Bioethics and the Use of Laboratory Animals
Ethics in Theory and Practice

A. Lanny Kraus and David Renquist, Editors

A Publication of the American College of Laboratory Animal Medicine (ACLAM)

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DEDICATION OF THE ACLAM FORUM AND MONOGRAPH

TO THOSE WHO GIVE THEIR LIVES

FOR THE WELFARE OF MANKIND

This is a photograph of a bronze casting done by Amelia Peabody in Boston, the original of which was hung in the New England Deaconess Hospital. It was admired by Dr. George Hoyt Whipple, a Nobel Laureate in Physiology and Medicine and founding Dean of the University of Rochester School of Medicine and Dentistry in Rochester, NY. He commissioned a copy to be made that hung in the Medical School in Rochester in the 1920s. It expresses a sentiment that conveys respect for and appreciation of the laboratory animals that have played and continue to play a crucial role in biomedical research.

This forum and monograph are dedicated to those animals whose lives were and continue to be taken for the improvement of the welfare of animals and humans alike. Members of the American College of Laboratory Animal Medicine in particular have unique professional and ethical obligations to these animals that are under their professional stewardship.

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Acknowledgements

The editors acknowledge the leadership and members of the American College of Laboratory Animal Medicine (ACLAM) for the opportunity and, indeed, honor to bring together such a distinguished group of individuals and to engage in an open debate involving one of the most contentious issues that the specialty faces. We believe we are the first veterinary organization to fully engage the subject by bringing together leading philosophers, ethicists, veterinarians, IACUC members, and scientists to critically examine the issues raised by the use of animals in society. Since issues in society outside of the animal arena are also part of the overall ethical deliberations in medicine and research, Robert Veatch contributed two papers of more general interest—related to life and death decisions—and a speculative look to the future.

This monograph is offered in the spirit in which the forum was conceived. That is to encourage honest, open, and respectful debate of the many philosophical, ethical, and pragmatic issues surrounding the procurement, breeding, care, and use of animals in biomedical research and in society in general. The College, therefore, does not necessarily endorse the views expressed either by the authors or the participants in the forum.

It is hoped that the reader approaches this complex and difficult subject with an open mind willing to try to understand and respect the views of the serious scholars and scientists that participated in this endeavor. Only through this earnest intellectual effort will the debate actually be allowed to flourish and the issue surrounding the use of animals be resolved.

It is further hoped that this monograph will help clarify the issues and encourage a continuing dialogue that will ultimately lead to a resolution of the major issues involved.

The scientific community and the more progressive animal activist groups and individuals are making a positive difference in the lives of animals used in research. While much has been done in recent years to foster positive change, much more can be done. With a positive spirit of cooperation and acknowledgement of the crucial role that laboratory animal veterinarians and the scientific community have, this progress will be made to the benefit of both animal and society as embodied in the Veterinarian’s Oath.
About the Editors and Authors

David M. Renquist, DVM, MS. David received his veterinary degree and MS in microbiology from Washington State University in 1965. He was a National Institute of Health sponsored post-doctoral fellow in Laboratory Animal Medicine at Stanford University from 1968-1970. He has 30 years of experience in laboratory animal medicine and science, including four years of experience at Walter Reed Medical Center (1970-1974), 15 years at National Institutes of Health, Veterinary Resources Branch, Division of Research Services. Following that he spent two years at New Mexico State University and eight years to date at the University of Tennessee, Memphis. Renquist has been an ACLAM Diplomate since 1971.

David formerly was Professor and Chairman, Department of Comparative Medicine (DCM) at the University of Tennessee, Memphis. Renquist’s primary responsibility is the administrative and professional direction of the UT, Memphis Animal Care and Use Programs. He also is Director of DCM laboratory animal medicine post-doctoral training program for veterinarians. He team teaches the DCM course in Essentials of Animal Experimentation and Biology and Pathophysiology of Lab Animals, and gives animal ethics lectures. He is instructor for informal courses in veterinary personnel and facility resources, seminar program, AALAS technical program, and provides clinical veterinary care during the absences of other faculty/post-doctoral veterinarians. Relevant training and experience: 50-plus publications, abstracts, and presentations and two book chapters. David has a specialized interest in non-human primate medicine and animal model development.

David is Co-Chair of the ACLAM Program Committee for the 1998 Forum on bioethics and is Associate Editor of this ACLAM monograph.

A. Lanny Kraus, DVM. Lanny did his undergraduate work at Rutgers University. He is a graduate of Michigan State University’s College of Veterinary Medicine and was a post-doctoral fellow at the Bowman Gray School of Medicine (presently the Wake Forest School of Medicine) under Thomas B. Clarkson. He came to the University of Rochester School of Medicine and Dentistry in 1967 where he was a Professor and Chair of the Division of Laboratory Animal Medicine and Director of the Vivarium. Following a year’s sabbatical leave at Georgetown University’s Kennedy Institute of Ethics and the Tufts University College of Veterinary Medicine’s Center for Animals and Public Policy, he returned to the University with an additional appointment as Professor of the Medical Humanities. Lanny retired from the University in 1998 and now consults on matters of animal and veterinary ethics and lives in Darnestown, MD, a suburb of Washington, DC.

A former President of ACLAM, he was co-editor of the first text of the ACLAM Series, The Biology of the Laboratory Rabbit (Academic Press, New York, 1974), founding chair of ACLAM’s Publications Committee and Chair of the College’s committee that developed its first “Adequate Veterinary Care” document. Lanny Kraus was Co-Chair of the Program Committee that developed the 1998 Forum, and is the Senior Editor of this ACLAM monograph.

Bioethics and the Use of Laboratory Animals
About the Authors

Tom Beauchamp, PhD. Tom did undergraduate work at both Southern Methodist and Yale Universities and received his doctoral degree in philosophy from Johns Hopkins. He was the staff philosopher of the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research of the National Institutes of Health.

He is the Series Editor of the Prentice-Hall’s prestigious Foundations of Philosophy Series. He has authored or co-authored six books, including the very important Principles of Biomedical Ethics, now in its fourth edition, with James Childress. He has edited or co-edited ten books, including Contemporary Issues in Bioethics (with LeRoy Walters) and Ethical Issues in Death and Dying (with Robert Veatch). In addition, he has published over 100 articles in peer-reviewed journals.

Tom served on National Academy of Sciences, National Research Council’s Institute of Laboratory Animal Resources Council from 1986-1989 and more recently has served as one of a panel of experts reviewing NASA’s BION II research involving the use of animals. He has participated in all of the Animal Ethics short-courses sponsored by the Kennedy Institute of Ethics.

Most recently, he was an associate editor of The Human Use of Animals—Case Studies in Ethical Choice, Oxford University Press, 1998. Tom is currently a Professor of Philosophy at Georgetown University and a Senior Research Scholar at the Kennedy Institute of Ethics.

Andrew N. Rowan, PhD. Andrew earned his undergraduate degree in chemistry and physiology from Cape Town University in South Africa and his bachelor’s and doctorate in philosophy in biochemistry from Oxford University in the U.K.

Andrew has been a long-time promoter of higher standards of animal welfare and has been the recipient of the Russell and Burch Award for contributions to alternatives by the Humane Society of the United States, the Recognition Award presented by the Johns Hopkins Center for Alternatives to Animal Testing and two international awards—the Felix Wankel Prize (Munich) and the Jorio Rusticelli Prize (Milan). He also serves as a Fellow of the Scientist’s Center for Animal Welfare.

Andrew has delivered scores of invited plenary addresses all around the world on animal welfare issues. He was chair of the NASA Working Group on the Bioethics of Animal Research which developed the so-called “Sundowner” Principles of Ethical Animal Use in 1996.

He is the author of two books—Of Mice, Models, and Men—A Critical Analysis of Animal Research (SUNY Press, 1984) and The Animal Research Controversy: Protest, Process, and Public Policy, (Tufts University, 1995) as well as the editor of four others. Andrew has authored or co-authored 47 peer-reviewed or invited articles.

Andrew was the founding Director (in 1983) of the Center for Animals and Public Policy at the Tufts University School of Veterinary Medicine where he established many outstanding and innovative programs including a Master’s Program in Animals and Public Policy. Currently, he is Senior Vice-President of the Humane Society of the United States for Research, Education, and International Issues.
James V. Parker, PhD. Jim received a bachelor of arts degree in philosophy from St. John’s College in Brighton, MA followed by a master’s in theology from Gregorian University in Rome. He then earned an additional master’s (in philosophy) and a PhD (in theology) at the University of Louvain in Belgium. He spent a 20-year career in the ministry and as an educator at Portland State, Mt. Angel Seminary, the University of Notre Dame, and at Lewis and Clark College, and in 1987 joined the staff at the Oregon Regional Primate Research Center where he is currently the Center’s Public Information Officer.

Jim has published several very relevant articles, book reviews, and commentaries about the use of animals. In particular his paper “With New Eyes: Religion and Animal Rights” which appeared in Perspectives in Biology and Medicine, 37(1): 146–149, 1991, is most interesting.

Christopher K. Chappel, PhD. Chris received his undergraduate degree from SUNY Stony Brook in Comparative Literature and Religious Studies, and his master’s and doctoral degree (in theology) from Fordham University. Chris was co-founder of the Asian and Pacific Studies Program at Loyola Marymount University in Los Angeles where he is currently both Professor of Theological Studies and Director of the Asian and Pacific Studies.

About the Authors

Peter Singer. Peter was born in Melbourne, Australia and was educated at the University of Melbourne and the University of Oxford. He has taught at Oxford, NYU, University of Colorado at Boulder, University of California at Irvine, and La Trobe University. He was formerly Professor and Chair of the Department of Philosophy at Monash University and was the founding Director of Monash’s Center for Human Bioethics. Currently, Peter is the DeCamp Professor of Ethics at the Center for Human Values at Princeton University in Princeton, NJ.

Peter Singer was the founding President of the International Association of Bioethics and is co-founder and President of “The Great Ape Project,” an international effort to obtain basic rights for chimpanzees, gorillas, and orangutans.

Peter first became well-known internationally after the publication of Animal Liberation. His other books include Democracy and Disobedience, Practical Ethics, The Expanding Circle, Marx, Hegel, Animal Factories (with Jim Mason), The Reproductive Revolution (with Deane Wells), Should the Baby Live? (with Helga Kuhse), and How Are We to Live? His Rethinking Life and Death won the National Book Council’s Banjo Award for the best non-fiction book of 1994. Books he has edited or co-edited include Test Tube Babies, In Defence of Animals, Animal Rights and Human Obligations, Embryo Experimentation, The Great Ape Project: Equality Beyond Humanity, and Ethics. His writings have appeared in 19 languages. His work in animal ethics has been extremely influential and he is responsible as much as anyone with raising the issue of how society thinks about and treats non-human animals. While not a “rightist” per se, he is credited by many as being the “father of the animal rights movement” here and around the world.

Jerrold Tannenbaum, MA, JD. Jerry earned his undergraduate degree, majoring in philosophy from Cornell University which he followed as graduate Fellow in Philosophy at Rockefeller University. He then earned a master’s degree in philosophy from Cornell before attending Harvard Law School where he earned his Juris Doctoris. Following an academic appointment at University of California at Santa Barbara where he taught ethics, political philosophy, and jurisprudence, Jerry served as an Assistant District Attorney in New York City for several years and then worked in a law firm in New York.

Jerry Tannenbaum has been a member of IACUCs at Boston University, where he also served as Chair, and at IBM. Jerry is a former President of the Society for Veterinary Medical Ethics and the author of Veterinary Ethics: Animal Welfare, Client Relations, and Collegiality (second edition, Mosby—Year Book, St. Louis, 1995). Jerry has also held several faculty appointments at Tufts University School of Veterinary Medicine. He is presently a Professor at the School of Veterinary Medicine of the University of California at Davis where he teaches veterinary jurisprudence and ethics, animals and public policy, ethics, and bioethics.

Jerry has published over 40 articles on matters related to veterinary jurisprudence, bioethics, and the ethics of the use of animals. He has delivered scores of invited lectures on these subjects and is continually sought out because of his intellectual and communication skills.
David D. DeGrazia, PhD. David earned his bachelor’s degree in philosophy at the University of Chicago, an MST in philosophy at Oxford University in the UK and a PhD in philosophy, with a concentration in ethics from Georgetown University under Dr. Tom Beauchamp. His areas of specialization are ethical theory and biomedical ethics.


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Bernard Rollin, PhD. Bernie earned his bachelor’s degree in literature and philosophy from CCNY, was a Fulbright Scholar at the University of Edinburgh studying Hume and Kant, and earned his doctoral degree in philosophy from Columbia University.

He has written a very large number of articles and book chapters and has lectured throughout the world on matters of animal welfare and animal rights not only about the use of animals in science, but in animal agriculture, the equine industry, wildlife, and others. He has been the author of a monthly column on veterinary ethics in the Canadian Veterinary Journal since 1991. Bernie has not only raised difficult issues surrounding the use of animals but also has proposed ways of attempting to deal with them. Several of his books deserve special mention including Animal Rights and Human Morality (Prometheus, second edition, 1992), The Unheeded Cry: Animal Consciousness, Animal Pain, and Scientific Change (Oxford University Press, 1989), The Frankensteined Syndrome—Ethical and Social Issues in the Genetic Engineering of Animals (Cambridge University Press, 1995), and Farm Animal Welfare (Iowa State University Press, 1995). His role in this context is to give an in-depth look at the welfare and ethical issues surrounding genetic engineering of animals. This is most provocative and has generated considerable discussion in an attempt to address both societal and animal welfare concerns.

In addition to his scholarly activities, Bernie Rollin has been very influential in developing science policy and was a principal architect of the 1985 federal legislation on the welfare of laboratory animals.

Bernie is currently a Professor of Philosophy (College of Humanities and Social Sciences) and Professor of Physiology and Biophysics (College of Veterinary Medicine) at Colorado State University in Ft. Collins, CO.
About the Authors

Jon Gordon, MD, PhD. Jon Gordon received his bachelor’s degree in biology from Columbia University and both his PhD (biology) and MD from Yale University. He was an NIH Post-Doctoral Fellow working on gene transfer.

Jon has been active on several Committees of the Institute for Laboratory Animal Resources, National Research Council, National Academy of Sciences and currently serves on the ILAR Council as well as being a member of the National Center for Research Resources Advisory Council.

Jon Gordon’s research in genetic engineering and gene transfer is credited with opening the door to the development of transgenic technology in laboratory animals. His now classic paper, “Genetic Transformation of Mouse Embryos by Microinjection of Purified DNA,” Proceedings of the National Academy of Sciences, USA, 77:7380–7384, 1980 is credited with describing this truly breakthrough technology. He has published over 100 papers and book chapters describing his research findings and has lectured extensively on several continents. Two recently published papers of particular interest are on “Transgenic Technology as an Alternative to Animal Experimentation” (LFM van Zutphen and M. Balls, editors), “Animal Alternatives,” Welfare and Ethics (Elsevier, Amsterdam, pp.95–112, 1997) as well as “Transgenic Animals and Laboratory Animal Science” (ILAR Journal 38:32–41, 1997). Gordon is presently the G. Harold and Leila Y. Mathers Research Professor of Geriatrics and Adult Development at the Mt. Sinai School of Medicine in New York City.

Robert M. Veatch, PhD. Robert M. Veatch received a Bachelor of Science degree in Pharmacy from Purdue University (1961), a Masters of Science in Pharmacology from the University of California Medical Center, San Francisco (1962), and a PhD concentrating in medical ethics from Harvard University in 1970. In 1999, he received an honorary doctor of humanities degree from Creighton University. He was formerly the Director of the research group on Death and Dying at the Hastings Center in New York.

His recent books include The Basics of Bioethics—Case Studies in Pharmacy Ethics, and a second edition of Case Studies in Nursing Ethics and Cross-Cultural Perspectives in Medical Ethics. His newest book, Transplantation Ethics, will appear later this year. He is the Senior Editor of the Kennedy Institute of Ethics Journal and a former member of the Editorial Board of the Journal of the American Medical Association.

Robert M. Veatch, PhD, is currently a Professor of Medical Ethics and the former director of the Kennedy Institute of Ethics at Georgetown University. He also holds appointments as Professor of Philosophy and Adjunct Professor in the Department of Community and Family Medicine at Georgetown’s Medical Center.
Jacquie Calnan, BA, MPA. A Massachusetts native, Jacquie received a BA in journalism from Thomas A. Edison State College in New Jersey in 1990 and a Master of Public Administration degree from Harvard University’s John F. Kennedy School of Government in 1991.

Jacquie is currently the President and CEO of the Americans for Medical Progress Educational Foundation. AMP is a national advocacy group that represents universities, research institutions, corporations, pharmaceutical companies, and thousands of private citizens who are concerned by what they perceive is the threat the animal rights agenda poses to medical research. Ms. Paris is a leading expert on the tactics, trends, personalities, and campaigns of the animal rights movement in the United States.

In her 25-year career as a network television news producer prior to joining the AMP in 1995, Jacquie never once thought about the role animals play in medical research. As President of AMP, she works to ensure that other journalists—and the public—do make that connection. She also edits the AMP News, a weekly e-mail newsletter that has become a “must-read” for many in the research community and others faced with threats from the animal-rights activists.

Susan E. Paris. At the time of the Forum, Susan E. Paris was President of the Americans for Medical Progress and presented a paper on the AMP perspective of “informing the Public.” She subsequently left AMP and her successor, Jaquie Calnan, submitted the manuscript published in this monograph. Ms. Paris is currently Vice-President for University Relations at Boston University in Boston, MA. The College gratefully acknowledges Susan’s contributions to the forum.
About the Authors

**Barbara Rich.** Barbara Rich has been with the National Association for Biomedical Research—referred to as "N.A.B.R." or "Neighbor"—for fifteen years. She joined NABR's Founder and President Frankie L. Trull when the Association moved to Washington DC in 1984, and was named Executive Vice President in 1988.

NABR is dedicated solely to advocating sound public policy that recognizes the vital role of humane animal use in biomedical research, health professional education, and product safety testing. The Association provides the unified voice for the scientific community regarding legislation and regulation affecting laboratory animals. The NABR membership includes 350 public and private universities, medical and veterinary schools, teaching hospitals, voluntary health agencies, academic and professional societies, pharmaceutical and biotechnology companies, as well as other animal research related firms.

On behalf of the Association membership, Barbara participates in national policy deliberations concerning the use of laboratory animals. For example, she was closely involved in the legislative process that resulted in the Animal Welfare Act Amendments of 1985 and the development of federal regulations that implemented these changes. She is NABR's staff expert on animal welfare regulations as well as legal issues affecting animal research.

Prior to serving on the NABR staff, Barbara held a variety of administrative positions with academic health science centers and research organizations, including the American Association of Colleges of Pharmacy (1980 to 1984), the State University of New York at Stony Brook (1978–1980), Albany Medical Center (1973–1978), and Georgetown University Medical Center (1969–1973). She earned a Bachelor of Science degree in Business Administration from the University of the State of New York.

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**Peter Nathanielsz, MD, PhD.** Peter earned his undergraduate degree at St. Catherine's College, Cambridge and his medical degree from the University College Hospital Medical School in London, after which he earned a doctorate in philosophy and a doctorate in science from the University of Cambridge. He came to the US first as a Research Professor in the Department of Obstetrics and Gynecology at UCLA. In 1982 he moved to Cornell University in Ithaca, New York where he Directs the Laboratory for Pregnancy and Newborn Research in the School of Veterinary Medicine. This year he is a Fulbright Distinguished Scholar studying and doing research in the UK.

He has served on a score or more advisory committees and study sections of the NIH. He has had a very extensive teaching career, has lectured widely both here and abroad. He has held 18 major research grants. Peter's publication record is also very impressive in scope, quality, and sheer quantity. He has written extensively about the use of animal models, initiated and authored a monograph entitled *Fetal Endocrinology—An Experimental Approach* (Elsevier, Holland) which led into a five volume series he has edited on Animal Models in Fetal Medicine. Peter's work on the endocrine control of development and parturition in pregnant sheep and rhesus monkeys have been of extraordinary importance in understanding mammalian reproduction. Recently, he "earned the ignominious distinction of being designated PETA's 'Vivisector of the month.'"

Tom E. Hamm, Jr., DVM, MS, PhD. Tom received his BS, DVM, and MS degrees from Colorado State University and a PhD from the Bowman Gray School of Medicine of Wake Forest College. Board certified by the American College of Laboratory Animal Medicine (ACLAM) since 1974, and the American College of Toxicology, Tom served on the faculties and professional staff of several prestigious institutions including a faculty position in the Department of Pathology at Colorado State (1975-78), as Acting Chief of the Toxicology Branch, Carcinogenesis Testing Program of the National Cancer Institute (1978-80), as Head of the Department of General and Biochemical Toxicology, Chemical Industry Institute of Toxicology (1980-84), Director of the Division of Laboratory Animal Medicine (1984-90), and Founding Chair of the Department of Comparative Medicine at Stanford University Medical School (1990-92). Most recently, Hamm has served as Professor, Department of Companion Animal and Special Species Medicine (CASS) College of Veterinary Medicine, and Director of Laboratory Animal Resources, North Carolina State University, Raleigh, NC (1992-1998). He is currently a consultant in laboratory animal and comparative medicine and lives in Cary, NC.

His memberships in professional societies reads like a “Who’s Who” in laboratory animal science, welfare, and medicine, and he has been and continues to be consulted by academia and industry in a wide range of animal matters. Hamm has authored or co-authored over 30 papers in peer-evaluated journals, has contributed chapters or edited 17 books, has over 40 Abstracts and 70 Technical Reports, and has presented ten posters at scientific meetings. In addition, he has presented “expert documents” and “expert testimony” on numerous occasions. He has debated animal research issues on local, state, and national levels and has appeared on the Today Show. He has been very vocal in his defense of the use of animals in research and has spoken on or debated the topic on scores of occasions.
Introductory Remarks

Opening Remarks of the ACLAM Forum, May 1998

A. Lanny Kraus, DVM

The ACLAM Forum on Bioethics of Animal Use and Emerging Areas of Bioethics is a logical step for the College as part of our dedication to improve animal health and welfare and the ethical conduct of essential scientific discovery. While our specialty is a participant in one of the most severely criticized areas of animal use, members of our College believe that the use of animals in science is not only ethically permissible, but also ethically mandated. Many consider the use of animals in science to be one of the most morally necessary purposes for which animals are used. We can all do without meat. We can all do without fur. But the use of animals in research is for a higher and, I would contend, a more noble purpose.

At the same time, veterinarians, whose professional obligations are directed at the well-being of animals, have an ethical obligation to reduce the numbers of animals used to only those absolutely necessary for the conduct of important scientific research, essential safety and efficacy testing, and in certain, more limited ways, education.

The contemporary interest and concern about man's relationship to the rest of the animal kingdom places our profession, and particularly our specialty, right in the middle of the controversy surrounding the use of animals. In fact, as you know, the use of animals in research, testing, and in education has been specifically targeted for elimination by some elements of the animal protection movement. To effectively deal with what has been a contentious debate, each of us needs to have a solid understanding of the ethical and philosophical theories, principles, and arguments used, to help us better understand and frame our ethical relationship to our fellow animals. But, very importantly, in order to constructively enter any debate, one must be able to articulate and defend his position and, if possible, to effectively argue against his opponents' position.

What has occurred in society that encourages us to increase our impetus in addressing the ethical issues raised by the use of animals, primarily for the benefit of humans?

1. Recognition of the successes and dramatic improvement that have occurred in the field; stated with 20:20 hind-sight of my 35-year career and with determination that much more can and will be done.

2. The demands of society for a more humane ethic as a result of the changing social ethic—powerful "rights" or egalitarian movement of the last several decades—that have influenced attitudes in society are being reflected in the veterinary schools, students, clients, and the population at risk who support most of biomedical research.

3. Recognition that science and the conduct of research is not value-free. Society must ultimately determine its values, whether that involves genetic engineering, cloning, and, yes, animal based research and testing. The decision to use animals is based upon a value judgment.
Introduction

In my opinion, we, as a College, have been taking a leadership role in addressing society's concerns regarding the use of laboratory animals ever since its inception in the late 1950s. Our efforts in producing the ACLAM series of texts, the development of the College’s position on “Adequate Veterinary Care,” the many forums and other conferences held both within and outside the College, have produced a wealth of information resulting in better animal care and welfare throughout the world. We have, as a College, made enormous contributions to animal welfare.

I contend in a College newsletter that "we, as a specialty, must develop continuing educational programs on the ethics of animal use and propose that the matter be given serious thought and consideration by the leadership and members of the College." To my delight, such has now come to fruition. This forum is a momentous and huge start.

The Evolution of This Forum

Now is the right time to hold this Bioethics Forum in the evolution and maturation of the College. This is true because of the unique role of our specialty in veterinary and comparative medicine and the respect that we have earned among the biomedical scientific community. But, among the veterinary specialties, we have a unique cross to bear. In order for research using animals to move forward and gain benefit, we, many times inflict harm on animals. Why is that ethically permissible? Or is it not? If the abolitionist or “hard rights” view were to gain favor in society, animal research would cease! Can we rationally explain and justify animal use on, for example, utilitarian grounds based upon real or contemplated “benefits?” But what about the “harms?” Only a mature professional body like ACLAM can undergo critical reflection and self-constructive criticism and attempt to deal with the “animal issue” in a mature, professional, intellectually honest, open, and forthright manner.

Who would have imagined, but a few years ago, that we would be here to hear Peter Singer, Bernie Rollin, Tom Beauchamp, David DeGrazia, or a Senior Vice President of the HSUS, Andrew Rowan? Who would have imagined that we would invite these influential scholars to an ACLAM Forum to speak and to discuss the issues that have become a very big issue in society? We have indeed matured. Our forum and the dialogue that we engage in during the next 2½ days will be testimony to our commitment to better understand and communicate with both our critics and our allies and to develop, each for themselves, a coherent philosophy that can be considered intellectually and ethically honest.

Concluding Remarks

I believe that this ACLAM Forum is very different from the previous. In all the other forums, most of us have had either a working knowledge of or a very good exposure to the subject under consideration. By virtue of our training and experience, the language and concepts were, at least, familiar to us. This forum deals with moral philosophy and ethics and the implications of ethical and value systems on one’s behavior. It is said that no ethical stance is tested until a difficult dilemma is presented. We, as laboratory animal specialists and scientists, are often faced with ethical dilemmas and we must make choices. Ethical choices may be easy but many are very difficult. But humans are believed by most to be different from all other creatures in at least this one respect:
the ability to think through alternative choices of actions and select the one that meets one's ethical standards. This is the essence of the concept of "moral agency." This singular capacity (of normal adult humans), for some philosophers and many others, is what distinguishes us from all other animals and may give us unique moral value. (While only humans possess this capacity, not all humans do.)

In this forum, more than any other, you will be challenged—challenged to defend your long-held intuitions, values, and assumptions—those that have undergirded both your professional and personal life. This is difficult. But it is enriching. It will force you to rethink your beliefs. This process will, I believe, cause you to grow as a person, a scientist, and as a veterinary specialist.

This is a difficult subject—not only difficult but controversial. And it is a subject that some of us may be uncomfortable even discussing. But it is a subject that must be discussed and debated—for in a free society, that is the only way that long-term resolution of the issues raised can possibly be solved. It's a subject that has caused (and is causing) significant and all too frequent discord in society. It is not only the relatively few animal rights activists that are concerned about these issues; we, too, are concerned about these issues.

We have brought together a very distinguished group of ethicists, philosophers, theologians, scientists, and (even a few) veterinarians who will attempt to define the issues and the philosophical, ethical, and biological bases and values that either support or undermine the various religious and secular theories that attempt to frame our ethical relations with other species.

Your mere presence and your participation in this forum heralds, I believe, a new phase of ethical growth for us, both as individuals and as a College. I thank you for coming, for the willingness to be challenged and, yes, to challenge others with whom you may disagree—but always with respect for the individual with whom you may disagree. And perhaps, just perhaps, we (individually and collectively) may move a bit toward what has been called the "troubled middle" and at the same time move those with whom we seem to disagree to a position nearer to a consensus. While a consensus will eventually be reached, it is only through open, honest, and respectful attempts to better understand those with whom we may disagree so that a common ground may be found.

On April 19, 1995 (the fateful day of the Federal Building bombing in Tulsa, OK), I met Peter Singer for the first time when he was invited to give a lecture at the University of Wisconsin in Oshkosh. I told him of my thoughts and plans for the future—my desire to spend a sabbatical year in study and reflection and the germ of the idea about having this forum where people such as he and the membership of our specialty could discuss and debate the issues and encourage a much more productive dialogue among seeming protagonists. Peter signed and wrote a comment in a copy of one of his books that I had brought in which he said, "All the best with your efforts to bring about a more productive dialogue." It is in that spirit that this forum was conceived.

INTRODUCTION TO THIS MONOGRAPH

Controversy surrounding the use of animals, indeed moral and ethical concern about animal use in general, is not new. There have been waves of relative interest and disinterest that are well documented in the literature. There have been political and social agendas incorporated in this concern and bouts of excessive stupidity, hyperbole, and propaganda on both sides of the issue. But
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It is a fact that there has been more written about the moral status of animals in the past 25 years than in all previous history. Despite this, however, there has been a lack of meaningful scholarly debate among (between) the protagonists—the ethicists and philosophers, the scientists and veterinarians, and the public. The philosophers have developed, defended, and debated their theories among themselves, and lectured to the public. But most scientists and veterinarians have had a difficult time dealing with this subject—a subject that seems to them as “subjective” phenomena not lending itself to empirical proof.

While each individual’s ethical intuitions, religious and cultural background, and “feelings” influence his or her ethical deliberation, there is a massive scholarly literature that warrants our study, reflection, and critical analysis. Critical study of the various ethical theories can, I believe, point on the one hand to broad areas of agreement, and on the other hand to areas of contention for which additional scholarly inquiry—including both the refinement of ethical theory and the development of “hard” scientific data regarding the biological characteristics of animals—may be required before a true consensus can be reached.

The public debate about these issues has been at best contentious, creating more heat than light about these issues. Many of the protagonists have characterized each other as “anti-scientific misanthropes” on the one hand, or “sadistic vivisectors hell-bent on making their careers on the backs of animals utilizing archaic and cruel techniques” on the other. But scientists and veterinarians have not, by and large, read the philosophical or ethical literature and their general misunderstanding of the position of such extremely popular authors as Singer and Regan, has not led to much in the way of constructive debate. Many believe that philosophers and ethicists know little about biology; and, while this may have been true, biological knowledge has been increasingly used by them to develop and defend ethical positions. We (biologists, veterinarians, and scientists) can learn from the ethicists and philosophers, and they in turn can learn from us. It is my view that a truly coherent ethical theory concerning our proper relationship to other animals will come about only by bringing us together in discussion and debate and in determining what we must learn through research to further refine our ethical theories.

One is mistaken who believes that the “philosophers” (as well as Walt Disney and the producers of *Babe*) have not had a significant impact on the way in which society views our relationship with the animals. Many of the public are, increasingly, out of touch with reality and have come to view the natural world through what Dr. Frank Loew has called an “urban prism.” There is, however, something—if not new then different—about the controversy that merits our attention, scrutiny, study, reflection, and action. In my view, there is a growing agreement among most that the rigorous and compelling arguments made by various academic philosophers, ethicists, and biologists concerning the moral status of some “higher” animals, have had an effect on society’s thinking about animals that has been reflected in public policy and in the laws, regulations, and guidelines developed by legislators, bureaucrats, and scientific and other professional bodies. Much of this has been indirect as most have not taken the time to expend the effort to understand the ethical theories in any substantive way. This change has taken place because of a change in public and scientific attitude and this change is for the better. And we need to be part of this change in a constructive way. One merely has to contrast the changes in “accepted practices” in science over the past 20–30 years, during my own relatively short career, to see dramatic evidence that this much-needed change has taken and continues to take place. It has been truly remarkable.
Most would agree that some animals at least have some degree of moral standing and moral value, and thus deserve some degree of protection from pure exploitation. There is an acceptance, I believe, that the conferring of moral standing means that we cannot do anything for just any purpose to animals. We have, in other words, ethical obligations regarding our treatment of at least some animals and thus some limitations as to what may be considered ethically acceptable.

There is an acceptance by most persons that the ends do not always justify the means, certainly if the means involves inflicting “extreme harm,” including the killing of sentient beings. For example, the use of unanesthetized and curarized or paralyzed animals is no longer ethically acceptable regardless of the potential value of the proposed study.

We all agree that certain experiences such as “pain”—used as a generic term to indicate a highly unpleasant sensory experience—and “distress” or even “suffering” (extremely adverse mental states) are to be prevented or minimized. The existence of the capacity to “suffer” (as defined in the glossary and by David D. DeGrazia (Taking Animals Seriously) and David D. DeGrazia and Andrew Rowan (Pain, Suffering and Anxiety in Animals and Humans)) by some animals is undoubtedly true but the qualitative and quantitative dimensions of suffering are difficult to determine. Research into the ability of different taxa of animals to experience adverse and pleasurable mental states is extremely difficult to do but is desperately needed to assist us in defining the dimensions and scope of each species. These morally relevant capacities of each species are undoubtedly different, perhaps substantially so, which may ultimately challenge us to rethink our ethical obligations to individuals of a given species based on its known capacities.

And while death itself, even a “humane death” by methods approved by the AVMA Panel on Euthanasia, is a harm even in the absence of pain or suffering; the “harm” that death extracts, while less in laboratory animals than in humans, is still a harm that must be ethically justified. This view is, interestingly, shared by both Peter Singer and Tom Regan; i.e., the death of any animal is valued as less of a harm than that of the death of a normal adult human.

What we have today, then, in my opinion, is recognition that the concern for animals is real and justified by our knowledge of their physiology, behavior, and capacities to experience “adverse mental states.” There is an earnest determination to improve the welfare of laboratory animals that is unprecedented in history.

Elements of the Modern Debate

In my view, coming to grips with the issue of “moral standing” is central to any rational and, therefore, acceptable theory about man’s relationship with his fellow animals and our relationship to each other.

The breakdown of the concept of anthropocentrism has been crucial to the development and acceptance of secular, as opposed to religious, theories regarding the moral standing of animals. Proponents of such secular theories, including Peter Singer and Ray Frey’s utilitarian approach and Tom Regan’s (Gary Francione’s, and to a lesser extent Jerrold Tannenbaum’s and Tom Beauchamp’s) de-ontological or rights-based approach, are best known to most interested parties, but the pluralistic approaches of Midgely, Sapontzis, and, most notably in my opinion, DeGrazia have not yet been adequately appreciated.
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The best known theories rely on a single and over-arching characteristic, the simple possession of which grants moral standing which is then applied in an egalitarian manner. In my mind this is much too simplistic and, while it makes for interesting ethical argumentation, it fails because it does not have any coherent basis in biology. Thus I have been working on a Darwinian-based theory of moral standing that I call incremental moral standing (IMS) which draws heavily upon the moral pluralism of David DeGrazia, James Rachels's work "Created from Animals," and the work of Mary Midgely and Charles Darwin himself—a concept that I will introduce since I believe it should be explored and constructively criticized by philosophers and ethicists as well as the scientists and veterinarians.

A Darwinian Model of Incremental Moral Standing
A. Lanny Kraus, DVM

This Darwinian-based theory of incremental moral standing awards an increasing level of moral standing (and consequent value and thus moral protection) to beings who biologically aggregate combinations of both sensory and cognitive abilities as well as the increasing affective capacity to experience "adverse mental states" including significant elements of suffering, as it is currently understood. With an increased level of moral standing, there are concomitant increased burdens placed upon us to ethically justify harm. Harm may be that of confinement alone, but it may involve the causing of pain or suffering or the loss of a being's life. The theory of IMS is consistent with the current practice of most scientists, veterinarians, IACUCs, and society in the fact that they do increase protections for certain species that have, in this view, achieved the higher degree of moral status. It also is consistent with the general concept behind the Great Ape Project (TGAP).

Standing, in my view, has to be earned by the capacities of the beings under consideration (the argument from "marginal cases" aside). If extremely high or absolute moral standing were to be obtained for certain of the Great Apes, those equivalent to absolute "rights" of persons as Peter Singer and a group of primatologists, ethicists, and others propose, does it necessarily follow that a
“slippery slope” has been produced and that such high moral standing would necessarily and logically be granted to any other animal species? I think not! Even most of the monkeys, fellow-members of the Order Primates, would not achieve the qualifications for “personhood” or maximal moral standing because they lack the capacities that TGAP argues are morally relevant for them (and of course, normal, and I must re-emphasize, “normal” adult humans). If those capacities necessary for personhood are morally relevant and do justify higher moral status for those that so possess them, doesn’t it follow that the vast majority of animals (some 95% of the animal kingdom) lack that same level of moral standing? Many supporters of TGAP believe that the granting of these highly sentient, intelligent beings with full personhood, including a reclassification of the genus Homo to include them, will create a theory that would then admit other, phylogenetically “lower” species to personhood and ultimate moral protection, but I do not think that this is so. For example, I do not think that even the macaques, much less the Cebid and other South American species of primates, would qualify for as high a level of moral standing and thus moral protection as the chimpanzee or bonobo. Homo sapiens is the only species that possesses such morally relevant capacities as moral agency (the ability to make moral choices and to be held accountable for those choices), autonomy, and self-consciousness (conceptualizing oneself over time with the development of a life plan and future goals and aspirations). In my view, this theory of moral standing argues for a concept of earned “incremental standing” that is both biologically and philosophically coherent.

An additional factor that may contribute to a greater or lesser moral standing is the relationship between the animal(s) and the human. Let’s use an example—in this case different members of the same species Suus scrofa—the pig. One might argue that moral standing is enhanced when a pig moves from the wild (wild boar) to become domesticated (a Hampshire pig raised for slaughter and food). It further enhances its moral value through its relationship when it is used for work (the French truffle sniffer and routers) and enhances it still further when kept as a companion or so-called “pet” (the Vietnamese pot-Bellied Pig) because of the relationship and value of that relationship to man and to the pig. The increasing dependence of these different types of pigs on our stewardship and our increasing ethical obligations towards them, carries with it an increasing level of moral standing, value, and protection. Indeed, the increasingly close relationship to us is a factor in determining the moral obligations we have and the relative level of moral status, value, and consideration. This argument is related to the relationship, and subsequent ethical obligations, that the human being develops as a result. While this may not be truly a contractual relationship (which it could not be since no animal can enter into a contract), it is one in which there is, in my view, increased moral standing and thus increased ethical obligations towards the welfare of the animals in question.

Darwinian biology argues for the continuity of all life forms. It has been used in an attempt to depose the anthropocentric primacy of Homo sapiens as a unique creature. It has been used extensively to argue various egalitarian philosophies that repeat the oft-quoted statement of Darwin: “all animals differ from each other only in degree and not in kind.” It has been asserted that man alone deserves any form of moral standing at the expense of all other—black and white, either you have it or not—a western religious view and a view of some secular contractualists such as Peter Caruthers and Carl Cohen. But Darwinian biology can, in my view, support a more biologically
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and rational ethical theory that describe all that might be morally relevant as coming in degrees along a continuum of moral status, thus moral value and ultimately moral consideration—themes that will be detailed by the authors on religious and secular theories of our relationship to the rest of the animal kingdom. The strength of the theory of incremental moral standing, in my view, is that it is (1) intuitive, (2) rational, (3) coherent with both philosophy and biology, and (4) that it allows for humane non-trivial use. Applied with the NASA principles of respect for animals, non-maleficence, and societal benefit, it provides a firm grounding for our ethical obligations to all animals.

NOTES

1 The bulk of this monograph consists of manuscripts submitted by all of the plenary speakers at an ACLAM continuing education forum held on May 3–6, 1998 at The Pheasant Run Resort, Lake Charles, IL.

2 One of the critical problems in discussing complex issues that involve sophisticated, somewhat controversial and sometimes ill-defined terms, is that each side of the debate doesn’t really know what the other side means without some definition. For that reason, for better or for worse, I have attempted to put together some definitions and concepts in a working glossary that each received at registration. If the speakers disagree with the definitions given, in any substantive way, it would seem that they should define what they mean by the term or concept. In that way, we will be better able to understand each other and truly communicate. A glossary is included as an appendix. A request was made that if any of the subsequent speakers disagree, in a substantive way, from the definitions provided, that they would so state and give their meaning of how they use any given term. Much of the contemporary “debate” has been hampered, I assert, by a lack of agreement about what many terms mean. This was acknowledged by several speakers during the course of the forum. It is hoped that this glossary is useful.


Chapter 1
Philosophical Foundations
Tom L. Beauchamp

This chapter is about “Groundwork” and “Philosophical and Ethical Underpinnings.” The issues now of greatest prominence are moral standing and whether animals are relevantly similar to persons. These issues will be emphasized.

Moral standing

In Western history, animals have typically been treated as not being persons, as not being able to act morally, and as not having any moral (or legal) standing, and therefore as having no rights (moral standing being the condition of rights). This term “standing” has been transported into ethics from law, where “standing” is “one’s relative position in social, commercial, or moral relations; one’s repute, grade, or rank” (Black’s Law Dictionary). In recent ethical theory, discussions of animals, fetuses, infants, the brain-damaged, the mentally retarded, and the like have appropriated the term “standing,” while stripping away its distinctly legal meanings. In a weak sense, “standing” simply refers to a grade or rank of moral importance or of moral value. In a strong sense, “standing” means to have rights. In either the weak or the strong sense, having standing is to be in the position of qualifying under, or being ranked under, some range of moral protections. The question is, “How does one get to be so ranked?”

The mainstream approach to this problem in recent ethical theory has been to ask whether an entity is the kind of entity to which moral principles or other moral categories can be applied and, if so, based on which properties. It would be generally agreed nowadays that one attributes a more significant standing to an animal (or, say, to a fetus or infant or brain-damaged adult) by granting that it is relevantly like an intact adult human being (if not biologically, then at least psychologically), rather than saying that it is merely a subject of a life. Its standing would be still further enhanced by attributing something like personhood to it. Meriting a category such as “person” seems to elevate the animal to a higher position than has been customary for animals. For example, Paola Cavalieri and Peter Singer, in The Great Ape Project, present the thesis that the great apes are persons, just as humans are apes. It is no accident whatsoever that the central category in their project is personhood.

This categorization has not always been around. Indeed, historically, it has never been used. Many major biologists and philosophers prior to Darwin—the closest thing to a major thinker embracing such a view—had argued that, despite the anatomical and psychological similarities between humans and apes, humans are distinguished by the possession of reason, speech, and the like. Darwin often seems dead-set in The Descent of Man on undermining this notion that there is a substantial difference between apes and humans in these respects, but even Darwin agrees that
humans have a vastly superior capacity—in relevant respects—and never considers that they might be persons. We will look briefly at this history, just so that we see the main lines of historical dispute. Having done so, we will then deal directly with the problem of personhood.

PRE-DARWINIAN PHILOSOPHY

The Pre-Darwinian intellectual background of these ideas and problems can be illustrated by one seventeenth-century and two eighteenth-century philosophers: Descartes, Hume, and Kant.

Descartes

Perhaps the most important figure in the history of philosophy and the history of science who set the terms Darwin had to confront and invalidate was Rene Descartes (1595–1650). Unlike Darwin, who constantly saw parallels between human and non-human creatures, Descartes saw a lack of parallels. Descartes argued that non-human creatures lack the capacity to feel pain and do not even have minds in the normal sense of that term; they are automata. Descartes also held that the lack of language and abstract reasoning in animals shows their insufficiency of mind. He added that this account absolved humans of any crime or guilt in killing or eating animals, experimenting on them, and the like.

Hume

Perhaps the most polished and thoughtful alternative to Descartes was offered a century later by David Hume (who wrote a century before Darwin). Without suggesting the theory of evolution, Hume in several ways anticipates Darwinian thinking about animal minds.

Hume believed that when the terms “understanding” and “reason” are used properly, they refer to “recognizing on the basis of experience” (understanding) and making “causal inferences” (reasoning). If animals can perform such tasks, and Hume thought they could, then animals can both understand and reason. Hume (like Darwin) had no problem attributing the capacity to reason to some animals, on grounds that animals are significantly like humans in the principles of their nature, their patterns of learning, and their reasoning powers. Hume cited as evidence of thought in the brutes how amazingly adaptive they are in changing circumstances—such as obtaining food by a complex series of novel maneuvers never before performed and ingenious uses of tools.

Kant

Hume’s views contrast sharply with those of Immanuel Kant. One of the most pervasive axioms in contemporary moral theory derives from Kant and is roughly the following: unlike objects or animals, humans are never to be used merely as a means to another’s ends. Animals must be regarded as the instruments of humans and are in nature merely a means to the end of human beings. Kant further argued that we have no direct duties to animals; only indirect ones. Duties are indirect because only something analogous to humanity in an animal can generate duties.
Kant and Kantians have maintained that our human dignity places us in a privileged position in the order of nature. The idea of human dignity is, at its core, that humans have properties (rationality, creation in the image of God, etc.) that place them in a fundamentally different category than animals, and that the lives of human beings have a moral worth that no other animal approximates. On this view, humans are set apart from other animals and have a fundamentally different nature. This is precisely the view that Darwin set out to challenge and it is one of the major foundational questions before us today.

**PERSONHOOD**

What it is to be a person is a principal topic of metaphysics. A pure metaphysical theory expresses a morally detached interest in what distinguishes persons from non-persons. However, a metaphysics of persons has often been fashioned to defend a preferred moral outcome, thereby making the metaphysics of persons secondary to the ethics of persons. *The Great Ape Project*¹ is a contemporary example. It is driven by a moral goal of protecting apes; person theory is called upon to serve that goal.

To consider foundational questions about persons, we need to distinguish metaphysical and moral concepts of persons.² Metaphysical personhood is comprised entirely of a set of psychological properties such as intention, understanding, self-consciousness, free will, linguistic ability, and emotion. In a metaphysical account, these properties are said to be possessed by all and only those individuals who are persons. Moral personhood, by contrast, is comprised of moral properties such as moral judgment, moral virtues, and moral accountability.

The belief persists in philosophy, religion, science, and popular culture that some special property or properties of persons like self-consciousness confers a unique moral standing and perhaps is the only basis of moral standing. I believe, however, both that no such unique metaphysical property or set of properties exists, that metaphysical personhood is not sufficient for moral personhood, and that the properties of moral personhood are not the only basis of moral standing. In short, metaphysical personhood does not entail moral personhood, and moral personhood is not the only basis of moral standing (for animals or humans).

**Metaphysical personhood**

Distinctively human psychological properties have played a pivotal role in controversies over persons. The assumption is that these properties distinguish persons in the relevant ways from non-persons. However, there is no warrant for the assumption that only human properties count toward personhood or that only human properties confer moral standing. Even if certain properties strongly correlated with membership in the human species qualify humans more readily than the members of other species, these properties are only contingently connected to being human.

Fortunately, the received view of persons can be stated without direct reference to human properties. In the most widely embraced version, one is a person if and only if one possesses certain cognitive properties. To keep metaphysical persons cleanly separated from moral persons, I will confine attention exclusively to these cognitivist accounts. A list of conditions for metaphysical
personhood similar to the following has been promoted by several classical and contemporary writers: (1) self-consciousness (of oneself as existing over time), (2) capacity to engage in purposive sequences of actions, (3) capacity to form and act on reasons, (4) capacity to communicate with others by command of a language, (5) capacity to act freely, and (6) rationality. These characteristics presumably distinguish persons from non-persons irrespective of species, origin, or type. For example, a robot, a computer, an ape, God, or some mixture of these types could qualify for metaphysical personhood.

In my view these theories fail in the sense that no set of cognitive conditions that has been presented as establishing metaphysical personhood is sufficient for either moral personhood or moral standing. Metaphysical properties of mind have no moral implications unless one incorporates into the analysis a connecting moral principle, such as "respect for persons." But this principle itself must be defended by premises other than those establishing metaphysical personhood. It would also have to be shown that this principle alone confers moral standing if metaphysical personhood were to alone serve as the basis of moral standing. Capacities of language, rationality, self-consciousness, and the like simply lack a connection to moral properties such as moral agency, moral judgment, and moral accountability.

There is another reason for caution about appeals to metaphysical theories to ground moral standing. Literature on person theory indicates that the criteria of persons is in dispute in a wide range of cases—such as fetuses, newborns, God, extraterrestrials, the great apes, and pet dogs. This is not because facts about these beings are disputed in these cases. The problem is created by the vagueness and the inherently contestable nature of the general concept of person in ordinary language. Different theories of person understandably arise out of this indeterminate concept and eventuate in competing conceptual standards.

Moral Personhood

By contrast to metaphysical personhood, moral personhood is uncomplicated and relatively non-controversial. An entity is a moral person if and only if: (1) it is capable of making moral judgments about the rightness and wrongness of actions; (2) it has motives that can be judged morally; and (3) it is morally accountable for its autonomous actions.

Analysis of these three conditions of moral personhood may be controversial. Each condition has its own intricate complexity and philosophers are certain to differ over how to analyze that complexity. One cannot deny that some of these conditions may require for their explication some of the cognitive conditions previously discussed. For example, making moral judgments may require rationality. Each condition would need defense in a general theory of moral personhood. However, such a theory is not provided here, as it is not needed to reach the conclusions reached.

(1) The first conclusion is that moral personhood, unlike metaphysical personhood, is sufficient to confer moral standing. Any entity qualifying for moral personhood is a member of the moral community and qualifies for its protections and punishments. It is central to the institution of morality that moral persons deserve respect and are to be judged as moral agents. They have the liberties and respect of moral agents precisely because they are moral persons. At the same time,
we can condemn the motives and actions of such persons, blame them for irresponsible actions, and punish them for immoral behavior.

(2) The second is that it should be readily apparent from this list of conditions of moral personhood that non-human animals in general are not plausible candidates for moral personhood—though the great apes or any other animal could turn out to be an exception. Here we draw from Charles Darwin's analysis. Darwin seems to deny that animals make moral judgments, while affirming that they sometimes display moral dispositions. For example, he thought that animals do not make judgments of blame when they are punishing their peers for misbehavior, but that they do have dispositions of love, affection, and generosity. In chapter 3 of *The Descent of Man*, he maintains that the moral sense found in humans has developed into a sense of moral obligation and form of sympathy of extraordinary dimensions. Darwin described conscience as “the most noble of all the attributes” found in the human animal: “I fully subscribe to the judgment of those writers who maintain that of all the differences between man and the lower animals, the moral sense or conscience is by far the most important.” There is sense to this idea developed in this account of moral personhood.

It is also of the highest importance that some humans fail to qualify as moral persons under these criteria. Accordingly, if moral personhood were the sole basis of moral rights, then these humans would lack rights just as the non-human animals do. Unprotected humans would include fetuses, newborns, sociopaths, psychopaths, severely brain-damaged patients, and many dementia patients. These individuals do have some rights and merit moral protections, but on a basis other than moral personhood. In this respect, many humans are in precisely the same situation as many non-human animals: Moral standing for them, if it exists, cannot be based on metaphysical or moral personhood.

One of the most familiar features of the moral life is that some entities judged not to be persons cannot justifiably be killed or injured. Non-persons often have interests in continued life and avoidance of pain and suffering that entitle them some form of moral protection. In principle the standing of such an individual could be so morally considerable as to counterbalance the moral rights and interests of persons—e.g., the interests of animals could override the rights of humans to do research, own zoos, run museums, and own farms. But how is this possible for creatures who lack moral personhood?

