-conformity. However, it is quickly apparent that rodeo contestants/ranchers display considerable conformity and that such sameness is essential for acceptance. Cowboys, almost without exception, dress, talk, think and act alike. Their garb is virtually a uniform: pointed boots, long sleeve western shirt, hat and oversized belt buckle. It is considered inappropriate to wear long hair or to speak in precise, grammatically correct terms (favoring instead colorful metaphors and folksy colloquialisms). It is interesting to note that the author found it necessary to wear western-style clothes in order to gain the access necessary for her research and interviews.

Rodeo events are themselves highly stylized representations of the western way of life. The bucking events portray the recurrent theme of domination over the wild and untamed. Broncos are labelled "mavericks" or "outlaws" with an "inborn resentment of man." In rodeo, the purpose of the saddle bronc and bareback riding events is not to "break" the horse (that is, tame it) for ranch work but rather to ride and symbolically conquer the animal. Though cowboys generally abhor the mistreatment of horses, their principal workmates on the range, in rodeo it is considered permissible to goad them with electric prods and apply a flank strap around the abdominal region before the bronc is released from the chute. Likewise, in bull riding, attention is focused on the courage of the cowboy and the inherent "meanness" of the bull. With bulls, it is not considered

possible to tame the animal and it is widely felt that they are anxious to gore, trample or attack a human. Therefore, the bull is considered quite separately from other animals. He is not friend or partner (as might be the horse) but is perceived as the essence of wildness and the antithesis to man's ordering influence.

*Rodeo* takes us far beyond a superficial understanding of the cowboy sport. Dr. Lawrence compares the American cow-

boy/cattle complex with that of other pastoral societies throughout the world, noting universal similarities and important differences. The book confronts the issues of sexual identity, male/female roles, and human/animal inter-relationships within the culture and mythology of the West. It demonstrates that rodeo is more than sport; it is art imitating life.

Marc Paulhus  
*HSUS Regional Director*

## Back to Basics Dept.

Sharon Cregier of the University of Prince Edward Island, Charlottetown, Canada, reminds us that ethologists must ask: "What is the **use** of what an animal does?" and submits the following data.

