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Ethical Concerns in Primate Use and Husbandry

Ardith A. Eudey*

Abstract

Subsequent to World War II, a dramatic increase occurred in the utilization of nonhuman primates in biomedical and psychological research and industry. At the same time field studies on the ecological and social behavior of natural populations of primates also increased, making possible more realistic assessments of both the behavioral potentiality of primate populations and their conservation status. In spite of the growing body of information indicating the endangered or threatened status of most species, many laboratory workers and planning agencies continue to regard primates as renewable resources, even seeking to bypass protective legislation in habitat countries to obtain them. As a consequence, insufficient financial support has been made available for the development of breeding colonies for research programs which may be essential. However, much utilization of primates is open to question. The appropriateness of primates as models, the numbers of animals used in experiments, and the redundancy of experimentation frequently are given little consideration. Likewise, field data on the biological and social requirements of primates have been consistently ignored in housing and other aspects of care, thereby calling into question the results of much research. The lack of restraint on the utilization of primates (and other animals) in research may ultimately be a consequence of the man/nature dichotomy embedded in traditional interpretations of Judeo-Christian thought.

A symposium devoted to the examination of scientific and philosophical issues surrounding the use of primates other than humans in biomedical research and testing is warranted for at least two reasons.

(1) Much of the use of primates in biomedical research is justified on the grounds that they are "essential" because of their taxonomic closeness to humans. Such an attitude may have the effect of diverting researchers from the use of more appropriate models and may even impede the development of alternatives to the use of primates and other live animals. The decision to use a primate as an experimental model or for testing must be recognized as entirely a human decision, not something inherent in the fact of evolution.

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(2) In contrast to other animals used for experimental purposes, the majority of primates have been wild-caught and, to all appearances, would continue to be wild-caught if it were not for the fact that habitat countries increasingly are imposing quotas and bans on their export. All populations of primates must be considered potentially vulnerable because the habitats essential for their survival, frequently rainforest or deciduous forest in developing countries, are being steadily encroached upon and exploited by the expanding human population. For example, during this century the lion-tailed macaque (*Macaca silenus*), which is found only in the Western Ghats of south India, has been reduced by human activity to a few small, discontinuous populations perhaps totalling no more than 400 monkeys (Green and Minkowski, 1977). The vulnerability of some primates has been exacerbated by trapping for export. The stump-tail macaque (*Macaca arctoides*), which is rare throughout its range in southern and southeast Asia, has been brought near to extinction in peninsular Thailand, the principal area in which it was trapped until the government of Thailand imposed a total ban on the export of primates in 1976 (Eudey, 1978). In recognition of their vulnerable status all primate species appear on either Appendix I (species threatened by extinction) or Appendix II (species which may become threatened with extinction without regulation of trade) of the Convention on International Trade in Endangered Species (CITES), which was drafted in 1973 to insure international cooperation in protecting wild populations of animals and plants from exploitation through international traffic.

Ethics and the Darwinian Revolution

In order to discuss ethical concerns relating to the use and husbandry of primates, a definition of ethics is necessary. One meaning of the word is the "rules or standards governing the conduct of the members of a profession." Another meaning is the "philosophy of morals" or the "study of the general nature of morals and of specific moral choices to be made by the individual in his relationship with others." In this context ethics stresses "objectively defined, although essentially idealistic, standards of right and wrong." If one were to expand the concept of "others" beyond our own species to include other species, then it should be possible to speak of a series of rules or ethics by which the conduct of those members of the biomedical community using primates is governed. However, it is my contention that the assumptions which currently underlie decisions as to what is ethically right or wrong with respect to the use of primates may require re-examination. Ideas expressed in the U.S. *National Primate Plan*, which was prepared by the Interagency Primate Steering Committee in 1978, will facilitate some of this review.

In a 1972 article entitled "The nature of the Darwinian revolution," Ernst Mayr points out that only one of the few scientific revolutions, i.e., "rather drastic revisions of previously maintained assumptions and concepts," which has occurred involves the biological sciences rather than the physical sciences. This is the Darwinian revolution based upon the idea that natural selection or differential reproduction is the most important, although not the exclusive, cause of evolutionary change. Mayr (1972:981) contends that this may be the "most fundamental of all intellectual revolutions in the history of mankind" because it affects religion, philosophy, and ethics as well as science. The following two conse-

quences of the Darwinian revolution are important to the topic under present consideration: (1) The refutation of the idea that evolutionary change is synonymous with progress, which is the direct outgrowth of the idea that all organisms occupy a link in a Chain of Being or rung in a Ladder of Perfection created in its present order by God, and thereby, of creationism itself, in that evolutionary change by adaptation does not necessitate continuous betterment. (2) The abolition of anthropocentrism, the concept that human beings are the central fact of the universe, by the idea that humans are part of the stream of evolution and occupy a place in nature with other organisms. These two aspects of the Darwinian revolution may be ignored or even rejected by scientists. The tendency to look at other species, including other primates, from the standpoint of one's own specialization, rather than assuming an holistic or evolutionary perspective, may be a contributing factor.