**Moral Standing in the Absence of Moral Personhood**

Fortunately for animals and humans who lack moral personhood, moral standing does not stand or fall with personhood of any type. Some creatures have moral standing if they do not possess even a single cognitive or moral capacity. The reason is that their non-cognitive and non-moral properties are sufficient to confer some measure of moral standing. At least two kinds of capacities are basic for moral standing: (1) capacities of pain and suffering, (2) properties of emotion. As Jeremy Bentham long ago pointed out, the capacity to feel pain and undergo suffering is most relevant to moral standing. Similarly, the emotional lives of animals, though little discussed in moral writings about animals, are relevant to the ways in which we treat animals.

The nature of these non-cognitive properties of sensation and emotion will not be pursued further here. The point is simply that these are properties on the basis of which some measure of
moral standing should be recognized. Principles of not causing harm, suffering, and emotional deprivation are premised on these properties, and the importance of protecting individuals against them is as well established as any principle of morality.

Of course animals can have interests in avoiding harms other than those of pain, suffering, and emotional deprivation. For example, they have interests in not being deprived of freedom. But these forms of harm alone establish that we have at least some obligations to animals in complete independence of their metaphysical or moral status as persons. This is as true for animals lacking the requisite properties as it is for humans lacking these same capacities.

In the case of non-human animals and humans lacking moral personhood, there is no consistent way to draw a line between human and animal life that will exclude one and include the other in the scope of activities such as experimentation. It cannot be merely the capacity to feel pleasure and pain that makes the difference, because many animals share that capacity to a significant degree with humans. In just these respects, the severely retarded, the irreversibly comatose, the demented, and young infants fall into many relevantly similar categories as animals. They all deserve an equal consideration of interests.

Whenever the line is drawn between animals and humans, the criteria invoked to draw the line will include either too little or too much to extend protections to humans alone. For almost any property one lands on to set non-humans apart from humans lacking moral personhood, some humans either lack the favored property, or some animal has it or something like it. If no morally relevant differences can be found, it follows that the same moral concern extended to humans must be extended to animals.

NOTES


Chapter 2
Principles in Contemporary Biomedical Ethics
Tom L. Beauchamp

The following topics are discussed: (1) the history of medical ethics leading to the present; (2) principles that govern moral thought; (3) biomedical cases and their ethical implications; and (4), the treatment of specific issues in contemporary biomedical ethics.

HISTORY

MEDICAL TRADITION: ANCIENT AND MODERN

Medical ethics has enjoyed a distinguished history and one that has long served medicine and society well. However, it has become clear in the last 30 years that traditional codes and practices of medical and nursing ethics are inadequate to address problems arising from modern scientific research, clinical practice, biomedical technology, health policy, and related social developments. The history of medical ethics emanating from the practices of 2,000 years ago is a particularly disappointing history from the perspective of today’s concerns in biomedical ethics about the rights of patients and subjects and the ways in which society should act to promote health.

For example, the Hippocratic tradition of ancient Greece fails to address such fundamental issues of responsibility as consent by patients, privacy, resource allocation, and the right to refuse treatment. Most topics and problems in medical ethics that are of major concern today are ignored or given but passing notice in Hippocratic medicine. Thomas Percival’s classic Medical Ethics, published in 1803, is the most important example of the Hippocratic tradition carried forward into modern times. But, like the Hippocrati physicians, Percival took the view that the health professional’s obligation is to protect the patient from harm and restore function; rights of choice by the patient play no role in his ethic.

THE ARRIVAL OF A NEW MEDICAL ETHICS

Shortly after the middle of the twentieth century, a major transformation occurred in medical ethics and health policy, especially in North America. Forces having roots external to the professional concerns of physicians began to be influential. In particular, law and biomedical ethics came to address a set of largely unexplored subjects, especially about the morality of patient care. Perhaps the most accurate explanation is that law and ethics, as well as medicine itself, were all affected by issues and concerns in the wider society about individual rights and social equality, made dramatic by increasingly technological, powerful, and impersonal medical care.
The issues raised by civil rights, women's rights, the consumer movement, and the rights of prisoners and of the mentally ill often included health care components such as reproductive rights, rights of access to abortion and contraception, the right to health care information, access to care, and rights to be protected against unwarranted human experimentation. These urgent societal concerns helped reinforce public acceptance of the notion of the rights of the individual as applied to health care and research.

In the decade from 1962 to 1972, the old medical ethics began to crumble and the new emerged with vigor—so much so that terms like "bioethics" and "biomedical ethics" replaced the older term "medical ethics." A massive tangle of problems with a special body of literature soon emerged on the just allocation of medical resources, informed consent, abortion, and maternal-fetal relations, the prolongation of life and intending death, the use of research subjects, and genetic intervention and reproductive technologies.

These 20th century developments still do not show that traditional medical ethics was a complete failure. Health professionals trained in this tradition understood many responsibilities, and when they failed to discharge those responsibilities, we could find them culpable for their actions. One great value of traditional medical practices and Hippocratic teachings is that any actions that do not proceed in accordance with the prevailing rules of professional ethics—however minimal—can be declared to be unethical, because such actions violate sound professional ethical standards. Thus, medical tradition has supplied society with a basic minimum of medical ethics—a body of moral responsibilities that was easy to understand, easy to build into the profession, and relatively easy to use in evaluating the conduct of members of the profession.

What dawned on many observers in the late twentieth century was how minimal in ethics this tradition had become. People began to appreciate the need for an explicit recognition of basic ethical principles and forms of moral reasoning that would help us identify clinical practices and human experiments that were morally questionable or unacceptable.

THE ORIGINS OF PRINCIPLES IN BIOMEDICAL ETHICS

Prior to the early 1970s, then, there was no firm ground in which a commitment to principles or even ethical theory could take root in biomedical ethics.

By contrast, the recent history of biomedical ethics is rooted in multiple disciplines, including those of the health professions, law, the social and behavioral sciences, and moral philosophy. Perhaps the most influential fields in the last 25 years have been law and moral philosophy. The central problems of biomedical ethics have been framed in the vocabularies of these two disciplines, especially their use of the term "principles." The idea of a principled framework gave a foundation to a youthful biomedical ethics in the mid-1970s that the field had not previously enjoyed.

There were two primary published sources of the early interest in principles in biomedical ethics. They were the Belmont Report¹ (and related documents) of the National Commission for the Protection of Human Subjects and the book entitled Principles of Biomedical Ethics.²
THE NATIONAL COMMISSION FOR THE PROTECTION OF HUMAN SUBJECTS

After numerous complaints in the US media, a National Commission was charged by the US Congress to investigate the ethics of research and to study how research was conducted in United States institutions. It was also asked to define the basic ethical principles that should govern research with human subjects. In response to its charge, the Commission developed a schema of basic ethical principles and related it to the subject areas of research ethics to which the principles apply:

<table>
<thead>
<tr>
<th>Principle of</th>
<th>Applies To</th>
<th>Guidelines for</th>
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<tbody>
<tr>
<td>Respect for Persons</td>
<td>Informed Consent</td>
<td></td>
</tr>
<tr>
<td>Beneficence</td>
<td>Risk/Benefit Assessment</td>
<td></td>
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<tr>
<td>Justice</td>
<td>Selection of Subjects</td>
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This schema functioned as a general framework for handling problems of research ethics. For example, the principle of respect for persons requires that an informed consent must be received from subjects prior to their involvement in research. The purpose of consent provisions is not protection from risk, but the protection of autonomy and personal dignity. The Commission's conclusion presented a philosophical position on informed consent for the first time in a United States government-sponsored document.

PRINCIPLES OF BIOMEDICAL ETHICS

We began our delineation of the principles of biomedical ethics at approximately the same time that the Commission began its investigations. In 1975 we drafted a programmatic idea for our book. Only later would the title Principles of Biomedical Ethics be placed on the work. We thought at the time that a systematic work was needed for the new biomedical ethics, although there were then very few courses in universities and even fewer teachers who dealt with principles in their courses. Virtually every published book in the field at the time was organized by topic. None was developed in terms of principles or philosophical theory.

In the Principles, we developed a set of moral principles grouped as a framework for biomedical ethics. The principles are grouped under four general categories: (1) respect for autonomy (a principle requiring respect for the decision-making capacities of autonomous persons), (2) non-maleficence (a principle requiring not causing harm to others), (3) beneficence (a group of principles requiring that we prevent harm, provide benefits, and balance benefits against risks and costs), and (4) justice (a group of principles requiring appropriate distribution of benefits, risks, and costs).

Most of these principles are already embedded in public morality and are presupposed in the formulation of public and institutional policies. Thus, these principles do not deviate from what everyone knows, based on their own moral experience and knowledge. If someone said to you, “You should not cause harm to and should help others; you should respect the rights and choices of others, and you should fairly distribute communal resources,” the person addressed would not
think anything had been said beyond what is common knowledge. Everyone believes that the
nature and objective of a moral way of life requires that we respect persons and take account of their
well-being in our actions. This is the raw data for theory; the source of moral knowledge is moral
experience of what is held in common. This is why we can speak of the origins of moral principles
as being in the common morality that we all already share.

A related reason for choosing these particular four categories of moral guidelines as the frame-
work derives from professional roles and traditions. Throughout the centuries the health professional’s
obligations and virtues, as found in codes and learned writings on ethics, have been conceived
through professional commitments to shield patients from the harms of disease and injury and to
provide medical care, expressed in ethical terms as obligations of non-maleficence and beneficence.

THE NATURE OF PRINCIPLES IN BIOMEDICAL ETHICS

A principle is a fundamental standard of conduct on which many other moral standards and
judgments rely for their defense and standing. For example, universal moral rights and basic profes-
sional duties are delineated on the basis of the moral principles. In the approach Jim Childress and
I take in our book, both principles and rules follow the model of W. D. Ross’s well known account
of prima facie duties: Principles are always binding unless they conflict with other obligations.\(^3\)
When a conflict of principles occurs, some balance between two or more principles must be found;
alternatively, one principle overrides the other. This way of handling conflict strikes some of our
critics as unsatisfactory, because principles seem too weak or too relative to individual judgment or
to the beliefs of groups. Principles therefore seem unable to resolve hard cases.

THE ROBUST CONCEPTION OF PRINCIPLES

However, the alternative to this flexibility and discretionary judgment is to make the prin-
ciples inflexible, and this strategy presents even more serious problems. Various philosophers in the
history of modern ethics seem to assume this “robust” sense of a principle. In their accounts, a norm
is a moral principle if and only if it is unexceptionable—that is, has no exceptions and cannot have
exceptions.

Many problems render this conception doubtful. The main one is that it removes judgment in
morality, making moral thinking merely the strict application of rules. Rigid principles also ob-
struct compromise and the resolution of moral problems by generating a gridlock of conflicting
principled positions. This renders moral debate hostile and intemperate. That is to say, rigid prin-
ciples lock us into dogmatic conflict when they conflict with other principles, or when different
weights are attached to the principles by other persons. No one has ever adequately defended a
justified model of robust principles. Moral principles invariably must be specified and balanced
when used in practice. We think through our problems by using principles; we do not find solu-
tions simply by applying a principle.

A model of balancing principles keeps options open without “flatly prohibiting” them. Con-
sider, for example, how organ procurement policies might be restructured in the US by balancing
the interests of all who are affected by these policies. Protection of individual rights were para-
mount when the Uniform Anatomical Gift Act was adopted in the late 1960s and early 1970s, giving individuals the right to make decisions about the donation of their organs through a donor card. However, few individuals sign donor cards, and the signatures of those who do sign are often not available when they die. As a result, our capacity to promote the common good through more community-based public policies has been paralyzed by a public policy that is entirely protective of autonomy rights. An absolutist account of individual rights leaves no opportunity to formulate more stringent policies for the procurement of tissues and organs, which must be handled by balancing principles of public utility and respect for autonomy. The social ideals of beneficence are as critical to social morality as individual rights are.

SPECIFICATION AND BALANCING

But we still need to ask how helpful this conception of principles is for biomedical ethics, and how principles reach down in this conception to concrete policies and judgments. Many critics, especially the Casuists, have pointed out that all general principles are unclear about what follows from them for practical decision making: Principles do not themselves fully determine moral judgments because there is too little content in abstract principles to determine concrete outcomes. How, then, does one fill the gap between abstract principles and concrete judgments?

The answer is that principles must be specified to suit the needs and demands of particular contexts and to overcome their lack of content and to handle moral conflict. Specification is the progressive filling in and development of the abstract content of principles, shedding their indeterminateness and thereby providing action-guiding content. Increase of substance through specification is essential for decision making in clinical ethics and for policy contexts (both institutional policies and public policies).

From this perspective, principles should be understood more as general guidelines that are interpreted and then made specific for policy and clinical decision-making than as norms that are applied. Every moral and legal policy in biomedical ethics and public life rests on some form of specification of moral and legal principles. The field of biomedical ethics itself has been developed and continues to be developed by tailoring principles to fit the needs of specific circumstances.

It is precisely through such specifications that morality develops and allows for moral progress. We solve moral problems by creative and on-going specification. These specifications will at times involve a balancing of principles, at times an appending of additional obligations, and at other times a development of one or more principles by making each principle more precise for purposes of policy. In these ways, we become more specific and practical, while retaining fidelity to our original principles and rules. This strategy has the advantage of allowing us to unpack our valutative commitments and to expand them as well—presumably achieving a more workable and a more coherent body of contextually relevant moral guidelines.

From this perspective, specification is one arm of a larger method of bringing coherence to our moral beliefs. There are, of course, tangled problems about the best method to use in order to achieve specification, and about how we can justify a proposed specification, but that we need to specify our norms, not merely to make a bare appeal to principles and rules, seems clear. Moreover, this work is at the heart of what we do in the field of bioethics.
Chapter 2

ALTERNATIVES TO PRINCIPLES?

With this account of principles before us, we will now shift to contemporary writers in biomedical ethics who criticize principles. During the mid-1980s, questions began to be raised about the adequacy of general principles for biomedical ethics, particularly the framework that Childress and I had developed. Several alternative models came into prominence, some of which either rejected principles or avoided principles together. Only one alternative, namely Casuistry, is described here.

Often in contemporary biomedical ethics we focus our attention not on principles, but rather on practical decision-making in particular cases and on the implications of those cases for other cases. Here we begin by identifying particular features and problems in the case. We then attempt to identify the relevant precedents and prior experiences we have had with related cases, attempting to determine how similar and different the present case is from other cases. For example, if the case involves a problem of medical confidentiality, analogous cases would be considered in which breaches of confidentiality were justified or unjustified in order to see whether it is justified or unjustified in the present case.

The idea is that moral belief and knowledge evolve over time through reflection on cases, in the same way that conclusions emerge through case law in the courts. When the decision of a majority of judges becomes authoritative, this decision is positioned to become authoritative for other courts hearing cases with similar facts. Moral reasoning often seems to work in this same way.

The leading cases (so-called "paradigm cases") become enduring and authoritative sources for reflection and decision-making. For example, in the current literature of biomedical ethics, cases such as the US Public Health Service Syphilis Study at Tuskegee (in which a group of black men were intentionally not given treatment for syphilis, in order to follow the course of the disease), are constantly invoked in order to illustrate unjust biomedical experimentation. Decisions reached about the case serve as a form of authority for decisions in new cases.

Such cases are then discussed throughout the literature of biomedical ethics, and they become integral to the way we think and draw conclusions in the field. They profoundly influence our standards of fairness, negligence, paternalism, and the like. Just as case law (legal rules) develops incrementally from legal decisions in cases, so the moral law (moral rules) develops incrementally. This is what is right about casuistry and it is clear that we do often reflect on cases in the ways casuists suggest.

Nonetheless, casuistry can be misleading. Casuists sometimes write as if cases lead to moral paradigms, analogies, or judgments entirely by their facts alone or perhaps by appeal only to the salient features of the case. This premise is suspect. The properties that we observe to be of moral importance in cases are picked out by the values that we have already accepted as being morally important. No matter how many salient facts are stacked one on top of the other, we will still need some value premises in order to reach a moral conclusion. The paradigm cases of the casuists, we might say, are value-laden.

These paradigm cases might just as well be called "cases that contain a norm." Paradigm cases gain status as paradigms because of prior commitments to central values that are preserved from one case to the next case. To move constructively from case to case, one or more norms of moral
relevance must connect the cases. Rules of relevant features across cases will not themselves be a part of the case, but a way of interpreting and linking cases. So understood, casuistry presupposes principles (maxims or rules) and makes them essential for moral reasoning. The principles are present prior to the decision, and then are weighed and balanced in the circumstances. But this is precisely the principles paradigm, not some rival paradigm.

NOTES


Chapter 3
Ethical Principles for Animal Research and the Sundowner Principles

Andrew N. Rowan

In the past two hundred years, moral theories about our fellow humans have changed as modern Western societies have accepted, in theory and law at least, the moral equality of all humans. Similarly, our attitudes to animals have changed over the same period, although there is no similar basic consensus about the moral status of animals. Instead, there are some broad ideas that humans owe some consideration to animals (how much is one area of dispute) but that we may still use animals for the benefit of humans.

The debate about the proper moral status of animals goes back millennia, although more has been written in the past twenty five years than in the previous 2500. The philosophical writings dating from the ancient Greeks to the present have forged better arguments and ethical principles for animal research which still require fine tuning.

THE ANCIENT GREEKS

The ancient Greeks examined the place of animals and produced four main positions—Animism, Mechanism, Vitalism, and a “common sense” position. Animism and Mechanism viewed humans and animals as equivalent. In Animism, they were both empowered by the spirit of life and in Mechanism both were viewed as no more than biological mechanisms. Aristotle developed Vitalism in which animals and humans were empowered by a vital force with humans having more of the force than other animals (hence the notion of a ladder of creatures with humans, specifically Greek male citizens, at the top). The “common sense” position, held by the vast majority of the ancient Greek populace, was that animals were placed on earth for human benefit (Brumbaugh).

This last view of animals as resources for humans was not articulated in any detail, much like the situation today where the dominant view of the moral status of animals is based on the largely unexamined notion that humans have been granted dominion over animals. Therefore, it is generally held that we can use animals as we see fit as long as we are not wanton or malevolent about it. This view is now criticized by a wide array of philosophers whose arguments have helped to revitalize the modern animal liberation movement.

THE MODERN CONTROVERSY

Despite the tremendous out-pouring of ideas, arguments, and counter-arguments over the past twenty years, we seem to be no nearer to resolving some of the central arguments and controversies over the moral status of animals. These conflicts and questions include:
Chapter 3

- Should all animals be accorded the same moral weight? If not, why not? And what criteria should be used to distinguish between different moral weights?

- For those who place humans apart from animals, what criterion or set of criteria are capable of including all humans and excluding all animals? Should species membership alone be a criterion and, if so, why? (The problem remains that, whatever single criterion is chosen, there always seem to be either some animals that meet it or some humans that do not.)

- What is animal suffering? What is human suffering? Suffering is not the same as pain and usually involves an emotional response to actual or perceived harm to the psychological integrity of a person. The common implication is that suffering requires a minimum level of cognitive ability. Can animals be said to suffer in this sense? Is all suffering equivalent?

- On the benefit side of the usual cost-benefit analysis that some argue should be applied in approving animal research, what are the benefits of animal research and are these benefits exclusively obtained through animal research now and into the future? Is all animal research of equal benefit? If not, how could we discriminate between different grades of animal research projects? How critical is animal research to the advancement of public health, biological knowledge, and medical advance?

Despite the breadth and apparent intractability of the above questions, we may find that it is much easier to come to a broadly supported consensus on the ethics of animal research than the overblown rhetoric and ad hominem attacks reported in the media might seem to imply. Whatever the approach used, it is striking to note that nearly every philosopher who has addressed the question of the moral status of animals in the past twenty-five years has come to the conclusion that not only are the questions difficult but that society should also seriously consider upgrading the moral status of animals. Today, one can divide the various arguments about animals and their moral status into a broader range of views, of which the following represent most of the major positions (taken from positions developed by Jerrold Tannenbaum and published in Tannenbaum and Rowan, 1985).

**ETHICAL POSITIONS**

The ensuing ethical positions do not represent an exhaustive list but they do provide a broad sweep of the arguments that are evident in the modem debate.

**Divinely-granted dominion**

People commonly refer to biblical authority to justify the position that we can use and kill animals as we wish provided we are not careless or malevolent. Some go further and suggest that there are no constraints whatsoever on our use of animals (White), but the prevailing view is that God-granted dominion falls far short of domination and unfettered use and should be interpreted more as stewardship. One is then faced with questions about the extent of the obligations to animals that are required by this position of stewardship.
Reverence for life

Albert Schweitzer argued that our moral concern should be extended beyond just those life forms capable of feeling or sensation. He held that all life exhibits a “will to live” and that it is “good to maintain and cherish...[and]...evil to destroy and to check” (Schweitzer 1929). Nevertheless, his philosophy did not cause him to oppose all animal research. His view was that any injury to life must be “necessary” and “unavoidable,” but he did not spell out the conditions that make the sacrifice of animals in general, or research animals in particular, “necessary” (Schweitzer 1950).

Many people make appeals to the sanctity of life but such appeals are usually reserved for human life. The taking of animal life is usually considered to be acceptable provided little or no suffering is involved and the animal’s death is necessary for some human end. The wanton killing of animals is usually not condoned. However, “reverence for life” is a common phrase in the lexicon of animal activists and, in its strong form, it usually implies no killing of animals for human benefit. As John Kleinig (1991) has demonstrated, the phrase “reverence for life” encompasses a range of difficult and contentious issues that cannot be resolved by simple assertions.

The Thomist/Kantian position

While Aquinas and Kant did not have much to say on the animal issue, they both argued that we should not abuse animals, not because of any inherent value that the animals hold, but because animal abusers are more likely to grow callous and unfeeling and move on to abuse humans. There is a strong thread of this philosophy apparent in humane education and in anti-cruelty laws.

While research tends to support the link between animal abuse and subsequent aggressive behavior towards other humans (Felthouse and Kellert; Lockwood and Aschone), it is also conceivable that the tendency of some individuals to abuse humans may be reduced by the opportunity to mistreat an animal. In this case, the counter-intuitive nature of the Thomist-Kantian position is evident. Imagine the public’s reaction if people were encouraged to engage in cruelty to animals as part of their psychotherapy.

Utilitarianism

Classic utilitarianism weighs the consequences of all those affected by a particular action and recommends those choices which best satisfy the preferences of those affected and has the least harmful effect upon them. In other words, the greatest good for the greatest number is sought. When extending those affected to include animals, it is necessary to acknowledge that animal pain and pleasure, where it is the same as human pain or pleasure, are to be counted as equivalent.

Most of the American public rely heavily, albeit unknowingly, on utilitarian arguments to support their moral behavior. Many laws and regulations are based on utilitarian ideas of maximizing good and minimizing harm. Early utilitarians, especially the 18th century British philosopher, Jeremy Bentham, identified suffering as a key harm. Bentham extended his moral orbit to include animal suffering. He wrote:
It may come one day to be recognized, that the number of legs, the villosity of the skin, or the termination of the os sacrum, are reasons equally insufficient [as blackness of the skin among humans] for abandoning a sensitive being to the same fate. What else is it that should trace insuperable line? Is it the faculty of reason, or perhaps the faculty of discourse? But a full-grown horse or dog is beyond comparison a more rational as well as more conversable animal, than an infant of a day, or a week, or even a month, old. But suppose the case were otherwise, what would it avail? The question is not Can they reason? nor Can they talk? but, Can they suffer?... (Bentham)

Thus the rationality and linguistic skills of the individual being were not important to Bentham. If the creature could suffer and experience pleasure—that is, if it was sentient—then it was entitled to similar considerability to all the other creatures who could suffer in the same way. This does not imply that a chicken and a horse should be treated the same, just that their interests in not experiencing the same type of suffering are equal and should be considered equally.

In the area of animal research, utilitarian arguments are very common. On the scientific side, people argue that animal research is justified because its benefits to humans and animals outweigh the harms to the laboratory animals. On the animal activist side, philosophers such as Peter Singer (1975) use utilitarian arguments to attack the use of animals in research. Singer holds that animal suffering in the laboratory is considerable and that most of the benefits are either too limited to warrant such suffering or, with sufficient effort, could be achieved without the use of animals. In addition, Singer places an animal’s interests in not suffering on a virtually equal footing with a human’s interests in not suffering:

By contrast, scientists tend to maximize claims of benefit and argue that animal suffering is minimal or non-existent. These two opposing positions can be characterized as Permissive and Restrictive utilitarianism. The two sides are arguing about the extent of human benefit versus animal suffering.

There are several inherent problems with the utilitarian approach. For example, it is virtually impossible to develop the necessary calculations that permit a measured and rational balancing of harm (animal and human suffering) against good (animal well-being and human benefit). Frequently one has to attempt to balance very different outcomes. How, for example, does one compare the suffering of a certain number of rats with the increased human understanding of a biological phenomenon?

Animal rights

One of the most frequently debated issues regarding animal research is the concept of “animal rights.” Animal rights is not a new concept. People have talked of the rights of animals for centuries. In the 18th and 19th centuries a number of authors discussed the status of animals using the term animal rights. These culminated in the 1892 book by Henry Salt, entitled Animals’ Rights, which presented a very modern exposition of the issues.

Today, the concept of “animal rights” is a central theme in the clash between opponents and proponents of animal research. Unfortunately, the term “animal rights” now tends to cloud and confuse rather than clarify the issues. There are three major contexts in which the term is used—the
"common sense," the political, and the philosophical—that are rarely either distinguished or identified in the course of debate and argument. (One could also add legal rights to this list.) The discussion is further complicated by a variety of definitions of "animal rights" and what they entail.

"Common Sense"

About 80% of the public believes that animals have rights. However, about 85% of that same public believes that humans have the right to kill and eat animals (Parents Magazine). Thus, whatever "rights" the public believes animals have claim to, they do not include the right to life. The concept of animal rights held by the general public amounts to no more than a vague and woolly idea that animals have the right to some, rather limited moral consideration and protection from obvious abuse and maltreatment.

Political Views

In the developed world, there is a growing tendency to couch political claims in "rights" language. Thus, we talk of civil rights, women's rights, gay rights, and the like. Therefore, in the political arena, a rights claim carries significant political resonance. It is only to be expected that the animal movement would attempt to appropriate the power of "rights" language for its own cause. As a political description, animal rights is used as a catch-all for those who are campaigning for increased consideration for animals and their enhanced moral status. It may mean as little as better regulation of animal research or as much as a total abolition of all uses of animals that do not benefit animals directly. In this sense, the public campaign for animal rights also includes the animal welfare movement although there has been some attempt, both within and without the animal protection movement, to distinguish between animal welfare and animal rights organizations. These distinctions usually characterize animal welfare organizations as focusing on the elimination of animal suffering and animal rights organizations as opposing any human use or killing of animals.

Philosophical Arguments

Philosophically, "rights" terminology has a very specific meaning. In philosophical circles, a right can be defined (simply and simplistically) as nothing more than a claim that cannot be overridden by claims to human utility. A rights claim can only be over-ridden by another rights claim. Carl Cohen (1986) states that a right, including a moral right, is a claim or potential claim that one party may exercise against another. Thus, one has to determine what is being claimed as a right.

The very strong animal rights argument—developed by Tom Regan (1983) and others—asserts that we cannot use animals merely as a means to our own ends. A weaker, but also plausible animal rights argument could be made where one might assert that animals have the right not to be caused to suffer. In both positions, the term "rights" is used simply to define a claim that cannot be over-ridden merely because it would be useful to do so.

There are also those who feel that the mere presence of life warrants a certain inherent value that automatically entails specific rights. The claim that animals have moral rights implies that animals have some inherent worth independent of the value we humans place on them, and that
animals sometimes have interests that must be respected, even if failing to respect these interests would result in more pleasure for people than for the animals (Tannenbaum 1989). Stating that animals have moral rights asserts that animals have inherent value, whether or not anyone recognizes that value, and this inherent value is based on the fact that they have a “life.” Because of this value it is a sign of disrespect and a violation of rights to treat beings as if they had value merely as a means to human ends.

Some of those who support animal research argue that animals, in and of themselves, have no moral value and do not merit moral respect or consideration. The only value they are deemed to have is as a means to human ends. Singer asserts that such a belief is a form of bigotry called “speciesism.” “Speciesism is a prejudice or attitude of bias in favor of the interests of members of one’s own species and against those of members of other species” (Singer 1990).

The fact that most of the philosophical arguments espousing animal rights have been radical challenges to current human use of animals—usually setting forth a claim that animals cannot be used solely as a means to a human end (Regan)—does not mean that all animal rights positions need to be that radical. Singer’s notion of equality, even among humans, does not claim that all human beings are equal in every respect. “The principle of the equality of human beings is not a description of an alleged actual equality among humans. It is a prescription of how we should treat human beings” (Singer 1990). Likewise, speciesism does not claim that animals are equal to human beings. They do not have to be in order to merit equal consideration of interests. Animals have, at least, an interest in not suffering. If a being suffers (even if the suffering is of a lesser kind than human suffering), asserts Singer, there is no moral justification for refusing to take that suffering into consideration.

Another possible philosophical analysis is that animals cannot have rights as they do not possess the capacity for moral judgment, cannot comprehend the rules that accompany rights, and therefore are incapable of exercising or responding to moral claims. Thus having rights entails a set of complementary obligations, and it is assumed that the holders of rights have the capacity to comprehend the obligations and rules that come with rights. Others argue that if infants, the senile, the comatose, and the mentally retarded are granted rights while unable to comprehend rules and obligations, animals should be allowed equal consideration. Therefore, moral theories that argue that only those who have duties can have rights (e.g., Cohen) would exclude a significant number of humans, who are not deemed capable of having duties, from the category of “rights-holders.”

The pyramid of moral considerability

Nearly every articulated argument on the moral status of animals has presented its arguments on the basis of a single morally-relevant characteristic. For example, Schweitzer argues that possession of a life is the important characteristic. For Singer, it is sentience. For Regan (1983), it is the possession of beliefs and desires (a biography) which confers inherent worth that gives a being the right not to be killed or used to satisfy human ends. However, it is very likely that no single characteristic is sufficient to describe a complete ethical theory on animal treatment. Rights-based arguments have to identify a complex of characteristics that confer moral rights. One has to consider a tapestry of characteristics (Nozick), including the possession of life, the possession of sentience,
the possession of beliefs and desires, the possession of self-awareness and the like (Tannenbaum and Rowan 1985).

One can develop a two-tiered approach to ethical thinking in which there are prescriptive obligations to animals based on the possession of life, sentience, purposiveness, self-awareness, and personhood that establish baseline levels of moral consideration below which one cannot go. On this relatively complex edifice, one can add a layer of prescriptive obligations that are owed to beings with which one has established certain explicit or implicit contracts. Therefore, one can argue that one should treat one’s family with greater consideration than a stranger but that the stranger is still owed certain basic obligations that cannot be voided.

This approach has strong Darwinian overtones in that the ranking of obligations tends to follow evolutionary paths. Thus, sentient vertebrates would be accorded more consideration than living, but presumably non-sentient coelenterates, and self-aware apes would be accorded more consideration than sentient, but (presumably) not self-aware frogs. The scheme also provides a place for those additional moral obligations incurred by explicit or implicit contracts between humans and animals. Such a scheme would explain why we might owe more to the family dog than to a purpose-bred laboratory beagle.

THE NEED FOR MORAL STATUS

In the USA, the Hastings Center, a respected bioethics think tank, has produced a report on the ethics of animal research after two years of meetings that identified a position categorized as the “troubled middle” (Donnelley and Nolan). In other words, it recognizes that animal research raises troubling moral questions but does not reject the practice out of hand. In the UK, a similar body, the Institute for Medical Ethics in London, produced a book-length report with similar conclusions (Smith and Boyd). The two groups found that research is important, that animals deserve some (perhaps increased) moral status in modern society, and that research on animals can be justified given certain conditions.

For the most part, however, the public debate has been marked by a distressing lack of scholarship and academic rigor. The public rhetoric of the protagonists in the animal research controversy usually focuses on the moral turpitude of the other side—“anti-science,” “anti-human,” “sadi-stic,” “self-glorifying” are a few of the adjectives used. In addition, those seeking to maintain the current status have usually responded to critics by increasing the volume rather than by addressing the actual arguments of such critics as the philosophers Singer and Regan. Indeed, scientists continually misinterpret Singer’s arguments (Singer 1990a) and often wrongly assert that he promotes an absolute prohibition of animal research.

When scientists, who are most comfortable dealing with measurable and “objective” phenomena, discuss ethics and moral theories, there is a tendency to view morality as something that is either intuitive and intensely personal or as an emotional response to a difficult conflict. Certainly intuitions, personal backgrounds, and emotions influence our ethical deliberations (as they do our technical discussions), but it would be a mistake to dismiss ethics as an inappropriate topic for scholarly examination. One can, and should, employ logic and scholarly analysis to examine moral theories and, at the very least, to help determine what questions we should be asking. Often, a clear formulation of the essential questions renders the answers fairly obvious.
Apart from the lack of empirical data to help resolve conflicts between philosophical theories, moral argument is very similar to scientific argument. In both cases, a lack of coherence or obvious inconsistencies will be evidence of a flawed theory. However, as in science, the existence of flaws does not necessarily mean that a particular moral construct will be abandoned by society. In the case of challenges to fundamental social mores especially, it takes a long time for society to get used to and assimilate new ideas and arguments.

Lately, there have been several considered attempts to reconcile the conflicting arguments and to begin to develop a reasonable synthesis that reflects a coherent and consistent theory of the moral status of animals. This has proved very difficult because, unlike the argument over research on human subjects, where everybody agrees with the basic proposition that humans should not be used simply as a means to an end, there is no similar base-line consensus on animals. Recently, in the wake of controversies over the use of primates in space research, an initiative to try to develop such a broad consensus was launched by NASA.

**NASA’s Bion Program**

The NASA Bion Program consists of a series of joint American/Russian/French unpiloted space missions that started in 1973. There have been 11 biosatellite launches during a 25 year period that have sent primates, rodents, insects, and plants into space. The major objectives of the Bion satellite investigations are to study the biological effects of low gravity and space radiation on the structure and function of individual physiological systems and the body as a whole.

Due to the general public protests against the treatment of primates in the Bion Program, NASA formed a Bion Task Force in July of 1996. “The Bion Task Force was charged by NASA Administrator Daniel S. Goldin to review the integrity of the Bion science plan for the mission; assure that there are no alternative means for obtaining the information provided by these experiments; and review the Bion Program for ethical and humane animal treatment during all phases of the mission” (NASA 1997). The Task Force found that the science was of high quality, but, during public hearings, Dr. Tom Beauchamp, the bioethicist on the Task Force, argued that there had been very little serious examination of the ethics of the project. As a result, the Task Force recommended NASA to develop and implement an enhanced bioethical policy for future animal experiments (NASA 1997).

Following these recommendations, a Working Group was convened “to implement bioethics policies for animal experimentation, that includes the advice and participation of a professional bioethicist” (Working Group Papers). The Working Group consisted of a public policy expert, three bioethicists, a representative from the animal welfare community, a representative from AAALAC International, and representatives from NASA and other Federal agencies involved in animal research (see Table 1). This Animal Care, Use and Bioethics Working Group met in California, October 1–2, 1996 at the Sundowner Inn and was charged:

- to evaluate the mechanism by which ethical questions are asked during the development and review of scientific protocols;
- to elucidate the bioethical principles that will guide NASA’s decisions regarding the use of animals in research; and
TABLE 1

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<th>NASA WORKING GROUP MEMBERS’ AFFILIATIONS</th>
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Animal research review and ethics

The Working Group determined that ethical considerations are intrinsic to the Animal Welfare Act, the Public Health Service Policy, and U.S. Government Principles as well as to international guiding principles. These documents and principles help us come to decisions about the ethics of animal research by placing a high value on virtue in that we try to identify virtuous people who have high standards of ethical behavior to sit on animal care and use committees. The documents also establish rules of behavior that guide our decision-making. For example, conducting multiple surgeries on a single animal is not permitted unless it is part of the same protocol.

The documents also try to identify the values that should guide our decision-making and usually incorporate some mix of the following:

- reduce animal suffering as much as possible,
- reduce the number of animals required as far as possible,
• ensure that the science is properly planned and likely to achieve its goals, and

• ensure that those conducting the research are adequately trained so that they will be able to minimize animal suffering.

Thus the "protocol review" approach to moral conduct incorporates such supposedly disparate traditions in ethics as virtue, value, and deontological (rights) rules. Therefore, although not specifically documented, protocol reviews which apply these documents (as NASA does) do ask appropriate ethical questions regarding the care and use of animals in biomedical research. However, these questions and issues are usually not explicitly stated.

The Working Group therefore formulated the "NASA Principles for the Ethical Care and Use of Animals" (see Table 2) in order to make ethical considerations more explicit within the NASA review process. These principles extract the implied bioethical concepts contained within the regulations and other documents applied to protocol review, and redefines them in terms of bioethical principles following the format of the "Belmont Report" (1979)—a document that provides similar guidance to the Office for Protection from Research Risks (OPRR) for use by Institutional Review Boards (IRBs) in making ethical determinations for humans involved in research.

The nasa principles for the ethical care and use of animals: the "sundowner" principles

It is generally agreed that vertebrate animals warrant moral concern. The following principles were developed to guide careful and considered discussion of the ethical challenges that arise in the course of animal research, a process that must balance risks, burdens, and benefits. NASA is committed to abide by these principles, as well as by all applicable laws and policies that govern the ethical use of animals (see Table 2). It is recognized that awareness of these principles will not prevent conflicts. Rather, these principles are meant to provide a framework within which challenges and conflicts can be rationally addressed.

TABLE 2:

APPLICABLE LAWS AND POLICIES THAT GOVERN THE ETHICAL USE OF RESEARCH ANIMALS THAT NASA ABIDES BY:

• Belmont Report, 1979

• Animal Welfare Act (Public Law 89–544 as amended)

• U.S. Government Principles for the Utilization and Care of Vertebrate Animals Used in Testing, Research and Training. Developed by Inter-agency Research Animal Committee and endorsed by the Public Health Service Policy on the Humane Care and Use of Laboratory Animals, 1985

• International Guiding Principles for Biomedical Research Involving Animals. Developed by the Council for International Organizations of Medical Sciences. Switzerland, 1985
- Public Health Service Act (Public Law 99–158, 1985)

Among the basic moral principles generally accepted in our culture, three are particularly relevant to the ethics of research using animals: respect for life, societal benefit, and non-maleficence.

- **Respect for Life—Killing entails moral costs**
  Living creatures deserve respect. This principle requires that animals used in research should be of an appropriate species and health status and should involve the minimum number required to obtain valid scientific results. It also recognizes that the use of different species may raise different ethical concerns. Selection of appropriate species should consider cognitive capacity and other morally relevant factors. Additionally, methods such as mathematical models, computer simulation, and in vitro systems should be considered and used whenever possible.

- **Societal Benefit—Advancing knowledge and health is a strong justification for research**
  The advancement of biological knowledge and improvements in the protection of the health and well being of both humans and other animals provide strong justification for biomedical and behavioral research. This principle entails that where animals are used, the assessment of the overall ethical value of such use should include consideration of the full range of potential societal goods, the populations affected, and the burdens that are expected to be borne by the subjects of the research.

- **Non-maleficence—Minimization of distress, pain, and suffering is a moral imperative**
  Vertebrate animals are sentient. This principle entails that the minimization of distress, pain, and suffering is a moral imperative. Unless the contrary is established, investigators should consider that procedures that cause pain or distress in humans may cause pain or distress in other sentient animals.

**Recommendations to NASA by the working group**

The Working Group also reviewed the proposed language of the NASA Policy Directive/NASA Policy Guidance (NPD/NPG) for consistency with current ethical practices and federal regulations. Recommendations to strengthen these documents were made to Dr. Richard Simmonds, chair of the NPD/NPG committee. In addition, the following recommendations were made by the Working Group to help NASA implement enhanced bioethical practices.

- A bioethicist should be included on the NASA Animals in Research Committee.
- Formal bioethics training should be provided to all NASA Institutional Animal Care and Use Committees (IACUCs) and Institutional Officials.
- Bioethics training should be made available to all life sciences investigators and staff.
Each proposal should have a member of the IACUC designated to ask questions from a position of advocacy on behalf of the experimental animal. These questions shall use the "NASA Principles" as their basis. Advocacy of this type is a normal part of the IACUC review, but this makes the responsibility explicit rather than implicit.

NASA should distribute an appropriate bibliography on animal bioethics (recommended materials were provided by the bioethicists in the Working Group).

Results

Due to the recommendations made by the Bion Task Force, the Working Group and other panels, NASA decided to end its involvement in the Bion Program on April 22, 1997. The decision was based on the findings and recommendation of an independent review panel convened to investigate the post-flight death of one of the two rhesus monkeys that flew aboard the Bion 11 mission in 1996. NASA's investigation was led by Dr. Ronald Merrell. The Merrell panel found that there was "an unexpected mortality risk associated with anesthesia for surgical procedures" after space travel and therefore the Bion 12 research protocols were now deemed to pose an "unacceptable risk" to the primates (FASEB 1997). Their lives and inherent worth outweighed their human utility. In other words, we valued their right as "subjects of a life."

Conclusion

In conclusion, the issue of the appropriate moral status of animals is neither an easy nor a trivial question. An ethical position is not simply a matter of personal opinion nor is there always a single unique and correct answer to a moral question. Ethics is like engineering, a variety of models may work well but some models are more functional than others, and therefore one must weigh the benefits and advantages of each. One must judge the arguments on the basis of internal consistency and overall coherence. Ethics involves developing theories for the moral weight to be accorded to such qualities as life, sentience, suffering, self-awareness, and the like. In the animal research arena, we need a more sophisticated understanding of the concepts of sentence so that we can identify what animals experience and how that might affect our moral obligations.

In justifying biomedical research, one is faced with difficult questions about the value of basic knowledge and likely therapeutic benefit. If we agree that animal use in research involves moral costs that need to be taken seriously, then how much attention must be paid to the "three Rs" (replacement, reduction, and refinement) of Russell and Burch (1959) and the idea of alternatives? The use of animals in research involves responsibility—not only for the stewardship of the animals but also to the scientific community and society as well. Stewardship is a universal responsibility that goes beyond immediate research needs to include acquisition and care and disposition of the animals. In addition, our responsibility to the scientific community and society requires an appropriate understanding of and sensitivity to scientific needs and community attitudes toward the use of animals.

There are no single unique best answers when dealing with ethics as in the hard sciences. Instead, there may be several equally workable and acceptable approaches which have different strengths and weaknesses. Nonetheless, much "progress" in attending to the moral issues related to
animal research and testing is evident although there is still a great deal left to do. We will need wisdom, humor, and a good sense of proportion in the decades to come if we are to continue to make progress on these issues to benefit both humans and the animals who share our world and lives.

NOTES


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Chapter 4
The Human/Animal Relationship: Jewish, Christian, and Islamic Perspectives
James V. Parker, PhD

Twenty thousand years ago, when they were living in caves and lining their walls with the art found at such sites as Lascaux, our ancestors were crossing a great technological threshold—the domestication of animals. Learning how to use animals for work, food, warmth, clothing, travel, and companionship, they laid the groundwork for all the subsequent achievements of human culture.

As they crossed that threshold, these ancient people established the basic features of the human/animal relationship. In every society since, humans have used animals and, at the same time, have hedged that use with prescriptions of kindness and rituals of appreciation. Those prescriptions and rituals, no doubt differing in detail in one society and another, were enshrined in religions thousands of years before the emergence of Judaism, Christianity, and Islam. During the last 3,000 years, these three religions have played a significant role in shaping the human/animal relationship in the Western world.

In our own times we are witnessing an attempt to recast the human/animal relationship. Understandably, that attempt—the animal rights movement—seeks to revise the teachings of the three religions. In particular, movement theologians are taking a new look at texts in the Bible’s book of Genesis shared by Jewish and Christian believers and revered by Muslims.

Before evaluating the revisionist efforts of these theologians, it is necessary to provide some background on the Bible and on certain commonly accepted principles of its interpretation. Prior even to that, it is well to outline doctrines that comprise the Jewish/Christian/Muslim consensus on the human/animal relationship. That may be done under five titles: God, the world, human preeminence, animal care, and the soul.

**The Jewish/Christian/Muslim Consensus**

**God.** Each of these monotheistic religions has sought to replace animism. Animism is the cluster of beliefs in which such realities of nature as mountains, trees, and animals are perceived as manifestations of gods or spirits or gins. These spiritual forces must be placated or at least acknowledged in thanksgiving before one ascends the mountain or cuts down the tree or kills the animal. In the monotheistic religions, on the other hand, god is one, and the one god—whether called God, Adonai, or Allah—is above nature.

**The world.** In his famous *Science* article some 30 years ago, historian Lynn White criticized monotheism (Christianity in particular) as the root of our ecological problems.¹ Monotheism, he
argued, desacralizes nature—mountains, trees, and animals no longer manifest spirits, but are seen only as objects or things to be used.

Many recent writers, especially Christian environmentalists, believe that the blame is misplaced. They identify the culprit as a seventeenth century French philosopher, René Descartes, who believed that animals are soulless, non-feeling machines. Even though he was a devout Christian, Descartes does not speak for the entire and more ancient Christian tradition. Christians, along with Jewish and Muslim believers, have always seen nature as reflecting the transcendent God. In fact, for the three religions, nature is never just nature, but always creation; in other words, it is the sacrament or sacred sign of the creator. As we shall see shortly, it is not just a soulless sign.

Thus, in the accounts of creation found in the Psalms we hear that “the heavens declare the glory of God“ (Ps. 19). St. Augustine has a mystical vision of the stars singing, “We did not make ourselves, but are made by God who is forever.” Mohammed declares that every creature praises Allah just by its existence. “Tread carefully upon the earth, treating it with the same respect that we show the Book of Allah, for even though Allah hath humbled the earth to you,’ and although we are free ‘to walk in its tracts and eat of His providing,’ the earth shakes with the presence of God”.2

In the consensus of Judaism, Christianity, and Islam, creation, though a sacred sign, is short of perfection. The world in which we now live is not yet what God intends it to be. Believers look forward to the eschaton or last times, when all that the human heart could ever hope for will be accomplished. Whereas Jewish and Christian believers see the eschaton as God’s new creation, Muslims look on future perfection as already in the making. Like people who view the back side of a rug as it is being woven, seeing the knots and threads but not the pattern and colors, we discern only hints of how creation will ultimately reveal God.

**Human preeminence.** In each of these religions, humans are the centerpiece of creation. In the Hebrew Bible, the psalmist tells God,

> You have made him (humankind) little less than the angels, you have crowned him with glory and beauty, made him Lord of the works of your hands, put all things under his feet . . . birds in the sky, fish in the sea . . .

(Psalm 8)

Christians took over and deepened the same anthropology. They believe that God who first creates humankind in his own image and likeness, “in the fullness of time” makes himself into the image of humans by becoming a man in Jesus. The Qur'an frequently repeats Allah’s command the angels bow down before Adam and Eve (c. 2, v. 34; c. 17, v. 61).

The fact that humans are created in the image and likeness of God, implies not only preeminence but also responsibility. As we shall see in more detail below, it is as earthly representatives or stand-ins for God that humans are to fulfill the well-known command, “Have dominion . . . over all the creatures of the earth” (Genesis 1:28). Humans are guardians or stewards, a teaching echoed in the Qur'an, where humans are named Allah's vice-gerents, charged with showing divine compassion, justice and charity as they strive to establish a kingdom on earth in harmony with his laws of nature.
Animal care. Although they hold that humans are the greatest delight of the creator, all three religions view animals as having value in themselves, not only in their usefulness to humans. Their intrinsic (as contrasted to instrumental) value is anchored in the Bible’s refrain that God finds his creation “very good” (Genesis 1) and in the Qur’an declaration that the even the bee and the ant receive Allah’s revelation (c. 16, v. 68).

Moreover, each of these religions contains regulations and stories meant to insure humane treatment of animals. Jewish and Muslim laws prohibit eating flesh taken from living animals, ban hunting for sport, and prescribe merciful slaughter.\(^3\) Biblical heroes are chosen by God, at least in part, for the compassion they show animals. Francis of Assisi, the Christian saint who preached to the birds, and Haurâïbra Abu, the Arabic lover of cats, are revered as holy men. Pious legends tell of ordinary believers who have won their place in heaven because of their kindness to animals.

Despite prescriptions and stories of compassion, these religions have included the practice and language of animal sacrifice. When the nineteenth century German philosopher Arthur Schopenhauer decried the absence of animal rights as “a Western barbarism, whose source is Judaism,” he was most likely venting moral outrage at the use of animals in the worship of ancient Israel.\(^4\) As barbaric as animal sacrifice may seem to contemporary secular sensibility, it may be well to try to understand how it arose and how it functions in religion.

Ironically, religious sacrifice expresses an already-mentioned insight, which, as we shall see, is articulated in animal rights theology—all creation has intrinsic as well as instrumental value; that is, creatures are good not only in their usefulness to humans but, more importantly, in themselves as originating from and belonging to God. The essence of sacrifice, then, is to remove representative individuals from human use and return them to their maker in thanksgiving. Ancient Israelites removed the sacrificial animal from human use by burning the offering. Muslims, who believe that the waste of an animal vitiates the merit of the ritual, accomplish the set-aside by distributing the offered flesh to none but Allah’s poor.

Animal sacrifice replaced human oblations found in several primitive religions, including pre-Hebrew Canaanite worship. In ancient Israel and still in contemporary Islam, animal sacrifice honors Abraham, who was prepared to offer even his son Isaac back to God. It also commemorates the response of God, who provides, in Isaac’s place, a lamb for the holocaust.

Practitioners of animal sacrifice would be surprised by the charge of cruelty. The same prescriptions that guarantee painless death when animals are slaughtered for food govern the preparation of the animal offering. The devout worshipper would maintain that if animal flesh may be eaten, then certainly it may be presented to God. The argument seems plausible as long as one believes that such a ritual is necessary for the human/divine interchange.

Precisely this latter conviction came under attack in the eighth and seventh centuries BCE. Jewish prophets attacked animal sacrifice not out of new-found concern for animal well being, but because they saw the practice as an empty ritual. The message of God to Jeremiah and Amos is that “your burnt offerings are not acceptable, and your sacrifices do not please me” (Jeremiah 6:20; Amos 5:22). The prophetic voice eventually carried the day. Animal sacrifice ceased when the Romans razed Jerusalem and destroyed the temple in 70 C.E. Ever since, Judaism has been a religion of the synagogue, where sacred texts are pondered, and of the home, where sacred events are celebrated in family meals.
It is likely that Christians continued to go up to the temple for offerings with their Jewish brethren until its destruction. Thereafter, they developed a theology that renders animal sacrifice obsolete and, in a symbolic sense, comes full circle to human sacrifice. According to Christian belief, the “lamb” that God provides in these times is his own son Jesus. Jesus’ death on the cross is viewed as the perfect, once-for-all human sacrifice that is symbolically re-presented in the daily celebration of the Mass.

The soul. Frequently, the notion of the soul is called into service in discussions of human pre-eminence. It is either adduced as the reason for human superiority over animals or faulted as the source of the excessively anthropocentric viewpoint found in the three western religions, Christianity in particular. The reality is somewhat more complex.

The English word soul translates the Hebrew nephesh. This translation is unfortunate because most people use the word soul with a meaning that comes from ancient Greek philosophers through their medieval Christian counterparts and heirs. Plato and Aristotle thought in terms of the body and the soul. The Bible knows no body/soul distinction; nephesh refers to a concrete living creature, a whole and integrated being.

Thus, in the second creation story of Genesis we hear that God “shaped man from the ground and blew the breath of life into his nostrils, and man became a nephesh, a living being” (Genesis 2:7). The famous law of reciprocation requires not a “life for a life,” but “a living being [nephesh] for a living being [nephesh], an eye for an eye, a tooth for a tooth.” To love someone as oneself is to love someone as one’s own nephesh. Animals, too, are living beings (Genesis 1:20, 24; 9:12). Nephesh, then, is the totality of the being, the subject of feelings and thoughts and intentions. Hebrews wouldn’t say that creatures have souls, but that they are souls.

The writers of the Bible, except for a few who wrote very late in history and under Greek influence, didn’t speculate about souls and their immortality. Even though they possessed rather murky ideas of life after death, they held a clear hope for a renewal of all creation at the end of time. In that renewal, the nephesh, the living being, would be raised up. For his Christian audiences St. Paul claimed that Jesus had validated this expectation in being risen up as the first born of all the dead. The rest of creation still awaits the last day when “the heavens and the earth will be freed from slavery to corruption and brought into the same glorious freedom as the children of God” (Romans 8:21). There seems to be no reason to limit this hope to humans; “the heavens and the earth” (all creation) includes animals.

St. Paul brings us to the New Testament. This Christian portion of the Bible carried over the Hebrew notion of the soul as the living being, but, being written in Greek, it introduced the word psyche for nephesh. Along with this word came older, nonbiblical nuances, so that Christian writers from the second century discussed the soul with thought patterns going back to Plato and Aristotle.

Plato held that the soul inhabits a body, which at best is the soul’s instrument and at worst its prison. Since this soul comprehends immaterial ideas—beauty, justice, goodness—he deduced that it is not made of matter. What is not made of matter cannot decay or be destroyed. Consequently, the soul is immortal. By this reckoning, animals that do not have such abstract ideas do not have souls.

Could it be that animals have a different type of soul? Plato’s student and successor, Aristotle, concluded just that. A biologist much more intrigued by nature than his mentor, Aristotle defined
the soul as the form of a living thing. Forms, he taught, shape matter into the particular things that exist. Plants have vegetative souls; animals have sensitive souls; and humans have rational souls. Souls do not, however, exist apart from bodies. Though Aristotle is on record as wondering if maybe part of the human soul—the part that comprehends mathematics—is immortal, he was unequivocal about animals; their sensitive souls do not persist beyond death.

These ancients Greeks had a profound effect on Christian thought about the soul, both human and animal. Against heretics who thought of the human being as a composite of a good soul and an evil body, Church councils urged Aristotle’s notion of the soul as the form rather than a resident of the body. Against heretics who denied afterlife, they followed Plato in laying down the precept that the human soul survives death—adding, of course, the Christian belief that this soul will be rejoined one day by the body in the resurrection of the whole person.

Once enshrined in dogma, this fusion of Platonic and Aristotelian ideas indirectly shaped Christian thinking about animals. Though there are no official Church pronouncements on animal souls and salvation, theologians assumed that animals have souls which last for this life only. St. Francis reminded birds that they sing the Creator’s praise, but he didn’t teach them that they have immortal souls. Strange as it seems, the man who put his stamp on so much church teaching, St. Thomas Aquinas, had no place for animals in the new creation at the end of time. Earth and sea, sky and stars will all be renewed, but animals will not be present.

A somewhat similar history may be traced in Islam. The Arabic word nasf comes from the same root as nefesh, and it, too, stands not for a part of the self but for the whole self. It extends to animals “although their psychic force is of a lower level than that of human beings.”

Muslim scholars of the eighth to the twelfth centuries, who were responsible for translating, preserving and eventually re-introducing Greek philosophical writings to the West, discussed the soul as an Aristotelian form. The great Muslim interpreters of Aristotle, Avicenna (980–1037) and Averroes (1126–1198), were divided on the question of whether the human soul is an exception and enjoys personal immortality.

The use of Greek philosophical distinctions between body and soul is not essential to Christianity’s foundational belief in the resurrection. According to that belief, living beings, nepheshim, will be restored in the resurrection. In the end time, God’s spirit will breathe upon them once again and make of them a new creation. What is destined for glory is the whole flesh-and-blood being—that is, the soul, not in the Aristotelian/Platonic notion but in the Hebrew notion of nephesh. This notion is large enough to include animals.

Consensus. Such, then, is the way in which the three religions have understood and shaped the human/animal relationship. Recently, however, in the face of several environmental crises, people are asking if there are resources in these religions, previously overlooked, that could inspire us to new concern for creation. As part of the challenge of the animal rights movement, some are wondering if we need to rethink our use—even humane use—of animals for food, clothing, entertainment, and even medical research. These new questions have sent theologians, especially those in the Jewish and Christian communities, back to their sources.

**BIBLICAL BACKGROUND**
Chapter 4

The Bible is the story of the relationship between God and Israel, the family of Abraham. In fact, it is a story made up of many different types of tellings, the word Bible being shorthand in Greek for “the book of books.” The Bible includes myths, sagas, chronicles, laws, inventories, sermons, parables, drama, poetry, proverbs, kitchen rules, and household hygiene—all of which are necessary for Abraham’s clan on its life’s journey and all of which are considered divinely inspired because they reveal God and his care of Israel.

Biblical myths and poems and stories call for interpretation. In that respect they are no different from the Constitution of the United States, a play of Shakespeare or a letter from someone we love. If we want to be certain what they mean to us who read or listen to them, we must first of all determine what they meant to those who wrote them.

Here’s the rub—interpretation of the Bible is notoriously difficult. As Martin Luther said, “Even the devil quotes Scripture.” How do scholars avoid the “he said/she said” arguments of those who cite this text or that text to prove their point? On the one hand, they avoid any literal reading of texts that might lead someone to think, for example, that Methuselah really lived 969 years. On the other hand, they eschew any appeal to hidden meaning, as if the Bible were a puzzle to be decoded. Instead, scholars engage in the hard work of historical and literary studies that attempt to determine what the authors who wrote the texts intended their audiences to understand.

The Law. First of the three major divisions of the Bible, the Law or Torah tells the story of how God delivers the family of Abraham from slavery. Abraham’s family, in response, gratefully promises to live according to God’s commandments—613 laws, among them several dealing with animals.

In addition to the famous law from Deuteronomy—“You must not muzzle an ox when it is treading out the corn” (Deuteronomy 25:4)—the Torah has prescriptions against eating parts removed from living animals and for the painless slaughter of animals. It also includes stories of Rebecca, Moses, and David, chosen for their roles in part because of their kindness to animals. These laws and stories have given rise to the later principle of the Jewish Talmud that enjoins the pious to remember and alleviate “the pain of living creatures” (tza’ar ba’ale hayim). Rather than a legal or moral concept of animal rights, this injunction reflects a concern for the welfare of animals and for the humanity of those who make use of them.

A handful of contemporary writers—Jewish and Christians—are reminding fellow believers of the Torah’s doctrine of compassion. Because they work strictly within the boundaries of the Torah, Lewis Regenstein and Roberta Kalechofsky, head of Jews for Animal Rights, are not animal rights theologians in an absolutist sense of that term, but animal kindness theologians. So, too, is Al-Hafiz Masri, who argues from Mohammed’s prohibition of cutting off and eating parts of a living animal to a condemnation of cosmetic and commercial animal experiments.

The Prophets. While the Torah tells what God did for the family of Abraham in the past, the second part of the Bible announces what God will do for all the peoples of the earth at the end of time, in the eschaton. One of the most cherished prophetic texts comes from Isaiah, who, in the eighth century BCE, looked forward to the day when

The wolf shall dwell with the lamb,
And the leopard shall lie down with the kid,
And the young calf with the lion . . .
And the lion shall eat straw like the ox . . .
They shall not hurt nor destroy on my holy mountain.

(Isaiah 11:6–9)

This is a key text for Ingrid Newkirk, chairperson of People for the Ethical Treatment of Animals. She interprets its poetry about the eschaton very literally when she announces that her goal is a world where wolf and lamb lie down together and where “human beings will intervene when two animals fight,” as if animals were children squabbling in the school yard.8

The Writings. The third part of the Bible was compiled after the heart-breaking exile of the Jewish people in Babylon. The dreams of the nation of Israel had been dashed, and sages among Jewish survivors were attempting to raise the spirits of their people by turning to larger human and cosmic themes. Among their writings are the first eleven chapters of Genesis. These chapters form a preface to the Bible. They set a cosmic stage for the story of the clan of Abraham. Abraham had come from the city of Haran, but where has the human family come from? Where has the world come from? Where has evil come from? Genesis 1–11 poses these question not in the form of a catechism, but with a series of stories—the creation, the sin of Adam and Eve, Cain’s murder of Abel, Noah and the great flood, the tower of Babel.

None of these events occurs within time, and none of the characters is historical. Genesis 1–11 is a collection of myths—which is not to say a collection of untruths. Myths are vehicles for involving us with realities larger than science or history can ever know. Who, after all, was present at the beginning of creation? Who can explain evil? Mythic events are timeless, and mythic characters are writ large enough to include all of us.

Genesis 1. The first story of creation, in Genesis 1, is a solemn chant narrating God’s creative work. The narrator proceeds in a majestic crescendo through the seven days of the week. On each of the first three days, God brings order out of chaos by separating day from night (Day 1), rain waters above from surface waters below (Day 2), and rivers and seas from dry land (Day 3). Then, on the next three days he fills these realms with inhabitants—sun and moon for day and night (Day 4), fish and birds for waters and skies (Day 5), and animals and humans for the dry land (Day 6). Each act of creation, including that of animals, is followed by the refrain—perhaps sung by listeners—"God saw that it was good." After creating animals, he makes male and female in his own image and likeness and gives them dominion over all the creatures of the earth. Then "God saw all that he had made, and it was very good." On the Sabbath day God rests.

What do all scholars agree about the meaning of this story? First, all creation is good. It is intrinsically good—that is, good apart from its usefulness to humans. This intrinsic goodness of creation includes animals, who are created with humans on the sixth day.

Second, the dramatic direction of the whole narrative leads to God’s most special creation of humankind “in his image and likeness.” In the ancient Near East, where only kings were considered the images or stand-in representatives of the gods, listeners would hear this hymn in astonishment. Every male and female represents God in earthly form and, as a co-creator, shares in his work of ongoing creation. Once male and female are created, God sees that his creative efforts are very good.
Third, "dominion" does not mean "despotism." It translates a Hebrew word for a type of lordship that characterizes those who represent the compassionate God. With respect to creation, God's human stand-ins are to be as compassionate as God himself.

Fourth, "subdue," which sounds oppressive, originally meant to transform a place into a home. To subdue the earth suggests the distinctively human activity of adding to nature the whole structure of culture. Animals live in habitats, but humans share in God’s creative activity of bringing order from chaos by turning the universe into a home.

There can be little doubt that misunderstanding of the words domion and subdue has supported exploitative attitudes and practices with respect to creation and the habitat of species. Perhaps it has led to cruel treatment of individual animals. In 1990, participants at a convocation of the World Council of Churches acknowledged and repented for the misuse of these words.9

Finally, the story is about what God designs for the end of time, not just about what he does in the beginning. What God will bring about in the endtimes—Isaiah’s vision of the wolf and the lamb lying down together—is not a divine afterthought, but in God’s mind as he begins creating the world. Even though God intends it from the beginning and will bring it about in the endtimes, such a world is not the work-in-progress, still-under-construction world in which we live.

If God’s creation is good, whence life’s undeniable evil? Three stories insist that humans introduce evil through wrongdoing. In the first, Adam and Eve eat of the tree of the knowledge of good and evil. Since “knowledge” means “experience” (as in the quaint expression that “a man has knowledge of his wife”), we may infer that Adam and Eve are able to distinguish right from wrong, but they choose to experience evil. In the second story, Cain kills his brother Abel, and wickedness spreads until God, repenting of having created humankind, sends a great flood. Even after the fresh start, sin takes over, and, in the third story, far-off descendants of Noah attempt to become god-like by building a gigantic tower into the heavens.

Adam and Eve get what they want: the experience of good and evil. The evil that they choose to experience is experienced as shame, suffering, terror of nature, death, animal suffering and universal misunderstanding. Naturally, the storyteller doesn’t make such a bald and banal telling of it all; he weaves together a rich assortment of symbols to convey the experience of evil. Adam and Eve now find that they are naked; work is salted by the sweat of the brow; the joy of motherhood is mixed with the pain of childbirth; the garden of nature yields brambles and thistles; death is filled with dread; creatures prey on one another; and all people are scattered by different languages.

We notice that each of these terms—naked, work, pain, brambles and thistles, death, predation, diverse languages—is ambivalent. Work is a fact of existence that can enoble when it is creative or diminish when it is experienced as drudgery; pain is a fact that has a positive survival value and yet is experienced as dreadful; predation is part of the evolutionary mechanism at the heart of ongoing creation, but it makes us avert our eyes; the multiplicity of languages and cultures is enriching, but sometimes it is the source of strife. Even death can be viewed positively as a necessity for species in their ongoing creation and as a spur to achievement for individual humans.

It might seem strange that the storyteller would suggest that these conditions of existence—necessary conditions, good conditions—are the consequences of Adam and Eve’s sin. But that is not what the storyteller is doing. He has turned these conditions of existence into symbols that tell
us that once humans are estranged from God, they experience all these conditions of existence as good and evil by their own choice.

Such, then, is the biblical account of ongoing creation. It is important to spend some time on interpreting these texts lest we think that the Genesis myths naively suggest that once upon a time there was a world without pain or death. Such a world, of course, would make no sense from the standpoint of science and the theory of evolution. Instead, the Genesis myths make us face not just the consequences of human sin, but also and deeper still, the consequences of our having been created in the image and likeness of God. The “dark side” of the thrilling truth that we are God’s co-creators is that we live in a yet-to-be-finished world, a world of work and pain, death and predation.

TWO THEOLOGIANS

Anglican priest and theologian Andrew Linzey begins his revision of the Christian understanding of the human/animal relationship with the pleasure God finds in animals. Because God has created them and sees that they are good, animals have intrinsic value—they are good in themselves. This intrinsic value is prior to any extrinsic worth they may have because of their usefulness to human beings. Moreover, God has a right that the intrinsic worthwhileness of all creatures be respected. Whether or not animals have rights doesn’t concern Linzey; it is God who has a right to his creation, and this umbrella covers all individual creatures with “theos [God] rights.”

All creation, of course, and not just animal and human realms, is seen by God as very good. Consequently, all creation may be considered as intrinsically worthwhile and protected by theos rights. But Linzey draws a line. Rocks and streams, viruses and bacteria do not possess theos rights. Linzey decides that God’s rights extend only to living beings [nepheshim], the flesh-and-blood creatures into whom God breathes his spirit on the sixth day of creation.

Linzey’s bottom and ethical line is that flesh-and-blood, breathing animals may not be used as raw material for human designs, no matter how laudable the designs. There are burdens that humans should be prepared to bear rather than inflict suffering on animals. Among them are sickness and disease. Unlike some animal rights advocates, Linzey doesn’t belittle the contributions of animal research. “The benefits of knowledge gained through much animal experimentation,” he admits “are great.” But that doesn’t make biomedical research ethical.

Linzey’s invention of theos rights puts him on the high road of theological discourse and keeps him: from getting bogged down or even lost in the paths of philosophers who have attempted to extend the eighteenth century notion of rights to animals. But it doesn’t avoid the problem that in the world of nature there is no recognition of rights, either theos rights or natural rights. Does the lion, which, as the poet of the Bible’s psalms put it, “seeks whom he may devour,” exercise a right to survive or violate similar rights of hyenas or gazelles that are his prey? It seems strange, at best, to say that God fashions creatures of prey whose behavior is governed by his rights.

Linzey, however, doesn’t accept the world of predation as the world of God’s making. He likes to contrast two texts, the first from the creation story and the second from the story of Noah and flood. In the first, humans are given “all the seed-bearing plants . . . and all the trees with seed-bearing fruit” and beasts are given “all the foliage and plants” as food (Genesis 1:28); in the second,
after the world has been plunged into violence and murder by human sinfulness, God permits humans to eat “every living thing that moves” and, by implication, allows predation among animals (Genesis 9:3). Linzey maintains that humans, through the sin of Adam and Eve, subject animals to the condition of universal predation. Therefore, even though we can’t prevent animals from preying on one another, we must begin to reverse that tragedy of our making by living ourselves according to the ethic of God’s endtimes. We must never use animals in any way.

Is predation a divine concession to sinful human beings? If so, we might consider following Linzey in refusing the concession and aligning our ethical decision making with the end-time paradise. It may be, however, that universal predation is simply a fact of God’s creation—indeed, a fact that is necessary to the evolutionary process by which God fashions the world. If so, we have to explain the so-called vegetarian command in Genesis 1. At first glance, it appears that our dilemma is an instance of the perennial clash between religious and scientific worldviews.

In view of the fact that predation is an integral part of the evolutionary process by which God creates the world, it would seem wise to give a second look at the curious vegetarian command. Recalling that Genesis 1 is myth rather than history, we can say with confidence that verse 28 of that chapter does not require us to believe that there once was a state in which wolf and lamb, lion and kid, bear and ox, child and adder lived in harmony. It is true that in the biblical view God will complete his creation in a new world in which there is no predation any more than there are pain and death. But the Bible does not hold us to believe that God intended to begin his creative work in any other way than the evolutionary process revealed to us by science, a process that includes predation. We recall that the picture of Eden, inspired by Isaiah’s image of wolves and lambs, was placed in the Bible’s preface only to suggest that God’s messianic, end-time world will arrive not as an afterthought but the fulfillment at long last of God’s intention.

If this is true, it confirms that predation is a symbol rather than a consequence of human sin. As biblical exegete Bruce Metzger contends, the vegetarian command “does not mean... that Genesis has set up vegetarianism as an ideal. We are dealing here with a symbol pure and simple ....” The symbol does not commit believers to thinking of predation as a consequence of sin any more than the story of the battle of Jericho commits believers to the idea that the sun circles the earth.

Can an animal rights theologian take modern science and evolutionary theory seriously? Jay B. McDaniel does. He begins where Linzey begins—shy—with a hard-headed look at evolutionary biology. His central metaphor is a species of white pelicans whose females lay two eggs. The earlier hatched chick is first in line for food, while the younger chick has to go out and forage on its own. If it fails and returns to the nest, the parents, unable to raise two offspring, will turn it out again to die. The second chick is a backup creature, nurtured only if the elder dies.

Such behavior is a successful strategy for survival of the pelican species. This strategy poses no problem to ecological thinkers who attempt to overcome anthropocentrism in ethical thinking but are concerned for biotic communities rather than individual animals. For them, the ethical imperative is to preserve species, each of which has its ecological niche and function. McDaniel, however, is concerned about individual animals.

In McDaniel’s view, each individual, human or animal, has intrinsic value both for and in itself—for itself because its continued existence is an interest that matters for it, and in itself because it has experiences of qualitative richness such as the good taste of its food. This intrinsic value is more fundamental than its instrumental value to the biotic community or to other species. The
backup chick’s life matters for its own sake; it is an end in itself. Most important, this intrinsic value, and the interests and experiences on which it is based, constitutes animals as moral patients having rights.

Traditionally, of course, rights have been recognized only in moral agents—human beings, who discover that they have to constitute themselves through a lifetime of decisions, and on whom, consequently, it is wrong to impose another will. McDaniel claims at least some rights for the moral patients that are animals. These rights are truly animal rights, not theos rights. Among them are life, liberty (freedom of movement), and the pursuit of happiness (freedom to avoid unnecessary pain and enjoy their subjective states).

As with Linzey, the claim that animals have rights raises a question about predation and leads to theology, or talk about the nature of God. What kind of God would create a world in which animal rights are violated wholesale and pelicans survive by turning on their own offspring? The poet and playwright Archibald MacLeish once put the problem into a jingle: “If God is God he is not good; if God is good he is not God; choose the even, choose the odd.” While Linzey chooses “the even”—God is God, the all-powerful creator, and he is good despite the evil in his creation because we can mark that evil up to human sinfulness—McDaniel chooses “the odd”—the God who notices every sparrow that falls (Luke 12:6) is all-good but not all-powerful. He cannot preven behaviors such as those of pelicans that are necessary to the process of evolution. In that sense, the natural world’s creativity is independent of God’s. God doesn’t approve or even permit the carnage that is nature; rather, he takes the side of animal rights advocates in struggling against the present order of the universe. He coaxes and lures the world to his loving purposes. The only problem is that he is powerless.

Powerless, too, are humans. McDaniel cautions against intervening—a la Newkirk in natural predation. In the case of animals in the wild, he advises that we preserve species and bracket our concern for the intrinsic value of each individual. For animals that have been domesticated, he urges an ethic of rights. The resulting paradox is not lost on McDaniel: domestication is a violation of an animal’s intrinsic value, but, at the same time, even in the researcher’s laboratory, it means salvation from the world of predation and gruesome death.

McDaniel acknowledges that rights in nature are not absolute. Consequently, he faces the problem of adjudicating competing rights. He argues that the weight of a creature’s rights is measured by the degree of its intrinsic value, and its intrinsic value is determined by the richness of its interests and its subjective experiences. The greater the intensity of a creature’s interests, the greater our obligation to respect it.

That McDaniel recognizes a hierarchy of rights leads to the curious fact that this theologically radical theologian is quite traditional in his conclusions about the scientific use of animals. Animals may be used for research purposes if their use can be proved absolutely necessary, without pain and essential to some great gain. A rabbit’s rights, for example, can be overridden by human survival needs but not by consumers’ interests in testing mascara. McDaniel cites with approval a principle published by the Humane Society of the United States: “It is wrong to use animals for medical, educational, or commercial experimentation or research, unless absolute necessity can be demonstrated or unless such is done without causing the animal pain or torment.”14
CONCLUSION

The lasting contributions of Linzey and McDaniel consist in their having drawn attention to the Genesis perspective on the goodness of creation and having helped us correct misinterpretations of the biblical words “dominion” and “subdue.” Beyond that, these theologians fail to offer viable alternatives to the notion of the human/animal relationship that has prevailed in Judaism, Christianity, and Islam. In their broadest outline, the teachings of these religions—teachings that inculcate respect for creation, including animals, and that oblige us to kindness and compassion when we use animals—remain in place.

Linzey’s unrealistic conclusion—the prohibition of any use of animals—makes us wonder if the intrinsic worthwhileness of animals always trumps their instrumental value to humans and if predation can be understood only as the consequence of human folly. Though Linzey faces the health consequences of his theology with stern equanimity, he can’t bring his thinking into line with post-Darwinian science. Hobbled by literalism, he winds up in conflict with the evolutionary account of how God is creating the world.

McDaniel, on the other hand, understands and accepts science’s account of how God is creating the world. While it remains to be seen if churches and their ordinary faithful will accept his theology of a powerless God, it is certain that scientists will find little in his writings to revise or guide their reflections on the use of animals in medical research. Any discussion between McDaniel and scientists could include no more than evaluations of scientific procedures and the potential benefits of specific animal research projects. How many animals are “absolutely necessary” for basic research? for testing? What constitutes pain, stress and suffering? What is the potential value of this or that instance of biomedical research? The questions McDaniel would ask sound like those of a member of an Institutional Animal Use and Care committee.

At the turn of the last century, a theologian named George Tyrell debated the English religionist and anti-vivisectionist Frances Power Cobbe. He wrote that the old-fashioned notion of the human/animal relationship is “coherent and in keeping with the common sense of the best part of mankind and offers a full and firm basis for a humane and reasonable treatment of animals.” The old-fashioned notion he referred to is the notion that has held sway in its essentials for 20,000 years and that is enshrined in the three western religions. Tyrell’s judgement still stands as this century draws to its close.

ADDENDUM

(Not long after the completion of this paper, a controversy erupted on the internet, radio talk shows and in the print media that brought some principles of biblical interpretation into play. At issue was the possible vegetarianism of Jesus.)

There are several good reasons to be a vegetarian. The recent claim that Jesus was a vegetarian is not one of them. No one can know for certain if Jesus was a vegetarian, and despite assertions by animal activists, it is likely that he wasn’t.

Absent any sayings or deeds of Jesus on the topic of vegetarianism, animal activists employ four types of argument to make their case. First, a pair of pre-emptive arguments attempts to clear
the field of objections to their claim that they could reasonably expect from believers—Jesus must have eaten lamb at the Last Supper and surely he multiplied fish to feed the multitudes.

Activists point out that Gospel accounts of the Last Supper omit mention of the eating of lamb. This argument shows only how risky it is to try to prove anything out of silence. If the Last Supper was indeed a Jewish Passover seder—something Scripture scholars are not sure about—then it goes without saying that lamb was served. If it was one of the brotherhood (baburah) meals common among teachers and disciples, lamb would not necessarily have been a part of the menu. Either way, silence about a meat course means nothing. The whole argument appears even more tenuous when we realize that scholars are agreed that the evangelists Matthew, Mark and Luke describe the Last Supper as if it were the Eucharist or Mass, which Christians were celebrating at the time the gospels were being written. The food of the Eucharist in those days, just as today, was bread and wine, not lamb.

In their second preemptive argument activists note that the word for fish, ichthys, is an acrostic for “Jesus Christ, Son of God and Savior.” The ichthys symbol, now seen on so many car bumper stickers, was used by Christians from at least the middle of the second century as a cryptic signal to announce their prohibited Eucharistic worship. Isn’t it likely that those early Christians slipped the two small fish into all the gospel accounts of the multiplication of loaves to remind themselves how Jesus, whether in the Eucharist or at the hillside picnic, makes himself food for many? Perhaps. It is just as likely, however, that history worked the other way around. Those early Christians seized on the ichthys as code for their worship because the two small fish mentioned in the already written gospels provided them with a happy symbol of how Jesus becomes food for the masses in the Eucharist.

Once they think that the field is clear, activists feel free to put their own spin on the New Testament. In the first of a series of interpretive arguments, they say that Jesus called the fishermen Peter and Andrew away from their occupation of killing animals. According to the more obvious and traditional interpretation of Christians, Jesus calls Peter and Andrew to leave their nets behind not in order to stop killing fish, but to become fishers of men.

Activists also attempt to settle a question that keeps New Testament scholars at loggerheads—what was the charge for which Jesus was tried and crucified? He was crucified, they determine, for condemning the practice of selling animals for slaughter in the temple. Granted that Jesus may have been crucified for cleansing the temple, the affront in his deed was a challenge to commercializing our relationship with God. According to the gospels, Jesus looked on the temple as a den of thieves—not, as activists put it, as a first-century slaughterhouse.

Both Christians and Jews, runs a third interpretive argument, replaced animal sacrifices in the temple with baptismal rites and ritual baths. While it is true that Christians baptized in water and the Jewish sect of Essenes bathed in water for the sake of spiritual purification, water rituals were in no way connected to the end of temple sacrifices. The fact is that Jews ceased conducting sacrifices because Trajan’s Roman army destroyed the temple in 70 CE. Christians, believing that Jesus is the one and perfect offering to God, concluded that they had no reason to continue animal sacrifices, temple or no temple. Ending temple sacrifices had nothing to do with animal concerns as such.

Next come deductive arguments. One goes like this: Jesus preached mercy and compassion; factory farming is not compassionate; therefore, Jesus had to be a vegetarian. Yes, Jesus spoke in the tradition of the prophets who told people that God wants merciful and tender hearts. We have no
evidence, however, that either the prophets or Jesus called for more compassion toward animals than what is found in the Bible and the traditional dietary laws of Judaism. The assertion about factory farming is, of course, debatable, and the conclusion that compassion necessarily involves vegetarianism simply doesn't follow—either for Jews or for Jesus.

Then there is God's provision in Genesis 1:28: "To you (humankind) I give all the seed-bearing plants everywhere . . . this will be your food." Animal activists reason that these words prohibit the eating of flesh and that Jesus, therefore, would have had to follow a vegetarian diet. The problem is in their premise. As we have seen already, the words of God in Genesis 1:28 are used to help draw the picture of a world we can hope for at the end of time, a world that was in God's mind as he began creating the world. Whether at the end of time or in the mind of God, such a world is not the still-in-progress world in which Jesus lived and in which we live today. Jewish people have understood this. Even though they have always been careful to treat animals kindly, most of them have never believed themselves under obligation to be vegetarians. It would be peculiar, indeed, if Jesus interpreted the Genesis story any differently than his own people.

Considering the preponderance of vegetarian saints, runs another deductive argument, it would be peculiar if Jesus were not a vegetarian. Indeed, several early Christian writers and saints—like Trappist monks and many Christians today—abstained from meat, usually as an extension of their religious fasts. None of these "vegetarian saints" based their diet on a practice of Jesus. There is nothing peculiar about the fact that they embraced vegetarianism even though their master probably didn't.

Finally, animal activists introduce inventive arguments that spin assertions out of the nothingness of silence. They look outside the Bible to apocryphal gospels, so named because they purport to reveal hidden things. These gospels fill up the silence of Matthew, Mark, Luke, and John about the boyhood years of Jesus with stories about him at play reviving dead fish, making sparrows out of clay, and sitting in the midst of lions, which he commands to be at peace with other creatures. Surely, say the animal activists, these gospels retain memories of Jesus' attitude toward animals that have been suppressed in the accounts of the evangelists. Nevertheless, and despite the fact that they contain these fanciful accounts, none of the apocryphal gospels presents Jesus as a vegetarian, which is one thing they share with the works of the four evangelists that preserve the church's authorized memory of Jesus.

In their most inventive strategy, activists rely on the Biogenic Living Society as a trusted authority on Jesus' teachings regarding food. This group was founded in the 1920's by a certain Edmond Szekely, who claimed to have discovered a vegetarian Gospel of Peace hidden in secret archives of the Vatican. Unfortunately for activists, this purported gospel hasn't merited the slightest attention from biblical scholars. A comparison of the Biogenic Living Society's World Wide Web publications with contemporary biblical scholarship reveals that like much self-published material on the web, they possess no authority on the level of the National Enquirer.

The simplest and safest thing to say is that being a vegetarian probably never occurred to Jesus. He lived in the company of shepherds and fishermen who provided a good part of his people's food. Like his fellow Jews, he followed dietary laws that taught compassion for animals but never prohibited their being eaten. Even about those laws he wasn't a stickler; if the rules didn't help a believer advance in godliness, he held them of no value. The gospel of Mark records his words:
“Nothing that goes into someone from outside can make that person unclean; it is the things that come out of someone that make that person unclean” (Mk. 7:14–16).

NOTES


Chapter 5
Asian Religious Views on Animals:
Implications for Bioethics and the Use of Laboratory Animals

Christopher Key Chapple

Views and attitudes toward animals in Asian religious traditions vary widely depending upon region, sectarian differences, and a wide range of textual interpretations. In general, the Asian continent has been influenced by four broad manifestations of religiosity: shamanism, found throughout the region; Indic classical and medieval traditions, including Brahmanism, Jainism, Buddhism, and Sikhism; Chinese traditions, primarily Confucianism, Taoism, and Chinese appropriations of Buddhism; and Islam, the faith of hundreds of millions of Asians, which we will mention only briefly. These traditions present multiple perspectives on the status of animals. This chapter will highlight key features of select traditions as possible examples of how Asian traditions might regard the use of animals in science.

SHAMANISM

Mircea Eliade, the great historian of religions, referred to shamanism as “archaic religion.” Throughout the Asian world and extending into North and South America, shamans, male and female, have played an important role in the daily life of pre-classical, pre-modern peoples. Animals occupy an important central role in shamanic traditions, as expressed in the well-documented observance of venerating totem animals. A shamanic practitioner develops a special relationship with a particular species of animal, either through a vision or a dream. That animal then becomes one’s protector and guide, and the shaman must in turn protect that animal, which would include not eating it.

As part of shamanic initiation, apprentices learn to imitate a wide range of animals. The Santal tribe of northern India west of Calcutta requires its potential ajhás or healers to take the shape of calves, tigers, spiders, chameleons, and other animals and insects through imitative dance leading to possession. Eliade describes the importance of this ritual as follows:

Imitating the gait of an animal or putting on its skin was acquiring a superhuman mode of being... by becoming this mythic animal, man becomes something far greater and stronger than himself... He who, forgetting the limitations and false measurements of humanity, could rightly imitate the behavior of animals—their gait, breathing, cries, and so on—found a new dimension of life: spontaneity, freedom, ‘sympathy’ with all the cosmic rhythms and hence bliss and immortality.

This aspect of shamanic tradition seeks to capture an animal’s power by imitation. In later developments within Asian theatre, dance, and movement, the shamanic impulse becomes ritualized in the practices of Yoga and Tai Chi, whose various postures and steps are often named after
various animals. The imitation of animals, particularly in the Yoga traditions originating from early India, led to an ethic of harmlessness to animals and to vegetarianism during the later classical phase of Jainism, hinduism, and buddhism.

However, another and perhaps more common expression of one’s primal, shamanic desire to capture the essence of an animal is to kill, eat, and digest an animal, thus introducing it into one’s own being. Particularly in China, certain animals are thought to possess great powers that can assist in the process of healing. Traditional Chinese medicine often includes various dried insects and animal parts in addition to herbs. One widely publicized usage of animal substances for medicinal purposes in China includes the “tapping” of gall from the bodies of caged bears. This procedure takes place on a daily basis in a remote valley in the Changbai Mountains in Jilin Province, north of Beijing; the bears are said to suffer deeply as a result of this highly invasive practice.

Other instances of animal harvesting in China include the practice of displaying live fowl at restaurants to be chosen by the customer for slaughter on the spot to ensure freshness and to guarantee that one can capture the essential energy (chi) of the animal. A Chinese American woman visiting her ancestral homeland was quite surprised when given a choice of several birds, including a rare wild owl, from which to choose outside a local eatery. Reflecting shamanic tradition, each of the birds was promoted by the restaurateur as capable of conveying special powers associated with its species to the customer. Other instances of Asian animal consumption have received sensational and sometimes inaccurate coverage in the western press, including the slaughter of dogs for meat, particularly in Vietnam, and the delicacy of monkey brains, incorrectly portrayed as an Indian custom in Steven Spielberg’s adventure film Indiana Jones and the Temple of Doom.

In general, the shamanic drive to appropriate the desirable qualities embodied by certain animals manifests in two primary forms: worshipful imitation of the animal or the slaughter and eating of the animal. This primal drive to capture and take into one’s body the power of another animal through ritual imitation or violence constitutes one philosophical approach toward animals in Asian traditions.

**INDIGENOUS CHINESE TRADITIONS**

Chinese civilization, from the Shang Dynasty (1600–1300 BCE) forward, has demonstrated a fascination with the animals’ realm. The early Shang bronzes depicted fantastic animals with “ornamental motifs with feline, cervine (deer-like) and bovine types.” Birds, bears, tigers, elephants, whales, rhinoceros, and rabbits appear on ritual vessels. These images functioned in sacrificial, ritual contexts, including funerary ceremonies. Furthermore, these bronze images appear to have been copied from earlier wooden pieces, indicating an even greater antiquity of the centrality of animals to early Chinese ritual life.

The written record of Chinese civilization also attests to the importance of animals. The *Book of Songs* was composed in the very early phase of Chinese civilization, perhaps at the same time as the bronzes mentioned above were produced. Several of the poems included in this early anthology refer to animals, including a white pony, a red fox, a black crow, a rooster, deer, dogs, mallard ducks, magpies, yellow birds, pheasants, cranes, stallions, fish, dragonflies, sheep, oxen, and boars. Many of these poems mention animals in their natural habitat without reference to their usage by humans. However, one early poem paints a visual picture of ritual usage of animals:
How shall we make our offerings?
We hull the grain, we pound it,
We soften it, we tread it,
We wash it till it crackles,
Distill it till the steam rises,
Then we consult the augurs, then we meditate,
Then we gather the southernwood, then we burn the fats.
We sacrifice the rams to the spirits,
Roast flesh and broiled flesh—
So begins the fruitful year!*

This poem gives a sense of the ritual propriety involved with the sacrifice of the lives of animals, a theme we will also take up later in our discussion of animals in Hinduism. In the context of our study of Buddhism, we will consider some later Chinese poems that not only describe animals but also plead that they not be harmed.

Confucianism

The development of Chinese philosophy also includes reference to animals. According to the Confucian tradition, good treatment of animals reflects a person’s own benevolence, as implied in the writings of Confucius and explicitly reflected in the work of Mencius. Confucius (ca. 600 BCE) left a number of short sayings, the Analects, that record his philosophy of life and that contain his students’ memories regarding his behavior. This literature has provided the foundational ethical paradigm for the Confucian world, which extends throughout China, Korea, Japan, and the extensive Chinese diaspora community, including Vietnam, Singapore, Indonesia, the Philippines and, increasingly, the western United States. Confucius clearly places man in the pre-eminent position, stating that the human balances heaven and earth. He does not accord equal status to animals; in one famous passage, he states that the proper response to the tragedy of a stable burning down is not to enquire about the horses, but to make certain that no people have been harmed, implying that the greatest worth lies in the human realm. However, Confucius also shows restraint in his dealing with animals; his students claim that he would not use a net to catch fish, and that if he shot at a bird, it would be in motion and not at rest. He also stated that the unseasonable killing of one single animal is contrary to filial piety. Confucius advocated a life of constant improvement and moral virtue, emphasizing appropriate behavior (li) and the cultivation of human heartedness (ren). His teachings imply that the human can and should aspire to perfect virtue.

One of Confucius’ great interpreters was Mencius, who lived approximately 372–289 BCE. He asserted that human nature inherently leads a person to follow the correct path; he emphasized compassion and affectivity, a responsiveness governed by beauty and propriety. One famous Mencian statement asks, “who could not react with alarm and concern when a child has fallen into a well?” Mencius’ concerns extend explicitly to the animal realm. He once stated that having gazed upon live animals, he could not bear to see them dead; once he had listened to their calls and could not bear to eat their flesh. He also stated that “what differentiates man from birds and beasts is but a trifle. Ordinary people cast it aside, only the gentleman preserves it.” The Mencian attitude toward living things infuses them with a sanctity; each being, in a sense, holds the power to awaken
one's sense of beauty. This beauty, in turn, inspires one to good action which, in a Mencian construct, would require an attitude of benevolence.

Taoism

The Taoist writings of Chuang Tzu, composed during the same era, state that bridling a horse’s head and piercing a cow’s nose is not natural, reflecting similar statements from the Jewish tradition regarding the treatment of farm animals. Chuang Tzu also writes that “the pheasant pecks every ten paces and drinks every one hundred. It is not to be penned up.” This demonstrates that Chuang Tzu was an observer of animal behavior, an important step toward developing a deeper appreciation of the animal world. It further shows that this understanding of the way of the pheasant brings about a moral response. Chuang Tzu poses the rhetorical question, asking how, having seen the contentment of animals in their natural state, could one confine them?

These early Chinese thinkers observed nature and encouraged an attitude of benevolence toward animals. Although they clearly regarded humans to be superior to animals and did not as a rule advocate vegetarianism or accord a cultic status to animals, they consistently held forth kind treatment of animals as an indicator of human virtue.

INDIAN TRADITIONS

The earliest phases of both Chinese and Indian civilizations created elaborate and detailed renderings of real and fanciful animals. From the Indus Valley civilization of western India (ca. 3500 BCE), seals have been excavated that show animals being ritually adorned and religious figures surrounded with both domesticated and wild animals. These seals include pictures of elephants, bulls, tigers, rhinoceros, gazelles, fish, and other animals. Though it is difficult to ascertain the exact usage found for animals in this early phase of Indian civilization, they were clearly treated well, as indicated by the detailed rendering of ornaments placed on the bodies of the animals and the intricately carved feeders and watering troughs shown on the seals.

Jainism

By 800 BCE a tradition arose that, in later literature, accorded to animals a place of prominence and asserted a kinship between animals and humans. This tradition, known as Jainism, influenced Hindu and Buddhist practices, introducing the concept of non-violence or ahimsa as the prime ethical observance. Its earliest surviving text, the Acharanga Sutra, describes a special palanquin that Mahavira, a great teacher of the tradition who lived approximately 400 BCE, descended from when he decided to pursue the life of spiritual renunciation as: “adorned with pictures of wolves, bulls, horses, men, dolphins, birds, monkeys, elephants, antelopes, sarabhas (fantastic animals with eight legs), yaks, tigers, lions, [and] creeping plants.”

This striking visual lesson in animal ecology serves to indicate the special regard in which the Jains hold animals. Mahavira dedicated his life to preaching a doctrine of non-violence, which included an itemization of practices to avoid harming any living thing, even insects.
The early Jaina approach to animals was not exclusively concerned with avoiding harms to them. The Jainas also regarded animals to represent noble qualities, and ascribed to Mahavira several accomplishments symbolized by animals:

His senses were well protected like those of a tortoise;  
He was single and alone like the horn of a rhinoceros;  
He was free like a bird;  
He was always waking like the fabulous bird Bharunda;  
Valorous like an elephant, strong like a bull;  
Difficult to attack like a lion...  
Like the earth he patiently bore everything;  
Like a well-kindled fire he shone in his splendor.

The Vedic Hindu tradition correlates the primal person (purusa) with the cosmos, identifying his head with the sky, his eyes with the sun and moon, his feet with the earth. The Jain tradition not only identifies the saint Mahavira with the great cosmic forces such as earth and fire, but also describes his noble qualities in terms of corresponding animals.

Jaina philosophy was first recorded in outline form in the Acaranga Sutra (ca. 400 BCE) and later: fully developed by the scholar Umasvati (ca. 200 CE). According to Jaina thought, there are an infinite number of souls or life forces (jivas). No one created these souls. They are eternal and process through an on-going cycle of birth, life, death, and rebirth.

The Jains were the first to fully articulate and promulgate a theory of reincarnation in Asia. This idea was later adapted by the Hindus and broadly accepted throughout India. According to the Jaina version of this theory, the life force becomes mired in karmic materiality which ensnares and encumbers it. If utterly weighted down by this materiality, a soul might take birth within a clod of dirt or a drop of water. Eventually, it might rise to the microscopic realm; the Jainas refer to bacteria and viruses as nigoda life forms. It might also then enter the more elevated and complicated forms, arranged according to their capacity for sensory consciousness. Elemental, microbial, and plant life forms possess only the sense of touch. Worms add the sense of taste. Bugs also hold the capacity to smell; flies and moths add sight. Fish, birds, and mammals, including humans, add the ability to hear and to think. At the pinnacle of this ascending biocosmology, human beings possess the ability to reflect, to fully develop their conscience, and to purposefully adopt a virtuous lifestyle. If one effectively pursues a life of non-violence, one enters into liberation (kevala), an eternal state of energy, consciousness, and bliss without fear of falling once again into a lower state.

In the Jaina system, each birth depends on actions caused in prior births. The Jaina universe puts forth a theory of moral causality that emphasizes human decision-making, advocating the adoption of a lifestyle characterized by non-violence, vegetarianism, and rescue of animals. The Jainas developed distinct observances for its laity and for its monks and nuns. The laity are allowed to pursue a prosperous livelihood, as long as they remain vegetarian and do not engage in professions that require violence. The monks and nuns take several vows that reinforce their observance of non-violence, including sweeping the ground as one walks to avoid killing insects and for advanced monks of the Digamabara sect, total nudity to avoid harm done to life by the wearing of clothes. Jaina laypeople, monks, and nuns engage in regular fasts. During this time, they forego the violence to life that one commits in eating food. Throughout their long history, the Jainas have
sought to convince their fellow Indians to also take up the practice of non-violence and have campaigned vigorously against animal sacrifice.

Jainism reached its greatest ascendancy in India from the fifth through the thirteenth centuries. Western India boasted a succession of Jaina kings and Jainism rose to prominence in the south as well during this time. The Jaina King Kumarapala (1125–1159) forbade the killing of all animals in his Gujarat domain. The Jainas lost their political dominance in western India with the advent of Muslim rule in the 13th century in northern India followed by British colonialism starting in the 17th century. However, Jaina advocates of non-violence and animal protection continued their lobbying efforts, convincing the Muslim rulers Babar, Akbar, and Jahangir to restrict animal slaughter at certain periods out of deference for Jaina and Hindu sensibilities. For instance, Jincandrasuri II (1541–1631), a Jaina leader (Dadaguru) of the Khartar Gach (religious order), traveled to Lahore in 1591 and greatly influenced the Mughal emperor Akbar. As a result, “Akbar protected Jaina places of pilgrimage and gave orders that the ceremonies and observances of the Jains were not to be hindered. He also forbade the slaughter of animals for a period of one week per year.” The Jaina continue to lobby for kind treatment of animals in India, maintaining animal shelters, advocating vegetarianism, and devising methods to rehabilitate animals who have been harmed.

Hinduism

While the Jaina tradition developed its comprehensive ethic of non-violence, the Brahmanical or Hindu tradition took a more ambiguous view regarding the status of animals. The Rig Veda, the earliest text of the Hindu tradition, describes meat eating and animal sacrifice. Although increasingly rare, animal sacrifice still occurs at some temples in India. Anthropologist Robert Preston has described one ritual sacrifice of animals in Orissa that he witnessed:

In 1972 an unusually large number of animals were sacrificed at Chandi Temple during Durga Puja. Over five hundred goats and thirty chickens were offered to the goddess. People stood in line for hours outside the temple waiting for the ritual to begin. An estimated crowd of over ten thousand waited in the streets.... The first sacrifice was preceded by a ritual performed by two Brahmin priests which took about twenty minutes.... Holy water was sprinkled on various parts of the goat’s body while the priests chanted prayers to release the goddesses which are believed to reside in the animal’s limbs. Then the priests worshipped the goat by offering it flowers, incense, food and water. This was followed by a secret prayer gently whispered into the ears of the animal to sever the bond of its life and thereby liberate its soul. Finally the sacrificial sword was worshipped to infuse it with the presence of the deities.... The drums increased to their highest pitch and the actual sacrifice was made with one stroke.... The crowd was silent as the animal’s head was carried to the altar and placed on the ground before the goddess... its body was returned to its owner who would take it home to share with family and friends.... Nearly five hundred goats waited outside, but... the ritual for each took only a few minutes because the ceremonies for the first goat were meant to suffice for all that followed.15

This dramatic ceremony underscores the power of the animal sacrifice within Hindu tradition. Basant K. Lal, appealing to the underlying power generated in the ritual, writes that “the
sacrifice of an animal is not really the killing of an animal. The ritual does not proceed with the understanding or intention that an animal is going to be killed. The animal to be sacrificed is not considered an animal; it is, instead, a symbol, a symbol of those powers for which the sacrificial ritual stands.” The intensity of emotion generated by the ritual and the specific textual references to the cosmic nature of the sacrificed animal prompt advocates of such rituals to emphasize the transformative, transcendent intent of animal sacrifice.

Despite the on-going performance of animal sacrifice in some Hindu communities, a very powerful movement within the tradition has worked to ban such sacrifices in several Indian states. The doctrine of non-violence became popular among high caste Hindus, beginning in the first or second century before the common era. Protection of the cow was advocated in the Arthashastra, a normative Hindu text. For many Hindus, the eschewal of beef became paramount to one’s religious identity; today virtually no Hindu will consider eating beef. During the 1500s, Ralph Fitch, one of the first Englishmen to visit India, wrote:

they have a very strange order among them, they worship a Cow, and esteem much of the Cowes dung to paint the walls of their houses. They will kill nothing not so much as a Louse: for they hold it a sinne to kill any thing. They eat no flesh, but live by Roots, and Rice, and Milke.... In Cambaia they will kill nothing, not have any thing killed: in the Towne they have Hospitals to keepe lame Dogs and Cats, and for Birds.17

The traditional terms used for animal shelters witnessed by Fitch are Goshalas, associated primarily with the care of cattle, and Pinjrapoles, which give shelter and care to virtually all animals imaginable, including rats and mites. During this century, followers of Gandhi promoted the establishment of cow shelters throughout India. According to an estimate in 1955, there were 3,000 Goshalas and Pinjrapoles throughout India supported by Hindus and Jainas; today the number has probably grown, given the increased support for religious institutions in India in recent years.

Buddhism

The Buddhist tradition, which began in India during the 4th century BCE, also developed a strong ethic of non-violence toward animals. Like Jainism, Buddhism rejected the practice of animal sacrifice and emphasized the reincarnation doctrine. Many of the stories told by the Buddha draw heavily from animal parables in which he, his followers, and his antagonists appear as various creatures in past lives.18 The edicts of the Buddhist emperor Asoka (269–232 BCE) accord special protection to animals. Starting in the first century before the common era, Buddhist missionaries traveled along the far-flung trade routes of Asia and brought their teachings by sea and overland to Central Asia, China, and Southeast Asia.

In China, the missionaries introduced the teaching of non-violence toward animals and vegetarianism, which continue to be associated with Buddhists in that country. The Buddhists struggled against the prevalent Confucian practice and endured both criticism and ridicule for their vegetarianism and belief in reincarnation.19 Reflecting the literary style and sentiment of Chinese culture, some Buddhists in China initiated a genre of poetry that evokes compassion for animals. Some examples of this poetry follow:
When the spring breeze was gentle
and the sun was pleasant,
I strolled with my stick here and there.
I saw ducks and fishes playing happily in the water.
I thought, in spite of their happiness,
their world was in danger,
for tomorrow they would be caught
and sent to the market.
And my tears flowed helplessly,
as I thought what their sufferings would be.
Who says that life in animals has no meaning?
Their bones, their flesh and skin are the same as ours.
So, you are advised not to shoot at birds on the treetops.
The young ones in their nests
are looking for their mothers to return.
Compare and observe:
Your flesh is the same as mine.
The difference lies only in name:
I am a dog and you a man.
The distinction between us is in our form.
In essence we are comrades,
We possess a common soul.

Each of these poems suggests that by observing the beauty and simplicity of the life of animals, compassion will swell up from within. This East Asian Buddhist poetry expresses a gentle, aesthetic approach to non-violence toward animals.

This attitude toward animals found expression in a uniquely East Asian Buddhist ceremony to release captive animals. Practiced in China and Japan, this practice resulted in the establishment of animal preserves and regular festival celebrations. However, as Duncan Williams has noted, this sometimes led to opportunists trapping and selling animals so that they may be released.

In Southeast Asia, home of Theravada Buddhism, and in Tibet, known for its adherence to the Vajrayana or Tantric path of Buddhism, the lobby for vegetarianism was less effective. The Buddha had taught that one should receive alms (primarily food offerings) with gratitude and no questions asked. In Southeast Asia, these alms would include meat, in keeping with the local, non-vegetarian culture. Although Southeast Asian Buddhists accept the Buddhist teaching of re-incarnation, they also hold that animals have taken their current birth due to wrong deed in the past and deserve to be punished. In Tibet, the harsh climate required meat as a primary food source, as no vegetable food source could survive the long winter. As a concession to Buddhist teachings on non-violence, the Tibetans stopped fishing, with the rationale that taking one yak life can feed several people for a long period of time, while many fish would have to be killed each day if they were to remain a major food source. As Buddhism took root in Japan during the Heian and Kamakura periods, vegetarianism in Japan became associated with purity. Mirroring Indian caste society, persons whose professions included leather tanning were treated as outcasts and referred to as burakumin. Meat was only reintroduced as a major food source in Japan during the Meiji restora-
tion and the institutionalization of State Shinto, followed with the wholesale imitation of American culture and cuisine following World War II.