The very terms commonly used to refer to primates other than humans — nonhuman and subhuman — reflect the pervasiveness of both anthropocentrism and creationism. The prefix "sub," which literally means "under or beneath" and also "inferior or secondary in rank" or "somewhat short of or less than," is especially pejorative. In 1972 at the IVth Congress of the International Primatological Society, Earl Count attempted to circumvent this bias by introducing the term *alloprimates*, which means simply "other primates."

The Chain of Being or Ladder of Perfection is a static doctrine that recognizes no evolutionary transformations but only gradations in the supposed complexities of organisms. Following this line of reasoning, those animals ranked or classified as being closest to humans, the other primates, would appear as appropriate substitutes for ourselves. This kind of thinking may be in evidence in the *National Primate Plan* (IPSC, 1978) in statements such as the following:

The essentiality of their use rests in large extent upon the relation of the nonhuman primates to the human primate — man. These animals are man's closest relatives in the animal kingdom and are therefore indispensable allies in the effort to understand and control problems of human health (pages 1-2).

The chimpanzee is the irreplaceable model for the study of human health problems. The alternative subject for such studies is man himself.... As man's surrogate for evaluation of many health hazards and health protective measures, this animal is without equal (page 62, emphasis added).

The ultimate effect of such thinking, as I mentioned initially in this paper, may be to discourage the use of and search for alternatives to primates in biomedical research. At best it does not promote such use or search. For example, in a recent letter to *Science* (209:214, 1980), Dr. Joe R. Held, former chairman of the National Institutes of Health Interagency Primate Steering Committee, makes the following statement:

...there are searchers for alternatives (to the use of research animals) for economic as well as humane reasons, but... it is unlikely alternatives will greatly reduce the number of animals needed in research and testing in the foreseeable future... the

only real alternative to animals in the laboratory is a loss in the rapid gains being made in improving health (emphasis original).

The lay public may feel helpless to challenge such statements, but the readers of *Science* not immediately involved in the use of primates may be able (and willing) to question these assumptions.

Anthropocentrism, the ultimate expression of which is a man/nature dichotomy, is evident in much of the literature on environmental policy. The May 1980 issue of the *UNESCO Courier*, for example, is devoted to the examination of environmental problems and reprints sizable extracts from the *World Conservation Strategy*, which was prepared by the International Union for the Conservation of Nature and Natural Resources (IUCN). With few exceptions the theme of all material contained in this issue is that living species should be preserved through management because of their potential usefulness to humans. The *National Primate Plan* exhibits a similar orientation, as the following quotation illustrates:

Native primate populations are valuable natural resources that must be conserved. Only through good conservation in source countries will the diversity, availability, and uniqueness of many primate species be preserved... some species not now used in biomedical programs may have undiscovered characteristics potentially important for future research and can be maintained only through good conservation in source countries... if properly managed, primates are a renewable resource valuable to both source countries and the primate user (page 24).

One cannot help but wonder if the "mandate" for such use is to be found in pre-Darwinian, Judeo-Christian tradition, specifically in translations of Genesis:

So God created man in his own image; in the image of God he created him; male and female he created them. God blessed them and said to them, 'Be fruitful and increase, fill the earth and subdue it, rule over the fish in the sea, the birds of heaven, and every living thing that moves upon the earth' (The New English Bible, 1970:2).

In the *UNESCO Courier*, Sir Otto Frankel, a plant geneticist, raises the question, however, of whether the continuing evolution of wild species has a value for humans other than a utilitarian one. He considers that the extinction of individual species is not the critical issue and may not be without precedent:

But what is without precedent is the predictable destruction of habitats for what remains of the earth's natural and seminatural communities and most of the species they include. Without deliberate protection few of these communities will have a chance of survival; nor does the shrinkage of undisturbed habitat offer a promise of evolutionary replacement (Frankel, 1980:27).

Frankel believes that at this time probably all that is socially acceptable is for us to recognize that "our evolutionary responsibility (may be) to keep evolutionary options open so far as we can," but such an idea may grow into an evolutionary ethic and become part of our social ethics "if and when men come to regard other species as an essential part of their own existence."