The attitude of American Buddhists toward animals generally reflects the source culture from which the American sect arose. For instance, Philip Kapleau’s Zen followers are likely to practice vegetarianism; he has presented extensive documentation to support benevolent treatment of animals. Similarly, Chinese Buddhist organizations in America generally advocate vegetarianism. The Hsi Lai Temple in Hacienda Heights, California, the largest Buddhist complex in the Western hemisphere, operates an elaborate vegetarian restaurant. However, most Southeast Asian Theravadin and Tibetan Vajrayana communities eat meat. In a rather controversial essay, the poet Gary Snyder, one of the first prominent American converts to Buddhism, suggests that the taking of an animal life can be sacramental:

The blood is on your own hands as you divide the liver from the gallbladder. You have watched the color fade on the glimmer of the trout. A subsistence economy is a sacramental economy because it has faced up to one of the critical problems of life and death: the taking of life for food.

While acknowledging that “contemporary people do not need to hunt,” Snyder advocates an increased sensitivity to the sources of our sustenance. Evoking a sense of the sacred in everyday life, he writes, “And if we do eat meat, it is the life, the bounce, the swish, of a great alert being with keen ears and lovely eyes, with foursquare feet and a huge beating heart that we eat, let us not deceive ourselves.” Within Snyder’s vision of wilderness Buddhism, all life must be respected.

**Summary and Conclusion**

To summarize the materials we have surveyed, animals played an early role in the shamanic phase of Asian cultures. With the development of self-reflective, literate society, two major paradigms arose. One views animals as inferior to human beings and sees them as a source for food and labor. A person expresses kindness toward animals not because of their inherent value but as a reflection of one’s own refinement as a human being. The other view regards all humans as past and potential animals. The reincarnation theories of Jainism, Buddhism, and Hinduism proclaim a continuity between human and animal life forms. Though human birth is highly prized, full humanity cannot be realized without acknowledgment of some intimacy with the animal realm. The Buddha, for instance, couched his major teachings in stories about his past lives through many animal births. The moral of these stories consistently teaches that bad treatment of animals in this life can lead to a miserable life, perhaps even as an animal, in future births.

How can these teachings help inform the current discussion over the treatment of animals in the context of science laboratories? It must first be acknowledged that this specific issue did not arise during the time of the inception and development of Asian systems of thought. However, arguments for and against can be put forth from each of the traditions. In defense of the general concept of animal use, all the Asian traditions agree that human birth is the highest birth, that is, superior to the life of an animal. It could be argued that if laboratory science requires the use of animals to improve the quality of life for human beings, the superiority of humans would legitimize such a practice. Particularly in the case of meat eating cultures such as found in Confucianism, early
Hinduism, low-caste Hinduism, Islam, and select populations of Buddhists, it could easily be argued that just as animals nourish and enhance human life as food, so also the use of animals in scientific research can be justified because it results in human betterment. The argument in favor of animal use becomes more problematic, though not impossible, in the case of communities that do not allow meat eating, particularly for Chinese Buddhists and for the Jainas. One would assume that both communities would forbid killing or abusing animals in all instances. However, the Jainas control much of the pharmaceutical industry in India. Because of the nature of their product, they are required to conduct animal testing. In an interesting and creative intersection of ideologies, some Jaina drug manufacturers maintain shelters for their retired laboratory animals after their usefulness in the laboratory has expired.26

However, whether one argues from the viewpoint of Confucian propriety, Buddhist compassion, Jaina karma theory, or Hindu respect for life, any experiment must be conducted in such a manner that minimizes the pain inflicted upon the animal subject.

It is also important to consider the importance and usefulness of the experiment being conducted. Dr. Sidney Gendin of Michigan State University estimates that, of the approximately 120 universities designated as research centers among the more than 2000 institutions of higher education in America, only about twelve actually engage in research that yields a direct benefit to human-kind.27 A process of introspection on the part of researchers needs to be encouraged so that they will consider and reconsider the absolute necessity of using animals in their research. And, as members of the American College of Laboratory Animal Medicine have stated, it seems critical that they consult with veterinarians regarding how best to proceed before setting up their experiments.

The argument against the use of animals in the laboratory from the perspective of Asian religious traditions would be twofold. First, largely from the Jaina and Buddhist position, it is not deemed proper to do harm to any living creature. ACLAM member Dr. Susan Sanchez shared her experience with me of working in a lab with a Buddhist who refused to kill an animal subject, but was willing to perform the necessary work after the animal was dead. The Buddhist tradition would claim that the primary ethical precept—not to kill any living being—must not be violated, though it will allow one to work through a difficult circumstance if necessary. Second, from virtually all the world’s religious traditions, Asian and non-Asian, human beings should not perform actions of torture that violate propriety and human dignity. We need to respect animals not only for the sake of animals but also for the sake of ourselves.

The Jaina and Buddhist position holds that all animals are potential humans and harm done to animals will result in harm to ourselves. The Confucian tradition, in common with Judeo/Christian/Islamic position, holds that one’s treatment of animals reflects the degree of development of one's own humanity. The sacrifice of animals has been interpreted as a religious process, primarily in the context of shamanism and ritual Hinduism. However, abuse of animals in the name of science has been committed that violates all the sensibilities listed above. Asian thought provides multiple and often conflicting theories on the status of and best treatment of animals, but all the various theories and practice, from those that approach sacred usage to those that ban all violence to animals, suggest that animals must be dealt with in a caring, considerate manner.
NOTES


4 Personal communication with Dr. Fatima Wu.


10 Sterckx, op. cit.


13 Ibid., p. 261.


25 Ibid.


Chapter 6
A Utilitarian Approach to Ethics and to Animals

Peter Singer

In this essay I will do three things: describe what utilitarianism is, say why I believe it to be the soundest approach to ethical questions, and indicate how utilitarians should approach the ethical issues raised by experimentation on non-human animals.

1. WHAT IS UTILITARIANISM?

The classical form of utilitarianism was developed by Jeremy Bentham, in his Introduction to the Principles of Morals and Legislation. It was further elaborated and defended by two great Victorian moral philosophers, John Stuart Mill and Henry Sidgwick. The classical form of utilitarianism can be summed up in three words: it is universal, hedonistic consequentialism. But of course each of these terms needs some explication.

Utilitarianism is consequentialist in that it judges actions to be right or wrong by looking at their consequences—that is, at the states of affairs that they bring about. In this it rejects other ethical views that judge actions to be right or wrong by considering whether they are compatible with, or in violation of, a moral rule, such as “Do not lie” or “Always keep your promises” or “Never kill an innocent human being.” The question for a consequentialist always is: what state of affairs will I bring about by doing this? And is that a better or worse state of affairs than the one I would bring about if I did any of the other choices open to me?

This account of what it is for utilitarianism to be a consequentialist ethic immediately leads on to another question: by what standard do I rank the various states of affairs that I might bring about by doing the various actions open to me? On what basis do I judge one to be better than the others? The classical utilitarianism gives the hedonist answer: that state of affairs is best in which the surplus of pleasure over pain is greatest (or, if in all the states of affairs I could possibly bring about, there is a surplus of pain over pleasure, then that state of affairs is best in which the surplus of pain over pleasure is smallest). The term “hedonist” derives from the Greek word for pleasure, but in ethics it does not have the popular connotation of someone who spends his or her time lazing around on a tropical beach. Hedonists, in the philosophical sense, may be both hard-working and as concerned about the pains and pleasures of others as they are about their own.

Suppose that we then ask: whose pleasures and pains are to count in this calculus? Not all hedonistic consequentialists are utilitarians. The egoist hedonist, for example, is more like the popular image of a hedonist. He or she will say: “I count only my own pleasures and pains. Hence an action is right if it leads to the greatest possible surplus of pleasure over pain for me, and wrong if does not. The pleasures and pains of others are of no significance except in so far as they have an impact on my own pleasures and pains.” We could debate whether this counts as an ethical view at all; in any case, for obvious reasons it is not widely advocated as an ethical view. Some political
leaders, explicitly or implicitly, adopt a broader, but still quite restricted, form of this view, taking into account the benefits and losses of an action for citizens of their own country, but ignoring the pains and pleasures of citizens of other countries. Racists have typically ignored or discounted the interests of members of other races, and sexist men have overlooked or discounted the interests of women.

Utilitarianism rejects all of these limitations on the scope of ethics. It takes a universalist approach. The scope of utilitarianism is not limited to our nation, or our race, or even our species. It embraces all beings capable of experiencing pleasure and pain. This is a point on which the leading utilitarians are unanimous. In a famous footnote, Bentham wrote:

The day may come when the rest of the animal creation may acquire those rights which could never have been withheld from them but by the hand of tyranny. The French have already discovered that the blackness of the skin is no reason why a human being should be abandoned without redress to the caprice of a tormentor. It may one day come to be recognized that the number of the legs, the villosity of the skin, or the termination of the os sacrum are reasons equally insufficient for abandoning a sensitive being to the same fate. What else is it that should trace the insuperable line? Is it the faculty of reason, or perhaps the faculty of discourse? But a full-grown horse or dog is beyond comparison a more rational, as well as a more conversable animal, than an infant of a day or a week or even a month, old. But suppose they were otherwise, what would it avail? The question is not, Can they reason, nor Can they talk but, Can they suffer? (1, ch XVII, sec 1, par iv)

Note that the passage brings together Bentham's opposition to slavery (at a time when Britain was heavily engaged in the slave trade) and his opposition to human tyranny over animals (at a time when there were no laws at all against cruelty to animals). The early utilitarians were opposed to both slavery and cruelty to animals because for them the only legitimate ethical boundary is the boundary between beings capable of feeling pleasure or pain, and everything else. John Stuart Mill makes a very similar point in replying to William Whewell. The discussion is worth reproducing, because so much contemporary debate on this issue just goes over the same ground.

Whewell wrote, in criticism of Bentham:

The pleasures of animals are elements of a very different order from the pleasures of man. We are bound to endeavour to augment the pleasures of men, not only because they are pleasures, but because they are human pleasures. We are bound to men by the universal tie of human brotherhood. We have no such tie to animals...it is not only not an obvious, but to most persons not a tolerable doctrine, that we may sacrifice the happiness of men provided we can in that way produce an overplus [sic] of pleasure to cats, dogs, and hogs.  

Mill makes a crushing reply:

It is "to most persons" in the Slave States of America not a tolerable doctrine that we may sacrifice any portion of the happiness of white men for the sake of a greater amount of happiness to black men. It would have been intolerable five centuries ago "to most persons" among the feudal nobility, to hear it asserted that the greatest pleasure or pain of a hundred
serfs ought not to give way to the smallest of a nobleman. According to the standard of Dr Whewell, the slave masters and the nobles were right. They too felt themselves "bound" by a "tie of brotherhood" to the white men and to the nobility, and felt no such tie to the negroes and serfs. And if a feeling on moral subjects is right because it is natural, their feeling was justifiable. Nothing is more natural to human beings, nor, up to a certain point in cultivation, more universal, than to estimate the pleasures and pains of others as deserving of regard exactly in proportion to their likeness to ourselves.

Then Mill shows how central the issue of animal suffering is to utilitarians:

We are perfectly willing to stake the whole question [of the validity of the principle of utility] on this one issue. Granted that any practice causes more pain to animals than it gives pleasure to man; is that practice moral or immoral? And if, exactly in proportion as human beings raise their heads out of the slough of selfishness, they do not with one voice answer "immoral," let the morality of the principle of utility be for ever condemned.

A digression on sentience

Given the significance for utilitarians of the capacity for feeling pleasure and pain, I need to say a little more about how this capacity is to be understood. We now know much more about the nervous system and the manner in which it produces sensations of pain than the early utilitarians did. But our understanding of the nature of pain itself remains the same: pain is a sensation, a feeling, a state of consciousness. It therefore requires a mental life, or awareness. The same is true for pleasure. Without the capacity for awareness, there can be no pleasure or pain. The related ideas of "happiness" and "suffering" are broader than pleasure and pain, but if a being is capable of feeling pain, I would say that it is capable of suffering.

We often use the term "sentient being" to refer to a being capable of awareness, or conscious experience. Technically, this term is not exact. An organism may have senses that enable it to detect sunlight, for example, without having conscious experiences. Hence the Australian philosopher David Muschamp has, with characteristic ingenuity, suggested the term "pluferant"—derived from the words "pleasure" and "suffering"—to refer to what is usually but inexactely meant by "sentient being." Desirable as such a switch in terminology might be, I suspect that "sentient being" is now too well-entrenched to be displaced, and I continue to use it as a convenient shorthand for a being that is conscious.

If, as I believe all the evidence suggests, plants are not conscious, then they cannot experience pleasure or pain, and what we do to them is not, for a utilitarian, of intrinsic value. (Although obviously, plants are of enormous instrumental value, since without them sentient life could not exist.) Exactly which animals are capable of feeling pain, however, is much more difficult to resolve. It can only be decided by looking at the evidence we have about the nervous systems, brains, and behavior of different kinds of beings. Although I have no special expertise in this area, my reading of the relevant literature leaves little doubt in my mind that all normal vertebrates are capable of feeling pain, and I am fairly confident that some invertebrates can as well, but when we move to insects I become agnostic, and with much simpler organisms I think it is highly unlikely that they
could be conscious. For utilitarians, therefore, it is not the distinction between “plant” and “animal” as such that is important, but that between sentient and non-sentient beings.

Preference utilitarianism

In the narrow or classical sense of the term “utilitarianism,” only those who seek to maximize pleasure and minimize pain are utilitarians; but nowadays there are many who continue to call themselves utilitarians but do not restrict the assessment of consequences to pleasures and pains. They argue that some people may prefer other goals—for example, a writer might be able to achieve a life of luxury by working for an advertising agency, but may prefer the long and lonely work of attempting to write a great work of literature. Bentham could claim that she thinks she will get more lasting pleasure from pursuing her goal, but it is also possible that she simply considers that writing something of lasting literary value would be more worthwhile—irrespective of how much pleasure it is likely to add to her life, or even to the lives of others—than writing advertising copy. On what basis, contemporary utilitarians have asked themselves, are we to say that such a person is mistaken, and should instead pursue pleasure?

Considering such possibilities has led to the development of a form of utilitarianism known as “preference utilitarianism.” Preference utilitarians judge acts to be right or wrong by attempting to weigh up whether the act is likely to satisfy more preferences than it frustrated, taking into account the intensity of the various preferences affected. Preference utilitarianism encompasses hedonistic utilitarianism, since it is part of the nature of pain that a being in pain has, other things being equal, a preference for that pain to cease, and a being experiencing pleasure has, other things being equal, a preference for that pleasure to continue. So animals are included in the scope of preference utilitarianism, as they are included in the scope of hedonistic utilitarianism. But preference utilitarianism is broader than hedonistic utilitarianism because it gives weight to preferences other than those relating to pleasure or pain.

II. THE STRENGTHS OF UTILITARIANISM

What reasons can be given for taking a utilitarian approach to ethical issues? Whether any ultimate justification of a first principle of ethics is even possible is a contentious question among philosophers, but the following reasons can be offered:

1. Utilitarianism is a concrete, no-nonsense sort of view. In both its classical and its more modern versions, utilitarianism values things that we all know, and that we already all value, in some sense. Avoiding pain and seeking pleasure, trying to satisfy our preferences, are everyday experiences. The utilitarian does not need to appeal to divine commands (which would require justification not only for belief in a deity but also for the claim to have knowledge of his will); nor does the utilitarian make claims about allegedly self-evident rights, duties, or principles which usually turn out to be anything but self-evident to some of the participants in any ethical debate.

2. Utilitarianism provides, at least in principle, a definite decision-procedure which, if we had sufficient knowledge, would enable us to agree on what we ought to do. Admittedly, in practice,
most decisions involve such complex calculations about expected utilities that this decision procedure is less useful in leading us to agreement than one would wish. Nevertheless, having an "in principle" understanding of the basis on which an action can be judged right or wrong is an advantage, in that it tells us where we need to look to increase the probability of making the right decision. Those who reject utilitarianism in favor of an ethic of absolute rules or inviolable rights invariably face a dilemma when the various rules or rights come into conflict, as they always can. They generally retreat to artificial distinctions in vain attempts to dissolve such conflicts. Others soften the rules, so that they become "prima facie" rules, or principles, which must then be weighed against each other—but how is this weighing to be done? Without any scale or standard to fall back on, it becomes a matter of swapping intuitions. (Against a background standard, of the kind that utilitarianism offers, such rules or principles may have a role to play in ethical decision-making, as I shall explain in the moment, but as a foundation of ethics, this approach is vague at a crucial point.)

3. Utilitarianism can often subsume and explain conventional morality. In his classic work The Methods of Ethics, Henry Sidgwick showed that much of conventional morality is utilitarian in its orientation. We often say that we believe in absolute rules, such as "Do not lie," but when we observe more closely the judgments we make in particular situations, we find that we allow exceptions precisely where doing so does most to maximize utility. For example, we visit a friend who is seriously ill and has been depressed by his illness. We are shocked by his pallor, his loss of weight, and the difficulty he has in walking. But he says to us: "I think I'm getting better now. What do you think, how do I look?" Most people would not think it wrong to give an untruthful answer in order to improve our friend's mood. The answer that our common moral intuitions give is here the same as that which we get by considering what answer will have the best consequences. When something similar has been shown for many different moral rules or principles, we may begin to believe that utilitarianism can provide a more coherent and systematic explanation for many of these intuitions.

Utilitarianism and conventional morality may often point in the same direction, but they do not always do so. There may be many reasons why conventional morality differs from a utilitarian ethic. Conventional morality may be influenced by religious teachings that have ossified. This was the case with regard to sexual morality until quite recently, and in some regions still is today. Religious teachings about the sanctity of human life also exercise influence in preventing many people from accepting a utilitarian view of such questions as voluntary euthanasia. In other areas, conventional morality may be biased by some form of group interest, for example nationalism, racism, sexism, or speciesism. This leads us to the fourth strength of utilitarianism.

4. Utilitarianism provides us with a framework for reforming conventional morality and changing common moral intuitions. Although some people treat the incompatibility of utilitarianism and common moral views, on some issues, as an objection to utilitarianism, in fact this is its strength. Where utilitarianism really is contrary to our conventional moral standards, we ought to change these standards. Why would we engage in pointlessly upholding a rule if upholding it really will do less good than breaking the rule over the long run and taking every affected being into account?

5. We can arrive at one version of utilitarianism—preference utilitarianism—very simply from the universalization of our own preferences. As R.M. Hare has argued, moral judgments must be
universalizable. This means that if we judge something to be wrong in one case, we must also judge it to be wrong in all other cases that are identical in all morally relevant respects. So if I say that it is wrong for you to cheat on your income tax, then I must agree that it is wrong for me to do so, unless I can point to a morally relevant difference between us. That difference cannot simply be the fact that I benefit when I cheat on my own tax, whereas I do not benefit when you cheat on your tax. The mere fact that I am I and you are you is not a morally relevant difference.

The puzzle is, of course, how we can say which differences, beyond mere personal identity, are morally relevant. Hare suggests that we need to perform the imaginative exercise of putting ourselves in the position of all affected by our action, and then decide whether we can accept that a difference is relevant. Thus if I have brown hair and you have red hair, I might try to argue that it is alright for people with brown hair to cheat on their tax returns, but not for people with red hair to do so. If, however, I imagine that our hair colorings are reversed, I will realize, if I am honest with myself, that I would not agree with the rule allowing only those with brown hair to cheat. So this cannot be a morally relevant difference.

We each have our own preferences, or set of wants. If moral judgments require universalizability, then when we consider acting on our preferences, we must do so knowing that other beings affected by our actions also have preferences. Since the mere fact that my preferences are mine is not sufficient to make it morally justifiable for me to act on them, I should, before acting on them, put myself in the position of others affected by my actions, and take on their preferences, to see which of the alternative actions open to me I could accept, if I were in the position of each of the others affected by my actions. If, as is very likely, there is no action that I would accept from the position of each one of the individuals affected, I must then attempt to sum up the preferences of those affected, to decide which action would be most acceptable from the position of all of those affected, taken together. Another way of thinking about this is to ask myself: suppose I had to live the lives of all of those affected by my action? Which of the alternatives open to me would I choose?

Since in asking this question I must take on the preferences of all those affected by my action, the outcome is the same as that which would provide the greatest net satisfaction of preferences, and hence the action selected is the one that would be recommended by a preference utilitarian calculation.

While this is not a proof of preference utilitarianism—because it does not rule out other grounds for reaching a moral judgement—I know of no other approach to ethics that has so simple and direct a foundation. The onus is on the proponents of other ethical views to give as clear and convincing a defence of the foundations of their views. Until they do so, preference utilitarianism will remain the most plausible approach.

III. UTILITARIANISM AND ANIMALS

Let us now consider what happens when we use a utilitarian ethic to decide issues involving animals, such as the question of using animals as the subjects of experiments. I shall take as common ground here the fact that animals are capable of suffering, and that many experiments on animals do cause animals to suffer. How is this suffering to be justified? A utilitarian perspective rules out several purported justifications. For instance it has been said, by writers as diverse as
Thomas Aquinas and Immanuel Kant, that animals are not "ends in themselves" or that they have no rights, or that the only reason for not being cruel to them is that this might lead us to be cruel to humans. In support of this, it is alleged that the status of a being who is an "end in itself" or has rights, belongs only to a being who has an immortal soul, or is rational, or capable of autonomous action, or a moral agent. Others seek to justify animal experiments by appealing to an ethic that is utilitarian, but limited to considering human suffering, or perhaps to discounting the suffering of non-human animals. Once such an ethic is accepted, of course, the justification of animal experimentation becomes a much simpler matter.

As we have seen, for genuine utilitarians in the tradition of Bentham and Mill, this is a mistake. All beings who are capable of experiencing pleasure or pain are ends in themselves, in that there is something we can do that is bad for them, and bad independently of its effect on human beings. There is no reason for a utilitarian to ignore, or discount, the interests of a being simply because that being is not a member of our species.

For a genuine utilitarian, the fact that animal experiments cause animals to suffer gives rise to a reason—but not necessarily an overriding reason—for not doing it. A utilitarian defence of animal experimentation would typically be based on the idea that such experiments prevent more suffering than they cause. Such a defence would have to begin by considering how much suffering is caused to animals in experimentation. Obviously this will depend on the nature of the experimentation and, if we are asking the question on a national basis, on the kind of regulation or control of experimentation that exists in the country under consideration. Even when considering experiments that do not in themselves cause significant pain, however, in calculating the costs of the institution of animal experimentation one must take into account the fact that the animal will typically have been raised in conditions that constitute a severe deprivation for a being of that species. The common laboratory rat, for instance, is a highly intelligent animal with a strong urge to explore new surroundings. Rats also like to get into small dark spaces; yet in laboratories they are kept by the million in bare plastic buckets with a bit of sawdust at the bottom. Such treatment indicates the lack of consideration for the interests of animals that prevails in the world of animal experimentation.

A utilitarian assessment of animal experimentation must also take account of the fact that at least some experiments on animals bring certain suffering and death to animals with no guarantee of significant benefits. That is, of course, part of the nature of research, and for a utilitarian, a reasonable probability of a very great good may outweigh the certainty of a much smaller evil.

This leads to a further question: how much good is actually done by animal research? Defenders of animal experimentation often make dramatic claims about the extent to which animal research has extended the human life span, but the consensus among those who have studied trends in human health from a historical point of view is that almost all of the increase in human longevity that has occurred over the past century is due to improved sanitation, diet, and living conditions, rather than to medical research of any kind, whether using animals or not.

It could be argued that even if medical research has done much less than many people think to extend human life, it has done more to improve the quality of our lives, and to reduce the pain and suffering we experience while living. Undoubtedly, this is important. But given that animal experimentation competes with other forms of medical research for scarce research funds, and given that research funds compete with, for example, preventive health measures for scarce tax dollars, it
remains unclear how much we benefit by experimenting on animals, rather than using our limited resources for other beneficial purposes.

A minimal utilitarian demand is that every experiment should come under close and impartial scrutiny to determine if the benefits are sufficient to outweigh the costs. Although during the 1980s several countries developed regulatory systems based on institutional ethics committee reviews of proposals to carry out experiments on animals, experimenters are usually well-represented on such committees, whereas animal welfare advocates are either not represented at all, or are heavily outnumbered by those using animals. An impartial committee that weighed the cost to the animal in the same way that we would weigh a comparable cost to a human would, the reformers maintain, approve at most a small fraction of the experiments now performed.

NOTES

Chapter 7
Animal Rights and Animal Research
Jerrold Tannenbaum

DIFFICULTY OF THE SUBJECT

Animal rights may be the most contentious topic in contemporary animal ethics. There is disagreement among philosophers about what rights are; that is, about what it means for any being or any thing to have rights. There is disagreement about what are the kinds of beings or things to which it makes sense to ascribe rights. There is disagreement about whether animals are among the kinds of beings to which rights can sensibly be ascribed. There is disagreement about what rights animals actually have if it makes sense to ascribe rights to them. There is disagreement about whether, even if animals can be said to have rights and even if animals do in fact have rights, it is necessary or useful to engage in what sometimes appear to be endless disputes about animal rights.

There are other reasons the subject of animal rights resists concise summary or discussion. The concept of animal rights is invoked in a wide range of contentious social, political, and legal activities. Appeals to animal rights are an important part of current attempts to curtail or eliminate the use of animals in research, industry, agriculture, and entertainment. Many defenders of these animal uses therefore tend to see opposition to animal rights as part of their approach. Because of the prominence of the concept of animal rights in so many disputes and debates about animals, any serious thinker in the fields of animal ethics or animal law must say something about animal rights, if only to place his views within the context of contemporary discussions.

A comprehensive treatment of animal rights would have to consider how the concept of rights functions in these political and social discussions and what philosophers and legal theorists who discuss animal rights—a group whose number is growing rapidly—think about the subject. The task of discussing animal rights in a book whose primary audience is laboratory animal veterinarians and animal researchers is even more daunting. Many veterinarians and scientists reject immediately and vehemently any approach to the use of animals that includes appeals to animal rights. Some of them believe the concept of animal rights is subjective, a matter of value judgments, while its polar opposite, the concept of animal welfare, is objective and scientific. Some veterinarians and scientists believe that there is a single “animal rights philosophy” that calls for the abolition of all human use of animals. Some believe that the very concept of animal rights—mere use of the term “animal rights”—implies this abolitionist position. Some think that the concept of animal rights is inherently associated with illegality or even violence against researchers and others who use animals.

AIMS OF THIS DISCUSSION

In this discussion I challenge the picture many veterinarians and scientists have of animal rights. I provide a brief overview of contemporary animal rights theory. Limitations of space will
not permit coverage of all rights theories or theorists, nor will I be able to discuss any one theorist completely or satisfactorily. I will not attempt to consider adequately all possible arguments for, or objections to, ascribing rights to animals. Although there are two quite different kinds of rights that some would ascribe to animals—moral rights and legal rights—I shall concentrate on the former. However, in discussing some of the arguments for and against moral rights for animals it is useful to consider the subject of legal rights as well.

My primary aim in this essay is to argue that veterinarians and scientists who support the use of animals in research should take the concept of animal rights seriously because the concept, interpreted in a certain way, presents important ethical truths. I shall also argue that most veterinarians and scientists already believe that some animals have moral rights, and that blanket opposition to animal rights makes defending humane animal research more and not less difficult.

AN ADDITIONAL CHALLENGE: DIFFERENT CONCEPTS OF RIGHTS?

The substantial frequency of rights language in current discussions about animals raises a problem that must be faced immediately. Rights language is so abundant in our society and in philosophical and legal discourse that some thinkers may not be offering different analyses of the concept of animal rights, but different concepts of animal rights. Because rights language is attractive to many people, an increasing number of thinkers appear to be applying this language to their own views to facilitate general acceptance of these views. But when the term “rights” gets applied to a wide range of quite different positions about animals, the meaning of the term itself may differ. Thus, when two (or more) thinkers argue about whether animals have rights and what rights animals have, they might be arguing about different things.

Example: a quick path to animal rights

One way of appreciating that there may be different senses of the terms “rights” and “animal rights” is to consider an argument that some philosophers believe shows that animals obviously have rights. Some philosophers maintain that duties and rights (both moral and legal) are correlative. That is, when there is a duty or obligation, there must be a corresponding right; and when there is a right there must be a corresponding duty or obligation. This assertion is called by philosophers “the correlative view.” For example, if you have an ethical and legal duty to turn over your house to me after we have signed a contract of sale and I have paid you the purchase price, I must, it is claimed, have an ethical and legal right to your house. The “must” here is conceptual. It is claimed that it makes no sense to speak of a duty without a corresponding right, or a right without a corresponding duty. According to the correlative view, once we say that a person has a duty to someone else to do or not to do something, one has already asserted that this other person has a right. According to the correlative view, one cannot frame or conceptualize a duty without making reference to some correlative right.

Not all philosophers accept the correlative view. Some argue that there are moral duties without corresponding rights. It is argued, for example, that people sometimes have a moral duty to give to charity; but it does not seem to follow that any charity has a right to one’s money. I am not interested here in evaluating the correctness of correlative view, but in noting that if the view is
correct (and many philosophers believe that it is at least in situations in which we speak of someone’s having a duty to a particular person or being), it does indeed follow that some animals have moral “rights.” Most people believe that they have a direct ethical obligation to a laboratory animal or pet not to subject it to unnecessary or unjustifiable pain or suffering. Most people would reject the contention of philosopher Immanuel Kant1 that the only reason we ought not to treat animals poorly is out of concern for our fellow humans, because if we are cruel or inhumane to animals we will encourage cruelty and inhumanity to people. If the correlativity view is correct, animals must have the moral right not to be caused unnecessary or unjustifiable pain in virtue of our duty to them not to cause them such pain.

If this argument for animal rights is correct, not only are there animal rights, there are an enormously large number of animal rights. There are many situations in which people interacting with or using animals have ethical obligations to these animals. Let us suppose for purposes of discussion that the animals in a certain laboratory being used in a certain experiment ought to receive no fewer than 10 to 15 fresh-air changes per hour. Let us suppose that we would agree that all things considered rodents housed in isolation units for another experiment ought to be provided bedding type X (rather than bedding type Y) because use of X results in lower concentrations of ammonia in the air these animals breathe. If the correlativity view is correct, we must say that the first group of animals has a moral right to no fewer than 10 to 15 fresh-air changes per hour and that the second group has a moral right to bedding X rather than bedding Y. Indeed, if the correlativity view is correct, the typical laboratory animal has hundreds if not thousands of moral rights. Whenever one has an ethical obligation to a research animal relating to how it is housed, fed, watered, or used in research there would be a moral right of that animal corresponding to the ethical obligation.

Very few veterinarians and scientists would deny that people have some moral duties to animals. However, when most veterinarians and scientists ask whether laboratory or other animals have moral rights, they appear to be asking more than whether we have ethical duties to these animals. Something more significant is at stake. It seems clear that, whatever sense or senses of the term “animal rights” is employed in current debates about whether animals have rights is not the same sense in which animal rights follow from the correlativity view. Moreover, the sense of “rights” used by the correlativity view is very weak and does not seem particularly interesting—certainly not interesting enough to justify extended debates. In this sense of “rights,” most supporters and opponents of animal research would agree that animals have rights. Thus such a sense of “rights” does not assist in characterizing much less arguing for fundamentally differing approaches to animal use. Indeed, in the sense of “rights” employed by the correlativity view, even utilitarians would believe that animals have rights, because utilitarianism (in any of its various forms) implies obligations people have to animals in specific circumstances. However, utilitarians deny that either humans or animals have moral rights and view the term “rights” only as a useful way of summarizing obligations based on calculations of benefits and detriments. In short, if the correlativity view of animals succeeds in demonstrating that animals have moral rights, it does so at the cost of doing no theoretical work and making no practical difference in discussions of animal ethics.
Strong and weak senses of “rights” and “animal rights”

Even a cursory look at the philosophical literature on rights indicates a wide range of definitions of the term. Some philosophers argue that rights are by their nature extremely strong and are not present whenever there is an ethical duty. For example, Judith Jarvis Thomson writes that

[A] person's having a right has consequences. I have a right against you that you not break my nose, and much follows from the fact that I do. Other things being equal, for example, you ought not break my nose. Other things being equal, it is morally permissible for me to defend myself against an attempt at nose-breaking by you. If you break my nose, then other things being equal, you ought to pay my medical costs for the repair of it. Other things being equal, there ought to be laws dealing with nose-breaking and with the ways in which the victim of such an act is to be compensated for it, and if there are not, then other things being equal we ought to pass some. And so on. Having a right is having a valuable moral status precisely because it has these consequences, and asserting the right is demanding that people act as these consequences say they ought to act.1

Thomson distinguishes between moral rights and legal rights, i.e., rights afforded by the law. However, she views moral rights as being so important, and so worthy of protection, that she sees a conceptual or necessary connection between moral and legal rights. According to Thomson, if one has a moral right (say not to have one’s nose broken by others), it follows that this moral right ought to be protected by the law, unless there are special or unusual reasons not to institute a corresponding legal right. (This is what she means when she says that if there is a moral right there should be laws protecting it, other things being equal.) Thomson does not find a moral right wherever there is a duty, for it would be extremely implausible to argue (nor does she argue) that every time a person has a moral duty to someone else we should pass a law to enforce this duty. The example of a moral right Thomson gives in this passage underscores her view that the term “rights” is properly used for a relatively narrow but extremely important range of entitlements. Breaking a person’s nose is a direct attack on his body, something that causes pain and can cause bodily impairment; it is also a substantial violation of his personal privacy and dignity.

Contrast Thomson’s characterization of rights with that of philosopher Stephen R.L. Clark. He states that

Human rights are usually invoked to bar the sort of simple-mindedly utilitarian calculation that denies any property in their own life, body, and possessions to any individuals and also to define the proper limits of governmental interference. Rights are those claims and entitlements that the law may properly be invoked to protect.2

Clark apparently does not think that rights, by their nature, should be recognized by the law. Rather, rights are entitlements that the law may legitimately protect. For Clark, moral rights appear to be stronger than rights as the correlativity view understands them, but still weaker than Thomson sees them.

Yet another interpretation of the term “rights” is endorsed by biologist Rosemary Rodd, whose book *Biology, Ethics, and Animals* offers evolutionary and ethological arguments in favor of animal rights. Rodd accepts the
correlative view of rights: that is, that if it is the case that we have duties to an animal, then
that animal has corresponding rights.... Hence we have duties to babies and cows, which
means that we assume that they are kinds of creatures who can have rights; while we have
duties about trees (such as the duty not to exterminate them) which entail no assumption
that they have rights. 5

As noted above, this is a weak sense of rights according to which the claim that animals have
rights would be quite uncontroversial. But this is by no means the weakest sense of rights one finds
in the philosophical literature. Stephen Clark, who sometimes advocates a relatively restrictive
interpretation of rights, notes that there is a sense in which people ascribe “rights” to animals
merely by viewing them as having feelings and desires and believing that we should consider these
feelings and desires in determining how they ought to be treated. According to Clark,

Those moralists who deny that non-human beings have rights generally mean that there is
no moral reason to consider the feelings or wishes of those creatures. I myself agree with
the early Cartesians, that if a creature has feelings then we ought not to torment and kill
him or her. Their absurdity in concluding that it would therefore be inhumane to think
that animals had feelings does not discredit their initial insight. I am happy then to agree
that animals have rights. 6

These definitions or interpretations of the terms “rights” or “animal rights” do not exhaust the
possibilities. They do however illustrate why, before one begins arguing that animals do or do not
have rights, one must ask what one means in ascribing rights to animals. These quotations also
illustrate that there is no necessary correlation between the strength of a thinker’s definition of the
terms “rights” and “animal rights” and the strength of his or her views about what rights (if any)
animals actually have. Rodd and Clark (at least in the second passage quoted above) endorse very
weak definitions of rights, but both argue that much of what is done to animals is unethical and
violates their rights. Thomson proposes a very strong sense of “rights.” However, she accepts many
practices (such as meat-eating) that Rodd and Clark reject and suggests that animal rights may be
limited to the right not to be treated cruelly or subjected to unnecessary pain. 7

In considering arguments about whether animals have moral or legal rights, it is therefore
extremely important to appreciate that there is a wide range of possible views about the meaning of
rights language and about what rights animals have. I shall suggest that this range of possibilities
offers an important opportunity for veterinarians and scientists who seek to convince the public
that animal research is necessary and appropriate.

**CENTRAL QUESTION ABOUT ANIMAL RIGHTS**

In light of the range of possible definitions of the term “rights,” I want to frame the central
question of this essay. I would argue that this is the most important question regarding the concept
of animal rights.

I shall ask whether there is a sense of the term “rights” in which some animals can and do have
moral rights that is
- **Ordinary**, meaning that this sense of “rights” reflects a traditional, common, or natural way of speaking;

- **Distinctive**, meaning that it does not find an animal “right” wherever someone has a moral obligation to an animal for whatever reason;

- **Useful**, in the sense of being capable of aiding significantly in the analysis of ethical issues relating to animals; and

- **Important**, in the sense of being helpful in articulating ethical principles that can significantly affect the ways we use and treat animals.

If one uses the term “rights” in a sense that is idiosyncratic or peculiar, without a history of some general usage, there would be little if any justification for using the word “rights.” Unless there is a sense of “rights” that meets the other three conditions there would be little reason for anyone to want to argue that animals do or do not have moral rights. Rights would not play a distinctive or important role in ethical discussions regarding animals.

**A Preliminary Distinction**

It is necessary to mention a distinction found frequently in the philosophical literature. I have built the distinction into the central question of this essay. One can ask whether animals can conceivably have rights; that is, whether animals are the sorts of beings or things to which rights can be sensibly ascribed. One can also ask whether animals do in fact have rights. The first question relates to the meaning of the word “rights,” to the concept of rights, to what is meant by “rights.” The second question relates to what rights animals have if they can have rights. The following examples illustrate the difference between the two questions.

If one asks whether humans are among the sorts of beings that can conceivably live to the age of 900 years, the answer to this question is obviously yes. One can conceive of or imagine a human living this long, even if no human can in fact live this long. A 900 year-old living human would be an amazing find, but he or she would not cease to be called a “human,” at least as the majority of people use the term. (When Genesis describes Methuselah, who lived 969 years,8 we do not find the description of Methuselah as a man nonsensical.) But if one asks whether humans in fact live to be 900 years old, the answer is obviously no.

If one asks whether a triangle can conceivably have four sides, the answer to this question is obviously no. Given what is meant by the term “triangle,” a triangle must have three sides. Any figure with more sides would not be a triangle. Because it makes no sense to speak of a triangle with four sides, we would dismiss any attempt to look for four-sided triangles as literally nonsensical.

Philosophers who argue that animals are not among the beings or things that can have rights believe that ascribing moral or legal rights to animals makes no more sense than speaking of four-sided triangles. There is in the view of these thinkers something about the concept of rights, something about what we mean by the term “rights,” that absolutely precludes ascription of rights to animals. Philosophers who argue that animals can have rights maintain that it does make sense to ascribe rights to animals. However, one can take such a position and argue that, given what we
know about animals, we cannot say or cannot yet say that they do in fact have rights. The position that animals can have rights is also compatible with a wide range of views about what rights they do have.

**THOUGHT EXPERIMENT**

Imagine the following hypothetical situation.

You are a member of your institution’s animal care and use committee (IACUC). A researcher new to your facility submits her first animal use application to the IACUC. Her protocol involves abdominal surgery in pigs. The proposed surgery does not include the use of anesthesia, but the neuromuscular blocking agent pancuronium. It keeps the pigs still and quiet, she says, and she has used this method a number of times successfully. What do you say to her, aside from pointing out that the animals would still experience pain and distress even though they would not express this in their behavior, and that what she proposes violates the prohibition of the Federal Animal Welfare Act regulations against the use of paralytic agents without anesthesia?

Presumably, you would say that doing this would be ethically wrong as well as a violation of the law. However, would you say this for any of the following reasons:

- People working at your institution would be made unhappy knowing that these pigs would suffer?
- What the researcher proposes could lead her or others to treat other human beings cruelly or inappropriately?
- She lacks sufficient compassion for these animals?
- The total amount of pain, suffering, distress, or other negative sensations caused to the animals would on balance exceed the total amount of pleasure, happiness, satisfaction, or other positive sensations or goods enjoyed by all sentient beings that would be affected by the proposed procedure?

These are all reasons for not causing pain to animals that have been raised in the animal ethics literature. However, none of them captures why most people would object to the protocol in the hypothetical example. Most people, surely, would say that it is wrong to subject the pigs to this needless suffering because it would be unfair to them to do this. Indeed, virtually everyone would agree with all of the following statements about the investigator’s proposal:

- A wrong would be done to each individual pig.
- People in your institution have an ethical obligation to each of these animals not to allow this to occur.
- Each of these animals is entitled not to be treated in this way.

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- Each of these animals is so entitled for its own sake, because treating each in this way would cause a serious harm to it.
- This entitlement stems from a basic interest of each animal, its interest in not experiencing unnecessary pain.
- This interest is so strong that it can be overridden, if at all, for the most important reasons, which do not exist here because the procedure can be done without their experiencing pain.
- Your IACUC can and should raise this entitlement in behalf of these animals and against those who would do this to them.

WHAT THESE RESPONSES MEAN: RIGHTS FOR ANIMALS

If you would agree with these statements, then there is an ordinary, distinctive, useful, and important sense of the term “rights” in which you believe that some animals have moral rights.

FEINBERG ON ANIMAL RIGHTS

A forceful argument that animals such as the pigs in my hypothetical case have moral as well as legal rights is presented by Joel Feinberg. An influential legal and political philosopher, Feinberg has been engaged in the analysis of the concept of rights in both ethical and legal contexts. Having worked out a general theory of rights, in two essays he applied his theory to a number of beings and things that various people claim have rights (such as human fetuses, future human generations, plants and the environment, and animals). Feinberg’s views on animal rights demand careful attention not just because of his importance as a philosopher, but because he has never been particularly interested in animals at least as a participant in current controversies. He concludes that animals can and do have rights not because he seeks to defend or oppose their use in research or in order to provide philosophical ammunition for any side in current debates about animal use. Rather, Feinberg maintains that animals have rights simply in virtue of how the term “rights” is already used in ethical and legal discourse.

Feinberg argues that “to have a right is to have a claim to something and against someone, the recognition of which is called for by legal rules or, in the case of moral rights, by the principles of an enlightened conscience.” This definition can be illustrated by the legal right asserted by the First Amendment of The Constitution of the United States to freedom of speech. To have this right is to have a claim to be left alone to say what one wants. One can make this claim in the legal system against someone who attempts to abridge one’s freedom of speech. Rights express claims that are extremely strong. Indeed, if one has a right there is a sense in which one begins with this right. One need not justify it simply because someone seeks to violate it. And a right does not exist merely because, on balance, more pleasure or happiness would be brought to all people or to all sentient beings if the right is recognized. To say that you have a right to freedom of speech means that you may speak your mind, even if doing so makes others uncomfortable or unhappy. This is not to say that the right to freedom of speech is always present or can never be overridden by other considerations. One does not have the right to scream “fire!” in a crowded theatre because considerations of public safety must prevail in such a circumstance. However, as Feinberg notes, it is crucial to
understand that if one generally has a right, before it can be negated or abridged it must be taken away, and for a supremely good reason. It is there, part of the set of one's moral or legal entitlements, not something to be put on the table for discussion and justification in each particular circumstance.

An important feature of rights follows from their strength and function in protecting rights-holders against the mere preferences or pleasures of others. As Feinberg observes, a moral or legal right is an extremely valuable possession, neither dependent on nor derivative from the compassionate feelings, propriety, conscientiousness, or sense of noblesse oblige of others. It is a claim against another party in no way dependent for its incumbency on the love of the other party or the loveliness of its possessor. Hence, wicked, wretched, and odious human beings maintain certain rights against others, and the duties of others based on those rights are incumbent even on those who hate the claimants, and hate with good reason. A right is a matter of justice, and justice, while perhaps no more valuable than love, sympathy, and compassion, is nevertheless a moral notion distinct from them.

In approaching the question of whether animals can and do possess legal and moral rights, Feinberg begins with central cases of the application of the concept of rights, cases in which we would all agree that a legal or moral right exists. He then argues that if we ascribe rights to humans in such central cases, we must also sometimes do so regarding animals.

As Feinberg observes, in the most familiar and central case, the claimant of a right is a competent adult human and the claimee (the party against which the right is asserted) is an officeholder or employee of an institution, or in the case of a moral right a private individual—in either case another competent adult human. The right to freedom of speech belongs among such central cases. This right is possessed by adult humans with relatively sophisticated mental capacities (which enable them to speak for themselves) and, when sought to be abridged is generally done so by other humans of similar mental capacities. Claims for assistance in protecting this right are made to people in the legal system who are capable of understanding these claims and protecting them.

However, as Feinberg explains, it is a serious mistake to identify such familiar and common cases of rights with the only cases of legal and moral rights. There are many situations in which we say that rights-holders are not competent humans, cannot claim their rights for themselves, and indeed do not even understand what it is to have a right or that a right they have is or is not being violated. Very young infants, for example, have a legal and moral right not to be abused by their parents. Severely retarded children or adults lacking verbal capacities can have their legal and moral rights violated by institutions that treat them abusively or carelessly.

Because such persons have rights, the ability to understand or claim a right cannot be essential to having a right. Rather, Feinberg argues, what is essential is that there be someone who can represent a rights-holder in the claiming of his or her rights. In the most common cases of legal and moral rights, this will be the rights-holder himself (although in the case of legal rights, representatives, namely lawyers, are ordinarily employed to make the claim in the right-holder's behalf). However, when a rights-holder is incapable of understanding or asserting a legal or moral right, there must be someone who has the ability and authority to assert the right against a violator. In the case of an infant abused by its parents, this is usually an agency of state government legally autho-
rized to protect the infant; in the case of an infant harmed by a third party the parents can be appointed by a court to sue the wrong-doer in the infant's behalf to assert its legal rights.

The centrality of representation to the concept of rights implies other essential features of legal and moral rights. It makes no sense to say that someone is represented unless he has interests that can be represented—things that are good for him and things that matter to him. Feinberg illustrates this point by contrasting a person with a plant. There is a sense in which certain things such as water and fertilizer are “good for” a plant; without them the plant will die. However, it sounds odd and is indeed nonsensical to say that someone who insists on watering a plant so that it can survive is representing it. Nothing that will happen to the plant will matter to it because it is insensate. A plant cannot have anything to complain about because it is not the sort of thing that can have anything to complain about. An infant, however, is among the sorts of beings that can have something to complain about, even if it is too young or mentally unsophisticated to express a coherent complaint. If it is abused or deprived of food it will feel pain and experience distress. These things are bad for it, a wrong to it. It therefore makes sense to say that this infant would have a legal or moral claim against people who inflict suffering on it, in a way that it does not make sense to say that a lawn shrub deprived of water by its owner has a claim to water.

Feinberg argues that given these considerations, it is impossible to deny that some animals sometimes have moral and legal rights. Feinberg views the primary source of these rights as the ability of many animals to experience pain and suffering. Pain for an animal is an evil for it just as pain for a human is an evil for it. (This is not to deny that pain can sometimes be beneficial, for example as a signal of some malady or problem. But it is to say that the experience of pain is bad in itself an evil, even if it is sometimes a necessary evil.) Pain matters to an animal that can experience it. Therefore, animals that experience pain have an interest in not experiencing it. They have a strong moral claim not to experience pain at the hands of humans in the absence of a good reason for infliction of such pain. And they can be represented, both in the legal system and in the realm of moral argument, by people who can argue, in their behalf, for their interest in not experiencing pain or suffering.

Feinberg views cruelty to animals laws as granting to certain animals the legal right not to be treated cruelly, by which the law usually means being subjected to unnecessary or unjustifiable pain or suffering. These laws grant legal rights because they enable representatives, public prosecutors, to initiate legal actions intended to protect and benefit the animals themselves. The claim that cruelty laws give animals legal rights may strike some people as odd. In fact, lawyers and judges have traditionally interpreted such laws as affording legal rights to animals, as is illustrated by the following two excerpts from court decisions discussing animal cruelty laws. In 1897, the Supreme Court of Louisiana stated that

The [cruelty] statute relating to animals is based on the theory, unknown to the common law, that animals have rights which, like those of human beings, are to be protected. A horse, under its master's hands, stands in the relation of the master analogous to that of the child to the parent.13

The following year the Supreme Court of Mississippi also asserted that cruelty laws afford legal rights to animals.
The common law recognized no rights in [domestic animals] and punished no cruelty to them, except in so far as it affected the rights of individuals to such property. [Cruelty] statutes remedy this defect, and exhibit the spirit of that divine law which is so mindful of dumb brutes as to teach and command, not to muzzle the ox when he treadeth on the corn; not to plow with an ox and an ass together; not to take the bird that sitteth on its young or its eggs; and not to seethe a kid in its mother's milk. To disregard the rights and feelings of equals, is unjust and ungenerous, but to willfully or wantonly injure or oppress the weak and helpless, is mean and cowardly.\textsuperscript{14}

Feinberg's analysis of animal rights does not preclude a wide range of traditionally accepted uses of animals. He argues only that some animals must be included among those beings that can and do have legal and moral rights. Although Feinberg argues that animals used by people have the right not to be caused unjustifiable pain, he accepts the use of animals in research and for food. Whether or not his acceptance of such animal uses is correct is not of critical importance here. What is important is that the concept of rights, as analyzed by Feinberg, does not imply that animals have the right to life or the right not to be used in research, for food, or for many other purposes to which we humans put them.

\textbf{Some Objections to Animal Rights}

Much of the opposition to animal rights by veterinarians and scientists appears to stem from the mistaken identification of animal rights with the view that animals should never be used by humans for any purposes. Opposition to animal rights is also sometimes based on a number of conceptual objections to ascribing rights to animals. I have discussed these objections elsewhere in detail.\textsuperscript{15} They must be mentioned here so that the reader will appreciate that they can all be refuted easily.

Objections to ascribing moral rights to animals

Philosopher Alan R. White, for example, states that rights "can be said to be exercised, earned, enjoyed, or given, or... can be claimed, demanded, asserted, insisted upon, secured, waived, or surrendered."\textsuperscript{16} However, White observes, animals cannot do any of these things, and therefore, he claims, they cannot have rights. As has already been noted, this characterization of rights cannot be correct, because it implies that infants, children, and other kinds of mentally incompetent or immature humans cannot have legal or moral rights. Philosopher Carl Cohen argues that animals cannot have rights because "rights arise, and can be intelligibly defended, only among beings who actually do, or can, make moral claims against each other."\textsuperscript{17} It is certainly the case, as Feinberg would concede, that an essential characteristic of rights is that they can be claimed, and Cohen is surely correct that the social institution of both moral and legal rights presupposes the presence of people who make claims against others who are capable of understanding and acting upon these claims. However, as Feinberg observes, it can still be the case that beings which possess rights are incapable of claiming them for themselves—provided others can represent and claim these rights. Cohen's response to the observation that some humans who cannot make or respond to moral claims have rights is that "animals are not beings of a kind capable of exercising or responding to
moral claims. Animals therefore have no rights, and they can have none.” However, one could just as well say that mentally immature or incompetent humans are beings of a kind—the category of mentally immature or incompetent humans—that cannot exercise or respond to moral claims. One could also say that humans are not beings of a kind that is capable of exercising or responding to moral claims because there are many humans who cannot do these things. Nor does Cohen explain why, even if we should say that animals are not beings of a kind capable of exercising or responding to moral claims, we must conclude that animals cannot have moral or legal rights.

It is also sometimes said that if animals have rights, they must have rights against other animals. So, if animals have rights, the rights of a bird, for example, could be violated if it is killed by a cat. This supposedly clever objection to animal rights fails, because while rights-holders have valid claims against others, one cannot have a claim against someone or some being unless that person or being is capable of responding to such a claim. No proponent of animal rights argues that animals have rights against other animals, and there is nothing in the concepts of rights or animal rights that implies such a position.

It is also claimed that if animals have moral rights, we cannot use them for any purpose, including animal research. As we shall see, at least one philosopher argues that it is indeed a violation of an animal’s rights to be used for any purpose by any human. However, this is a claim about what rights animals have, and is not a necessary consequence of ascribing rights to animals. One can deny, as do Feinberg and other supporters of animal rights, that animals have the right not to be used by humans or not to be killed by humans.

Another statement that is sometimes regarded as an objection to ascribing rights to animals is that animal rights and animal welfare are inconsistent concepts. It is said that one cannot be an advocate for animal welfare and believe that animals have rights; one must make a choice between animal welfare and animal rights. From this it is supposed to follow that animals cannot have rights, because veterinarians, animal researchers, and others quite obviously are concerned about and seek to improve the welfare of animals.

This argument against animal rights, which I debunk in detail elsewhere, rests on the mistaken view that the concept of animal rights implies that animals may not be used for any human purpose. This abolitionist view of animal rights is then contrasted with positions that advocate use of animals with due regard for their welfare. Although “rights” and “welfare” are terms with different meanings, it is preposterous to assert that they are inconsistent or incompatible. We commonly talk about human rights and human welfare. Indeed, we believe that people sometimes have a moral or legal right to things (e.g., a publicly financed primary and secondary school education) because they are essential for these persons’ welfare. If the terms “rights” and “welfare” can be consistently applied to humans, they can also be consistently applied to animals.

Objections to ascribing legal rights to animals

There are a number of objections to ascribing legal rights to animals that are so commonly repeated in the literature that they have come to be viewed as truisms, both by supporters and opponents of animal research.
One such claim is that animals do not now have legal rights because animals do not yet possess legal “standing” to sue in their own behalf. Unlike human children, for whom persons can be appointed by a court to bring legal action in the name of the child and to obtain compensation or other relief for him, animals cannot bring legal actions in their own name. Animal cruelty prosecutions, for example, are instituted by prosecutors not in the name of mistreated animals but in the name of the State. As I have discussed, the claim that legal rights require legal standing is patently incorrect. The criminal law, for example, does not give victims of crime standing to sue, and yet these laws are viewed as asserting and protecting the rights of members of the public. If humans can have legal rights without standing to sue, so can animals.

Another common assertion is that animals do not now have legal rights because they are categorized by the law as property. This, according to some philosophers and lawyers, renders them “mere things” in the eyes of the law. Now it is absurd to say that a thing can have rights. Therefore, it is concluded, animals do not have rights. And they cannot have rights unless they are no longer categorized as property—mere things—but persons, as human beings are classified by the law as persons.

There are many factual errors and conceptual confusions in this argument. Feinberg disposes of it by pointing out that cruelty laws, which are intended to protect animals themselves, recognize animals as beings with interests that sometimes cannot be sacrificed to the interests or pleasures of people. Even an owner of an animal can be prosecuted for cruelty to it. Moreover, a wide range of legal protections that would exceed those now afforded by cruelty laws are consistent with the legal status of animals as property. For example, Sweden has enacted what is often called a legal “bill of rights” for farm animals. This law prohibits certain kinds of production methods, such as confinement of veal calves in so-called “crates” and requires substantial freedom of movement for farm animals. This legislation does not remove farm animals from the status of property. They are still owned by farmers, and they and the products made from them can be bought and sold. As Feinberg observes, the law is too subtle and complex to require us to classify animals as either mere things or persons. At least at present, they are neither—a fact that does not preclude granting them legal rights.

**Regan on animal rights**

Many veterinarians and scientists appear unaware of approaches to animal rights that support animal research because they identify animal rights with animal use abolitionism. This identification is promoted by animal activists, who know that many people are sympathetic to animal “rights” and who hope to use this sympathy to persuade the public to reject all uses of animals. The identification of animal rights with animal use abolitionism has also been promoted by the abolitionist philosopher Tom Regan. The most influential theorist in the contemporary animal rights movement, Regan calls his abolitionist position “the rights view.”

Regan’s 1983 book *The Case for Animal Rights* is the lengthiest and philosophically most sophisticated defense of animal use abolitionism. This book, which is required reading for anyone with a serious interest in the ethics of animal research, cannot be done justice here. I will however attempt to summarize his central positions and note some of the problems with them.
Regan maintains that many animals used by humans (including most used in research) are from a moral standpoint no different from humans, at least regarding the appropriateness of their being used to benefit humans or other animals.

It is wrong, Regan argues, for you to kill me, to violate my body, my life, or my person. This is so because we are talking about my body, my life, my person. There is a moral boundary across which you may not trespass without my consent. This moral boundary exists whether or not it would please you to do one of these things to me, or if the greatest happiness of the greatest number would be furthered by your doing these things to me.

Regan explains the moral inviolability of our persons with the notion of inherent or intrinsic value. He maintains that each person has such value, which is to say that he or she has value and worth that are not dependent on their being valued by anyone else. This inherent value makes it wrong for people to use someone else as a means toward their ends without that person’s consent, even if such use would maximize utility. Regan makes this point by saying that people are not receptacles or containers for utility, the maximum amount of which across all such receptacles determines, according to utilitarianism, how we ought to act. We begin with people, with the person, and with the inherent and inalienable right of each person to control his or her body or life and not to have this body or life manipulated by others for these others’ benefit.

The core of Regan’s views about rights for humans and animals is the notion of a “subject of a life,” which, he believes, explains why some beings have inherent value and cannot be used for the benefit of others. When we look out at the world or are acting in it, Regan argues, it is we who are looking out at it and acting in it. We view and act in the world in a special way, our way. We have biographies, which is to say that we each have a unique past and present that is organized around each of us, because it is our present and past. Being a subject of a life is for Regan to occupy a very special and precious status. To Regan, when one kills a human being one is in reality killing an entire world, that person’s world as experienced by him.

Regan concludes that all subjects of a life possess a moral right to have their inherent value respected. This he calls the respect principle. It follows from this principle that all subjects of a life possess a moral right not to be harmed. Regan calls this the harm principle.

Many animals according to Regan are subjects of a life just as humans are subjects of a life. He concedes that while animals may not possess sufficient mental capacity to be autonomous and rational actors, many are sufficiently sophisticated to be subjects of a life.

Perception, memory, desire, belief, self-consciousness, intention, a sense of the future—these are among the leading attributes of the mental life of normal mammalian animals aged one year or more. Add to this list the not unimportant categories of emotion (e.g., fear or hatred) and sentience, understood as the capacity to experience pleasure or pain, and we begin to approach a fair rendering of the mental life of these animals.

This claim regarding the sophistication of many animals is one of the two linchpins of Regan’s argument against human use of animals. The mere status of animals as subjects of a life would not itself get him to the conclusion that it is just as wrong to use a mammal aged one year or more in research without its consent as it would be to so use a human being. For it might still be the case
that humans are justified in using other kinds of subjects of a life for our own benefit if these subjects of a life have less worth or value than we.

The second key claim in Regan’s argument is that once a being is a subject of a life—which for Regan implies that it has inherent value—it has the same inherent value as any other subject of a life.

Well, perhaps some will say that animals have some inherent value, only less than we have. Once again, however, attempts to defend this view can be shown to lack rational justification. What could be the basis of our having more inherent value than animals? Their lack of reason, or autonomy, or intellect? Only if we are willing to make the same judgment in the case of humans who are similarly deficient. But it is not true that such humans—the retarded child, for example, or the mentally deranged—have less inherent value than you or I. Neither, then, can we rationally sustain the view that animals like them in being the experiencing subjects of a life have less inherent value. All who have inherent value have it equally, whether they be human animals or not.30

From the equality of inherent value of humans and normal mammals one year of age or more, Regan concludes that just as it is wrong to experiment on a human without his consent, or to raise and kill him for food, or to use him as any kind of means for the benefit of others, so it is wrong to do these things to such animals. The respect and harm principles must in Regan’s view apply to them as it applies to humans.

Problems in regan’s argument

Regan’s phrase “subject of a life” evokes an image of human beings who have personalities and life plans and who are aware of their history, present, and potential futures. However, he presents no evidence that all the animals he counts as subjects of lives are in fact subjects of lives in this sense. Although a rat or mouse has certain experiences and is certainly capable of feeling pain, it is far from obvious that it views the world in the same way as does a human being, who sees himself or herself as a person with a biography. A mouse may feel hunger, seek food, feel satisfied, feel hunger again, seek food again, and so on. But it cannot be said without further evidence and argument that a mouse has a certain perspective on the world.

Regan indeed presents no evidence to support his claim that all normal mammals aged one year or more possess self-consciousness, intentions (in the sense of aiming to do something and then setting about to do it), or a sense of the future. Nor is it clear that it even makes sense to ascribe to many animals Regan includes as subjects of a life the kinds of emotions (such as fear or hatred) he thinks it is obvious they experience. Hatred, for example, is a sophisticated emotion that presupposes an ability to distinguish between oneself and another (the hated person or object) and to conceptualize such a being not only as separate from oneself but as the being that is hated.

In specifying mammals that are “normal” and one year of age or more, Regan does not intend to disqualify from the category of subjects of a life mammals that might be less than normal or younger. Nor is Regan precluded from including birds and some cephalopods as subjects of a life. His specification of normal one-year old mammals is intended to mark out a class of animals that
clearly are subjects of a life. However, Regan presents no empirical evidence for drawing the line here. He does not indicate what would distinguish a "normal" from an abnormal rat or mouse. Nor does he present any evidence for thinking that all or even most mammals achieve a certain level of mental sophistication in one year.

Regan's specification of mammals one year of age or more also has paradoxical consequences for the general opposition he expresses to the use of animals in research. Many mammals used in research are less than one year of age. If these are not subjects of a life, Regan would appear to have no immediate objection to their use. Many humans are mammals less than one year of age. If they are not subjects of a life in Regan's sense, does it follow that they can be used in research? Regan's focus on "subjects of a life" might also imply lack of consideration for animals such as amphibians that can feel significant pain as a result of research or other uses but are not for Regan subjects of a life.

There is, finally, Regan's assertion that all beings which are subjects of a life have equal inherent value. He insists that many animals are not subjects of a life because they have less sophisticated mental capacities than do subjects of a life. Moreover, he concedes that some subjects of a life are mentally more sophisticated than others. But he does not explain how, if value somehow parallels mental sophistication, and different animals (including subjects of a life) have different degrees or levels of mental sophistication, once animals become subjects of a life they must all have the same inherent value. His argument for equal inherent value for all subjects of a life quoted above appears to beg the question of human-animal equality. The argument appears to be that because humans who are mentally deficient are generally viewed as having no less inherent value than more mentally sophisticated humans, it is irrational and arbitrary to think that animals that are less mentally sophisticated are less valuable or worthy of protection and consideration than animals that are more sophisticated. This argument works only if one begins with the assumption that animals and humans must be approached identically. In fact many people believe that animals with more sophisticated mental capacities and experiences are more valuable and worthy of protection and should be recognized as having moral and legal rights not possessed by other animals. 31

The appeal of regan's rights view

It is not difficult to understand why both opponents and supporters of animal research find Regan's analysis of animal rights attractive. To opponents of research, Regan offers an approach that is uncomplicated, consistent, immune from empirical objections, and indeed completely uninterested in inconvenient factual claims regarding the benefits of animal research for humans and other animals. Regan's objections to animal research and other uses of animals do not depend—as do Peter Singer's—on the dubious claim that animal research causes on balance more harm to research animals than benefits to all affected by the research. For Regan, it is irrelevant whether animal research has benefits. It is still wrong because it is still a violation of animals' rights.

For supporters of animal research, Regan provides a target that can be quickly characterized and rejected. It is not difficult for veterinarians and scientists to reject objections to animal research if these objections appear to crystallize around a view that 1) believes animals such as rats or mice are of equal value to human beings; 2) asserts that many animals, certainly most mammals, have a mental life for which there is little if any empirical evidence; and 3) does not care whether animal
research saves the lives and alleviates significant pain, distress, and disability for countless humans and animals. All these positions lack intuitive appeal and are easy to oppose before a public that does not, and likely never will, believe that humans are no more valuable than rats, mice, guinea pigs, or other animals used in research. As I have noted, Regan's philosophical arguments also have problems, a fact that makes identifying these arguments with the concept of animal rights even more attractive to supporters of animal research. That many animal activists themselves endorse Regan's interpretation of animal rights makes even it easier for supporters of animal research to view his interpretation as the appropriate target.

The extent to which Regan and opponents of animal research have convinced the veterinary and scientific communities that there is a single approach to animal rights—the abolitionist approach—is extraordinary. One finds acceptance of Regan's characterization of his animal rights view as the animal rights view virtually wherever veterinarians and scientists discuss animal rights and animal welfare. Paradoxically, acceptance of Regan as the last word on animal rights sometimes occurs in the context of endorsement of what looks very much like Feinberg's less restrictive approach to animal rights. For example, in 1989 the World Veterinary Association (WVA) adopted the following policy on animal rights:

We do not accept the view that animals have specialized rights as an entity on their own. We believe that animals can benefit more from the point of view that man is responsible for the provision of animal welfare, rather than from the view which promotes animal rights alone.

It is recognized that certain provisions of care are essential to welfare in the form of five freedoms. Modified from various sources in applied ethology, these can be stated as follows:

i. Freedom from hunger and thirst;
ii. Freedom from physical discomfort and pain;
iii. Freedom from injury and disease;
iv. Freedom from fear and distress;
v. Freedom to conform to essential behavior patterns.

Because the WVA believes that animal rights preclude all use of animals this policy statement rejects animal rights. However, at the same time the statement endorses the view that animals have rights as Feinberg analyzes rights. The statement clearly asserts that some animals have interests, the frustration of which is so harmful to them that the satisfaction of these interests rises to the level of a moral claim against those who would frustrate them, a claim that cannot be overridden simply by considerations of utility, and a claim that is entitled to respect except for the gravest or most significant reasons.

**Range of Views About Animal Rights**

My major aim in this essay is to break down the immediate resistance many veterinarians and scientists have to animal rights. The first steps in this process have been to point out that there is at least one major philosopher whose analysis of animal rights is consistent with a wide range of human uses of animals, and to point out that Regan's view of animal rights should not be identified
with the concept of animal rights itself. In recent years a number of thinkers have endorsed views regarding animal rights that differ from Regan’s. Some of these people share Feinberg’s view that animal rights do not preclude the use of animals in research or for other purposes, although they differ in the extent to which they ascribe rights to animals and the consequences these rights have for animal use. Judith Jarvis Thomson, for example, appears to agree with Feinberg that animals’ rights would not be violated by their being raised for food for humans, provided the conditions under which they are raised and killed accords with their right not to be caused unnecessary pain or suffering. Bernard Rollin, who argues that animals used by people have a right to respect of their innate nature or telos, rejects Regan’s abolitionism but argues that animals kept in captivity for research or other purposes have the right not just to freedom from unnecessary pain but to pleasurable experiences and happy lives. Rosemary Rodd maintains that it is an ordinarily violation of an animal’s rights to kill it to provide food for humans (because most people can do without meat) but that we may use animals in research where doing so is necessary to prevent or cure diseases in people and other animals. Steven Bostock argues that zoos, one of the favorite targets of animal rights activists, can respect the rights of zoo animals if they are kept in conditions conducive to their psychological and behavioral needs. I have argued that animals kept or used under certain circumstances (e.g., as pets) possess more extensive and stronger rights than research animals, and that using animals in research, in agriculture, or for human entertainment need not violate animals’ rights.

**Why Veterinarians and Scientists Should Be Receptive to Moderate Approaches to Animal Rights**

There are several reasons veterinarians and scientists should not only understand that there is a wide range of possible views about animal rights but also should be receptive to some of these views.

Public support for animal rights and animal use

An important reason, more a matter of public relations than theory—but nevertheless significant—is that a substantial proportion of the public appears to share Feinberg’s analysis of animal rights. The public believes that it is appropriate to use animals for research, food, and other purposes, but that animals so used have some moral rights, most prominent among these the right not to be caused unnecessary or unjustifiable pain. Public opinion polls repeatedly show that between two-thirds and three-quarters of the American public approve of animal research. Polls also show that a large proportion of the public approve of animal “rights.” For example, a 1985 Associated Press poll found that 81% of the population believe that it is necessary to use animals in some applied medical research, and that 76% believe animals have rights. More recent data, some of which was offered by Barbara Rich during her presentation at this bioethics forum, provide further evidence that a very large proportion of the population supports both animal rights and animal research.

It would be a serious mistake for supporters of animal research to dismiss this reconciliation of animal rights and animal research by accusing the public of ignorance, inconsistency, or use of a
sense of "rights" that is improper or poorly conceived. Feinberg's discussions show that a non-abolitionist sense of animal "rights" has substantial adherence in ordinary discourse and the law. The biomedical research community, much of which depends on the financial support of the public through taxes or purchase of goods and services developed by research, cannot afford to alienate the public. If the public believes that animals have rights, and if the public associates animal rights with basic protections for animals used in research, veterinarians and scientists will appear not to care about research animals if they continue to oppose animal rights.

Some veterinarians and scientists believe that if they agree to the use of rights language, they will provide support to those like Regan who use such language to urge the abolition of animal research. There are two quick answers to this approach. First, rights language will continue to be used whether or not veterinarians and scientists like it. Second, public opinion surveys indicate that the populace is sufficiently clever not to equate animal rights with animal use abolitionism. There appears then to be a much greater danger that rejection of animal rights will alienate the biomedical research community from the public than that it will lead to widespread rejection of research.

Usefulness of the concept of animal rights in the research context

Another reason scientists and veterinarians should consider endorsing animal rights is that the concept can express important ethical principles and can make a salutary difference in how certain questions are faced by researchers and IACUCs. I characterize animal rights as a concept with an attitude. This attitude is not opposed to animal research and does not begin with a presumption that using animals in research is a necessary evil, something we must do but about which we should still feel guilty or unclean. The attitude embodied in the concept of animal rights is that when animals have rights (and, admittedly when they have rights will be an important question) they have interests that deserve significant respect and that cannot be overlooked or outweighed for unimportant reasons. When animals have rights, intellectual and physical sloppiness or laziness in attending to these rights will not do.

The attitude embodied in the approach to animal rights expressed by Feinberg and many in the public who endorse animal rights and animal research can be illustrated by the following provisions of the current regulations of the U.S. Department of Agriculture pursuant to the Animal Welfare Act.

The IACUC shall determine that... procedures that may cause more than slight or momentary pain or distress to the animals will... not include the use of paralyics without anesthesia.41

The IACUC shall determine that... procedures involving animals will avoid or minimize discomfort, distress, and pain to the animals.42

The IACUC shall determine that... the principal investigator has considered alternatives to procedures that may cause more than momentary or slight pain to the animals, and has provided a written narrative description of the methods and sources... used to determine that alternatives were not available.43
The first regulation quoted above contains a straightforward expression of a legal right as Feinberg and I understand animal legal rights. Indeed, animals covered by the regulations are given two legal rights here, first the right to a determination by the IACUC that an investigator shall not use paralytics without anesthesia and second the right against investigators not to use paralytics without anesthesia. Neither the IACUC nor the investigator is allowed to determine, in their discretion, whether a paralytic may be used without anesthesia. The prohibition against such use is clearly intended to benefit the animals directly by protecting an important interest, namely their interest in not experiencing unrelieved pain. The claim given to the animals by the regulation is capable of being represented by the IACUC and employees of the institution who are expected to follow the law and also by the Department of Agriculture, which can cite the institution for a violation of the law and impose sanctions if animals are subjected to use of paralytics without anesthesia.

The second two regulations quoted above are also intended to create and effect legal rights for covered animals. Again, no discretion is left to the IACUC or investigator regarding whether these things are to be done. The second regulation does permit a substantial amount of IACUC discretion, in the sense that the committee may determine whether what is done to the animals is justified by the aims of the experiment. However, once the IACUC has determined that the use of animals in an experiment is appropriate, this regulation makes clear that the pain experienced by the animals shall be avoided or minimized.

Although these second two regulations appear intended to express animal rights as Feinberg and I understand them, I have seen some committees that do and others that do not express the attitude associated with endorsement of legal and moral rights for animals. There are IACUCs that will leave no stone unturned in seeing that pain and distress is minimized. These committees demand that an investigator provide assurances at each stage of the work that either there is no pain or distress or that all reasonable steps will be taken to minimize pain and distress. Some of these committees begin with a presumption that all pain or distress is to be alleviated by analgesics, and place the burden of proving why this cannot be done in particular circumstances on investigators. To assure that investigators consider alternatives to painful procedures, these committees ask investigators to provide a list of references they have located, and evidence that a literature search has actually been conducted regarding each animal use application.

There are also some IACUCs that do not take especially seriously the legal mandates of assuring that pain be minimized and alternatives to painful procedures be considered. Some of these committees will simply accept any written statement from an investigator that pain is minimized or that alternatives have been considered and a literature search been done. Such an approach does not reflect the attitude of respect and concern for animals embodied in the concept of animal rights.

I submit that Congress and the public that pays for much of animal research expects that the attitude associated with animal rights will be exhibited in the work of IACUCs, attending veterinarians, and researchers. Thinking about at least some of the legal and ethical requirements relating to animal care and use as rights in the sense I have been exploring can encourage this attitude.
Theoretical benefits of the concept of animal rights

A concept of animal rights that is consistent with the use of animals in research also aids in the analysis of ethical issues. Such a concept compels us to pay serious attention to the interests of research animals because rights protect basic interests. This in turn requires a commitment to empirical study of the mental and behavioral capabilities of these animals. For example, if certain animals possess a level of consciousness or self-consciousness which makes experiences of pain or suffering worse for them because they can reflect about and feel distress over this pain, then these animals would appear to have a valid claim not to be subjected to such experiences except for extremely important reasons. The concept of animal rights also compels us to recognize that the interests of animals can sometimes outweigh human wants and interests. For the concept of rights embodies the principle that there are some interests that cannot be outweighed to serve the pleasures or interests of others.

To a large extent, the concept of animal rights as I have been characterizing it already expresses (and can be used to summarize) many positions regarding the interests of research animals accepted in the scientific community and the public. However, the concept also forces us to take seriously a number of ethical issues, however we may ultimately decide to resolve them.

For example, the view that research animals have a basic right not to be caused unnecessary or unjustifiable pain or suffering—which would imply that this interest can be overridden only for important reasons—compels us to ask whether certain uses of animals are not justifiable. Many people believe that it is acceptable to cause animals pain to develop drugs and cures for serious human and animal diseases, but that the testing of cosmetics, for example, does not justify significant animal pain. The concept of animal rights forces us to take this view seriously; however we may come to deal with it.

There are many as yet unresolved ethical issues that adoption of a moderate concept of animal rights compels us to consider. Rollin argues that animals have rights in virtue of their innate nature or telos. He believes that in many animals this telos includes the capacity not only to feel pain and other negative states but also to experience various kinds of pleasurable sensations. Rollin argues that animals kept in captivity for research or other purposes have a right to enriched environments and to fulfilled, happy lives. I am skeptical about extending animal rights this far, in part because of problems I believe we would have defining and characterizing positive animal mental states and in part because I do not believe that we always have an ethical obligation to provide animals we use with happy lives. However, if animals do have rights, Rollin’s contention regarding what rights they have must be taken seriously and subjected to sustained ethical analysis. Doing this can only be good, because it will compel us to get clear about the nature and strength of our ethical obligations to animals.

The following are just some of the other issues that must be considered by those who seek to postulate some moral and legal rights for animals.

What is the relative importance of preference—interests and welfare—interests in determining the moral and legal rights of animals? Rights protect interests. An animal (or human) can have an interest in something in the sense that he or she is interested in it, in the sense that he or she simply wants it. These can be called preference-interests. There are also things that are in the interest of an animal that we consider to be objectively good for that animal, even if the animal does not want it
or wants the opposite. These latter can be called welfare-interests. It may be a preference-interest for an animal (or human) to eat ad libitum, but doing this will likely not be a welfare interest. Some people appear to identify animal interests (and hence any rights that flow from animal interests) with welfare-interests. However, it is not obvious why this should be so, because people think that they sometimes have a right to do certain things simply because they want to do these things, even if doing them does not promote their welfare, indeed even if doing these things harms their welfare.

How much balancing of human against animal interests is consistent with moral “rights” for animals? Animal rights are consistent with a considerable amount of balancing human against animal interests. If, as Feinberg argues, animals have a right not to be caused unnecessary or unjustifiable pain or suffering, determining what constitutes justifiable pain or suffering will sometimes involve determining whether the needs or interests of humans justify a certain amount or kind of animal suffering. For example, it seems plausible to argue that causing research animals some pain or distress in order to test a drug that reduces tumors is justified and therefore would not violate a research animal’s right not to be caused unnecessary or unjustifiable pain. However, at some point balancing human against animal interests may become so routine or may result in such frequent favoring of human interests that it might be inappropriate to say that rights of animals are involved. Even if animals have rights, an important question for animal ethics is asking when a claim no longer is sufficiently strong to be a right.

How important are animal rights in our ethical and legal approaches to animals? What should be the relative importance of animal rights and animal welfare? There is also substantial disagreement among thinkers who believe that animals have rights about the extent to which we can appeal to animal rights to explain ethical and legal obligations to animals. Tom Regan and attorney Gary Francione assert that animal rights exhaust or virtually exhaust our obligations to animals. They reject the view that animals have limited rights, or that it is appropriate to appeal largely to the concept of animal welfare in determining our obligations to animals. Rollin argues that animals have both rights and interests in welfare, but appears to find animal rights much more fundamental than welfare in the sense that he believes all animals kept in captivity have a basic right to conditions conducive to their welfare. I have argued that while animals have both rights and interests in welfare, the realm of rights for animals is extremely limited and allows for a heavier weighting of human over animal interests than Rollin would allow.

Determining what rights animals have is really part of the more general endeavor of determining our moral obligations to them. For example, if it is ethically appropriate to eat animals and to use them to develop cures for human and animal diseases under certain circumstances, then animal rights will be consistent with meat eating and animal research. If it is not ethically appropriate to use animals for some kinds of purposes (e.g., in testing cosmetics where such testing causes significant pain or distress) then animal rights will not be consistent with such uses of animals.

GETTING THE MESSAGE

I have argued that there is an ordinary, distinctive, useful, and important concept of animal rights that is consistent with the use of animals in research. This concept is endorsed not only by many in the general public, but by many veterinarians and scientists who are engaged in animal
research—who believe that there are some interests research animals have that are entitled to great weight and respect and that can be overridden only for the most important reasons and only after a clear demonstration of necessity or justification. This concept of animal rights operates in the value system of many veterinarians and scientists even if some of them refuse to use the word "rig'ists" because they have been convinced by animal use abolitionists that this word should be the abolitionists' exclusive property. This concept of animal rights operates in the legal system even if some people are wary of speaking about legal rights for animals because they do not want to be associated with abolitionist groups. However, as more people in the general populace, more veterinarians and scientists, more veterinary students, and more philosophers and lawyers come to endorse a view of animal rights that is consistent with their humane use it becomes less productive for supporters of animal research to dig in their heels and resist rights language. Indeed, such an approach becomes counter-productive, because it gives the appearance that veterinarians and scientists do not believe that animals have serious moral and legal entitlements.

The message that opposition to animal rights may not be in the best interests of the veterinary profession appears to have been received by the American Veterinary Medical Association (AVMA). In 1983, the AVMA adopted an official policy rejecting the term "animal rights." This policy stated that

The AVMA believes that the term "animal rights" has to do with personal philosophical values and therefore recommends that the term "animal rights" not be used and encourages the profession to focus its attention on the welfare and humane treatment of animals.47

In 1990 the AVMA Executive Board asked the AVMA Animal Welfare Committee to reissue an official policy statement on animal rights. Although the Board expected that the new policy would again reject the concept of animal rights, the committee refused to write such a policy. Members of the committee explained that many of their clients believed that their animals had rights—among them the right to competent and caring veterinary care—and they were not about to tell their clients that the veterinary profession rejects such rights.48 Instead, the committee wrote and the AVMA adopted the following policy:

The concept of animal rights is a philosophical view and personal value characterized by statements by various groups and individuals.

Animal welfare and animal rights are not synonymous terms. The AVMA wholeheartedly endorses and adopts promotion of animal welfare as official policy; however, the AVMA does not endorse the philosophical views and personal values of animal rights advocates when they are incompatible with the responsible use of animals for human purposes, such as food, fiber, companionship, recreation, and research conducted for the benefit of both humans and animals.49

One can object to the suggestion of this policy that positions concerning animal rights are matters of personal values while animal welfare is a wholly empirical matter devoid of any philosophical positions or value judgments.50 However, the new policy clearly recognizes the existence of positions endorsing animal rights that are consistent with many traditional uses of animals, and makes clear that the AVMA objects only to interpretations of animal rights inconsistent with these
uses. I believe that in adopting this stance, the AVMA appreciated that the battle against rights language may be a losing and fruitless one, and a battle that may assist opponents of responsible animal use by helping them to falsely portray veterinarians as insensitive to animals' interests.

Many opponents of animal research also appreciate that it is a mistake to try to win over the public by insisting that a choice be made between animal welfare or animal rights. Gary Francione, an animal use abolitionist lawyer, argues that animal activists seriously endanger the chances of their success by advocating both animal welfare and animal rights.

Although scholars and animal exploiters recognize that animal rights and animal welfare are very different approaches to the human/animal relationship, many animal advocates elide the difference. These animal advocates seek to reduce suffering, but they regard this reduction as causally related to their long-term goal of abolishing all institutionalized animal exploitation. They purport to embrace animal rights at least as a long-term matter, but they regard rights theory as "unrealistic" in that it cannot provide any short-term strategy to achieve the long-term goal. Consequently, they urge the pursuit of welfarist reforms as an interim strategy to achieve the abolition of animal exploitation. I call these animal advocates "new welfarists" because they support many of the reforms and approaches of classical animal welfare theory but they do so in order to achieve a goal not shared by the traditional welfarists.51

Francione worries that the likely outcome of adoption of welfare language by people who seek ultimately to terminate the human use of animals will be an incorporation of rights language into a general approach to animals that does not restrict or prohibit their use for the benefit of people and other animals. Whether Francione's prediction turns out to be accurate, he is certainly correct in observing that an increasing number of opponents of animal research are now using welfare-language and rights language—because they understand this is how the public wants to talk about animals.

That some abolitionists believe they must, at least temporarily, advocate animal welfare and animal rights makes it even more imperative for veterinarians and scientists not to abandon rights language to opponents of animal use. For as Francione documents, it is the aim of many of these opponents to eventually move the public toward the abolitionist interpretation of animal rights. To prevent this from happening, supporters of the humane use of animals must reinforce the public's clear tendency not to associate animal rights with animal use abolitionism. This requires accepting more moderate interpretations of animal rights. As the 1990 AVMA policy on animal rights recognizes, the target of the veterinary profession and the biomedical research community should not be animal rights, but positions that seek to end ethically appropriate uses of animals.

**Some Recommendations**

I conclude with several recommendations for veterinarians and biomedical researchers.

*Let the discussions and debates about animal rights continue among philosophers, lawyers, and in the general public*. These discussions will, of course, continue anyway. As more ethicists and lawyers who support animal research and other uses of animals endorse moderate interpretations of animal
rights, it becomes more and not less likely that their work will lend support to advocates of human animal research.

Acknowledge the common sense of the public. Although veterinarians and scientists should counter misinformation and ignorance about animal research, the population in general will never accept animal use abolitionism. It will understand and accept reasoned arguments for animal research, especially when such research promises and achieves benefits for them and loved ones. At the same time, the public will demand due regard for the interests of research animals, regard the public sometimes expresses in the language of animal rights.

Distinguish between animal rights and the animal rights movement. As I have argued, what is called the contemporary animal rights movement wants the public to accept rights language as its exclusive property because it knows that many people are comfortable talking about animal rights. One can accept interpretations of moral and legal rights for animals that do not involve or imply the abolition of the use of animals in research, agriculture, entertainment, or for other purposes.

Do not oppose all talk of animal rights or view all who use rights language as your enemy. Veterinarians who attempt to link their profession to rejection of animal rights risk fighting a losing battle and of being seriously embarrassed and weakened if rights language continues to gain acceptance among philosophers, lawyers, and members of the public. Those who reject rights language outright will not participate in the important task of pointing rights views in moderate and acceptable directions. As animal activists depart, at least temporarily, from an abolitionist approach to rights, it becomes even more important for veterinarians and scientists to assist in developing ethical approaches to animal use that are consistent with animal rights.

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NOTES

2 See P. Singer, “A Utilitarian Approach to Ethics and to Animals,” chapter 6 in this volume.
8 Genesis 5:27.
Chapter 7

13 State v. Karstendiek, 22 So. 845 (La. 1897).
14 Stephens v. State, 3 So. 458 (Miss. 1898).
40 See B. Rich, “Foundation and National Association for Biomedical Research Perspectives,” Chapter 16 in this volume.
41 9 Code of Federal Regulations, Ch. 1, §2.31(d)(1)(iv)(C).


48 Personal communications, C. Sedgwick and C. MacKay.


Chapter 8
Moral Pluralism in Animal Ethics:
An Approach Neither Utilitarian nor Rights-based

David D. DeGrazia

This is the first time I have been invited to speak at a conference with so many leaders in animal ethics, so I am grateful for the opportunity. Most of all, I thank Dr. Lanny Kraus for his nearly heroic efforts to put this forum together, efforts that have spanned more than a year and a half: Good job.

When I saw a draft of the program, I noticed that my talk was entitled "Moral Pluralism in Animal Ethics." "Pluralism," I thought, "I didn't know I was a pluralist." Then I figured out what Lanny must have meant by that label (I never had the sense to just ask him) and so I added the subtitle, "An Approach Neither Utilitarian nor Rights-Based." The view I recommend, you see, is largely compatible with both utilitarianism and animal-rights theories without committing to either.

Thus, in this chapter, I will argue that the much celebrated utility-versus-rights debate in animal ethics is of marginal importance. Much more important are the following issues. Do animals (by which I will mean non-human animals) have moral status or moral standing? If so, how should we understand this moral status? Should a principle of equal consideration be extended to animals, and what would this mean? What interests do animals have—that is, how are we to understand their well-being or welfare? With answers to these questions in mind, what more specific principles or rules should guide our interactions with animals?

This chapter begins with my case for demoting the utility-versus-rights debate. It proceeds to a consideration of the issues just identified—which I contend can be addressed without a prior commitment to utilitarianism, rights theory, or any other ethical theory in the traditional sense of the term. The chapter will end with a sketch of some implications of my approach, for the issues of eating animals, keeping them in zoos, and using them in research.

I. Demoting the Utility-Versus-Rights Debate

Earlier chapters have been devoted to the utilitarian and rights perspectives in animal ethics. It's worth noting that much of the animal ethics literature suggests that these are the major viewpoints in the field; it's not at all unusual for an article or anthology to represent "the utilitarian view," "the rights view," and no other. This tendency suggests that these two views are very different from each other. Their major proponents—Peter Singer and Ray Frey, both utilitarians, and Tom Regan, who ably defends the rights position—have largely supported this perception with their almost obsessive emphasis, in their writings and lectures, on the utility-versus-rights issue.

But this debate, at least in the animals arena, is much ado about little. The relative merits of utilitarianism and rights theories were a major issue in general ethical theory (not just as applied to animals) in the 1970s and, to some extent, the 1980s. Presently, however, ethical theorists tend to
have much less confidence in the project of trying to corner the market on ethical insight with a single over-arching principle—whether that of Utility, Regan’s Respect Principle, a Principle of Respect for Persons, or some other. There are, additionally, widespread doubts about the moral adequacy of either utilitarianism or a relatively pure rights theory (that is, one that makes few concessions to considerations of utility).

More importantly, when seen from the proper perspective, utilitarianism and animal-rights views appear far more alike than different. Crucially, both extend to animals a principle of equal consideration. Any such principle requires that we (in some significant way) give equal moral weight to comparable interests, regardless of who has those interests. Utilitarianism counts equally the interests of everyone who has interests, including sentient animals, in stating that we must maximize good consequences. An animal-rights view protects human and animal interests somewhat more rigorously, generally resisting the sacrifice of particular individuals in the name of the common good. Yet the vast majority of humanity presumably do not grant animals’ interests equal consideration. And the status quo of animal use is not even close to being consistent with this principle. Thus the equal-consideration issue is vastly more important than the utility-versus-rights debate in animal ethics.

Finally, the specificity sought in the utility-versus-rights debate is not needed for a strong critique of the status quo. This point is demonstrated by the convergence—towards highly progressive conclusions—of a variety of leading theories about the moral status of animals, including those just mentioned and those of such philosophers as Mary Midgley, Steve Sapontzis, and Bernard Rollin (who will speak later at this conference), among others.

If we need not settle the utility-versus-rights issue to make progress in animal ethics, do we need some other theory? That depends on what you mean by “theory.” An ethical theory in the traditional sense of the term is a tightly organized framework unified by a single over-arching moral principle (or perhaps a small number of principles arranged in a clear hierarchy). I claim we need no such theory to move forward. In a looser sense of the term, however, a “theory” may be a relatively organized, possibly incomplete, set of moral principles, rules, and judgments that serves to guide our thinking and conduct. I do believe this sort of theory is necessary to make real progress in animal ethics; without such a framework, one’s thinking about specific issues is too likely to be driven by custom and prejudice. But developing such a theory (in this looser sense) requires work on particular theoretical issues. So at this point let us turn to some theoretical issues that are central to animal ethics.

II. ANIMALS’ BASIC MORAL STATUS

What does it mean to speak of animals as having, or not having, moral status, moral standing, or moral considerability (terms I take to be equivalent)? Animals have moral status if their interests (or, equivalently, their welfare) matter morally in their own right. For example, a cow has moral status if the cow’s welfare—or a specific interest, such as avoiding suffering—has moral importance independently, and not just because of how human interests are affected by our treatment of the cow.

Take an example. Probably everyone can agree that kicking a cow hard in the face, just for the hell of it, would be morally wrong. But what makes such an action wrong? On the view that says
animals have moral status, it's wrong because the cow is harmed for no good reason; the cow's welfare is what's morally important.

But that's not the only possible view. Someone might argue that it's wrong to kick cows only because of the action's effects on humans—implying that the cow has no moral status. It might be thought that kicking cows indulges feelings of cruelty, making you a more cruel person and therefore more likely to hurt humans (as Immanuel Kant and, more recently, Peter Carruthers have argued). Or it might be said that kicking cows involves damaging someone's property. There is nothing wrong, in itself, with wantonly harming the cow, on this view; the wrongness is a matter of harming, or becoming more likely to harm, humans or their interests. In view of these claims, why believe that animals have moral status in the sense I've explained?

I'll give you two reasons. The first reason has to do with the nature of ethics itself. All ethical systems—from different kinds of religious ethics, to Confucian ethics, to utilitarianism and modern rights theories—involves the protection or promotion of individuals' interests, especially their most important interests. The protection of interests, or welfare, may take the form of requiring each of us to treat others as we'd want others to treat us; or it might take the form of counting everyone's interests—their welfare—equally in trying to maximize overall utility; or it might protect certain interests very rigorously by asserting that we have specific rights. Individuals' welfare and interests are at the heart of ethics. Now the recognition that sentient animals have interests—have a welfare—makes it entirely natural to include them in the circle of morally considerable beings. If ethics involves the protection of interests, and sentient animals have interests, then prima facie it would seem arbitrary to exclude such animals from morality.

(By "sentient" animals I mean those capable of having any kind of feelings—conscious sensations such as pain or emotional states such as fear. Although I will usually drop the adjective "sentient," I have in mind mammals, birds, and any other animals with nervous systems sufficiently complex to produce feelings. There seems to be a loose consensus based on available evidence that at least vertebrates, and probably cephalopods, are likely to be sentient.)

A second reason to think animals have moral status is that we cannot satisfactorily explain some of our considered moral judgments without this supposition. Returning to the cow, let's assume she is no one's property, ruling out the argument that what's wrong with kicking her is that you'd be damaging someone's property. Is it wrong to kick her because doing so would make you more likely to hurt other humans? Well, how do we know that kicking cows increases the probability of mistreating humans? We're very confident of the judgment that kicking the cow is wrong, but we're not in a position to be so sure that this action changes one's dispositions toward humans. In fact, it may be the reverse: working off your aggressive impulses on an animal may relieve you of stress and make you less likely to abuse, say, your spouse or children. If so, and if animals lack moral status, it might be morally right to abuse animals—hardly a plausible conclusion. So speculation about the impact on human interests does not adequately explain the wrongness of abusing animals. To clinch the point, kicking a cow for the hell of it would seem wrong even if you were the last person on earth, so that there was no possibility of later harming humans.

Thus to account for our judgments about wanton harm to animals, we must hold that what's wrong with such actions is precisely that they harm animals unnecessarily. In other words, animals' interests have independent moral importance. Animals have some degree of moral status. As our society begins to take animals seriously, this idea seems increasingly common-sensical.
The recognition that animals have moral status implies that they are neither mere objects nor tools for human use, as suggested by the attitude that the use of animals in research requires no justification; nor are they playthings for human amusement, as suggested by advocates of sport hunting, bullfights, rodeos, and even circuses (which greatly harm animals in training them to entertain audiences). Because animals have moral status, a principle of non-maleficence (non-harm), which is a major principle guiding ethical conduct toward humans, extends to animals as well. We should not harm animals needlessly. That may sound awfully obvious. But, when one looks with eyes wide open at many current uses of animals, and asks whether those uses can honestly be considered necessary, one is confronted with widespread failure to conform to this principle. At the same time, the concept of being necessary is admittedly pretty vague, so a lot more work is required to develop a sturdy framework for animal ethics. Even the concept of harm is surprisingly slippery. So, to understand more about what uses of animals constitute unnecessary harm, we need to address the question of the nature of harm.

III. THE INTERESTS OF ANIMALS

What are the ways in which animals can be harmed? Since a harm is, roughly, a setback to someone’s interests, we may ask, equivalently, “What are the interests of animals—the basic components of their well-being (welfare)?”

To begin where there is near consensus, animals have an interest in experiential well-being—the quality of their experiences or “quality of life.” Experientially, certain exceptions and qualifications aside, pleasure is better than pain, enjoyment better than suffering, satisfaction better than frustration, and so on. Only someone who (quite implausibly) denied that animals have any feelings at all could deny that they have an interest in experiential well-being. While few doubt that animals have this interest, many believe that they have no other interests worth mentioning. In my view, that is a significant error. But a full defense of the assertion that animals have other major interests requires work in value theory. Since I can’t provide the detailed arguments here, I refer anyone who is interested to work I have done elsewhere. 8

Most leaders in animal ethics hold that, in addition to experiential well-being, animals also have an interest in life or, more precisely, remaining alive. Is a dog who is painlessly killed in his sleep thereby harmed? Since the killing is painless and does not cause fear or other aversive mental states (since the dog is asleep), his experiential well-being is not affected. The dog is harmed only if dogs have life-interests. In my view, and those of many others, animals do have such interests whether or not they conceptualize life and care about it (probably not). The dog is harmed by death because death robs him of the opportunities that continued life would afford: whatever riches a canine life includes. 9 Granted, in some cases, a dog’s life may not be worth continuing—say, if he is suffering terribly with no prospects for a better quality of life. But, in that case, the value of life is overturned by a very low level of experiential well-being. Such a case is consistent with the idea that animals have an interest in life—that, other things equal, they are harmed by even painless death. Policies regarding the use of research animals that require justification for causing pain and distress, but no justification for painless killing, 10 seem to assume that experiential well-being is all that matters. I suggest that these policies have oversimplified the issue of animal well-being.
In addition to experiential well-being and life, two other major interests that I attribute to animals are freedom and functioning. Freedom, as I use the term, is a lack of confinement. By confinement, a kind of harm, I mean the imposition of external constraints on movement that significantly interfere with one’s ability to live well. Thus, in this sense of “confinement,” a cat restricted to a one-acre backyard is probably not confined by the fence around the yard; a cat who wants and needs exercise but is kept in a small basement is confined.

Animals clearly have an interest in freedom. What is not so clear is whether this interest can be understood entirely in terms of experiential well-being. Generally, when one confines an animal, one causes frustration, boredom, and possibly suffering, lowering experiential well-being. But suppose that a drug, psychological conditioning, or even brain surgery causes a wolf not to crave access to open spaces anymore (and assume the process of transformation does not cause suffering). Is it in this wolf’s interest to regain a life more typical for wolves than living inside a human house or laboratory? Does the restricted life prevent the wolf from living well, even if it is not distressed by its living conditions? I regard this as an open question. We don’t need to settle it to recognize the general point—that animals have an interest in freedom, meaning that restrictions on their movement that interfere with their living well are forms of harm. Thus research animals which are caged in ways that cause them boredom, loneliness, and other forms of deprivation are thereby harmed. No adequate view of the ethics of animal research can ignore conditions of housing.

The final general component of animal well-being that I will discuss is functioning, both mental and physical. The corresponding harm is disabling, by which I mean damaging someone’s ability to function, in a way that significantly interferes with her ability to live well. It does not seem controversial that disabling is generally a harm and that functioning is an interest of animals. As with freedom, however, it is an open question whether the interest in functioning can be understood entirely in terms of experiential well-being. What if surgery, a drug, or conditioning extensively reduces a rabbit’s mental functioning without causing any suffering, fear, discomfort, or the like? Is it worse off just for being mentally disabled? For practical (as opposed to theoretical) purposes, such hypothetical issues hardly matter. What does matter is that disabling animals, physically or mentally, nearly always harms them.

This brief consideration of animal well-being has identified four major interests: experiential well-being, life, freedom, and functioning. Because animals have moral status, so that the principle of non-maleficence applies to them and not only to humans, we have effectively established moral presumptions against causing suffering to, killing, confining, or disabling animals. But how strong are these presumptions? Stay tuned.

IV. THE ISSUE OF EQUAL CONSIDERATION

Animals have moral status, so their interests matter in their own right. But how much moral weight should we give their interests? How much do animals’ interests matter in comparison with human interests? This question brings us to the tricky concept of equal consideration. More and more people (including about half the leading contributors to animal ethics) have views that suggest that animals’ interests deserve equal consideration. What does that mean? Does it mean that all sentient beings—human and non-human—have equal and identical moral rights? Or that there are no morally interesting differences between humans and animals? Or that we should be so con-
cerned about animal welfare as to race around through nature trying to save animals from predators and natural disasters? Not at all. Although often misunderstood, the basic idea of equal consideration, extended to animals, is more modest than that.\(^{12}\)

To extend equal consideration to animals would mean in some way (different theories spell this out in different ways) giving equal moral weight to comparable interests, no matter who has those interests. So equal consideration would mean that a monkey’s pain or distress of some degree has as much moral importance as a human’s pain or distress of the same degree; a monkey’s distress should not be discounted just because it is a monkey that is distressed. Equal consideration would not mean that if humans have a right to public education, then so do dogs; dogs have no interest in an education. And equal consideration would not mean that a principle of respect for autonomy—so important in medical ethics—applies to animals in veterinary ethics; animal patients are not autonomous agents, so they have no interest in autonomous decision-making. (Or, at any rate, if there are any exceptions, like certain language-trained apes, they are exceedingly rare.\(^{13}\) To apply the idea of equal consideration, we must ask (1) how much moral importance we place on some human interest and (2) whether animals have a comparable interest; if they do, then we should place as much moral importance on the animal’s comparable interest. As argued in *Taking Animals Seriously*, I think the idea of equal consideration is most important in considering animals’ interests in experiential well-being—in part because this is the clearest example of a comparable interest shared by humans and animals.\(^{14}\)

Whether equal consideration extends to animals is a central ethical issue. Certainly most of our animal-using practices and institutions are inconsistent with the idea of taking animal suffering as seriously as we take human suffering. We commonly cause great suffering to animals for the sake of dining enjoyment, fashionable clothes, entertainment provided in circuses and rodeos, to name just a few examples. So if we took the status quo as reflecting our ethical beliefs, it would seem that society generally does not support equal consideration. But this inference would be hasty.

Why? Because we can’t assume that the reason certain practices and institutions prevail is that they are justified by sound ethical reasoning. Maybe we have used animals in various ways over the ages simply because we’re more powerful and have been able to dominate them. But it’s an ethical truism that might does not make right; from that fact one group can dominate and use another group, it doesn’t follow that it is right to do so. So long-standing uses of animals are not self-justifying.

More importantly, even if our traditional uses of animals enjoy the support of most people’s moral beliefs, that wouldn’t justify these uses of animals, because common moral beliefs can be mistaken. They might be more the product of widespread prejudice than the result of sound ethical reasoning and insight; they might be rationalizations. Majority opinion by itself does not make a particular use of animals right any more than majority opinion makes a particular abuse of humans right—say beating up gays because a majority considers their orientation unnatural. However reasonable everyday uses of animals may seem—to me as a youngsters, to my many carnivorous friends, or to you—they are justified only if they can be supported by sound moral arguments.

In addressing the equal-consideration question, I think we have to acknowledge a burden of proof on proponents of unequal consideration for animals.\(^{15}\) The reason has to do with an old idea of Aristotle’s—that we should treat equals equally and unequals unequally. This rather formal principle of justice implies that we should grant equal moral weight to everyone’s comparable interests,

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unless there is a morally relevant difference between the beings in question. This supports a presumption in favor of equal consideration, a presumption that can be rebutted only by a successful argument for unequal consideration. Such an argument would identify a morally relevant difference between humans and animals that would justify devaluing animals’ interests.

Let me briefly mention and reply to a few arguments that might be offered to carry this burden of proof. A very traditional argument would appeal to religion: we should regard animals as relevantly different from humans on religious grounds, so we owe animals less-than-equal (if any) consideration. The first problem with this approach is that it begs the open question of whether any religion is true; it is not unreasonable to be an atheist, for example. Second, different religions have very different views about animals and there seem to be no rational grounds for favoring one leading religion over another. So to favor, say, Christianity or Judaism over Buddhism would be chauvinistic.