Guidelines for Primate Use

What then are the rules or guidelines that should govern the use of primates in biomedical research? The International Union for the Conservation of Nature and Natural Resources (IUCN) has requested the IUCN-Survival Service Commission Primate Specialist Group, under the direction of its chairman Dr. Russell A. Mittermeier, to prepare an official stand on such use. The Primate Specialist Group, to which I am an honorary consultant, is adamant that two points be included in this stand: (1) All wild-caught primates should be used for the establishment of self-sustaining breeding colonies, with the eventual goal of breeding in captivity any primates used for biomedical research and production. (2) Endangered, vulnerable and rare species of primates should not be considered for use in future biomedical research projects and should be phased out of projects that are not already self-sustaining.

Although the *National Primate Plan* recommends a program of sufficiently expanded primate production to "ensure a continuous, stable, and long-term supply of primates" (page 16), it states at the same time:

It is not practical to expect to meet all of our requirements from domestic breeding at this time. Domestically bred animals are more expensive, and we cannot efficiently breed some species in captivity at present (page 18).

The *National Primate Plan*, for example, estimates an annual use of 14,000 rhesus monkeys (*Macaca mulatta*), the principal supply having been wild-caught monkeys from India until that country imposed an export ban in 1978. Two years earlier Indian primatologists had called for a moratorium on the export of rhesus monkeys because of the severe depletion of the species. Breeding in the United States is to be expanded to produce annually only 9,000 of the 14,000 rhesus monkeys, with the remaining monkeys to be obtained from recycling and importation from unidentified sources. Parenthetically, one must assume that potentially healthy monkeys, totalling as many as 2,000 annually, may have been sacrificed in the recent past, probably for economic reasons, rather than recycled.

At the Vth Congress of the International Primatological Society in 1974, the International Primate Protection League (IPPL) proposed some additional guidelines to be followed in the use of primates in biomedical research and production (McGreal and Eudey, 1975):

(1) All laboratories using primates should be required to publish complete and public reports on acquisitions, holdings, and use to permit accurate assessment of the utilization of primates in order to recognize overexploitation or misuse of specific species. In this regard, the September 1980 issue of the *National Society for Medical Research Bulletin* (31(1):2, 1980) contains a statement by Michael Nolan of Primate Imports Corp., New York, to the effect that the pos-

session by IPPL co-chairwoman Dr. Shirley McGreal of Center for Disease Control forms on primate shipments is:

...considered to be a very serious matter. She now has in her possession all of the information regarding the source of monkeys brought into this country, mortality records, use and disposition not only for the entire United States, but all transshipments out of the country to such places as Canada and France. It is important that scientists utilizing nonhuman primates, as well as dealers handling them, should be aware of her possession of factual information so that they do not make errors in replying to what will certainly turn out to be a major harassment of the industry importing primates and the laboratories that utilize them.

The extent to which such "errors" occurred in the past becomes the immediate question.

(2) All countries should establish, or strengthen, agencies to evaluate research proposals. Only those proposals should be accepted which are well-planned, promising, humanely designed, and demonstrate regard for conservation principles not only in species selection but in sample size. Limitations on the severity and duration of pain in experiments and on excessive degrees of deprivation, isolation, restraint, or immobilization should be legally defined and enforced. In the recent letter to *Science* to which I referred above, Dr. Held states:

[T]he vast majority of animals used in research and testing do not suffer pain, and [that] when painful experiments are performed they are normally done with appropriate analgesics or anesthetics.

It need only be pointed out that the government of India imposed the ban on the export of rhesus monkeys because of their use in military-related research such as neutron bomb and chemical warfare tests rather than research to benefit humans conducted under humane conditions as called for by a 1955 agreement with the United States.

(3) Laboratories should not bypass, or seek to bypass, protective legislation or the Convention on International Trade in Endangered Species (CITES) in the acquisition of primates. The *National Primate Plan* refers, however, to the procedure of certification required by CITES as one which could "cause uncertainties and unnecessary delays in procurement, even of species that are relatively abundant" (page 4), a statement to which conservation officials in some habitat countries have reacted with suspicion.

(4) Termination of the use of primates in cases for which alternative methods of research or of drug and vaccine production and testing are available.

In addition, the International Primate Protection League called for the revision of housing standards to reflect the physiological and psychological needs of the primates rather than the economy and convenience of laboratories and personnel. Intelligence is an adaptive character that has been selected for in primate evolution, and both the social and physical environments of all captive primates must be considered impoverished in comparison to those of wild populations.

Notes

1. Definitions, unless otherwise specified, are from the *American Heritage Dictionary*, W. Morris, editor, 1970, American Heritage Publishing Co. and Houghton Mifflin, Boston.

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