A second approach would appeal directly to species itself, claiming that the relevant difference between us and other animals is that only we are Homo sapiens. But how could species per se (as opposed to certain characteristics associated with species) be relevant? If species per se mattered, then all Homo sapiens would be due full (equal) consideration but members of other hominid species would be due less consideration—say, at a time when we were not alone among hominids (assuming there was such a time). This seems arbitrary in the extreme; presumably, hominid species had much in common in terms of their cognitive, affective, and social characteristics. And the idea that a species line marks a bright moral divide presupposes the existence of a clear species line. Should we imagine, then, that with some crucial mutation Homo sapiens popped into being, jumping out of the skin of his hominin ancestor—and that, suddenly, full moral status attached to this new creature? Charles Darwin would toss in his grave. Or, if you’ll use your imagination for a moment, picture an entire culture of speaking apes (as in The Planet of the Apes): apes who speak with the same facility as you and I. The notion that they would have reduced moral status just because they didn’t happen to be Homo sapiens is highly implausible. Their characteristics, not their species, seem more to the point.

I believe that most of the efforts to try to meet the burden of proof on the egalitarian—that is, the proponent of unequal consideration—have pretty clearly failed. But I will mention two strategies that are more promising: appeals to moral agency and appeals to social bonds. On the first approach, defended by Peter Carruthers, the relevant difference between humans and animals is that only humans are moral agents—beings who are capable of and responsible for moral decision-making.16 (Note the difference between moral agency and moral status.) On the second approach—defended by Mary Midgley—the relevant difference between humans and animals is that we have social bonds with the rest of humanity but no comparable bonds to other animals; moral status, on this view, is at least partly a function of social relations.17

I believe these two arguments, if suitably developed, cannot be quickly dismissed. As I explain in my book, I think the best arguments for and against equal consideration are almost equally strong.18 In the end, after the argumentative dust settles, I come down in favor of equal consideration. But if I am wrong here, the appeals to moral agency and social bonds may have a role in carrying the burden of proof shouldered by the inegalitarian.

In any case, I’d like to indicate some challenges that face inegalitarian views. The most plausible such view, I think, would be a progressive one that (1) grants that sentient animals have
significant moral status and (2) asserts that the interests of different sorts of animals should get different degrees of moral weight in accordance with their cognitive, affective, and social complexity. Thus, for example, a human’s interest in avoiding suffering should get full weight, a monkey’s interest in avoiding suffering should receive somewhat less weight but more than a rat’s comparable interest, which should get more weight than a bird’s interest, and so on. The picture here is a sliding scale rather than a two-tier hierarchy. It can be said to take animals seriously while recognizing differences among different sorts of animals (avoiding the nonsense of saying that there is no morally important difference between an amoeba and a chimpanzee). The views of Andrew Rowan and Lanny Kraus may be along these progressive, sliding-scale lines.19

The first challenge to any egalitarian view is the problem of relevance. Suppose it is claimed that humans are relevantly different from animals because only humans are moral agents. Now consider a human and a dog, both capable of suffering. It is clear that if only the human is a moral agent, then only the human can be held morally accountable for his actions. Moral agency is clearly relevant to decisions about who should be punished, morally praised or criticized, and the like. What is unclear is how the fact that only one of them is a moral agent is relevant to how much their suffering matters morally. What’s the connection? I suspect there is none. In any event, for the argument to go through, a convincing case must be made for the relevance of moral agency to the general issue of how much moral weight should be given to one’s interests.

A second challenge is the notorious problem of marginal cases or, more politely, the problem of non-paradigm humans. If some human-typical trait, such as moral agency, is held to be the basis for full (equal) consideration, consistent appeal to this criterion will apparently imply that some humans are not due equal consideration. For example, certain severely retarded, brain-damaged, or demented humans lack the capacities that constitute moral agency. (And if potential doesn’t count, as some would argue, we would have to say the same for babies.) So the question is whether we can accept the implication that they, like animals who aren’t moral agents, have less moral status than the rest of us. There have been myriad efforts to finesse this issue and maintain that all humans are due equal consideration, even though some aren’t covered by the relevant criterion. But I have doubts that any such effort has been entirely successful.

Finally, an egalitarian view must realistically face the fact that most of the traits that we tend to think separate us from other animals come in degrees and are not exclusively human. I have heard all of the following proposed as distinguishing features: rationality, self-awareness, emotionality, linguistic capacity, intentionality, sociability, and moral agency. Let’s think about a few of these.

First, humans and animals can be more or less rational. Many animals figure out the means to desired ends, thereby solving certain practical problems. It is fairly well-known that apes can be quite ingenious in planning out strategies and following through with them, such as rearranging props to get something they want. And dogs often figure out ways to sneak outside or get food even when their owners have gone to great lengths to prevent these outcomes. Perhaps more surprisingly, many animals are also self-aware.20 Self-awareness comes in different kinds: bodily self-awareness, social self-awareness, and introspective awareness. Highly social mammals exhibit a fair degree of social self-awareness—how they fit into group structures, what the expectations are for various positions within a hierarchy, etc.—and many more animals display an awareness of their own bodies as distinct from the rest of the environment. I would also argue that there is a fairly strong case, based on behavioral evidence, that apes and dolphins display rudiments of moral agency.21
But, for some reason (perhaps human narcissism), it’s often said that traits such as those I mentioned draw an insuperable line between us and other animals. It is high time we took into account what Darwin appreciated long ago: when it comes to cognition, affect, and other phenomena, there are many continuities between us and other animals.

The inegalitarian view that is best able to accommodate this fact is the progressive, sliding-scale approach which I mentioned. But, again, there is a burden of proof on inegalitarian views. And I believe that burden has yet to be carried.

V. ONE MORE THEORETICAL ISSUE: THE VALUE OF LIFE ACROSS SPECIES

Before turning to practical implications of the approach I develop, there is one theoretical issue I would like to mention that remains for any ethical framework that takes animals seriously. The issue is how to understand the value of life or, equivalently, the harm of death—across species.

Recall that applying the idea of equal consideration would involve deciding (1) how much moral importance we place on some human interest and (2) whether animals have a comparable interest; if they do, then we should give as much moral weight to the animal’s comparable interest. Now I have already argued that animals have life-interests. But, then, does death harm a mouse as much as death harms a human? We might say, “Yes, because death takes away all the mouse has.” Or we might say, “No, the opportunities for satisfaction and value in a human life are, ordinarily, much greater than those in a mouse life. A human generally loses more in dying; he is harmed to a greater extent.” If this second view is correct, then a mouse’s life-interest—although important—is not comparable to a human’s life-interest. Therefore, even an equal-consideration view would not give their lives equal moral weight. In fact, it might not give equal weight to the lives of a monkey and a mouse; maybe the monkey’s richer cognitive, affective, and social life would confer greater value on that life.

To deal adequately with this issue requires going deep into value theory, which we can’t plunge into now. Suffice it to say that whereas sentient animals’ interests in experiential well-being are comparable to ours, it is very debatable how to regard their life-interests, assuming they have life-interests. But one practical upshot is this: If a canine life-interest, for example, is not comparable to a human life-interest, then even a proponent of equal consideration can say that it’s generally worse to kill humans than to kill dogs.

This is an important point. Sometimes those who are hostile to animal protection suggest that “animal rights people” (whoever they may be) hold that the lives of all animals are equally precious and, indeed, that there are no morally interesting differences between humans and animals. I have yet to meet anyone who believes that second, more sweeping claim and few who believe that all human and animal lives are of equal value.

VI. SOME PRACTICAL CONSEQUENCES

So far I have argued that animals have moral status; that they have certain basic interests; that, in view of their status and those interests, the principle of non-maleficence establishes moral presumptions against causing suffering to, killing, confining, and disabling animals. I have also ar-
argued, more tentatively, in favor of equal consideration for animals—noting what this means and what it does not mean (while also noting very roughly what the most promising inequalitarian view might look like). This background puts us in a position to explore some practical consequences of this view. (Notice that, in getting this far, I did not need to endorse utilitarianism, an animal-rights theory, or any other specific ethical theory.)

The way I move forward to some of the details of practical animal ethics involves, among other things, case-based reasoning. Such reasoning within the framework already provided allows us to specify certain principles (most of which concern specific types of harm) and other practical conclusions regarding animals. It won’t be possible to summarize my reasoning here while also addressing the practical issues I promised to address. Instead, I will indicate roughly where I think this reasoning leads in connection with eating animals, keeping them in zoos, and using them for research.24

A. eating animals

In my view, the issue of meat-eating is the most important practical issue involving animals. No other human practice comes close in its impact on animals, considering the numbers of animals harmed and the extent of harm. In the US, over 6 billion animals are killed every year for food.25 Factory farming—the system of intensive animal-rearing that produces most of the meat we consume—is a true ethical oddity. I submit that there is no practice that is more commonly accepted yet so difficult to defend (coherently) than that of purchasing and eating factory-farmed meat. (I will discuss only factory farming, which is most relevant to current American practices of consumption; I will not discuss family farms or the case of seafood, which raise ethical issues in somewhat different ways.)

What is the case against buying and eating the products of factory farms? Let us begin with the uncontroversial principle that we should not cause unnecessary harm. “Fine,” one might say, “but what does this have to do with me? If I eat a ham sandwich, I’m not harming anyone; it was the factory farmers who harmed the pig.” Fair enough. So let’s first consider the institution of factory farming itself.

To begin, it’s widely accepted that the harms caused to animals in factory farms are very severe. Due to the extremely intensive conditions in which the animals are reared, the ways many of the animals are transported and handled, and in some cases the procedures for killing them, factory farms cause not only the harm of death; they also cause significant suffering to animals and restrict their liberty in ways incompatible with their living well (beef cattle being a possible exception in the months when they are allowed to roam). In many cases, animals are also seriously disabled through injury.

In sum, factory farms cause massive harm to animals. Crucially, none of these harms can plausibly be regarded as necessary. Why not? Because we do not need to eat meat to be healthy, much less to survive. (Even if a very unusual person, or someone in dire circumstances, needed meat to survive, he presumably would not need factory-farmed meat in particular.) The chief benefit of meat to the consumer is enjoyment. Meat tastes good. For those who cannot with experience come to enjoy non-meat foods as much as meat, meat-eating represents additional enjoyment—enjoyment beyond what a meatless diet would bring them. Factory farms wrongly cause significant
suffering to animals, confine them, sometimes disable them, and always end up killing them, in order to procure this extra enjoyment. (If one claimed that the basic purpose of meat were not enjoyment but something else, such as convenience or tradition, I would contend that no purpose that is plausibly ascribed to meat-eating could justify the very extensive harms incurred in factory farms.)

Factory farming, in my view, is an ethically indefensible institution. But is it wrong to buy and eat its products? In my book I defend this principle: “Make every reasonable effort not to provide financial support for institutions that cause or support unnecessary harm.” Factory farms stay in business only as long as people buy their products. Given the harms they inflict—and the fact that consuming their products is not necessary for life, health, or even a fair amount of enjoyment—one who regularly patronizes factory farms (as most American consumers do) can hardly be said to be making every reasonable effort not to support them. It is common for meat eaters to feel psychologically distant from the activities of factory farms, but causally they are close enough—through their patronage—to share responsibility for these activities.

While I have provided only a sketch of the full argument, the conclusion is that taking animals seriously begins at one’s dining table. Note that the case against meat-eating—or at least against supporting factory farms, since that’s all I’ve discussed here—did not depend on the controversial assumption that we must give animals fully equal consideration. One need only give animals serious consideration to perceive that they should not be regarded as objects to be used and abused for the sake of relatively trivial interests such as increased enjoyment, convenience, and the like.

B. Keeping animals in zoos

One practical issue involving animals that has received little attention is that of keeping them in zoos. Before sketching some implications of my approach for this issue, let me flag an issue that, although important, I will not treat here—that of taking animals from the wild in order to place them in zoos. In short, because of the extensive harms associated with this process, and the fact that it’s often feasible to breed animals already in captivity, I’m generally opposed to capturing new wild animals for zoo exhibits.

Regarding animals already in zoos, is it morally justified to keep them there at all? If so, under what conditions? If we are asked what harm is likely to befall the best-treated zoo animals—who ideally live full, pleasant lives—we are likely to think of captivity itself. But captivity is not necessarily a harm. Not all captivity is confinement in my sense of restrictions of liberty that significantly interfere with an animal’s ability to live well. If a robin, groundhog, or cheetah is not confined in this sense, captivity per se does not harm it.

In my book, I defend a principle that states two conditions for keeping zoo animals: “Provide for the basic physical and psychological needs of the zoo animal, and ensure that she has a comparably good life to what she would likely have if in the wild.” Thus there is a basic-needs condition and a comparably-good-life condition. If the basic needs of a dolphin are met, but barely, and the dolphin would be doing much better in the wild, keeping it is wrong. If some of a lion’s basic needs are not met in captivity, keeping it in those conditions is wrong even if it would probably be worse off in the wild due to limited food supplies and bitter weather. (In cases like this last one, it may be...
better to try to improve conditions so as to meet the animal's basic needs, rather than return it to the wild.)

Apparently, only a small fraction of zoo exhibits currently meet the above two conditions, but they can be met—with most animals. In the case of highly social animals, such as elephants and primates, meeting our standard may require family preservation, given the likely psychological harms of breaking up families. Meeting the psychological needs of animals also requires creative enrichment of their environment or, better, something approaching their natural habitats. (Because I believe these conditions cannot be met in the case of dolphins, considering their marine environment and complex social organization, I don't think dolphins should be included in aquatic exhibits.)

In my view, zoos that cannot or will not improve enough to meet these conditions should close. Note that the present issue is unlike that of meat-eating in that zoo-going is for most people an occasional activity that costs little or nothing. This leaves scarce room for boycott. Therefore the ethical focus is better placed on zoo owners and directors and on legislators, rather than on zoo-goers.

C. the issue of animal research

Let us consider, finally, the issue of using animals in biomedical research. Here again my remarks will be fairly general. While this practical issue is important, I think that its importance is often overestimated and that, in particular, the issue of supporting factory farms is considerably more pressing. I say this for three reasons. First, far more animals are affected in food production than in research. Second, at least where the Guide for the Care and Use of Laboratory Animals is followed, lab animals are treated a lot better than most farm animals. For example, anesthesia and analgesia are commonly used to prevent unnecessary pain and suffering. And while the housing of lab animals is often inadequate, the housing of factory-farmed animals is atrocious. Third, while the major goals served by factory farming (extra dining enjoyment, convenience, and the like) are trivial compared to the animals' interests that are overrun in the process of food production, the leading goals of biomedical research—improving our ability to preserve human life and improve its quality—are extremely important. In sum, the ethical case for animal research is much stronger than the case for the status quo of meat-production.

But now, let's take a closer look. While no reasonable person could deny the importance of promoting human life and health, the question is what means to these goals are ethically permissible. It is a familiar ethical idea that some means to morally important ends are impermissible: forcing humans to participate in highly risky research is an example. So the answer to the animal-research question is no simple matter.

From the standpoint of the equal-consideration view, despite the laudable goals of animal research and the good intentions of its practitioners, very little such research is morally justified. Very little, but not none. Animal research that clearly does not harm animal subjects—such as field studies and certain laboratory studies of animal behavior—are not condemned by this philosophy. And therapeutic research, where the subjects themselves stand to benefit on balance, seems consistent with equal consideration (since we permit therapeutic research on humans). Moreover, just as we allow human children to take part in non-therapeutic research involving only minimal risk, the
same standard could be applied to animals on this view. (I single out children because, like animals, they cannot give informed consent.) But little, if any, research beyond those categories would seem to be justified.

Earlier in this chapter, I argued that the utility-versus-rights debate was not so important, since both utilitarianism and animal-rights theories embrace equal consideration for animals. But the views diverge a bit on the animal-research question—in an interesting way—because a utilitarian is committed, in principle, to allowing some use of animals beyond the categories of therapeutic and minimal-risk research. If the likely benefits of the experiment (taking into account both the amount of hoped-for benefit and the estimated probability of achieving it) are greater than the expected harms to animals—where their interests are given equal weight to our comparable interests—then a utilitarian would endorse the experiment. Presumably this utilitarian standard is sometimes met even where the research is non-therapeutic and involves more-than-minimal risk. But not often, because research benefits are only hoped for or speculative, whereas the harms to animals are typically inevitable and often extensive. Now a strong animal-rights view like Regan’s, by contrast to utilitarianism, precludes harming animals in the name of societal benefit. 27 But the difference between these two views is small compared with the difference between any equal-consideration view and our current level of animal research.

My view, again, embraces equal consideration. I leave open exactly where in this small range of views consistent with equal consideration the most defensible policy lies. I also leave open the difficult question—partly ethical, partly political—of how fast we should move to reform our current system; one might favor an approach of immediate drastic change or one might prefer a gradualist approach. However one comes out on these issues, it is clear that the equal-consideration view takes the study of alternatives to animal research to be a moral priority. I am aware that there has been some progress in recent years in the study of alternatives, especially in the area of testing. But I also gather that the tradition of beginning biomedical studies with animal models is so deeply entrenched that calls for full-throttle study of alternatives continue to be met with great resistance from within the research community. 28

Early in this chapter, I stated that my approach was pluralistic in the sense that it was uncommitted to any single ethical theory in the traditional sense of the term. I suppose my approach is pluralistic in a second way as well. I favor equal consideration, but, realizing I could be mistaken, I have some respect for what I take to be the next-most-plausible view: the progressive, sliding-scale approach described earlier. So the second way in which my approach is pluralistic is that it keeps an eye on the implications of the sliding-scale view. For example, my position on meat-eating can be supported by either the latter view or equal consideration; again, the case against patronizing factory farms depends only on the assumption that we should give animals serious consideration. But the implications for animal research of equal consideration and of the sliding-scale approach diverge more significantly.

On the progressive, sliding-scale approach, probably a fair amount of research conducted today should be discontinued—such as research that causes too much harm to animals in proportion to the expected gains, research conducted for highly speculative benefits, and research duplicating that already conducted. However, if appropriate efforts are made to avoid duplication, eliminate suffering, minimize the numbers of animals used, extend special protections to “higher” animals such as primates, give social animals extended access to con-specifics, and so on, the program
of biomedical research could ethically continue in a form not totally different from its present form (at least where the Guide for the Care and Use of Laboratory Animals is followed).

While the study of alternatives has less urgency on this view than it has from an equal-consideration framework, it is still very important. In the long run, we are probably all better off when animals are not used in research where non-animal methods can answer our questions as adequately. But to take alternatives fully seriously means overcoming a great deal of inertia—and that would require some courageous leadership from members of the research community.

As we look into the future, the importance of learning as much as possible about alternatives to animal research may be a point on which all who take animals seriously can agree, even if differences remain about justified uses of animals in the meantime. The equal-consideration perspective and the sliding-scale view are likely to converge on some other points as well. First, and most fundamentally, animals have moral status and must not be regarded as mere tools for human use. Second, human health and animal health should be promoted through whatever kinds of research are ethically acceptable. Third, a worthy goal within animal research is to eliminate—not simply reduce—the pain, distress, and suffering of its subjects. Fourth, animal life has at least some value, so there is a presumption against killing animals, even painlessly; that is, our policies must reflect the recognition that death is a harm. Fifth and finally, both human and animal interests are best promoted through open-minded, honest, reflective discussions of the issues of animal ethics.

NOTES

1 In this section, I borrow extensively from my “Animal Ethics Around the Turn of the Twenty-First Century,” Journal of Agricultural and Environmental Ethics, 11, 1999, 111–129.


3 Here I am using the term “rights” in the strict philosophical sense, as Tom Regan (see previous note) does. In this sense of the term, if X has a right not to be harmed, then appeals to utility will generally be insufficient to justify harming X.


8 See Taking Animals Seriously, ch. 8.
This “opportunities” account of the value of animal life was influentially sketched in Regan, The Case for Animal Rights, pp. 99–103.


I discuss these in more detail in Taking Animals Seriously, pp. 254–56.

For an early (and mostly successful) effort to explain this concept as it applies to humans and animals, see Singer, Animal Liberation, p. 5. I try to make it more precise in Taking Animals Seriously, pp. 45–48.


See Taking Animals Seriously, chs. 3 and 9.

I develop the argument in Taking Animals Seriously, pp. 49–53.

The Animals Issue, chs. 5 and 6.

Animals and Why They Matter, ch. 9.


This speculation is based on what I have heard Rowan say in lectures and on Kraus' remarks in his introduction to the conference (and to the present volume).


Ibid, pp. 199–204.

I make the effort in Taking Animals Seriously, ch. 8.


For my specification of principles for animal ethics and discussions of the issues of eating animals and keeping them in zoos, see Taking Animals Seriously, ch. 9.


National Research Council, Guide for the Care and Use of Laboratory Animals.

Regan, The Case for Animal Rights, ch. 9.

The Humane Society of the United States is currently launching an initiative to discover ways to meet this goal.
Chapter 9
Social Ethics, Animal Suffering, and the Creation of Transgenic Animal Models of Human Genetic Disease

Bernard E. Rollin, PhD

In June of 1997, a team of researchers working as part of a Concerted Action of the European Commission, and coordinated by George Gaskell of the London School of Economics, released the results of a survey of public attitudes towards biotechnology conducted in each of 16 European Union Countries. According to Gaskell (personal communication), the results astonished the researchers, shattering both their preconceptions and conventional scientific wisdom about social responses towards biotechnology. The researchers found that “few [people] approve of the use of transgenic animals for research” (Gaskell). In addition, “there is a striking mismatch between the traditional concern of regulators with issues of risk and safety, and that of the public, which centers on questions of moral acceptability.” Although conventional wisdom suggests that the overwhelming social concern about biotechnology is risk, the survey confirmed that presupposition. When the 17,000 people surveyed were asked about six different aspects of biotechnology—genetic testing using genetic tests to detect heritable diseases; medicine production, using human genes in bacteria to produce medicines or vaccines, as has been done with insulin; crop plant modification, for example moving genes from plant species into crops to produce resistance to insects; food production, for example to make foods higher in protein or have longer storage life; transgenic research animals genetically modified for research, such as the onco-mouse; and xenotransplants, introducing human genes into animals to render their organs immuno-compatible for human transplants—all were perceived as potentially useful, but the uses of transgenic animals for research and transplantation were seen as morally unacceptable.

The pattern of results across the six applications suggests that perceptions of usefulness, riskiness, and moral acceptability could be combined to shape overall support [for biotechnology] in the following way. First, usefulness is a precondition of support; second, people seem prepared to accept some risk as long as there is a perception of usefulness and no moral concern; but third, and crucially, moral doubts act as a veto irrespective of people’s views on use and risk. The finding that risk is less significant than moral acceptability in shaping public perceptions of biotechnology holds true in each EU country and across all six specific applications. This has important implications for policy making. In general, policy debate about biotechnology has been couched in terms of potential risks to the environment and/or human health. If, however, people are more swayed by moral considerations, public concern is unlikely to be alleviated by technically based reassurances and/or regulatory initiatives that deal exclusively with the avoidance of harm (Gaskell).
Regrettably, the study does not enumerate or address the specific moral concerns which rendered the creation of transgenic animals for research morally unacceptable. In this paper, I shall attempt to provide a plausible rational reconstruction of justifiable social moral concern about the production of transgenic animals for biomedical research, and how this could be addressed.

First, however, it is vital to stress a general point about social ethics that is highly relevant to biotechnology, yet often overlooked. This insight can be formulated as two axioms:

**Axiom 1)** *Any new technology will necessarily create a lacuna or vacuum in social ethical thought demanding to be filled.*

In other words, given some new technological innovation, people will intuitively recognize that this advance occasions new ethical problems, but will be hard-pressed to articulate them. Obviously, the more novel the technology, the more difficult it is to see the moral problems to which it gives rise.

**Axiom 2)** *In the absence of good ethical discussion, bad ethical discussion will inevitably fill that void.*

In other words, if there is no rationally articulatable and defensible account of the genuine ethical questions occasioned by the new technology, the void in moral understanding will inevitably be filled by something, most likely by knee-jerk fear-mongering, sloganeering, promulgation of concerns that may well not even be moral concerns but which will dominate social thought and discussion.

I have called the phenomenon emerging from these two axioms a “Gresham’s Law for Ethics” (Rollin, 1995b). Recall that Gresham’s law, first articulated by economist Thomas Gresham during the sixteenth century, affirms that “bad money drives good money out of circulation.” Thus after World War I in Germany, when it took a wheelbarrow-full of Deutschmarks to buy a loaf of bread, people obviously paid their debts with paper money not gold. Similarly, in the absence of reasonable ethical discussion of biotechnology, hysteria and sensationalism will dominate social thought.

Now there is most certainly no technology in human history capable of occasioning more profound changes in human and animal life than genetic engineering, yet there is ironically no technology whose ethical implications have been as little explored and understood. The research community, still shackled by the ideology which declares science to be “value-free” and “ethics-free” (Rollin, 1989), has not taken it upon itself to define the moral issues emerging from biotechnology. Instantiating “Gresham’s Law for Ethics,” bad ethical thinking has filled the social lacuna occasioned by the scientific community’s silence. Lurid, sensationalistic claims about genetic engineering have seized center stage. Drawing upon society’s tendency to assimilate genetic engineering to the Frankenstein myth (vide ABC TV’s “Real Frankenstein” show), secular critics and theologians have asserted that genetic engineering is “intrinsically wrong,” and is one of the things that “humans were not meant to do,” “violates species barrier,” “desacralizes nature,” “doesn’t show proper respect for the gift of life,” has “man playing God,” or “attempting to be God,” etc. Thus,
the universe of moral discourse tends to focus on non-issues at the expense of genuine and major concerns.

As we mentioned, in the area of transgenic animals created for biomedical research, Gaskell's report tells us that the creation of such animals was unequivocally deemed morally unacceptable by the European public, but does not tell us why. Thus we have no way of knowing whether people were expressing legitimate moral articulable concerns, or were simply reacting in uninformed, knee-jerk revulsion at what I have described in my book on genetic engineering as the aspect of the Frankenstein myth which says, without further explanation or justification, that there are certain things humans were not meant to do (Rollin, 1995b). (This phenomenon was recently vividly illustrated in society's irrational, unargued but spectacularly negative response to the cloning of Dolly and to the possibility of cloning humans. (Rollin, 1997)) I have argued at length that such a response does not represent a genuine issue, but simply fills the lacuna created by the research community's silence on ethical matters and consequent failure to separate ethical wheat from chaff. Even more important, once such a reaction becomes solidified as an "ethical issue," it cannot be answered—for what counts as an answer to the claim that there are certain things humans were not meant to do? It is therefore necessary that, if the research community wishes to preserve its autonomy, it must forthrightly articulate the genuine ethical issues associated with the production of transgenic animals for biomedical research, and attempt to respond to them, else it could be hamstrung for spurious ethical reasons, and will be unable to respond to unanswerable claims like transgenic animal production "violates God's will."

As I have pointed out elsewhere (Rollin, 1995b), there are two legitimate categories of ethical concern that grow out of the production of transgenic animals. The first set of issues are concerns of safety and risk growing out of the creation of such animals—possible risks to humans, other animals, and the environment. However, Gaskell's data indicates clearly that the "moral unacceptability" of transgenic animal production is logically separate from such risks. In fact, four of the aforementioned biotechnologies—crop plants, food production, transgenic research animals, and xenotransplantation—are believed to contain risks, with food production perceived as harboring considerably more risk than production of transgenic research animals, yet only the production of transgenic animals and xenotransplantation are seen as morally unacceptable. (Further, the production of transgenic research animals is seen as "more useful" than the use of biotechnology in food production, yet is still deemed morally unacceptable.) Thus, we may fairly conclude that while there are certainly real and perceived risks associated with creating transgenic animals for biomedical research, it is not the risks that drive people to consider it morally unacceptable, and thus the moral issues must be elsewhere.

I have argued at length (Rollin, 1995b) that, besides risk, there is only one legitimate—as opposed to spurious—moral issue associated with the production of transgenic animals, and that is the question of the well-being of the animals so generated. Indeed, as a purely moral issue, animal welfare is far more vexatious than safety. After all, even a hypothetical researcher with no moral concern about safety would have a prudential interest in assuring the safety of transgenic work, as researchers themselves working with dangerous organisms are certainly prima facie more at risk than are members of the general population. (Recall that the world's last smallpox death occurred in the context of laboratory research, and again, that the first European deaths from Marburg virus were again laboratory workers.) In addition, any major breach of safety eventuating in catastrophe

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will almost certainly ramify in truncation of transgenic research, both by engendering restrictive regulation and by virtue of curtailing of funding.

Animal welfare concerns, on the other hand, represent a far greater moral challenge, for concern about animal welfare often does not coincide with perceived self-interest and indeed can exact significant costs in the form of money, time, extra personnel, delay in research, etc. In other words, many researchers have traditionally not equated concern for animal welfare with self-interest, and are thus unlikely to do the right thing for reasons of prudence. Somewhat mitigating this blanket statement is the relatively recent acknowledgment of the fact that failure to assure animal welfare can skew variables relevant to research and actually compromise research (Rollin, 1990)—pain for example, is a significant physiological stressor (Rollin, 1997)—but nonetheless, the coincidence of the two is far from perfect. And, as we shall shortly see, certain aspects of transgenic animal research do represent an area where welfare could be ignored without obviously jeopardizing the work in question. Thus moral concern must take up the slack left after prudential considerations are exhausted.

There can be no question in the mind of any person who tracks social change in the western world that concern for animal treatment—particularly animal suffering—has become a burgeoning international issue during roughly the past three decades, and particularly since the early 1980s (Rollin, 1995a). For example, according to the National Cattlemen’s Association, Congress has consistently during this period received more letters, telephone calls, and other contacts on issues of animal welfare than on any other issue. And, at the same time, many countries have seen the promulgation of meaningful legislation aimed at assuring the welfare of animals in research, often, as occurred in the United States, against significant protestations from the research community that such regulation will hinder research advances in human health. In order to properly assess the relevance and expectations of social animal welfare concerns to transgenic animal production and research, it is necessary to briefly summarize the sources and nature of such burgeoning social preoccupation with animal treatment.

The emergence of a systematic social ethic whose purview extends to the treatment of laboratory animals is a relatively recent phenomenon, as evidenced by the fact that researchers in the US basically enjoyed carte blanche in the use of animals until the mid 1980s (Rollin, 1991). For most of the 19th and 20th centuries, the only consensus ethical principle extant in society for the treatment of animals was a prohibition against overt, wilful, intentional, needless, or wanton cruelty, as expressed in anti-cruelty legislation. Concerned as much with ferreting out sadistic individuals who might begin with animals and move to humans as with protecting animals, these laws therefore did not address “normal,” “necessary,” “beneficial” sources of animal suffering, such as agriculture, research, hunting, trapping, or education; these are typically exempted from the anti-cruelty laws by statute or else have been excluded by judicial decision. Rather, these laws focused on deviant behavior leading to “unnecessary” animal suffering.

It is only in the past decade that society has begun to realize that a mere fraction of animal suffering is in fact a result of overt cruelty—the vast majority of animal suffering at human hands in fact grows out of such decent motivations as increasing knowledge, curing disease, increasing efficiency of food production, protecting humans against toxic substances, and so on.

A simple thought experiment that I employ with a wide variety of audiences, ranging from biomedical researchers and ranchers to animal right advocates will make this clear. I ask my audi-
ences to consider a pie chart representing the total amount of suffering that animals experience at human hands. What percentage of that suffering, I continue, is the result of deliberate, sadistic intentional cruelty? All of my audiences give the same reply—well under 1%. Society has thus come to realize and to be concerned with the fact that the traditional social ethic for animals and the laws reflecting it are conceptually inadequate for dealing with the vast majority of animal suffering (Rollin, 1995a).

Why has this demand for a new ethic occurred only recently, when the limited ethic of anti-cruelty was considered adequate for most of the history of civilization? There are a variety of factors explaining this social change, including the urbanization of society and the correlative emergence of the companion animal—rather than agricultural animal—as the paradigmatic exemplar of an animal in the public mind; the media discovery that, as one reporter told me, “animals sell papers;” the natural fit between the concerns about disenfranchised humans inadequately protected by our social ethic—women, blacks, the handicapped, children, etc.—and its extension to animals; and the emergence of highly articulate spokespersons for animal interests. But the major factor explaining the emergence of recent significant moral concern about animal treatment has been the gradual realization by society that the nature of animal use in society changed precipitously after World War II.

The key to the emergence of the new ethic is this: the major use of animals in society was and is, of course, agricultural. Before the mid-twentieth century, the essence of agriculture was husbandry. (The origin of the word is revealing; “husbandry” is Old Norse, and literally is “hus/bond” = “bonded to the house.”) People who used animals put those animals into environments for which they were evolved and adapted and then augmented their natural ability to cope with additional food, shelter, protection from predators, etc. The Biblical shepherd who leads the animals to green pastures is the lovely paradigm case of this approach. (The fact that the 23rd Psalm uses husbandry as a metaphor for God’s relationship to humans itself bespeaks the power of its hold on our thinking.) Producers did well if and only if animals did well. Productivity and welfare were inextricably intertwined. This is what has aptly been called “the ancient contract” — “we take care of the animals and they take care of us,” as ranchers in the western United States say. No rational producer could, for example, have attempted to raise 100,000 egg-laying chickens in one building—he would have had all his animals succumb to disease in weeks.

In contrast, when “animal husbandry” departments symbolically became “animal science” departments in the 1940s and 1950s, industry replaced husbandry, and the values of efficiency and productivity above all else entered agricultural thinking and practice. Whereas traditional agriculture was about putting square pegs in square holes, round pegs in round holes, and creating as little friction as possible while doing so, “technological sanders” such as antibiotics, vaccines, hormones, and bacterins allowed us to produce animals in environments which didn’t suit their natures but were convenient for us. For example, we could now raise 100,000 chickens in one building, with the animals suffering in ways that did not have an impact on productivity.

Similarly, and more directly relevant to our discussion, the rise of significant amounts of biomedical research and toxicity testing on animals directly after World War II also differed markedly from husbandry-based animal use in traditional agriculture. After all, in research we inflict disease on animals, wound, burn, fracture, and poison them for our benefit, or to the benefit of other animals, with no compensatory benefit to the animal subjects. In essence, when society slowly began to realize that unlike traditional animal use, contemporary animal use no longer assured the
well-being of the animals used, it began to demand legislated assurances of animal welfare to fill the lacuna left by the absence of the natural assurances implicit in the unspoken contract of husbandry agriculture. In Britain, concern was first directed at animal agriculture in the 1960s, with concern about research emerging later; in the US, that order was reversed. A recent article from Europe boldly affirms that "in nearly every parliament of the Member States of the Council of Europe, there is growing concern for the welfare of laboratory animals" (de Greeve and de Leeuw).

Whereas the anti-cruelty ethic focused only on outrageous, useless, sadistic, counter-productive infliction of pain and suffering on animals, the emerging ethic focuses on the pain associated with "legitimate," mainstream animal use. It is correlative, indubitable that the core of all recent legislation and regulation pertaining to animal research in Western Europe, North America, Australia, and New Zealand is the control and minimization of pain and suffering, as well as an ever-increasing tendency to press forward alternatives to painful animal use. Thus, for example, a January 1998 article in Lab Animal indicated that "increasing concern within and without the scientific community over pain and distress in animals has made the production of monoclonal antibodies (MAbs) highly controversial... [with] some European countries having gone as far as banning in vivo production of MAbs using the ascites method" (Shalev). In the US, pain engendered in laboratory animals must be controlled by anesthesia, analgesia, sedation, and early end-points, for example for tumor growth and disease processes, aimed at minimizing suffering. In Britain, an animal suffering uncontrollable pain and distress must be euthanized as soon as the situation is understood (O'Donoghue). For reasons of controlling pain and suffering, US journals are increasingly unlikely to publish papers using death as an end-point, even though the late end-point may well provide valuable information. In other words, globally, there is a consensus emerging that not every human benefit is worth any amount of human suffering (vide public rejection of cosmetics companies utilizing safety testing on animals, and the spectacular growth of those companies disavowing such testing).

Everything we have said thus far in patent, undeniable, and clearly points up the profound and world-wide social-ethical concerns about invasive animal use. The message to researchers is thus clear—minimize animal suffering; the same message is ever increasingly being sent to animal agriculture, as evidenced in British and European regulations and most notably in the 1988 Swedish law abolishing confinement agriculture. (In the US the concern with suffering is augmented by an additional concern for environmental enrichment legally mandated for primates, and strongly pressed for all species in the most recent NIH Guide to the Care and Use of Laboratory Animals.) Both Dr. Tom Wolfe of ILAR and I have long argued that animals probably suffer more in virtue of the impoverished environments we keep them in for convenience than from the invasive manipulations we perform.

How does this apply to the use of transgenic animals in research? For certain such uses, satisfaction of the demand for control of pain and suffering is precisely analogous to what occurs in research with non-transgenic animals.

Consider, for example, the very first patented transgenic animal, the Harvard mouse which is disposed to the development of tumors. In the words of the patent, this is "an animal whose germ cells and somatic cells contain an activated oncogene sequence introduced into the animal... which increases the probability of the development of neoplasms (particularly malignant tumors) in the animal" (US Patent Number 4,873,191). Minimizing pain and suffering for such an animal is in principle and in fact no different from minimizing pain and suffering in non-transgenic animals in
whom tumors are induced by other means—the establishment of end points for euthanasia in terms of tumor size, so that the animal does not suffer; the judicious use of anesthetics, analgesics, and tranquilizers in the course of operative or other procedures.

By the same token, there is no reason not to apply the other major thrust of the new social ethic to these transgenic animals, namely the provision of enriched environments and husbandry systems for these animals congenial to their natures, which allow them to actualize their behavioral and biological natures. Indeed, the characterization of such environments and systems is a primary purpose of the chapters in a recent book I have edited (Rollin and Kesel, 1995c). Thus, in the case of transgenic mice, one should look to the recommendations in the general literature on care of mice; for example, a British article described a caging system for rodents which is meant to accommodate their behavioral needs (Sharmann, 1991). So, the vast majority of transgenic animals developed thus far raise no additional welfare issues beyond those concerning non-transgenic laboratory animals.

Indeed, those welfare issues that are raised dramatically by transgenic animals are also continuous with analogous non-transgenic cases. I am referring to the creation and maintenance of seriously genetically defective animals developed and propagated to model some human genetic disease. This was traditionally accomplished through identification of adventitious mutations and selective breeding. Transgenic technology allows for accomplishing the same goal far more quickly, and in a far wider range of areas. Thus, one can, in principle, essentially replicate any human genetic disease in animals. And therein lies the major ethical concern growing out of transgenic technology in the research area. It is a true dilemma, because there are strong moral pulls on both sides of the issue.

A chapter in a book devoted to transgenic animals helps to focus the concern:

There are over 3,000 known genetic diseases. The medical costs as well as the social and emotional costs of genetic disease are enormous. Monogenic diseases account for 10% of all admissions to pediatric hospitals in North America... and 8.5% of all pediatric deaths.... They affect 1% of all live-born infants... and they cause 7% of still-births and neonatal deaths.... Those survivors with genetic diseases frequently have significant physical, developmental, or social impairment.... At present, medical intervention provides complete relief in only about 12% of Mendelian single-gene diseases; in nearly half of all cases, attempts at therapy provide no help at all (Karson).

This is the context in which one needs to think about the animal welfare issues growing out of a dilemma associated with transgenic animals used in biomedical research. On the one hand, it is clear that researchers will embrace the creation of animal models of human genetic disease as soon as it is technically feasible to do so. Such models, which introduce the defective human genetic machinery into the animal genome, appear to researchers to provide convenient, inexpensive, and most important, high fidelity models for the study of the gruesome panoply of human genetic diseases outlined in the over three thousand pages of text comprising the sixth edition of the standard work on genetic disease, The Metabolic Basis of Inherited Disease (Scrивer, et al., 1989). Such "high fidelity models" may occasionally reduce the numbers of animals used in research, a major consideration for animal welfare, but are more likely to increase the numbers as more researchers engage in hitherto impossible animal research. On the other hand, the creation of such animals can
generate inestimable amounts of pain and suffering for these animals, since genetic diseases, as mentioned above, often involve symptoms of great severity. The obvious question then becomes the following: given that such animals will surely be developed wherever possible for the full range of human genetic disease, how can one assure that vast numbers of these animals do not live lives of constant pain, suffering, and distress? Further, given the emerging ethic we outlined above, control of pain and suffering is a *sine qua non* for continued social acceptance of animal research.

Merely citing the potential human benefit that can emerge from long-term studies of suffering animals created to model human disease won’t do—we have already seen that society has rejected that claim about death or advanced stages of a disease as end-points. In today’s moral ethos, it is simply not the case that any possible human benefit will outweigh any amount of animal suffering. If a genetic disease is rare, affects only small numbers of people, and can be prevented by genetic screening and what Kelley and Wyngaarden call in reference to Lesch-Nyhan’s Syndrome “therapeutic abortion” (Kelley and Wyngaarden), it is not clear that society will accept the long-term suffering of vast numbers of animals as a price for research on the disease. More and more, a cost-benefit mind-set is emerging *vis à vis* animal use in science just as it is legally mandated for research on humans—though it is by no means clear how one rationally weighs animal cost against human benefit!

In order to flesh out our discussion with a real example, let us examine the very first attempt to produce an animal “model” for human genetic disease by transgenic means, i.e., the development, by embryonic stem cell technology, of a mouse which was to replicate Lesch-Nyhan’s disease, or hypoxanthine-guanine phosphororibosyltransferase (HPRT) deficiency (Hooper et al.; Keuhn et al.). Lesch-Nyhan’s disease is a particularly horrible genetic disease, leading to a “devastating and untreatable neurologic and behavioral disorder” (Kelley and Wyngaarden). Patients rarely live beyond their third decade, and suffer from spasticity, mental retardation, and choreoathetosis. The most unforgettable and striking aspect of the disease, however, is an irresistible compulsion to self-mutilate, usually manifesting itself as biting fingers and lips. The following clinical description conveys the terrible nature of the disease:

The most striking neurologic feature of the Lesch-Nyhan syndrome is compulsive self-destructive behavior. Between 2 and 16 years of age, affected children begin to bite their fingers, lips, and buccal mucosa. This compulsion for self-mutilation becomes so extreme that it may be necessary to keep the elbows in extension with splints, or to wrap the hand with gauze or restrain them in some other manner. In several patients mutilation of lips could only be controlled by extraction of teeth.

The compulsive urge to inflict painful wounds appears to grip the patient irresistibly. Often he will be content until one begins to remove an arm splint. At this point a communicative patient will plead that the restraints be left alone. If one continues in freeing the arm, the patient will become extremely agitated and upset. Finally, when completely unrestrained, he will begin to put the fingers into his mouth. An older patient will plead for help, and if one then takes hold of the arm that has previously been freed, the patient will show obvious relief. The apparent urge to bite fingers is often not symmetrical. In many patients it is possible to leave one arm unrestrained without concern, even though freeing the other would result in an immediate attempt at self-mutilation.
These patients also attempt to injure themselves in other ways, by hitting their heads against inanimate objects or by placing their extremities in dangerous places, such as in between spokes of a wheelchair. If the hands are unrestrained, their mutilation becomes the patient's main concern, and effort to inflict injury in some other manner seems to be sublimated (Kelley and Wyngaarden).

At present, "there is not effective therapy for the neurologic complications for the Lesch-Nyhan's syndrome" (Stout and Caskey, 1988). Thus Kelley and Wyngaarden, in their chapter on HPRT deficiency diseases, boldly suggest as alluded to earlier, "the preferred form of therapy for complete HPRT deficiency [Lesch-Nyhan's syndrome] at the present time is prevention," i.e., "therapeutic abortion." This disease is so dramatic that I predicted 15 years ago that it would probably be the first disease for which genetic researchers would attempt to create a model by genetic engineering. Researchers have, furthermore, sought animal models for this syndrome for decades and have in fact created rats and monkeys which will self-mutilate by administration of caffeine and other drugs (Boyd et al.). It is thus not surprising that it was the first disease genetically engineered by embryonic stem cell technology. But to the surprise of the researchers, these animals were phenotypically normal and displayed none of the metabolic or neurologic symptoms characteristic of the disease in humans. The reason for the failure of this transgenic "model" has been suggested to be the presence of a back-up gene for xanthine metabolism in mice (Redhead), though other research has cast doubt on this notion (Engle). Though the asymptomatic mouse is still a useful research animal (Jinnah), for example to begin to test gene therapy, clearly a symptomatic animal would, as a matter of logic, represent a higher fidelity model of human disease, assuming the relevant metabolic pathways have been replicated. Presumably, too, it is simply a matter of time before researchers succeed in producing symptomatic animals—I have been told in confidence of one lab that seems to be close to doing so, albeit in a different species of animal. One may perhaps need to move up to monkeys to achieve replication of the behavioral aberrations.

The practical moral question which arises then is clear: given that researchers will certainly generate such animals as quickly as they are able to do so, how can one assure that the animals live lives which are not characterized by the same pain and distress that they are created to model, especially since such animals will surely be used for long-term studies of the development of genetic diseases? Or should such animal creation be forbidden by legislation, the way we forbid multiple use of animals in unrelated surgical protocols in the US, or the British forbid learned helplessness studies?

There is, admittedly, no absolute or direct proof that US society at least will reject the creation of such animals. The proof, as stated above, is indirect, based on Gaskell's survey in Europe and on the incompatibility of creating such animals with the direction in which world-wide attitudes and laws regarding animal research are moving. At the very least, however, it would be prudentially unwise for the research community to forge ahead cavalierly with the creation and long-term use of such animals. For if US attitudes are analogous to European ones, such proliferation of suffering animals could well evoke significant legislative restriction or even banning of any transgenic animal work, including the sort of work where life-long suffering can be avoided by early end-points, anesthesia, etc.

In preparing this paper I felt the need to test common sense's reaction to the dilemma we have described above with regard to Lesch-Nyhan's disease. What I am about to report is by no means
scientifically sound or statistically significant. Nonetheless, I think it is at least an indicator of changing attitudes researchers must reckon with, in the same way that talking to friends and acquaintances about Clinton's sexual hijinks give one an indication that while people don't like it, they seem to separate that behavior from his ability to govern.

Specifically, I approached some 40 students in an agricultural ethics course I teach for the CSU College of Agriculture. Over 95% of the students are involved in animal agriculture, generally cattle. Thus, if there is a bias in this sample, it is surely towards animal use. I explained the dilemma we are discussing to them in a straight-forward way using Lesch-Nyhan's as an example, and asked them for their view of resolving it. Much to my amazement, there was virtual unanimity in the group—against producing such models! Some of the opinions expressed in support of their position were as follows:

1) Nature makes mistakes, we should not try to fix them all.

2) If only a small number of people are affected, it would be wrong to create a large number of suffering animals in order to study it.

3) Lesch-Nyhan's should be dealt with by genetic screening and abortion.

4) Not every human benefit—even cure of disease—justifies any amount of animal suffering.

5) All acknowledged that they might feel differently if a close member of their family was suffering from the disease.

6) Few had problems with using large numbers of animals to study anything, as long as the animals don't suffer.

7) Some felt that results obtained from the human genome project might yield results obviating the need to create animal models of such diseases.

At any rate, the issue of genetically engineering chronically suffering animals is clearly a serious one, and one which any conscientious animal researcher ought at least to perceive as a dilemma, with strong ethical pulls in opposite directions. It is an issue I first addressed in 1985, and have continued to address in numerous other venues during the ensuing years at conferences and in papers. The tack I have taken was to throw the dilemma out to researchers and veterinarians and ask for their ideas, in the hope of finding a "middle way" to pass between the horns of the dilemma. I even phoned a high ranking colleague at NIH and asked if they were addressing the high potential for pain and suffering in animal models of genetic disease. Unfortunately, I never received any creative suggestions, though virtually all audiences were very quickly sensitive to the moral problem raised, and also to the pragmatic dangers to public support of animal research were such research to move blithely forward while ignoring the pain and suffering issue. Although numerous veterinarians and some scientists responded by forthrightly offering, "Perhaps we shouldn't create such animals," and although no one responded by saying, "To hell with the animals—we're saving people," few doubted that researchers would create such "models" as soon as they were technically capable of doing so.
Seeing that no one was pursuing a viable solution, I felt a moral imperative to seek one myself. And, during the 90s, my strategy was to think in terms of long-term anesthesia modalities to ensure that transgenic animals modeling diseases like Lesch-Nyhan's would not suffer. Knowing that no one had anesthetized an animal for more than six weeks, and then only with Herculean and expensive effort, and further knowing that such animals would be used for long-term studies in order to uncover the development of the disease, I (together with dedicated and morally concerned colleagues at CSLD) ruled out long-term anesthesia. We then considered creating coma in the animals for purposes of ablating awareness of pain and distress but found that this is technically non-feasible in mice, both because it is virtually impossible to intubate them and because researchers would probably question the value of such a model, since the dramatic symptoms of Lesch-Nyhan's, at the least, may well involve the cerebral cortex. Similar difficulties accompanied the idea of rendering the animals decerebrate either surgically or genetically. In any case, the problems of maintaining vegetatively alive, unconscious animals for long periods are staggering—intraperitoneal feeding, bladder expressing, keeping lungs clear, drying of eyes and respiratory membranes, etc. No additional suggestions were forth-coming, and though I continued to raise the problem, I grew increasingly pessimistic at finding a solution.

Being invited to this symposium to speak on the issue served to, as Kant once said, shake me out of my dogmatic slumber. I resolved to find a way to deal with the dilemma in a viable fashion, not sing the same old song. And, in the face of what we have discussed so far in this paper, I believe I have done so. I offer my solution to you in the spirit of vigorous and strong dialogue, and hope you can help me refine my ideas.

Society does not wish to see the creation of chronically suffering animals. Human medical researchers do not wish to abandon the potential vehicles for study of human genetic disease that transgenic animal models provide. One easy solution of course, is to say, as some members of my audiences have done, “don’t create such animals.” But I doubt that researchers in the area would buy such a response, both for reasons of principle concerning closing down of whole avenues of research, and also because of the potential benefits for human health. On the other hand such researchers must (or should) surely be aware that they are bound to respect social ethical concerns, since public money pays for research, and also because public moral rejection of their work could close them down. To adopt a stance saying that only by being allowed to create life-long suffering animals can we help humans, is to invite being shut down in that area of transgenic work, even as research into cloning of humans has been shut down by virtue of public moral revulsion (unfairly, I believe, growing out of bad ethics). Indeed, as we saw implied by the European data we began with, a cavalier stance about pain and suffering in genetically engineered animal models could seriously negatively affect all transgenic animal research, even that not involving pain and suffering, for the public could equate all transgenic animals created for research with animals suffering uncontrollable, life-long pain. Further, even if the European public rejected genetically engineered animal models for some reason other than suffering, i.e. some bad ethical reason, public knowledge of the creation of animals experiencing life-long suffering and pain could only underscore and further solidify that rejection. So the issue must be dealt with by the research community both for ethical reasons and reasons of preservation of autonomy. How can this be accomplished?

To answer this question, we must recall the nature of professional ethics. Every society, to assure social order, must articulate a social consensus ethic governing matters deemed essential. This is usually “written large” in Plato’s phrase, in the legal system. Thus we morally and legally disallow
rape, bank robbery, murder, fraud, etc. Matters with moral import not affecting the social order are
left, generally, to one's personal ethic—e.g., in today's society what one believes religiously, to whom
and whether one gives charity, what one reads, and so on. Things move in and out of the social
ethic as society changes—thus control of non-violent sexual behavior was surrendered to the
personal ethic from the social beginning in the 1960s' "sexual revolution," yet at roughly the same time
hiring and firing or selling and renting of property were appropriated by the social ethic from the
personal, because leaving it to the personal was perceived as generating unfairness and injustice via
discrimination. In general, the social ethic appropriates matters when leaving them to personal
ethics is perceived as leading to morally unacceptable behavior and injustice. During the past 25
years, increasing amounts of animal treatment have been moved into the social ethic for these
reasons; e.g., laws regulating research, agriculture, animal shows, etc.

Professional ethics stands midway between social and personal, and applies to sub-groups of
society engaged in important but highly specialized activities not well understood by society in
general and requiring special expertise and special privileges. Thus, veterinary or human medicine
require specialized knowledge and enjoy special privileges—e.g., dispensing pharmaceuticals, per-
forming surgery. Society says, in essence, to professions: "you regulate yourselves the way we would
regulate you if we understood what you were doing well enough to do so." Failure to meet this
demand can result in ill-informed people regulating the profession in question without under-
standing, as when perceived abuse of drugs in food animals by veterinarians led Congress to almost
curtail extra-label drug use, which would have dealt a death blow to veterinary medicine.

Animal researchers are, of course, such a professional subgroup. When they failed to control
pain and suffering or provide good animal care, US society moved in 1985 to regulate animal
research despite protestations that such regulation would endanger human health. (In fact, it did
no such thing, and almost certainly led to better research.) If they fail to consider—and imple-
ment—the social-ethical requirement of not creating animals who suffer greatly for long periods of
time, society will almost certainly move to regulate such activities, even if researchers again protest
that such regulation endangers human health.

I would therefore argue that the research community needs to press forward, on their own, the
following sort of regulatory requirement, to be binding on all transgenic animal research and en-
forced by animal care and use committees: No one may create a transgenic model of human ge-
etic disease until they have provided a method for assuring that the animals do not suffer uncon-
trollable long-term or lifetime pain. (A precedent for this already exists in animal care and use
committees not allowing animals used for disease research to progress to death as an end-point.)
Such a principle would put the burden for the control of suffering where it should be—on the
researcher and the IACUCs. Just as current law requires the control of post-surgical pain in ani-
imals used in research, but does not specify how this is to be done, so the above principle precludes
the making of long-term suffering transgenic animals and, rather than simply prohibiting the cre-
ation of such animals, instead places the burden for controlling pain and suffering on those who
propose such "models."

It is possible, of course, that researchers may be unable—even as I was unable—to come up
with modalities that satisfy the above principle, thus in effect making the principle essentially
equivalent to a prohibition regarding creation of such animals, but there is nonetheless a significant
difference between simple prohibition and our proposed principle. The difference is that the moral
burden of social concern is placed on researchers, rather than society simply setting the precedent

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of dictating by fiat on matters it doesn't understand. There is a huge conceptual difference between saying "you may not pursue a line of research," and saying "you may pursue it if you control pain and suffering." The latter is an extension of established social ethics; the former sets the precedent of significant social intrusion into scientific autonomy without allowing science to demonstrate that it can pursue the research in a manner acceptable to social ethics.

Were such a principle to be adopted in the US, it certainly goes beyond current law. At the moment, a researcher must control pain and suffering, or provide a justification for not doing so. Our principle eliminates the "escape hatch," in essence making control of pain and suffering a non-negotiable requirement. Why should researchers acquiesce to this, when in fact under current law they could probably convince at least some animal care and use committees of the value of creating such animals, even when one can't control the pain and suffering? The pragmatic answer I would tender is two-fold. First, I seriously doubt, as Gaskell's report indicates, that society will tolerate the creation of such animals. Were news media to inform the general public of the deliberate creation of life-long suffering animals, especially if photographs or video were forth-coming, few can doubt the strong visceral reaction this would engender. Just as the University of Pennsylvania head injury lab films in essence forced the passage of the 1985 laboratory animal laws, such footage could be very well lead to strong regulatory action that could be more restrictive than the principle we formulated. Second, failure to address this issue would surely awaken and give succor to all the social, knee-jerk "Frankenstein Syndrome" reactions to genetic engineering, and could further alienate the public from biotechnology in general.

But, in the end, the deeper answer is a purely moral one. Twenty or more years ago, when researchers were typically trained under an ideology affirming that science was "value- and ethics-free," and that felt pain in animals was not scientifically knowable, they could distance themselves more easily from the suffering they created. As this ideology has crumbled and been replaced by a more reasonable view, scientists have inevitably developed closer kinship with social morality, since it is now more difficult to distance one's role in science from one's ordinary common sense and morality. And few things are harder for a morally reflective individual to tolerate than dooming something sentient to a life of pain and suffering which cannot be alleviated. Thus, the principle we have argued for is simply in the end a corollary of common decency.

NOTES


Chapter 10

A Positive Ethical Perspective on Transgenic Research

Jon W. Gordon, PhD

I have been asked in this contribution to delineate the benefits, from an ethical standpoint, of transgenic technology in animal research. As concern for welfare of laboratory animals has increased over the past several years, attention has been turned to ethical aspects of transgenic technology. The term "transgenic technology" encompasses a growing array of procedures which result in controlled modification of the germ line. Whether the specific approach to germ line modification involves introduction of new genetic material, the substitution of one gene for another, or cloning, the ethical questions raised are similar and fall into three major categories: 1) Does transgenic technology increase pain or distress to animals? 2) Does transgenic technology pose a risk to human health or to the environment? and 3) Does experimental alteration of the most profoundly important characteristic of an animal—its genetic endowment—violate an important philosophical principle or religious tenet?

The last question can be addressed straightforwardly by simply acknowledging that while some individuals may find germ line modification inconsistent with their fundamental concepts of right and wrong, such disagreements are common in a complex society. However in a pluralistic, democratic society such as ours, no activity should be banned unless the vast majority of citizens find it unacceptable. At present the majority of Americans appear to support new scientific ventures, especially when the potential rewards are as great as is the case with basic and applied transgenic research. Thus, while some individuals may deplore germ line genetic modification, they must respect the right of other responsible thinkers who disagree. Accordingly, our respect for individual choice overrides concern that transgenic research is intrinsically immoral. Moreover, the argument is spurious that such activity is acceptable, but taxpayers who don't like it should not have to pay for it (i.e., there should be no government funding for transgenic research, but private funding is acceptable). When our government judges an activity to be important for the overall good, it provides financial support despite the vocal opposition of some citizens. For example, the federal government continues to produce and deploy nuclear weapons over the objections of many taxpayers. We can therefore dispense with this argument by voicing respect for the right of any individual to refuse to partake in transgenic experiments, while at the same time acknowledging the right of others to pursue such research.

The other two issues, which relate more to the direct consequences of research on animals and the communities in which the animals are maintained, are more substantive. In my view the transgenic approach has not been demonstrated to cause a degree of pain and distress that exceeds conventional experimental techniques. In fact, the potential for transgenic research to reduce the numbers of animals needed for experiments is significant, and from this perspective, is a highly preferable approach to animal experimentation. Where risk is concerned, this technology has been very safe relative to other methodologies, and poses little identifiable risk to the environment. This is not to
say that transgenic animals never suffer pain and distress, that transgenic animals pose absolutely no threat to human health, or that transgenic animals do not pose any risk to the environment. Rather, my argument is that when compared to other techniques, controlled modification of the germ line is equal or superior to conventional approaches from the standpoint of these concerns.

In this paper I will first briefly describe the currently used methods for altering the germ line, with emphasis on characteristics of each method that have special significance to one or more of the ethical issues outlined above. Next, information will be reviewed to support my contention that transgenic technology is a step forward, from the ethical standpoint, in animal research. Finally, some general comments will be made concerning fallacious lines of reasoning that have the current climate of doesn't toward animal experimentation.

**TRANSGENIC TECHNIQUES**

At present there exist four viable methods for modifying the mammalian germ line. The first technique developed, and still the most widely used, is pronuclear microinjection. This technique, which also gave rise to the term "transgenic," entails the simple and direct microinjection of recombinant DNA into the pronucleus of the fertilized egg. Microinjection remains the mainstay of transgenic research for several reasons. First, it can be applied to any species in which the pronuclei can be visualized. Second, it is a simple, one-step procedure. Third, it can be used to transfer genetic material between very distantly related species, and fourth, the procedure, when properly planned, readily leads to high expression of foreign genes in the recipient organism. High expression results in part from the fact that microinjected gene fragments often integrate as multimeric concatamers. Thus, it is possible to insert as many as 400 copies of a gene into a site within the host genome.

Important features of the microinjection approach that bear upon the ethics of animal experimentation are several. High expression of disease-causing transgenes such as oncogenes or genes that cause neurodegeneration in humans can lead to progressive, fatal disease in mice. Insertion of foreign DNA after microinjection appears to occur randomly in the genome. Thus, the potential exists to create mutations by insertional disruption of host genes. Such mutations can have catastrophic consequences. Similarly, host DNA rearrangements, often manifested as major anomalies such as translocations, can occur and be associated with severe disease or mortality. Finally, insertion of genes that cause human disease has the potential for producing a new animal vector for disease transmission. These problems will be discussed in more detail below, where transgenic technology is compared to traditional methods of animal experimentation.

Another increasingly popular approach to germ line gene modification entails the use of murine embryonic stem (ES) cells. These cells can be cultured for extended periods and genetically manipulated as a cell line, after which they can be reinserted into embryos, whereupon they resume development and give rise to all cells of an adult mouse, including germ cells. The first animal to be produced from ES cells is usually a genetic mosaic composed in part from ES cell derivatives and in part from derivatives of the embryo into which the ES cells were inserted. Therefore it is important that the mosaic animal have the phenotypic sex corresponding to the genetic sex of the ES cells (usually XY), and that sufficient numbers of ES cells colonize the gonads. Finally, the ES cells must remain competent to complete meiosis after genetic manipulation in vitro and subsequent
embryonic and fetal development. Though it is technically challenging, the ES cell procedure allows for gene replacement by homologous recombination,\textsuperscript{15,16} a powerful application which has been mainly exploited to produce targeted mutations by substituting non-functional genes for their functional counterparts within the mouse genome. This technique is not associated with major rearrangements of the recipient genomic DNA, and not with extraordinary over-expression of foreign genes. Moreover, the approach is currently restricted to mice. The technique can cause disease by inducing host mutations, and although it theoretically can be employed to transfer completely alien DNA into the mouse genome, it is far more cumbersome for such procedures than pronuclear microinjection.

A third method for transferring genes into the germ line is retroviral infection.\textsuperscript{17,18} This technique is used very little because foreign gene expression is low and these viral vectors do not allow transfer of large amounts of genetic material. However, they have the potential to specifically disrupt genes,\textsuperscript{12} thus causing insertional mutations in much the same way as microinjected DNA.

The fourth approach to germ line gene insertion is cloning.\textsuperscript{19,20} This process is still in its earliest stages of development, and entails the transfer of nuclei from fetal or adult cells into enucleated eggs. The reconstituted embryos, activated to develop by the process of nuclear fusion, then develop to adults which are genetically identical to the nuclear donor. Because nuclei from cultured cells are used in cloning, the cultured cells can in principle be subjected to genetic manipulation prior to their use in nuclear transfer. Thus, the potential exists to produce transgenic animals. In addition, the ability to produce multiple genetic copies of an individual animal without engaging in the arduous and time-consuming process of in-breeding has caused many to regard cloning, even without gene transfer, as a form of transgenic technology.

When used in the setting of gene transfer, cloning raises the same ethical issues as microinjection. When used for gene replacement by homologous recombination, cloning is analogous to ES cell technology. Whether there are animal welfare issues unique to cloning, such as pain and distress related to development of a new organism from an aged nucleus, is not yet known.

**PAIN AND DISTRESS IN TRANSGENIC ANIMALS**

Before discussing specific examples of pain and distress in transgenic animals, an important principle which governs ethical decisions regarding animal experimentation should be reiterated. That principle, which is currently employed by all institutional animal care and use committees, is that animal pain and distress is acceptable if it cannot be avoided without compromising study design, and if the scientific information to be obtained from the study is of high priority. It is obvious that animals should not experience unnecessary pain, and in my view, such unnecessary suffering is unusual in the laboratory setting, where poor animal health and well being can threaten the quality of scientific data. However, it is not possible to engage in many important animal studies without causing some discomfort to animals.

As noted above, there is no doubt that expression and mutagenic insertion of foreign DNA in transgenic animals can lead to pain and distress. As alluded to previously, transgenic animals that over-express oncogenes or proto-oncogenes are prone to development of tumors, since every cell in the animal that can express the tumorigenic construct is susceptible to neoplastic transformation. Therefore it is not unusual for such animals to develop multiple neoplasms which, if allowed to
progress to advanced stages, present a substantial tumor burden to the animals. In reality, if such tumors do not become infected, the animal shows little sign of discomfort. However, massive tumors which erode through the skin and become secondarily infected presumably elicit distress. The ability to target oncogene expression to unusual sites can also cause what may be assumed to be pain and distress. When oncogenes are driven by the mouse mammary tumor virus long terminal repeat promoter element, massive hypertrophy of the harden lacrimal glands is commonly seen (e.g., 6). Although the animals exhibit no overt signs of suffering from these lesions, we may presume they are deleterious to animal well being. It is also possible to induce erosive tumors of the ocular lens by targeting oncogenes using the promoter from the crystallin protein, a protein expressed exclusively in the lens. Expression of HLA B27 genes in rats is another example of expression-related pain and distress. In humans the HLA B27 haplotype is associated with ankylosing spondylitis, an autoimmune disorder that causes inflammation of a variety of tissues. When this gene is expressed in rats in association with human b2-microglobulin, transgenic rats develop a florid inflammatory condition which affects similar organ systems to those attacked in humans. The profound joint and bowel inflammation seen in these animals can be presumed to be painful.

Expression of genes that cause motor neuron loss in transgenic mice presents a somewhat more complicated situation. Motoneuron disease in humans is not physically painful, though the psychosocial consequences of progressive and debilitating paralysis are certainly significant. If we presume that mice do not experience the emotional pain seen in humans, then the mere presence of motor dysfunction may be presumed not to be painful. In my view there is no scientific basis for believing that a mouse suffers in any way simply because it cannot move. The belief held by many animal welfare activists, that mere loss of motor function of this kind is traumatic because it deprives the animal of a range of activities typical of its species, is interesting and perhaps even true, but is without evidentiary substantiation. On the other hand, if such mice are unable to obtain food and water, or if they develop stasis ulcers of the skin, we may presume they suffer pain and distress. By similar reasoning we may infer that insertional mutations which cause such anomalies as limb deformities, or even total absence of the lower limbs, cause distress if the animal is unable to take food and water. Again, however, we have no evidence that the mere presence of such lesions is painful.

While animal suffering, as it is currently defined, almost certainly exists in these and numerous other transgenic animal models, the forms of suffering do not differ qualitatively from pain and distress in experimental animal models produced by other methods. It should be appreciated that for many decades prior to the advent of transgenic technology a major effort was underway to produce and analyze disease-causing mutations in mice. In the absence of recombinant DNA technology, the only available strategy for producing such mutations was random mutagenesis. Approaches to random mutagenesis included screening of large populations of animals for appearance of spontaneous mutations, radiation of the testes, or use of mutagenic chemicals such as N-ethyl-N-nitrosourea (ENU) acrylamide monomer or chlorambucil. The procedure of random, saturation mutagenesis is obviously potentially toxic to the animal and could conceivably cause pain. Moreover, mutations produced by these methods can lead to disease phenotypes that are no less painful than those produced through transgenic technology; and, as discussed below, are often the result of major genome rearrangements rather than changes involving single genes.

Because gene insertion facilitates production of discrete mutations, the most significant difference between transgene-induced mutations and those created by random mutagenesis resides in
the analytical phase. When mutations are randomly produced, their chromosomal map position is unknown, the gene(s) targeted by the mutagenic stimulus are unknown, and the phenotype may be due to major DNA rearrangements that involve several genes. In order to map such mutations it is necessary to engage in exhaustive breeding protocols that involve, for example, inter-species crosses between *Mus musculus* and *Mus spretus* (e.g. 29, 30). Another approach is to screen numerous progeny from intra-species crosses of *Mus musculus* in order to identify linkage between the mutation and a known genetic marker. Such breeding experiments require extensive animal use, and if the number of animals used in an experiment is considered an element of animal pain and distress, this process significantly detracts from animal well being.

Once the mutation is mapped, the most reliable method of determining the biochemical basis for the genetic defect is gene cloning. Cloning of genes without a specific molecular probe is performed by the process of “reverse genetics” whereby anonymous gene markers cloned from each of the chromosomes is tested for linkage to the new trait. Again, this process requires extensive genetic crossing. Another drawback of this approach is that even close linkage between the anonymous marker and the disease trait does not necessarily lead to rapid gene isolation. When the crossover frequency between two genetic loci is 1 per cent, the distance in base pairs between the markers is 10⁶ bases. This distance often necessitates costly, time-consuming “walking” procedures which entail sequential cloning of markers that are situated progressively closer to the disease gene. The cloning challenge is further complicated when random mutagenesis procedures induce major chromosomal rearrangements such as translocations, inversions, or major deletions. Under these circumstances the cloning process can lead to inadvertent walking into the wrong chromosome (in the case of translocations) or walking in the wrong direction (inversions). When large deletions are involved it may be impossible to clone a DNA fragment that lies close to the locus of interest. A final difficulty with this situation is that major rearrangements and their associated abnormal phenotypes can involve multiple genes. Under these circumstances cloning of specific genes that cause the pathology can be a daunting task.

When insertional mutations are created by random integration of microinjected DNA, the genetic locus is not immediately known. However, because a unique DNA sequence marks the locus, mapping is easily accomplished by in situ hybridization or other straightforward procedures. In addition to its use as a marker for mapping, the transgene can be a hybridization target for cloning the mutated endogenous gene. Thus, instead of engaging in exhaustive breeding studies directed toward mapping, with no efficient method for isolating the mutant gene, as occurs with spontaneous, radiation-induced, or chemical-induced mutations, transgene-induced mutations allow rapid mapping and cloning of genes. These advantages reduce animal use, and thus, animal pain and distress.

Transgene-induced mutations are often more specific than with random methods such as radiation. When retroviruses are used to create such mutants, the foreign DNA insertion causes minimal disturbance of host cell DNA. Thus, major deletions, inversions, and translocations do not occur. When genes are knocked out in ES cells the targeted locus is modified by homologous recombination. These recombination events are characterized by “perfect” substitution of one DNA sequence for another, and thus, cause no disturbance of flanking DNA. Disease models produced by targeted mutagenesis also represent a major improvement over previous approaches to mutation analysis. With this procedure a gene is cloned, modified so as to be non-functional, and used to replace its counterpart in the genome via transfection and selection in the ES cell line. Successful
targeting of the genetic locus to be mutated is confirmed before any attempt is made to produce animals. Thus, when animals are made, the genetic locus is already known, the precise nature of the genetic change predetermined. Although ES cell technology is not readily adaptable to situations where super-physiological levels of gene expression are required, it does provide an immediate and direct correlation between the mutant phenotype and the gene whose function is negated.

Disease models relating to transgene over-expression are also more efficiently analyzed than disease models which appear spontaneously in animal colonies. The biochemical characteristics of the inserted gene are known before the disease is created. Thus, when disease appears, the investigator already possesses substantial knowledge as to its biochemical and physiological basis. It is also noteworthy that some of the best mouse models of human disease can probably not be produced by random screening or exposure to mutagens. In the case of the aforementioned model of the neurodegenerative disease amyotrophic lateral sclerosis, it appears that very high over-expression of the disease causing transgene (Cu/Zn-superoxide dismutase) is required before disease is elicited. Because microinjected gene fragments often integrate as long head-to-tail concatamers comprising numerous copies of the gene, such high expression is readily achieved. There is no obvious way to induce such high expression using traditional mutagenesis.

Given these considerations, the transgenic approach to modeling genetic disease constitutes a major advance in animal genetics. Production of mutants is less traumatic to animals, and vastly fewer animals are accordingly needed for mapping and cloning of mutated loci. Diseases related to gene expression are produced with foreknowledge of the genes whose over-expression leads to pathology in the animal. Thus, many of the laborious steps usually required to analyze disease phenotypes—steps that require the use of very large numbers of animals for biochemical and genetic studies—are eliminated. For these reasons transgenic technology reduces animal use and thus lessens the total amount of pain and distress experienced by the research animal.

**TRANSGENIC TECHNOLOGY CAN REDUCE USE OF LARGE ANIMALS**

One principle which appears to pervade most of the animal welfare movement is that experimenting with more “advanced” species is inherently less acceptable. The term “advanced” refers to our intuitive feeling that the animal is more intelligent, more like humans, and consequently more able to suffer deeper forms of distress. The analytical process by which this inference is drawn will be addressed later in this paper. For the present it shall be assumed that experimental use of a rodent is preferable to use of a dog, cat, or non-human primate.

One excellent example of the way in which transgenic technology allows substitution of rodents for larger species is the development of mice for testing live polio vaccine. Poliomyelitis virus cannot infect mouse cells because of the absence of the cellular receptor needed to permit viral entry. However, non-human primates can be infected with polio. As a consequence of this susceptibility, monkeys are routinely used to test preparations of attenuated live vaccine for the presence of virulent, disease-causing virus. Because of the wide use of the live attenuated vaccine and the number of animals needed to test each lot of vaccine, the testing procedure employs large numbers of primates.

The production of transgenic mice expressing the human receptor for polio virus\(^\text{31,32}\) allows infection of mice with this virus. As a result, mice will soon replace monkeys as a test animal for this
vaccine. According to the principle that reducing use of advanced species such as primates lessens research animal suffering, this application of transgenic technology must be considered a major step forward.

Another example of this kind of application of transgenic technology is provided by mice carrying hepatitis B genes. Hepatitis B infection can lead to chronic active hepatitis, a smoldering infection that causes chronic hepatic inflammation and, eventually, hepatocellular carcinoma (HCC). HBV infection is one of the leading causes of HCC, which is almost always a fatal disease. Mice are not normally infected with hepatitis B (HBV), but insertion of HBV genes into transgenic mice can lead to persistent production of surface antigen in serum and subsequent development of HCC. HCC is a major complication of chronic active hepatitis, and these transgenic mice provide an interesting method of studying the progression of the diseases from chronic infection to overt hepatic neoplasia. There has also been a transgenic mouse produced that may support full replication of the HBV genome. These animals have the core antigens of HBV in their serum. The presence of these antigens is diagnostic of active HBV infection in humans.

Many reproductive physiologists have suggested that if cloning could be extended to primates, fewer animals might be required for a variety of studies. Because the response to various procedures or compounds may be modified by the genetic background, and because primates are not inbred, the variability in response necessitates the use of large numbers of animals to fully characterize the effect of the treatment. Cloning can result in production of large numbers of genetically identical animals, and thus, can provide a genetically uniform test population.

While this assertion is correct in principle, the benefits of cloning for these purposes may be illusory. If a population with a single genotype is subjected to an experimental treatment, the response may be uniform, but that response might not provide a representative view of the effect of the treatment on the species as a whole. For example, if anticoagulant medication is tested on a cloned group of monkeys, they may prove highly resistant to the drug’s anticoagulant effects, but this resistance may be due to an unusual polymorphic set of genetic alleles which does not appear frequently in the species as a whole. Thus, such an experiment could mislead an investigator into believing the anticoagulant to be less potent than it actually is, or could lead to the erroneous conclusion that the species tested is generally highly resistant to the compound. For these reasons it is my view that although cloning can be used to reduce the number of test animals under some circumstances, interpretation of data from such experiments must be undertaken with the realization that a single genotype may provide a limited view of the range of responses possible in a highly polymorphic species.

**Does transgenic technology predispose to a reduction in genetic diversity?**

When new genetic traits are introduced into livestock in an effort to engineer living bioreactors for human medicinal compounds (as in the case for animals expressing clotting factor genes in the breast gland and releasing those factors into breast milk), or to increase milk or meat production, the possibility arises that success would predispose breeders to inbreed the transgenic animals in an effort to optimize expression of the new genetic trait. This inbreeding, which reduces overall genetic diversity and increases risk of cataclysmic loss of the strain of animal or plant, has
historically plagued agriculture. Moreover, it may be suggested that inbreeding encourages the phenotypic manifestation of recessive genetic traits which could cause genetic disease and increase animal pain and distress. In my view the use of transgenes to achieve a desired phenotype, rather than increasing such risk, would actually facilitate maintenance of genetic diversity. Because micro-injected transgenes integrate as long, head-to-tail arrays containing dozens or even hundreds of gene copies, expression is often far higher than any corresponding endogenous gene. For example, mice expressing human growth hormone transgenes express as much as 800 times the normal level of growth hormone. Because expression is so high, phenotypic penetrance can be achieved regardless of genetic background. This assertion is born out by the transgenic literature, where most of the animals produced have been on out-bred backgrounds. We may therefore conclude that transgenic technology does not exacerbate the problem of loss of genetic diversity, and in fact, has the potential to reduce it.

Because transgene introduction adds new genetic material to the genome, it is theoretically possible that it may be used in the future to deliberately increase genetic diversity. Decimation of wild animal populations through habitat destruction, etc., can lead to loss of genetic diversity that can threaten species with extinction. While it is not yet known precisely which genetic loci, when maintained in a polymorphic state, most effectively resist this effect, the acquisition of such knowledge could lead to future efforts to increase genetic polymorphism via transgene insertion. This eventuality would lead to an application of transgenic technology specifically for improving animal well being.

**DO ANIMALS WITH FOREIGN GENES LOSE THEIR "SENSE OF IDENTITY?"**

Some animal rights activists have suggested that the mere presence of human gene sequences in a mouse or a cow might engender a form suffering related to the fact that the essence of the information that defines a species—the genetic code—has been modified. There is of course no overt evidence that gene transfer incurs suffering by such a mechanism. When considering this issue it is important to realize that foreign DNA has gained access to the mammalian genome spontaneously over the millennia. The best example of such exogenous DNA integration is provided by ecotropic retroviral insertion. A variety of retroviruses, which are RNA tumor viruses, are able to infect the early embryo, produce a proviral DNA copy of the RNA genome, and insert that proviral DNA into the chromosomal material of the host. This capability was first demonstrated experimentally in 1976. However, with the advent of molecular biology it has been possible to identify proviral DNA sequences in a variety of mammals. In mice such integration events have even been responsible for creating mutations. For example, the dilute mutation in mice, which causes a pallor of coat color, results from ecotropic retroviral insertion. Given that exogenous DNA gains entry into the mammalian genome spontaneously with no apparent ill effects relating to animals' loss of genetic identity, it is not reasonable to believe that experimental addition of DNA poses any problem of this sort.
DO TRANSGENIC MICE POSE A RISK TO HUMAN HEALTH?

Although the potential for transgenic animals to transmit diseases to humans is not strictly an example of animal suffering induced by transgene insertion, zoonotic transmission of disease could be regarded as a negative aspect of the transgenic technology, and as such, the problem deserves mention here.

There is no doubt that experiments could be performed which would render transgenic animals dangerous to humans. The aforementioned mouse with HBV e antigen in serum\(^{35}\) represents one possible example of this risk. Although the titer of HBV in the sera of these animals is very low, the possibility must be considered that these animals could transmit HBV to humans if an exchange occurred between virus-containing fluids of the animal and the human bloodstream. In the case of HBV the simple precaution of vaccinating researchers and animal care personnel against HBV provides satisfactory protection.

Transgenic mice engineered to become susceptible to HIV infection\(^{39}\) do not pose a significant risk to humans. Although it is possible to introduce the HIV receptor into mice, the virus is unable to replicate efficiently in mouse cells. Thus, these animals cannot readily transmit the disease.\(^{39}\) This situation contrasts with that of mice with severe combined immunodeficiency (SCID) which undergo engraftment with human bone marrow that is infected with HIV. In this situation human cells within the animal support HIV replication and thereby render the animal potentially dangerous to humans.\(^{40}\) These mice, however, are not transgenic in that they cannot transmit their genetic modifications to offspring through the germ line.

The take home message from the extant literature on transgenic animals is that they rarely pose significant risk to humans. However, it is always prudent to take precautions if a mode of zoonotic disease transmission can be envisioned. Historically such precautions have been appropriately rigorous and anticipatory.

DO TRANSGENIC ANIMALS POSE A RISK TO THE ENVIRONMENT?

An additional potential risk exists that transgenic animals could escape the laboratory and disseminate their pathogenic transgenes throughout wild populations of mice, which would then become a novel vector for transmission of human pathogens encoded by their transgenes. Even if such animals were not a vector for disease transmission, it has also been suggested that their escape could lead to genetic contamination of wild animal populations. Animal models that pose such risks, whether produced by transgenic technology or any other means, must of course be contained using appropriate housing procedures. Where transgenic laboratory mice are concerned this risk is very low. Through decades of inbreeding and maintenance in the laboratory, research mice are genetically quite dissimilar to their feral counterparts, which have evolved in response to selective pressures imposed by their natural environment. These differences make it highly unlikely that laboratory mice would survive in the wild sufficiently well to disseminate their genes throughout feral mouse populations. Moreover, the persistence of a transgene in a wild population would require that the new gene is either selectively "neutral" or, more likely, advantageous to the animal. It is unlikely that an introduced transgene, which, from the perspective of natural selection, is similar to a new mutation, would increase biological fitness and confer a selective advantage upon
an animal. This is particularly true if the transgene causes disease. This reasoning appears to be supported by the history of transgenic research, which, despite the production of tens of thousands of transgenic mice, has thus far proved entirely safe. Nonetheless, the risk of genetic contamination of wild animal populations cannot be eliminated by argument alone. When animals are produced which carry new genes of any kind, appropriate precautions against their escape must be taken. The same principles prevail for transgenic livestock, and in my view, special concern should arise when organisms that produce very rapidly (e.g., insects) or by asexual reproduction (plants) are genetically engineered.

**Many animal rights concerns arise from flawed assumptions**

There is no doubt that the vast majority of animal rights activists are well-intentioned, and they do not challenge necessity for continuing animal research. Rather, their main concerns are that research animals are subjected to unnecessary discomfort, or that the scientific objectives do not justify the pain and distress suffered by animals in the course of pursuit of those objectives. When defining pain and distress, animal rights proponents cite not only the obvious forms of suffering such as trauma, infection, or deprivation of food and water. Their concerns extend to issues such as space requirements for animals, as well as the related need for animals to be permitted to engage in behaviors typical of their feral counterparts. While the precise nature of suffering in animals is not fully understood, it is frequently asserted that if doubt exists that an animal is suffering in a manner akin to human suffering, the animal should be given the “benefit of the doubt.” Further, many believe that animals have an inherent right, as living creatures, not to be exploited by humans in such a way as to incur suffering, and that animals have “intrinsic value” which endows them with those rights. While these beliefs do not specifically bar all animal research, adherence to them can place such significant restrictions on animal experimentation that many studies become logistically or financially impossible to perform.

Much of this thinking neglects obvious differences between animals and humans. There is no doubt that animals suffer pain, since this critical avoidance mechanism is almost certainly required for survival. Moreover, associative learning which leads to pain avoidance behavior is common throughout all animal phyla. Even planaria can be taught to avoid noxious stimuli. For these reasons it is logical to assume that pain suffered by laboratory animals is perceived as noxious, and that such pain, where possible, should be eliminated or minimized. This reasoning can almost certainly be extended to situations where animals are deprived of basic needs such as food and water. It is reasonable to assume that such situations are perceived negatively by the animal.

When less obvious forms of distress are involved, the situation becomes more challenging. Suffering in humans is a complex phenomenon that cannot be divorced from the underlying understanding, unique to humans, that an eternal end to all consciousness—death—is a certainty. When trauma is suffered by humans, the response may depend greatly on the victim’s assessment of the likelihood that the injury is life threatening. There are also cultural aspects to suffering, with some cultures encouraging and rewarding stoic behavior, etc.

Another important feature of human suffering is the sociological component. Humans can suffer immensely even when an acquaintance is injured or killed, and this suffering can ramify as anxiety, depression, and grief. These emotions are magnified in situations where family members...
die, as for example in a case where parents lose a child. This psychological backdrop is difficult to demonstrate for any animal. While it has been suggested that infant chimpanzees suffer depression upon the death of the mother, a definitive understanding of the experience of the young chimp is impossible to attain. When dealing with animals such as rats and mice, these responses cannot even be documented. Moreover, even in the most advanced non-human primates such as chimpanzees, the sense of community that pervades the human social structure is far less significant. For example, clear documentation exists that wild chimp tissue and cannibalize infant animals to which they are not directly related genetically.  

The point of this discourse is not to assert that animals don’t suffer. Rather, it is to emphasize that an unpleasant stimulus, once it reaches the brain of an animal, is subject to processing mechanisms that are almost certainly different from humans. Therefore the notion that animals should be given the “benefit of the doubt,” to the extent that it assumes that the animal feels what a human would feel in its place, is foolish.

In my view, a better approach to such situations would be to avoid unnecessary noxious stimuli rather than to try to satisfy needs that cannot be documented or understood. In the laboratory setting, avoidance of unnecessary distress is in fact the soundest scientific strategy. When animals are subjected to painful stimuli they should be monitored closely for behavioral or physiological changes which indicate a breakdown of their homeostatic mechanisms, and where possible, intervention should be taken to restore stability. An example of this situation is an animal that cannot take food and water freely because of post-surgical pain. Such an animal may require analgesia or other forms of support to assure adequate recovery. However, if and when an animal engages in its normal activities after surgery, as occurs almost immediately in mice, analgesics should not be given: the process of drug administration is stressful if it requires handling or forcible containment of the animal. In addition, drugs have side effects which can themselves induce discomfort, and finally, the administration of drugs that are not directly part of the scientific protocol has the potential to compromise results. This last point can be extended to any form of animal handling in the research setting. Unnecessary procedures, like unnecessary pain and distress, can complicate data collection and interpretation, and can consequently lead to a requirement for repetition of experiments. This latter happenstance of course leads to increased animal use. Once it has been decided that an experiment is to be performed, the animal management should be geared to optimizing data collection. Ultimately this approach reduces animal pain and distress, and foments more rapid research progress.

Concerning the issue of an animal’s inherent “rights,” it is my view that animals do not have any rights other than those which may be conferred by humans. This situation is not substantively different from human rights. If some members of a society are not given the right to vote, we may protest that the law violates our personal conception of justice. However, the fact that some people believe that a voting right should be extended to all does not mean that everyone has an inherent right to vote. In our own society, minors cannot vote, and most citizens believe that denying them this right is appropriate. However, in the mid-nineteenth century most Americans felt equally sanguine about the fact that women couldn’t vote. It was only through active protest that a consensus developed which resulted in women’s suffrage. In our present day social system some minorities of race or sexual orientation are not accorded full citizenship rights. This denial is certainly unjust, but not because those individuals have inherent rights; it is unjust because our constitution mandates that such rights should be given, and their denial therefore violates our own legal tenets.
Inconsistency or hypocrisy within any social system must of course be regarded as a breakdown in that system and, as such, as fundamentally wrong.

Extending these principles to animals, we may say that animals have “rights” if human society chooses to confer them. However, any lexicon of “animal rights,” if it is to be meaningful, must take into account the fact animals are not human. When a human social system confers a right upon its people, it presumably does so with the intent of allowing them to fulfill their potential as human beings. It is difficult to know how to devise rules that allow animals to fulfill their potentials, since it is difficult to know what those potentials may be, and of course, we cannot ask the animals for their views. It is almost certainly inappropriate to devise a “fulfilling” environment for a laboratory animal on the basis of the manner in which its feral counterpart behaves, or vice versa. Laboratory mice will often sit in an open cage for hours without making any attempt to escape. These animals appear quite comfortable in the laboratory setting, where food and water are available ad libitum, where bedding is clean, etc. However, if we use these observations to develop a concept of “rights” for all mice, we might be compelled to capture all mice and place them in cages. This notion is obviously ridiculous: feral mice scurry about in the wild, and when placed in laboratory cages, they almost immediately escape when the cage is opened. It is for this reason that we should not necessarily develop a system of “rights” for research animals on the basis of the behavior of feral counterparts. These complexities apply less to animals that are not as extensively acculturated to laboratory conditions, but in general, well cared for laboratory animals do not manifest behavioral or other changes which would indicate that the mere circumstance of laboratory maintenance is compromising the fulfillment of their “potential” as a member of their species. These difficulties lead me to conclude that inflexible animal care regulations based upon presumptions about animal well being that cannot be scientifically documented and that are not based upon sound logic would almost certainly lead to inadvertent subjection of research animals to increased, rather than decreased distress.

Another concept that forms part of the foundation of present day animal rights thinking is that animals have “intrinsic value” that is independent of their importance to humans. It is difficult to comprehend this line of thinking. In particular, it does not seem possible for anything to have value without the existence of a value system. Since value systems cannot be developed by anything other than a conscious being, it is hard to know what value animals have independent of the way in which they are regarded by humans, or perhaps, a deity. The only recognizable value of the dinosaurs is that which we place on them. Prior to discovery of fossilized bones dinosaurs had no value that can be objectively determined.

A clear example of how the value of an animal depends upon the value system is represented by the rat. A pet rat is highly valued by the pet owner. However, if a marauding rat enters a tenement apartment and bites a child or defecates on the kitchen floor, the animal is held in very low esteem, and little remorse is expressed if the animal suffers when exterminated. Laboratory animals are highly valued for their potential to yield scientific data, and because of this critical attribute, they are generally cared for far better than many pets or farm animals. When pain is administered to laboratory animals, the circumstances are almost always carefully controlled and pain is minimized where possible. It is not appropriate to value these animals as one would a pet or a pest. Research animals occupy their own place in the value system, and thus, while careful attention is paid to their health, they are killed when necessary for the experiment, when they have
outlived their usefulness as a research subject, or when pain or distress incurred in the course of an experiment exceeds that which is tolerable for obtaining data.

Where transgenic research is concerned, this last judgment is best made through a cooperative relationship between the researcher and the veterinarian. Because transgenic animals may manifest abnormalities unfamiliar to the veterinarian, close communication between veterinary staff and the investigator can be critical to successful management of the transgenic colony. When transgene-related disorders appear, it is important for the investigator to explain the nature of the lesion and its pathogenesis. On the other hand, disease or post-surgical complications that are best identified by veterinarians must be explained to the researcher both in terms of the pathogenic nature of the anomaly and the degree to which such problems are known to cause pain and distress. In this cooperative, interactive research environment, a veterinarian can contribute invaluably to research by identifying abnormalities and avoiding loss of precious animals.

**SUMMARY AND CONCLUSIONS**

Transgenic technology has created a new era in animal research. As a powerful, well-controlled tool for creating animal models of disease and conferring novel traits upon research animals and livestock, transgenic technology represents a major step forward in basic and applied animal genetics.

The suffering endured by animals as a consequence of transgenic technology is not qualitatively different from that observed after traditional manipulations which were directed toward the same scientific objectives. However, because of its power and efficiency, transgenic technology can reduce the number of animals needed to obtain results, with a commensurate reduction in the total amount of pain and distress suffered in the research setting. Transgenic technology also allows the substitution of mice for larger animals in a variety of important testing paradigms.

When assessing the acceptability of any degree of discomfort experienced by a research animal, whether it be transgenic or not, two basic principles should apply. First, every effort should be made to avoid personification. Animals cannot experience the world as humans do. Obvious pain can be recognized and should be alleviated when such interventions do not compromise data gathering. However, the best approach to minimizing discomfort is not to compromise experimental protocols with excessive intervention. Such measures are certain to lead to more animal use when data are compromised and it becomes necessary for studies to be repeated.

To place an appropriate value on an animal in the research setting, the role occupied by the creature in the enterprise of science must be factored in. These animals are not pets and should not be treated as such. On the other hand, they are not pests which can be exterminated without any attention to the circumstances by which they meet their demise. In general, researchers have an excellent concept of the value of their animals and they care for them appropriately. However, a partnership with the veterinarian, especially when unprecedented anomalies appear as a result of transgenic technology, is critically important to the success of transgenic research and to optimization of animal care.
NOTES


Chapter 11
End-of-Life Decisions: Consensus and Controversies

Robert M. Veatch, PhD

One day in 1975 a young lawyer named Paul Armstrong called my office at the Hastings Center in New York. He asked to consult on the development of a legal case involving a young woman who had been left permanently unconscious on a ventilator, apparently after consuming alcohol and some other drug. Her parents were asking to stop the ventilator and let her die. The young woman, Karen Ann Quinlan, signaled the emergence of a national public discussion about the legal and ethical choices for end-of-life decisions.

In the years since that dramatic event, we have developed a substantial consensus on the care of the dying. That consensus can be summarized in ten points. After reviewing those ten points, I will turn to ten additional points in which controversy remains. In addition, one of the points of the original existing consensus is now coming unstuck. The agreement that active killing is morally and legally different from foregoing life support is now reopened for further discussion. The reassessment of active killing of patients for merciful motive threatens to become the most controversial elements of future debate. In the third section of this paper, the nature and reasons for that rapidly emerging change will be examined.

1. THE CORE CONSENSUS—IN TEN EASY POINTS

1. Active killings are morally and legally different from letting die

First, up until recently, there was a substantial consensus that active, merciful killing of terminally ill patients was morally and legally different from merely foregoing life support to let nature take its course. There was always a minority who denied this—claiming that no real difference existed. A small group of liberals have always believed that both active killing and passively letting persons die were morally acceptable in certain special cases. A small group of conservatives, including many Orthodox Jews, have always believed that both active killing and passively letting persons die were morally unacceptable (holding that all human life was precious and to be preserved). But most mainstream commentators, whether in the AMA, the Catholic Church, the President’s Commission on the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research, or individual commentators, accepted the distinction claiming that, while active interventions for the purpose of killing the patient were unacceptable, foregoing life support to permit a dying process to continue was significantly different and more acceptable. That has been where the law (both statutes and case law), clinical practice, and most commentators are.
2. Competent patients have an absolute right of refusal of medical treatments offered to benefit the patient

If we limit our attention to foregoing treatments, the right of the patient in the United States is clear: no competent person has ever been forced by a court to undergo medical treatment against his or her will if the treatment is offered for the patient’s benefit. (Technically, lower courts have ordered such treatment—including the court that first ordered treatment for Karen Quinlan—but they have always been overruled by higher courts. Also, treatments, such as immunizations, are ordered for public health purposes—thus not for the patient’s own good.) If a competent patient has expressed a refusal through an advance directive, that same right of refusal carries forward into the period of incompetency.

Thus, although traditional physicians were strongly paternalistic, they have no right legally to override a patient’s judgment against treatment. The dominant American consensus is that this conclusion holds ethically as well. A physician never has the authority to override a patient’s refusal expressed contemporaneously or in an advance directive. A court may override in only two instances: (1) when they are determined not to be a valid expression of competent patient (such as when there is clear evidence that the patient changed his mind or was not competent when the refusal was expressed) and (2) when valid interests of third parties justify overruling the patient.

3. Ethically refusals treatments are those that are extraordinary—defined as “unfitting”

While the competent patient has a legal right to refuse any medical treatment, clearly some treatments are not wise or even ethical to refuse. Those treatments that can justifiably be refused are traditionally called “extraordinary means.” It might seem that “extraordinary” means are unusual or high tech means, but that is not what the commentators have ever meant by this term. Rather, they had in mind all those that do not offer more benefit than harm. This is increasingly referred to as the “proportionality” criterion. If the harm is out of proportion to the benefit, there is no reason to accept the treatment. Recently, we have understood that these benefit and harm judgments are inevitably subjective. The patient must be the one who decides what counts as a benefit and how beneficial each potential treatment is. While the physician is an expert on the effects of various treatment and the probability of those effects occurring, deciding how good or bad an effect may be is fundamentally not a question of medical science. Different patients with different beliefs, values, and goals will evaluate them differently. This means—to put the matter bluntly—that if the physician wants to know how beneficial a treatment may be or how harmful a potential side effect is, he will have to ask the patient.

4. The right of refusal extends to routine procedures

In the 1970s the right of refusal of complicated medical technologies like ventilators and dialysis machines and complex surgeries was established. But even then, people were reluctant to extend this right to more routine, everyday treatments. But by the mid-1980s they began to realize that the ethical principle of autonomy that gives persons the right to refuse treatment, should not
be suppressed simply because a treatment is simple. Thus literally any procedure—CPR, antibiotics, nutrition and hydration, and even nursing protocols such as those calling for turning patients—may offer burdens that are as great or greater than their benefits in particular patients. It makes no sense to insist on a treatment that has burdens that exceed the benefits just because it is simple.

5. Withdrawings are morally equal to withholdings

The fifth element of the consensus amounts to a clarification of the belief that foregoings are morally and legally different from actions that kill. Among foregoings, one can envision both withholdings and withdrawals of life support. Although withdrawing a life-supporting treatment involves an action on the part of the health provider, it is nevertheless considered morally equal to a withdrawing, not to an active killing. The law clearly concurs. Disconnecting a ventilator or a dialysis machine counts as a foregoing.

There are practical reasons why this makes sense. For one thing, in order to service the equipment, any on-going life support has to be stopped from time to time. If stopping were considered significantly different from withholding, one could simply wait until one of these breaks and then omit the re-starting of the service. Also, if it were more acceptable to avoid starting life support than to stop it once begun, there would be a strong, if irrational, pressure not to start in cases in which the support might not prove successful.

Ethically, withholding of treatment is grounded in the moral principle that substantially autonomous persons have the right to refuse treatment by withholding consent. Consent, however, is not timeless. Implicitly, consent is limited to the point at which the consent is withdrawn. Withdrawal of consent leaves the provider with nothing to do but take his leave and take his equipment with him. This is radically different from the obligation the provider would bear if the patient demanded some life-ending intervention. Patient autonomy could at most permit the provider to intervene while withdrawal of consent requires that the provider cease. Although the difference is subtle, it is now widely accepted that withdrawals are morally and legally equivalent to withholdings.

6. No reason to limit right to forego to terminally ill

Although this consensus deals with those who are dying, terminal illness is often defined more narrowly than many people realize. A terminally ill person is usually defined as one who is declining toward death regardless of life support. The persistently vegetative and the stable but debilitated patient are technically not terminal. But, if the moral underpinning of the right of refusal is the autonomy of the patient, there seems to be no good reason to limit that right to the technically terminal. It is generally agreed that the right of refusal of treatment extends to all patients, not just those who are terminal.

7. Incompetent patients have the same rights as competent ones

Likewise, it extends to the incompetent. The interest in being free from treatments that are disproportionately burdensome is just as important to incompetent persons. Of course, someone else must exercise the right of refusal on their behalf. Normally, this duty rests with the parent, legal
guardian, or other surrogate. Such surrogates can be appointed legally using an advance directive. If no one has been appointed, the next of kin is the presumed surrogate.

8. Formerly competent patients: autonomy extended

If the incompetent patient was once competent and has left some indication of his or her wishes about medical care, those wishes must be honored. In the easy case, the patient has expressly refused or accepted the treatment in question. The explicit, subjective desires of the patient are given the highest priority. This is referred to as the subjective standard. In the more normal case, those standing with the patient have some idea of his or her wishes, but not an exact instruction. This may come from an advance directive that is vague in some way (a refusal of “extraordinary” means, for example) or from an oral expression, the meaning of which may not be easy to discern. In this case, most jurisdictions (New York and Missouri are exceptions) permit what is called “substituted judgment,” the estimate by the surrogate of what the patient would want based on the patient’s known beliefs and values. That was the standard used in Quinlan and in many other court cases.

9. Never-competent persons without family

The hardest cases for the dominant consensus are those in which the patient is incompetent and has never left guidance about his or her beliefs and values. Still, there is some limited agreement about these cases. First, if the patient has no family or other pre-existing surrogate to interpret, respect for the patient’s choice is impossible. Substituted judgment is ruled out. In these cases, the standard used is the “objective best interest” standard. The goal is to do what is best for the patient. Interpreting exactly what that is can be difficult, but there is at least agreement, in principle, on the standard.

10. Never-competents with family: limited familial autonomy

If this situation arises, but family members are available capable of serving in the surrogate role, the presumption is that the next of kin is the appropriate surrogate. This is true by law for minors and by consensus for adults. That person’s duty is to exercise judgment about what is best for their incompetent ward. Karen Quinlan’s father was appointed as her guardian for the purposes of deciding about her treatment. His choice to withdraw the ventilator was considered acceptable. Presumably, had he chosen to continue it, that might also have been acceptable. The family, led by the next of kin, has a familial autonomy in making these choices that is akin to patient autonomy.

II. REMAINING CONTROVERSY—TEEN ISSUES

This ten-point core consensus is now widely accepted in the United States by the courts, public policy makers, and most (if not all) religious groups. At the fringes of this consensus, however, controversy remains. Ten areas are particularly troubling.
1. States requiring explicit refusals of nutrition and hydration

While moralists agree that any treatment that does not offer more benefit than burden may be refused, some lingering legal doubt remains in a few jurisdictions about relying on substituted judgment and best interest determinations for incompetent patients for whom someone contemplates withholding nutrition and hydration supplied medically through a naso-gastric tube, gastrostomy, or intravenously. While many states permit surrogates to decide that such interventions would not be wanted by the patient (usually in an extreme case of permanent unconsciousness or severe debilitation), a few states (such as Missouri, New York, Maryland, and Colorado) require that the patient must explicitly refuse these in an advance directive. These states presume that patients would want nutrition and hydration under all circumstances unless they specifically say they do not. In theory this can mean that in these states no child or other incompetent patient who has not left a clear record of desires can ever have nutrition or hydration stopped even if these merely prolong an unconscious life or a burdensome dying process.

2. Some health-care providers believe they are exempt from the duty to respect patient refusals of life support

Although the patient’s right of refusal seems well established, some providers seem to believe that they are exempt from the duty to respect such a right. For example, while in the operating room, some surgeons refuse to honor a patient’s instruction not to be resuscitated. Although this right of refusal is grounded in constitutional and moral principles extending well beyond the surgeon’s authority, surgeons do not like patients dying on their turf. They also point out that a cardiac arrest in the operating room may be more easily reversed with less serious consequences so that a rational patient who would have reason not be resuscitated if an arrest occurred elsewhere may have an interest in having the arrest treated in the operating room (OR).

It behooves a patient with an instruction refusing resuscitation to clarify his or her intent before entering the OR. Some may come to realize that they would want to suspend their instruction during the OR period while others may insist that the refusal of treatment remain in place. There seems to be no legal or moral reason why a patient’s refusal is invalid in those particular rooms of the hospital. The question of whether a surgeon may refuse to perform surgery on a patient who insists on continuing the refusal of resuscitation is a more complex legal and ethical question. A hospital ethics committee should develop a protocol for confirmation or suspension of a non-resuscitation instruction in the OR.

Some states require that emergency medical technicians (EMTs) resuscitate all patients even if they or their surrogate are actively refusing it. This makes sense because the EMT is not trained to assess competency and is unlikely to know whether the one speaking for the patient is a valid surrogate. The rule has been that EMTs resuscitate, leaving it to hospital personnel to sort out whether a refusal is valid. However, some states (including Virginia) now permit critically ill patients to register their refusals of cardio-pulmonary resuscitation (CPR) with the rescue squad. The rule is that unless an advance directive has been registered with them, the EMT is to do preliminary emergency resuscitation.

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3. Damages for treatment without consent

Third, although the right of refusal is established beyond question, more controversy exists over the liability of physicians who treat without the consent or against the consent of the patient or valid surrogate. At minimum, it would seem that the physician is guilty of an assault and should bear the costs of any treatment. A good case can be made that the physician should bear all future costs of that person’s life as well as substantial liability for the pain and suffering the patient experiences that he would have been spared had the physician honored the patient’s instruction not to be touched. Some legal situations, however, compensate for earning power lost, leaving patients who are injured by having life support forced on them without recourse since the courts tend to hold that any life is better than no life at all. One of the remaining areas demanding further litigation where test cases need to be brought is that of damages for the battery of treating without consent.

4. Third-party interests

While there is agreement that treatments offered for the patient’s own good can be refused, there remains an open question whether choices about life-supporting treatment can be imposed on a patient against his or her will in order to serve the interests of third parties. Historically, it seemed established that we could treat parents and pregnant women if necessary to serve the interests of their wards. Likewise, infectious diseases could be treated or immunizations could be forced on an unwilling person.

Both of these presumptions have more recently been called into question. Attempts to force pregnant women into more healthy lifestyles, prenatal care, and drug-abuse treatment programs have been resisted. Prenatal surgery and cesarean deliveries against the will of the pregnant woman have been opposed by feminists and others. It has been pointed out that, in the case of immunizations, if they are effective, the only people benefited by forced treatment are the patient and others who have refused to be immunized. (Others who have voluntarily been immunized get no benefit assuming that the immunizations provide adequate protection.)

The real issue of third-party benefit has become economic. Occasionally, arguments are made that patients should be treated against their wills in order to avoid more substantial costs to an insurance company from later treatments that will be needed if the patient refuses intervention at the point when a simpler, cheaper treatment would be effective. For example, it has been argued that a gangrenous foot should be amputated against a patient’s will in order to prevent the long, expensive treatment that would be needed to treat the unamputated limb.

The most serious third-party claims have involved demands of patients or their surrogates for so-called “futile” care, especially when that intervention is expensive. The cases usually involve permanently unconscious or clearly terminal patients for whom a surrogate demands life support even though the condition is clearly irreversible. In one of the most well-known such cases, a mother of an infant known as Baby K born with anencephaly insisted that, even though she would never gain consciousness, her life was precious and should be prolonged using ventilatory support even though the costs of doing so would be substantial and the physicians were of the opinion that such lives were of no value.
It seems obvious that there are some treatments demanded by some people that are so expensive and so without value that physicians need not deliver them and insurers need not fund them. Determining which these are and who has the authority to overrule the patient or surrogate is turning out to be more difficult than we expected. For example, in the case of Baby K, the insurer was willing to pay the bills so the hospital and physicians had no economic claim that the treatment should be withheld. (The insurer or the subscribers whose premiums created the funding pool for this care might have a complaint, but that was not raised in this case.) It might be argued that other patients would be placed at risk if staff spent time ventilating the baby, but the hospital claimed that they had no shortage of staff or equipment. Setting limits on such expensive, apparently pointless care will certainly come soon, but deciding that such lives are worthless is a controversial, difficult issue. Certainly, the claim that unconscious life is of no value is not an issue of medical science. Lay people are perfectly capable of forming an opinion on this issue and, in cases where there is a private, willing source of funding (self-funding, charity, or a private insurer willing to pay) it is hard to see what basis physicians have for claiming that other parties are injured from this treatment.

5. Ethical integrity of the medical professional

The real issue in the case of Baby K and similar cases in which physicians deem intervention worthless appears to be not third party interests, but rather the integrity of the medical professional. Legal opinions going all the way back to Quinlan have acknowledged, in principle, that the ethical integrity of the care-giver is a relevant factor in overruling the position of the patient or surrogate. Physicians are now claiming that they have a unilateral right to refuse to provide life support against the wishes of the patient or surrogate in cases where they conscientiously believe providing it would require practicing medicine in a way that they believe is contrary to their idea of medicine’s purpose. Certainly, physicians must retain the right to withhold demanded treatments that have no chance of accomplishing what the patient seeks. (They can refuse to prescribe antibiotics for viral infections that will not respond to antibiotics, for example.) But most of the futile care cases involve patient demands for treatments that clearly have a chance to be effective. For example, Baby K’s mother wanted her baby kept alive even though the baby would remain unconscious, and ventilator support clearly had a chance to accomplish this end. (In fact, the baby lived for two-and-a-half years with occasional ventilation.) Thus these treatments are potentially effective; they simply offer outcomes of debatable value. Patients and physicians can disagree whether maintaining such life is of any value. If a society chooses to give monopoly control over life-preserving technologies, it can be argued that society would insist that those who hold the monopoly use those technologies when they can predictably preserve life and will not interfere with the interests of third parties. We have yet to resolve the controversy of what to do when physician appeal to ethical integrity will result in making a baby dead against the wishes of its mother.

6. Borderline incompetence

Another problematic situation involves patients who are on the borderline of competence. While clearly competent patients have a virtually unlimited right of refusal and clearly incompetent ones have a right to have such judgments made by their surrogates, the hardest case is often the marginally competent patient who is able to express his views, but does not seem to understand the
nature of the options. If the attending physician or next of kin are given the authority to declare such persons incompetent, the potential for abuse is great and the rights of the potentially competent patient may be violated. A strategy that has much going for it is to permit the attending physician and next of kin jointly to make a preliminary assessment. If they jointly agree that the patient appears to be incompetent, then they should inform the patient. If the patient concurs or provides no coherent response, then they can safely presume incompetence so that the next of kin (absent and proxy directive) will assume the surrogacy role. If, however, the patient resists the conclusion, then the patient should be presumed competent until a formal competency hearing in a court rules otherwise. This means we would err on the side of presuming competence, thus avoiding the offense of treating the competent person as if he were incompetent, while still providing an independent mechanism with due process to protect the patient who really cannot decide for himself in a competent manner.

7. Do some formerly competents become “different people” for whom advance directives should not apply?

While we have generally agreed that formerly competent persons who have left adequate expression of their terminal care desires should have their wishes respected, a new problem has emerged that has challenged theoreticians. Some formerly competent persons may have led rationally planned lives that have led to advance directives stating that they would want to be allowed to die if they ever end up in a semi-conscious, incompetent condition. They would not want to be stranded in a nursing home watching soap operas. But if severe dementia takes over, such formerly competent persons may end up in an apparently contented state satisfied with mindless, but pleasurable activities. These people may have so lost continuity with their former selves that they can be said to be ‘new persons.’ The puzzle is why the wishes of a person in his former state should govern the one who now can no longer remember that individual and seems contented leading a very different life. We recognize the right of a competent person to change his mind and even the right of an incompetent person to negate an anti-treatment advance directive. Should we also attempt to serve the contemporaneous best interests of one who is so demented that he cannot change his directive? If the previously written advance directive is to remain valid we need an account of why. Perhaps this rests on the view that individuals want to lead coherent lives over time even if in some incompetent moments their overall life plan seems incompatible with the individual’s interests at that moment.

8. Who should have authority to decide for incompetents without family guardians?

Likewise, we need more work on the problem of who speaks for the incompetent without a pre-existing guardian who has left no record of his desires about terminal care. If competent patients say repeatedly that they have an interest in foregoing life support when it becomes too burdensome, it seems some incompetents may have a similar interest. We are agreed that we should do what is best and sometimes that may include foregoing something that could, at least temporarily, extend life. Yet, we don’t know who should make this momentous judgment. Traditionally, many
attending physicians assumed they were the surrogates for such people, but there is no legal or moral basis for that assumption, and it now seems obvious that patients will experience different outcomes—literally be alive or dead—depending on which physician happens to be on duty to attend such a patient.

The alternative is not terribly good either. We could adopt a policy for this small group of very vulnerable patients—those who are alone, dying, and out of control, who someone has decided would be better off dead—that before life support is foregone, a formal guardian should be appointed by the courts. That would provide protection while not standing such patients with terribly burdensome treatments. Such surrogates have foregone life support under judicial supervision.17

9. Competing bonded surrogates

A similar problem arises for incompetent patients who have never expressed their wishes but who have family members or others to fill the surrogate role. If more than one family member is willing to serve as surrogate, they may eventually come to a disagreement about these inevitably subjective value judgments. While we assume that the next of kin is the most appropriate surrogate, there are many cases in which this could be a false assumption, or there may be two or more people of equal degree of kinship. In some cases, the legal next of kin may not be the most appropriate person. (Consider gay lovers, one of whom has AIDS, whose parents remain the legal next of kin even though they may be estranged from the patient.) Letting the attending physician pick from available candidates has the unfortunate effect of permitting the physician to become the de facto surrogate by picking the relative who will get to the right answer. The better course appears to be to rigidly follow the rule that the next of kin is the presumed surrogate until that person yields to someone else or until that person is challenged effectively by another party in order to get a court order changing the order.

10. What should happen when familial surrogates make unexpected choices?

Before turning to a reassessment of the omission/commission distinction, there is one final problem growing out of surrogacy that has not been resolved. While the next of kin is presumed to be the valid surrogate (until removed from that role by yielding to another or by the court) and that surrogate must attempt to do what is best for the patient within the constraints of knowledge of the patient’s own wishes, not all surrogates will make what appears to others to be the best judgments. Should they be held to the same standard of best interest to which we hold court-appointed guardians? While at first that might seem appropriate, it would pose serious practical and theoretical problems. Practically, it would glut the courts. It would force judges to review every case to see that the surrogate got to the best possible answer. While the surrogate must have the goal of doing what is best, it is not clear that we must insist that surrogates actually get to the absolutely best decision. We do not in other areas of life. While parents must strive to do what is in their children’s best interest, they regularly make choices that seem to be less than best. As long as they are within
reason, we tolerate parental choices of less than the best education, discipline strategies, and diet. In fact, we encourage familial freedom without ever suggesting judicial review of less-than-perfect parenting. The surrogate must be within what I have called the “limits of reasonableness,” but need not make the best possible choice. Exactly how much discretion familial and other pre-arranged surrogates should have remains open to much controversy.

III. THE CHALLENGE TO THE OMISSION/COMMISSION DISTINCTION

This brings us to a final area of controversy that reopens what had been a well-established part of the national consensus. The first point of the consensus was that active killings are morally and legally different from letting die. That agreement is now up for grabs. We are now reassessing whether what can be called “homicide on request” and “assisted suicide” are ever acceptable. Both involve actions intentionally designed to bring about the death of a terminally or critically ill person out of merciful motive—not just the foregoing of life support. They differ in that, in the case of assisted suicide, the patient must take the last critical step in the causal chain that leads to death. Following this distinction, a physician who prescribes a lethal dose of barbiturate for the purpose of letting the patient kill himself is involved in an assisted suicide while the physician who injects the barbiturate would be involved in a merciful homicide.

1. Limiting the debate

The omission/commission distinction was maintained until liberals who wanted to open the door to some merciful active killings narrowed the question. They limited it in three ways: (1) first, they excluded merciful homicides, limiting the issue to assisted suicide; (2) second they limited the debate to competent persons who voluntarily requested help in committing suicide; and (3) they limited the policy proposal to those who had a terminal illness, excluding those who may be critically, but not terminally, ill. They asked, “If competent, dying persons who are suffering intractably can refuse all life support including nutrition, why can’t they also get help from a physician in committing suicide?”

2. The moral debate

Morally, utilitarians (those who focus on consequences) have tended to argue against the omission/commission distinction pointing out that either way the patient is dead soon. The consequences are the same. Some utilitarians have made a counter-argument in favor of the distinction, citing the potential bad consequences for other people if society gradually comes to tolerate active killing. The main argument for the distinction, however, has come from deontologists (those who believe that certain actions can be intrinsically morally wrong regardless of the consequences). They have either claimed that it is simply intrinsically morally wrong to kill actively or that the distinction is an outgrowth of principle of autonomy. They point out that foregoing of life support (including withdrawals as well as withdrawals) can be based on respect for autonomy. From autonomy a patient can require physician to forego life support. The physician must step aside even if he or she wants to save the patient’s life. On the other hand, patient autonomy cannot force a
physician to assist in a suicide or to actively kill for mercy. There is thus an asymmetry here that suggests there is a real moral difference between active killing and letting die.

3. The current legal picture

Currently, active homicide for mercy is illegal in all jurisdictions of the world. In the Netherlands, there is a formal agreement between the medical profession and prosecutors so that mercy killings conducted under certain defined conditions will not normally lead to prosecution, but the practice nevertheless remains illegal. Assisting in suicide is also illegal in the United States including in Michigan where Jack Kevorkian has made a practice of ignoring the law. Early attempts to legalize mercy killing occurred in Britain (1937) and New York (1947), but they all failed without gaining significant support. It was not until the issue was narrowed to voluntary requests for assisted suicide from competent terminally ill patients that significant public support emerged. Referenda supporting assisted suicide in such cases failed in Washington (1991) and California (1992) by narrow margins, and then in 1994 such a referendum passed in Oregon. That law was tied up in court until very recently. In addition, two legal cases (from Washington and New York) tried to get state laws prohibiting physician assistance in suicide declared unconstitutional. The US Supreme Court has rejected those arguments as well as an attempt to overturn the Oregon referendum. The current situation is that it is not illegal for a state to ban assisted suicide, but it is also not illegal for a state to permit it. Oregon's first cases of legal assisted suicide have recently been made public. They are the first known American cases of legal physician assistance in suicide.

A closing puzzle

We have seen that legalization succeeds by narrowing the cases to assisted suicide in situations in which the patient has a terminal illness and, while competent, voluntarily requests assistance from a physician. But can those limits be defended philosophically? Most philosophers believe that there is no principled difference between assisted suicide and homicide on request. At most assisted suicide provides somewhat more evidence that the patient really wants to die. A similar protection could be provided by aggressive judicial review of all patients who wanted to be killed for mercy. In fact, some patients, such as those with ALS, are physically incapable of taking the step that makes the killing a suicide rather than a homicide. And these are some of the most plausible cases for active killing since these patients are in such compromised condition and yet clearly competent. An equal protection argument can be made that would support merciful homicide for these people once assisted suicide was legalized.

Also, we have seen that the core consensus includes the position that there is no principled reason to limit the right to forego treatment to the terminally ill. The same logic would appear to challenge the policy of limiting active merciful killings to those who are terminally ill thereby excluding those who are severely ill and suffering, but not dying rapidly. Likewise, we have seen that the same rights that exist for competent patients extend to incompetents as well. That suggests that some suffering but incompetent patients may have their interests served by active merciful interventions to end their lives.
Many patients who could plausibly have their lives ended by active intervention do not fit the narrow case that forms the basis of the legalization in Oregon. They are either not terminal, not capable of taking the critical step in the causal chain to make the action a suicide rather than a merciful homicide, or they are not competent to make a voluntary choice. They are terminally ill children or incompetent adults who are suffering terribly or they are not technically terminally ill (although they may be permanently vegetative) or they are incapable of taking an active step to bring about their deaths.

If we accept the claim that there is no moral difference between omissions and commissions, we have two choices: we can legalize active killings for incompetent, non-terminal patients, and those not physically capable of committing suicide just as we currently accept that these patients may have treatments forgone on their behalf or, alternatively, committed to the view that there is no principled difference between active killings and passive foregoings, we can make foregoing of life support illegal for all people, even the competent terminally ill. Neither of these options is currently even close to being acceptable in the United States or any place else in the world. The only other alternative is to accept the omission/commission distinction as morally relevant, no matter how subtle the difference may be or how hard it is to articulate.

NOTES

12 In Re A.C., 533 A.2d 611 (D.C. App. 1987).

Bioethics and the Use of Laboratory Animals


Chapter 12
The Future "Brave New World"

Robert M. Veatch, PhD

When Aldous Huxley published Brave New World in 1932,¹ he envisioned an awful, intolerable, utopian world of high-technology control of human society and human emotions. Sometime in the distant future Huxley imagined a world where a drug that Huxley called Soma would relieve all our anxieties—a drug we now call Prozac. What we now hear on the local news extends beyond the wildest reaches of Huxley’s imagination. A total body transplant that a Case-Western Reserve surgeon claims is technically feasible, in fact has already been done in a monkey and could be done in a human “certainly within the year.”² There is a small technicality: we couldn’t yet connect the spinal cord so the person with a new body would be a quadriplegic. An experiment was begun the same week in humans in Philadelphia that will attempt to overcome tissue incompatibility by the inducement of specific cross-human and cross-species tolerance. We are on the verge of genetic engineering in humans as well as in non-human animals involving germ-line transfers as well as somatic engineering.³ We are deeply into research on artificial organs, computer simulations of brain functions, and xenografts of organs from non-human animals.⁴⁵ We have recently adopted a new set of federal regulations to permit emergency room research on life-and-death procedures without the consent of the patient or family.⁶ We now, by law, permit the Defense Department to order personnel to be immunized for anthrax even if the soldier refuses consent.⁷ We are moving to a world where medicine is a business subject to the same kinds of cost-benefit analyses as the marketing of soap flakes.

It is safe to say that we can no more imagine the biotech future of the next century than Huxley could 65 years ago. Let me make three observations and then try to summarize the Brave New World of Medicine with two general themes.

THREE PRELIMINARY OBSERVATIONS

The prominence of non-human animals

First, notice how many of those brave new technologies involve non-human animals: the paralyzed, but conscious monkey who entertained the Case-Western Reserve scientists, the pigs who will supply the organs for xenograft transplant, the animals that will supply the required data for the unconsented-to emergency room research in humans. Whatever the brave new future, laboratory animals and their care-givers will play a very central role.
Anticipating changes in our moral values

Second, we should anticipate what can be called a tolerance of the intolerable. Notice that what was perceived as intolerable in Huxley’s day has gradually crept up on us and become tolerable if not downright attractive. In 1930, our grandparents saw birth control coming and considered it dangerously immoral. In 1960, our parents saw abortion coming and fought the trend to legalize it. In 1990, we saw coming the mastery of the genetic code and many resisted efforts to improve on nature’s product.

Here is an intriguing moral puzzle: suppose we today anticipate a trend in science and technology that will lead in the future to a practice we now find intolerable—the head transplant, the germ-line genetic engineering of docility into future humans, the cloning of humans to produce spare body parts. Suppose we also realize that, over time, our ethical revulsion will ameliorate. If we know something is coming and believe it sounds intolerable, but realize that we will come to tolerate it, should we take steps now to head it off before we grow to accept it, or should we sit back knowing that eventually we will see what we take to be good, humane medicine where once we had what eventually will be seen as irrational fear?

The inevitability of a new ludditism

Third, just as we can predict a new-found acceptance of technologies that seem repulsive, so we can anticipate a back-lash against what now seems so enticing. Just as 19th century English workers called Luddites set out to destroy new machines that they found threatening, so 21st century Luddites will inevitably feel threatened by the brave new technologies on the horizon. They will set out to destroy genetic engineering, clinics where in vitro fertilizations and abortions are performed, the laboratories where your animals are housed. I suspect, however, that in the end, even with all the “gee-whiz,” jaw-dropping, new-fangled technologies that appear, the real challenges of the Brave New World will be at a more basic philosophical and sociological level. Let me sketch two general themes that I believe will characterize the Brave New World of Medicine: (1) the collapse of modern medical science as we know it; and (2) the collapse of the Hippocratic clinical medicine of doing what is best for the patient.

CONTRASTING MODERN AND CONTEMPORARY MEDICINE

A. Modern medicine

Modern medicine has its origins in the 16th century. This was the point of the emergence of the scientific mentality in figures such as Francis Bacon. However, the scientific attitude really took off in the enlightenment of the 18th century. The basic premise of modern medicine is that, in the ideal, science is objective. No scientist is perfect, but value-freedom is the ideal. The application of science (sometimes called “technology”) may require some value judgments, but not the observation and recording and reporting of data, not the testing of hypotheses.
B. Contemporary or “post-modern” medicine

During the last half of the 20th century, this dominant paradigm of modern medicine has been challenged. It appears that in the next century it will be replaced by a new paradigm that can be called “post-modern” or “contemporary.” The basic assumptions driving modern medicine will be undercut and replaced with a new set of convictions. In particular, the very doing of post-modern science will be seen as an inherently, inevitably concept-laden and value-laden enterprise. According to this post-modern view, at every step of the scientific process, concepts and standards must be chosen because they are valuable or worthwhile. Concepts are constructed that lead to researchable hypotheses. Hypotheses to test are chosen because of the value seen in the scientific questions. Within the scientific process itself, values constantly come into play. From the infinite array of data, the valuable or “interesting” data are observed. Of those that are observed, the more valuable data points are recorded. Statistical tests are chosen on the basis of which ones serve more worthwhile purposes. The p-values are selected based on value judgments. For some questions, a p-value of 0.05 will be considered adequate to conclude that a medical treatment is effective, while for other questions higher or lower values may be deemed appropriate. Worthwhile findings are written up and submitted to journals for publication. The editors select the more important studies for publication. Different scientists with different concepts and values would formulate the problem differently and reach conclusions articulated differently.

The critical fact is that there is, in principle, no objective, scientific way to make these choices. Different medical scientists, each competent and fair, will make different choices. This means that one researcher could decide that there are adequate data to conclude that a treatment has been proven effective, while another will not be satisfied even though both are looking at exactly the same data. Moreover, no two observers will ever be able to say they are actually looking at the exact same data. At the margins different investigators will include different data sets using concepts that have culturally determined meanings that reflect shades of difference.

It is not what is true for one observer is false for another. Rather, it is that there is an infinite number of ways of describing truthfully a reality before us. There are many gestalts, many world-views, many paradigms, many conceptualizations. In the world of the future, the science that provides the basis for medicine will be understood as much more tentative. Any given account will have to be taken as merely one way of formulating an account of the medical reality with an understanding that different observers with different metaphysical and normative points of view will describe the same reality in somewhat different ways.

An example from the world of laboratory animal medicine illustrates the problem we will face in the future. Normally, medical research will be conducted on a number of animal species, usually before moving to the first clinical trials on humans. It is to be expected that the results of the various animal studies will be somewhat different. Even if multiple trials with the same species produced the exact same results (which normally they would not), the results from different species will differ. In order to decide whether the results are worthy of moving to human trials, one must make an enormous number of assumptions about the extent to which different systems in the animal species are adequately comparable to humans. Consider the situation in which a drug produces an effect deemed desirable in three species of non-vertebrates, but produces less dramatic, but nevertheless positive, treatment effects in the one vertebrate species in which the trial has been conducted. Does one conclude that results from all four species are positive and therefore human
trials are warranted? Does one conclude that the weaker relation in the species deemed closer to
humans warrants a trial in another vertebrate species? These judgments are inherently non-scientific. How one acts in the doing of this medical science will increasingly be seen as a value judgment
call contingent on how urgent it is to develop a drug that will produce the sought-after effect in
humans; how one conceptualizes the similarities and differences among the species; and how ethi-
cal it is to subject more non-human animals to pain, suffering, trauma, and stress of more studies.
There is, in principle, no scientific way to make these judgments; they are evaluative calls that are
necessarily subjective. Different scientists can be expected to make them differently depending on
the concepts and values that they bring to the research problem, and the scientific community as a
whole can be expected to make them differently from the way lay people would make them. Moreover,
there is no reason why the medical-scientific community as a whole should be expected to be
more right or more correct about these value judgments than various lay groups. Since what is at
stake is not fundamentally a scientific question, scientists cannot be expected to have any special
expertise in making these calls. Thus, the design of scientific research and the decisions about when
to use various species (human and non-human) will inevitably involve value and concept choices
that are independent of the expertise of the scientists involved. Lay people will increasingly de-
mand the authority to make these calls, especially when their most cherished religious and cultural
values are at stake. For many, research that involves pain, suffering, and death for animals raises
issues at this level of psychic commitment.

Everything said thus far applies to the doing of basic medical science, not to its clinical appli-
cation. In principle, science cannot be value- or concept-free even at the stages before it is applied
in the clinical setting. When we turn to the clinic, these value and concept choices will become
even more culturally and socially conspicuous.

THE COLLAPSE OF THE HIPPOCRATIC MODEL OF CLINICAL MEDICINE

An even more decisive change is on the horizon as we move into the next century. Not only
was modern medicine built on the now-collapsing premises of modern medical science, clinical
medicine was also built on similar foundations and these foundations will give way as we move to a
new, post-modern medical paradigm. The foundations of modern medicine were both scientific
and moral.

The changing assumptions in the science of clinical medicine

Scientifically, it was as if a physician, if he mastered the medical science, could know how to
treat the patient and could do so without any intervening value judgments. Modern medicine is
built on the premise that the physician at his or her best could perform an objective diagnosis and
move from this fact to prescribe what was called a “medically indicated” treatment or a “treat-
ment of choice.”13 Closely related to these notions throughout the 20th century, we tended to believe that
it was wise to follow “doctor’s orders” and to believe that “doctor knows best.” The foolishness of
these beliefs is rapidly becoming apparent. The future of medicine will come to be one in which, if
this is true, it is only because the moral and other evaluative premises of clinical decisions are so
obvious that anyone, including even a physician, can guess at the values needed to decide what is best for the patient.

The post-modern clinical practice of the future will be one in which physicians and lay people alike come to realize that it is logically impossible to move from the science of medicine to a clinical decision without adding in a set of value judgments. These are value judgments over and beyond those necessary to do medical science. They are values incorporated into judgments about what the proper goals or ends of medicine ought to be. There is no reason to assume that the individual physician's personal values about the ends of medicine should conform to the patient's beliefs about what those ends should be. In fact, the assumption that medicine is a practice that universally shares an understanding of the proper ends of that practice will increasingly be seen as naive. The ends of medicine are subordinate to and derived from one's conception of the ends of goals of life. Each religious and philosophical world view will encapsulate such a set of ends or goals. There will logically be as many different ends for medicine as there are religious and philosophical world views.

If a physician is able to determine what is best for a patient, it will require more than merely expert knowledge of medical science (which we have already seen is utterly value-dependent). It will require choosing the correct set of values about what the goals for the patient ought to be.

It will increasingly be seen as critical to determine which set of values is the proper one for making clinical medical decisions. One possibility is that there is a single objectively correct set of values that expresses what the proper ends of life is for human beings no matter in which culture they happen to reside. Even if that is true, there is no reason to assume that the individual physician practicing medicine in a context of a set of personal and professional values should happen to have chosen this proper value set. Clearly, physicians are not experts in the proper ends of life. Increasingly, many are concluding that there are no identifiable experts on such questions so that we should let each patient's personal values specify the ends to be pursued for him or her while in the patient role. Even if there were some identifiable set of experts on the ends of life, there is no reason to believe that they would be physicians. More likely, they would be uniquely wise people unrelated to any one professional career path. Even if we could identify these uniquely wise experts on the ends of life, if we believe in respect for autonomy, we would still have reason to doubt that anything other than the patient's values should shape the medical decisions for a particular patient.

Occasionally there was (and still is) so much consensus on the values that it is as if they were not present at all. The physician in such cases could predictably guess at what the patient's values are likely to be. Consider, for example, a patient who presents with a deep cough, fever, and other cold-like symptoms. A physician may do diagnostic cultures and identify a bacterial pneumonia for which he will, after asking whether the patient has any history of anaphylaxis, prescribe penicillin. It may appear that this is a technical, scientific judgment rooted in the pharmacological fact that penicillin is effective in overcoming the pneumococcus organism.

The reality is much more complicated, however. The core value judgment is that it is better for the patient to live with penicillin than die or be seriously ill without it and that the small risks of side effects in someone without a history of an allergic reaction to penicillin is worth taking. That value judgment is shared by so many people that the physician can probably assure that it is a position that the patient holds.
That assumption is reasonably safe, but not guaranteed. For one, there are other antibiotics that may be considered with different side effect profiles. There are different doses and routes of administration (such as injection) that could be considered. The conclusion that the patient is better off with this particular dose and route of administration of this particular drug is somewhat debatable. Some patients may hold values that call it into question. More critically, the patient may be a Christian Scientist who does not accept the philosophical commitments implied in using drugs. Or the patient may be suicidal. More realistically, the patient may be very elderly and suffering from metastatic cancer. For such patients, pneumonia is sometimes called “the old man’s friend.”

What is critical is that a physician cannot get from a diagnosis to a prescribed course of action without making some value judgments about which patients may reasonably differ. For other conditions—end-stage renal disease, for example—the value judgments are quite controversial and different people will make them differently. It is simply a mistake to believe that a physician has special skills that lead him or her to have expert knowledge about what is in a patient’s interest. As treatments get more and more controversial, with options more and more varied and patients more and more sophisticated, we will move toward a medical world in which the only way a physician can know what is in a patient’s interest is to ask the patient. The physician can then integrate the patient’s values with his or her expert knowledge of pharmacology to propose a list of plausible interventions, one of which the patient may choose.

This will mean that the idea of patient consent to medical treatment will come to be seen as an old-fashioned, half-way corrective to physician paternalism. With the consent model, the physician does his diagnosis, reviews in his own mind what he considers to be plausible treatment options, and proposes the one he considers best to the patient. So far, his behavior is exactly that of the more traditional, paternalistic Hippocratic physician. At this point, instead of simply imposing his judgment on the naïve patient, he will ask for the patient’s consent. The consent process involves placing before the patient what is usually, by implication, a yes-or-no question. The patient may, if he is courageous, decline the proposed treatment. He may consent or refuse consent. The more contemporary alternative to consent is choice. The physician of the 21st century will increasingly have to say to the patient that there are several different treatment options available, each with its own potential risks and benefits, economic and social costs. He and the patient will increasingly recognize that different patients with different values will choose differently. The physician will have no basis for proposing one of the options as the best one for the patient. He will not ask for consent for a tentatively chosen best course; he will have to wait for the patient to choose.

The now-fading modern view that science and expert medical training could tell what would benefit a patient gave rise to the notion that certain treatments were “medically indicated,” as if the knowledge of the science could demonstrate that certain treatments were appropriate. But just as we begin to realize that in the future medicine and medical science must incorporate certain prescientific conceptual and evaluative premises, so we must also come to expect a similar phenomenon in clinical medicine. In the next century, we will come to realize that no physician can ever determine, on the basis of medical knowledge alone, what will benefit the patient. Even if the physician could predict perfectly exactly what the effect of an intervention might be, it is not possible, based on medical science alone, to know whether the effect is a good or a bad one. We are rapidly moving toward the realization that all clinical judgments necessarily incorporate value judgments and that there is no reason why the physician’s values should be seen as correct or authoritative.
Increasingly it will be the patient’s values that will be seen as the legitimate basis for making clinical decisions. The implications for medical ethics are enormous. The old Hippocratic ethic was built on ancient premises of a Greek mystery religion. It held that the physician’s duty was to benefit the patient according to the physician’s judgment and ability. The physician combined his scientific knowledge of medicine with his superior sense of what was valuable for a patient to prescribe a treatment that, in his opinion, would best serve the patient’s interest. This presumes that, at its best, outcomes research and scientific study could objectively tell how a treatment would affect the patient. This, in turn, presumes that the physician was the one who could best evaluate the outcome. This approach is paternalism at its most aggressive. It is naive. It is arrogant. The end of the 20th century will see the end of modern medicine and the end of Hippocratic paternalism in medical ethics. The Hippocratic ethic is dead. It will be replaced with a richer understanding of the inevitable normative dimension of health care decisions. In place of a single, unified notion of good scientific modern medicine, there will be as many practices of medicine as there are philosophical world views. Each religious or philosophical view will have its own concept of medicine: Catholic, Jewish, feminist, the world-view of liberal political philosophy. And there will be as many sub-branches as there are different sub-schools of Catholicism or liberalism or feminism.

Each world-view will have its own interpretation of the scientific data, the goals of medicine, and what constitutes the good of the patient. These will have to be reflected in post-modern health care plans. Different HMOs will fund different types of medical services. Different health practitioners (physicians and nurses and dentists) will be considered expert on different types of good medicine. None of these will have the resources to do what is literally the best possible practice of medicine, even within its own world view. None will be able to be held to the naive view of Hippocratic ethics or modern medicine that there is a single, all-purpose way to do what is best for the patient.

One vision for health care delivery in the future will be many competing delivery systems, perhaps in the private sector, but perhaps better all under a public agency. Every resident of the United States will eventually have to have an entitlement to a basic level of health care services. That is what every other developed nation in the world already has; we cannot offend common decency and the requirements of humaneness much longer. The entitlement could be to a fixed dollar value of health care coverage—something like $3,500 per family in year-2000 dollars. With that entitlement, every person or family will be able to buy a decent package of health care services.

Some continue to assume that there should be a single package of covered services that constitutes the decent minimum. Thus, everyone would have the same universal coverage. That, however, runs afoul of the insights of post-modern society. It assumes that there is one all-purpose list of services that everyone, no matter what his or her beliefs and values, would consider essential. That makes sense in the now-outdated world of modern medicine and Hippocratic ethics, but it violates the basic insights of the post-modern world in which different groups hold different sets of beliefs and values and different notions of the proper ends of medicine.

The creation of a single list of covered services—implied by modern medicine—would, in effect, establish one “religion,” one world view, at the expense of all others. It would, of course, turn out to be the world view of the power elite, the majority of Congress who would have the authority to pick and choose among the possible health care services on the list.
One might respond by saying that everything one could want should be on the list, leaving it to patients to approve or disapprove of what fits with their values. That, however, misses the basic insight of the end of the 20th century: that resources are inevitably limited. Even after we complete the process of eliminating waste in the health care system—the useless and harmful treatments that no one really wants in the first place—there will still be many that are only slightly beneficial and, at the same time, very expensive. Exactly what those inefficient, slightly beneficial treatments may be will vary depending on the patient’s beliefs and values, but every value system will have some.

Funding every imaginable beneficial intervention, no matter how marginal, will be impossible. That will mean that in the brave new future rationing of health care will be inevitable. No one will get everything he or she desires. The only issue is how the rationing will take place.

The optimistic future is one in which individuals do their own rationing. If each person has an entitlement to a fixed number of dollars of health insurance or coverage, it is possible that we will create a system that is both maximally efficient and fair. The first requirement will have to be universal entitlement to any basic plan available. Everyone should be able to buy any available basic plan for the fixed dollar entitlement of, say, $3,500. That will mean that many different packages, all at the same price, will be placed before the public.

If the government is the insurer, many problems will be eliminated. For example, private insurers attempt to seduce low-risk patients and discourage high-risk ones. One strategy (beyond simply refusing to enroll high-risk individuals, which would have to be prohibited in any program with fair, universal entitlement) is to offer a plan rich in services attractive to young people and lean in those attractive to the elderly. Certain adjustments to health plans will have to be made to protect against this. For example, the Clinton health plan, in addition to permitting anyone to enroll in any plan, would adjust the value of the entitlement as a function of age. Thus, while everyone would contribute to the universal insurance paying the same amount or paying on a graduated scale independent of predicted utilization, the pay-outs to the various insurance plans would be based on the age of the individual insured. If we were to have private insurers and one set out to attract young people, the plan would collect fees from the payer that were small while an insurer that designed a plan attractive to the elderly would collect fees that were larger. If the age-based adjustments were fine-tuned properly, an insurer would be indifferent as to whether it attracted young or old people.

Other adjustments would have to be made to avoid adverse selection. For example, a plan that did not cover sickle-cell disease would attract those who know they were not at risk (caucasians and blacks without a history of sickle cell disease) while the plans that did cover sickle cell would attract those who had family members at risk. That would leave fewer resources for members of that plan to receive other important benefits.

The only way around this would be to make certain services compulsory in all plans. These services would include all those for which needs were predictable in advance, such as genetic diseases that could be diagnosed before the condition manifested itself. Also mandatory would have to be certain emergency room services. We could not have some people opt for a plan excluding such services without leaving emergency room personnel perplexed about whether accident victims were covered. We want to convey to the ER personnel that people have coverage for any treatment that reasonable people would like to receive when they are too incapacitated to consent or to refuse consent. Many basic services for children would also have to be included in all plans. Litigation has
identified a long list of basic services that parents must provide for their children. For example, the
courts have determined that parents cannot refuse blood transfusions for their children who would
be at significant risk of serious harm without them. Even if they have religious objections the courts
will order such treatment. Likewise, Christian Scientist parents cannot refuse appendectomies or
antibiotics for serious infections for their children. These services would have to be included for
children and incompetent adults in every plan.

The result would be as many different basic packages as there are basic sets of religious beliefs
and values. Thus, there would be a group of plans that covered abortion, another group that did not.
Everyone could choose the plan that fit their values. Those who object morally to abortion
would not have any of their funds used for this purpose. They would, of course, have some funds
left over for some other good that they considered more appropriate (such as natural family plan-
ning or extra pediatric care).

Many of us believe that it would be far better if a non-profit agency (such as a government)
administered all these plans. That would eliminate the incentives to be deceptive in designing plans
that will attract people who will be light users of services. It would eliminate budgets for advertising
to try to steal customers from other plans simply to improve the position of the plan owners. Under
a non-profit arrangement, no one would have an incentive to deceive subscribers or to steal cus-
tomers. Every plan would have to be actuarially sound, offering a list of services designed to break
even at the average entitlement figure (with adjustments for age).

This is a health care plan that recognizes that all health care decisions are value-dependent.
What is attractive and basic to some people will be marginal or even immoral to others. Any one
plan, no matter on which values it is based, will be inefficient because it will offer some services to
those with unusual values that, to them, are just barely a net benefit while it will exclude some
services of the same cost that they would value much more. A single plan will inevitably be unfair
because it will force those with deviant, minority, or unusual values to use the health care services
valued by those with enough power to control the generation of the list of covered services. They
will get much less real benefit (based on their values) than similarly situated patients who happen to
share the values of those who make up the list. Thus, efficiency as well as fairness demand multiple
lists of services with a universal entitlement to an age-adjusted, fixed-dollar amount of coverage.
Once one realizes that in the post-modern world all medical science and all clinical medicine
necessarily incorporate conceptual and evaluative commitments, and that these commitments will
determine what constitutes good medicine for holders of those values, then health care plans must
abandon their erroneous assumption that science in the ideal is value-free and that clinical medi-
cine can get to a treatment of choice independent of the patient’s values.

The brave new world of the 21st century may not turn out to be the one Aldous Huxley
believed was on the horizon. It may be instead one in which all scientific and medical decisions are
seen as necessarily incorporating systems of belief and value that specify a pluralism of views about
the ends and purposes of medicine.
NOTES

2 McKenzie, J. “Transplanting Organs from One Body to Another Has Become Routine,” from http://www.ABCNews.com
Chapter 13
The Great Ape Project:
Premises and Implications

Peter Singer and Paola Cavalieri

The Great Ape Project stems from a simple idea: that we can, right now, make a first theoretical and practical step in overcoming the barrier we have erected between ourselves and other animals. To understand this step, however, we should first understand what this barrier consist of, and how it works. It will be expedient to start from the practice which is the subject matter of this conference, with particular reference to one of the non-human great apes, the chimpanzee.

The practice of animal experimentation can be seen from varying perspectives. For the experimenters, it is simply a part of their discipline, one of the means to achieve some important goods, such as knowledge or better health for humans. Apart from some who, whether knowingly or not, follow Descartes' view that non-humans are machines, and thereby divest the practice of experimentation of any moral relevance whatsoever, most scientists consider it as more or less of an evil, depending on their personal stance, but as a "necessary" evil. "Necessary" has here both a technical and an evaluative sense, but the former is subject to the latter: it argues that animal experimentation is necessary to good science, and that good science is either an ultimate value, or a value which is instrumental to the good of human-kind. For many scholars, on the other hand (especially, but not only, for the feminist critics of science) this practice is a path that human science turned down at a point in history, a path obviously causally influenced by many preceding cultural and social choices, but certainly not an unconditionally necessary one. Science is, from this viewpoint, a theory-laden form of knowledge, whose implicit assumptions can and should be brought to light to be critically assessed. Finally, for the theorists of animal liberation ethics, animal experimentation is at the core of the exploitation of non-humans, a practice in which the interests of one group of sentient beings are routinely sacrificed to the interests of another group.

Normally, when the issue is tackled, it is the experimenters' approach which holds the field, the others being forced to bear the burden of proof for every critical assessment of the practice. In the past, those who argued against animal experimentation have usually chosen between two alternatives. The first one accepts the alleged necessity, and focuses on the narrowing of its scope and the allaying of its ways of implementation. This means seeking a reduction in the number of experiments performed and better care for the animals undergoing experimentation, a request that can be articulated in terms of the prohibition of "unnecessary suffering," where the lack of necessity usually refers to the possibility of alternative ways of achieving the desired results, or of a cost-benefit analysis, where the costs in animal suffering must be weighted against the possible value of the research.

The second position—which can only loosely be connected with the more general critique of modern scientific method in the biological and medical domains—dares to attack necessity, but it does so only with reference to its technical facets, by criticizing the scientific soundness of the
practice of animal experimentation. What it claims is that, because of the inadequacy of the "model," experimenting on non-humans not only does not benefit humans but is also positively damaging for human health and safety. Thus, the real problem with animal research is that human beings are doubly harmed by it—first, by having their diseases treated in incorrect ways, and second by being the actual experimental subjects, given the utter inefficacy of animal experimentation.

There is one central point on which both these approaches agree: the idea that humans come first, and that non-human animals are "lower creatures" whose worth is infinitely inferior to that of the members of our own species. But it is precisely this idea that needs to be challenged and which we will challenge in the remainder of this paper.

The idea of a distinctive human worth and dignity has a long history. It has been expressed in many ways—through the division of all worldly reality into persons and things, or the idea that only humans are ends in themselves, while all other beings are means to human ends, or even the claim that we are the only things in the universe that have intrinsic value. Whatever the formulation, this has amounted to the establishment of a community of equals, a moral community whose boundaries coincide with the boundaries of our species, and within which we accept certain basic moral rights, such as the right to life, liberty, and freedom from torture, as governing our relations with each other and as being enforceable by law. Internationally accepted ethical standards recognize that all humans have such basic rights, and that only humans have them. If we think only of human beings, this can be very liberal and very progressive. In supporting such a view, we implicitly condemn slavery, racism, and other violations of human rights. When, however, we think of human beings as no more than a small sub-group of all the sentient beings that inhabit our planet, we may come to see the other side of the coin: that we have built a barrier that lowers the relative status of all other species, thus making it easy for us to consider as "necessary" the routine sacrifice of their interests to our benefit, in the laboratory as well as on the factory farm.

The Great Ape Project, which is not only an idea, but also a book and a social platform, challenges for the first time on a social level the double standards that this barrier creates. The Great Ape Project demands that we extend the community of equals beyond human beings to all great apes: humans, chimpanzees, gorillas, and orang-utans. Until recently, such a demand would not have been taken seriously. Not so at present. The past two decades have been periods of intense philosophical discussion about the moral status of animals. The debate sparked by Animal Liberation, where Peter Singer called into question the idea of a superior human dignity, deeply affected the academic world. At present in universities, philosophers teach their students about the treatment of non-humans, and a new social movement now exists, which for the first time has shifted the burden of proof onto its opponents. While drawing a parallel between species discrimination and discrimination on the basis of race or sex, Animal Liberation argues that no matter what the other characteristics of the being, its interests should be counted equally with the like interests of any other being. This points to radical changes in our institutionalized treatment of non-human animals which, unfortunately, are not immediately feasible. No matter how strong the ethical arguments for it, the extension of the community of equals to all sentient beings will remain politically impossible for some time to come. Sentience is a characteristic shared by the billions of creatures which our society routinely exploits, and all over the world people are involved in raising and killing sentient animals for food. But one can find a good intermediate point for a long-term strategy. This intermediate point is the Great Ape Project.
The way in which the other great apes are currently forced to live and die is appalling. The very beings whose behavior is a constant source of astonishment for those who observe them in their free habitat, undergo the total destruction, not only of their welfare, but also of their souls. They sit in roadside zoos often with an unremovable chain around their necks, on the bare floors of their cages, occasionally extending both arms outside the bars to beg some food, driven insane from confinement; some rock endlessly in a corner, while others endlessly pace back and forth. In laboratories, they can spend their whole life alone in a five-foot by five-foot by seven-foot cage, only to be infected with diseases like hepatitis or viruses like HIV, and to be subjected to bleedings, biopsies, and laparotomies until the moment of their death. In entertainment, their resistance to performing unnatural, humiliating tasks is broken through physical abuse and deprivation. If they are captured in the African forests, their mothers are usually murdered before their eyes, their family and social ties are shattered, and they arrive at their final overseas destination after a journey which kills most of their fellow-travellers. If they were born in captivity, they do not, and will not, know of any other reality; their bodies, as well as their characters, will be irrevocably crippled by deprived and unnatural living conditions.

And yet, in spite of this incredibly low starting point, the enthusiastic response that we received when we wrote to potential contributors to The Great Ape Project confirmed our hope that the enfranchisement of our closest non-human kin might really be a first step in the process of animal liberation. We discovered that we were not the only ones who deemed it blatantly arbitrary not to include beings who clearly possess many of the characteristics we value in ourselves as full members of the community of equals, on the same basis as we include all members of our own species, irrespective of age or intellectual ability. It was evident that there were intellectual spheres in which the idea of attributing basic rights to chimpanzees, gorillas, and orang-utans could gain preliminary support.

The core of the book revolves around the illustration of, and the drawing of moral inferences from, two intertwined elements. The first is relatedness. This element obviously prevails in the scientific contributions. The precarious nature of the boundary between us and the other great apes is emphasized by most authors. Jared Diamond actually maintains that humans do not constitute a distinct family, nor even a distinct genus, but belong in the same genus as common and pygmy chimps and, since our genus name was proposed first, he refers to the common chimpanzee as Homo troglodytes and to the pygmy chimpanzee as Homo panicus. Robin Dunbar, on the other hand, suggests that the apparent size of the gap separating us from our nearest relatives is largely a consequence of the absence of any intermediate species alive today. This idea is also central to Richard Dawkins chapter in which the author censures the “discontinuous mind” which forgets that from an evolutionary point of view there must always be intermediates, and that it is sheer chance if they are no longer here. Together with some philosophical contributions which also center around relatedness, these scientific essays help to wipe out the idea that there is a gulf between us and the other great apes, by undermining its traditional support. They also assist in explaining the second central element of the volume—that is, similarity.

The similarity which, as well as being the most remarkable, is illustrated in the most detail, is the linguistic capacity. The verbal communications that, through American sign language (AMSLAN), have occurred and occur between Francine Patterson and the gorillas Koko and Michael, Lyn Miles and the orang-utan Chantek, and Deborah and Roger Fouts and the community of chimpanzees created around Washoe, not only show that the other great apes can learn
human language, but also point to their possession of significant intellectual capacities. Language has long been seen as a special human prerogative—and it still is. Many authors have in fact denied the linguistic achievements of Koko, although she has developed a vocabulary of over 1000 words, understands spoken English and often carries on “bilingual” conversations. For her part, Washoe has proven wrong the belief in the human monopoly of cultural transmission by spontaneously teaching sign language to her adoptive son, Loulis. Chantek began to deceive from a relatively early age: on one occasion, he stole a pencil eraser, pretended to swallow it and “supported” his case by opening his mouth and making the sign for food while really holding the eraser in his cheek. As Miles underlines, in order to deceive, one must be able to see the events from the perspective of others and negate their perceptions: this episode is thus evidence of a capacity for self-awareness and for sophisticated levels of social interaction. Similar abilities are pointed out by a number of other signs. But one single episode can perhaps convey in the most immediate way the sense of the richness of the other great apes’ individuality. Geza Teleki was once sitting alone on a grassy ridge watching the sun sink over Lake Tananika, when he noticed two adult chimpanzees climbing toward him on opposite slopes. As they met at the top, they stood upright and clasped hands; then they sat down together and watched the sunset enfold the park.9

In the light of all this, many of the contributors tend to see the other great apes as persons. “Person” is a peculiar term (and concept). Although it is often employed as if it meant the same as “human being,” the terms are not equivalent. The origin of the word “person” is in the Latin term for a mask worn by an actor in classical drama. By putting on masks, the actors signified that they were acting a part. Later on, “person” came to mean one who plays a role in life, one who is an agent. According to the Oxford Dictionary, one of its current meanings is “a self-conscious or rational being.” This sense has impeccable philosophical precedents. John Locke defines a person as “a thinking intelligent being that has reason and reflection and can consider itself as itself, the same thinking thing, in different times and places.”10 Recently, while criticizing the traditional doctrine of the sanctity of human life, an important strand in bioethical thinking has drawn a distinction between being human in the biological sense of belonging to the species Homo sapiens, and being human in the philosophical sense of possessing certain relevant characteristics, and has employed the term “person” to refer to the latter. It is plain that, following this definition, there are members of our species who are not persons, and there are also persons who are not members of our species. Person is also a term which plays a strongly evaluative role. Since it refers to the possession of characteristics that are generally seen as morally relevant, such as rationality and self-consciousness, it is often used to ascribe moral properties—usually some rights or duties, and frequently the right to life—to the beings so denominated. Thus, the collective case for granting the status of persons to chimpanzees, gorillas, and orang-utans presented in The Great Ape Project1 provides the support of a strong philosophical tradition for their request for their inclusion in the community of equals.

Where does this line of argument lead, as far as chimpanzee (as well as gorilla and orang-utan) experimentation is concerned? In this case, the so-called researcher’s dilemma exists in its most acute form: either these non-humans are not like us, in which case there is no reason to perform the experiments; or else they are like us, in which case we ought not to perform an experiment on them which would be considered outrageous if performed on a human being. Members of the research community claim that these non-human beings are exceptionally useful in the laboratory, but the grounds on which researches support such a claim—namely, that chimpanzees are so related and so similar to us—are exactly the grounds on which the Great Ape Project demands for them the same
basic protection we accord to ourselves. When dealing with humans, the ethical question of the justifiability of experimentation is not settled by pointing to its necessity with reference to the lack of alternative ways to achieve some desired results, or by emphasizing that the suffering it inflicts is adequately compensated for by the benefits it brings about for a privileged group, no matter how persuasive the evidence in favor of such benefits might be.

But, equally, the approach of countering experimentation on apes primarily on scientific grounds can now be seen as inappropriate. In a case like the deliberate, experimental non-treatment of syphilis patients at Tuskegee, AL, USA, we would never think of saying that such research is immoral because, being Afro-Americans, the subjects were not a good model for Anglo-Americans. On the contrary, we simply do not believe that scientists have a general right to perform painful or lethal experiments on human beings without their consent, even in the cases in which such experiments would advance knowledge far more rapidly than any other method.

The research community has accepted this overall principle. After World War II, because of the Nazi practice of experimenting on human beings, the Nuremberg Code of Ethics in Medical Research was set up. In June, 1964, the Declaration of Helsinki was adopted by the World Medical Association. But the code and the Declaration developed a body of constraints on human research, beginning with the requirement of voluntary consent, which set the tone for the many documents which would follow. In the United States, guidelines for the protection of human subjects issued by the Department of Health, Education, and Welfare require that an Institutional Review Board approve experiments. The guidelines center around the idea that individuals should be treated as autonomous agents; that is, they should be given the opportunity to choose what will or will not happen to them. It is sometimes said that animal research is in a different moral category with respect to human research, because non-humans are not autonomous, and cannot freely give or withhold consent to participate in experiments. Apart from the fact that, when beings like the non-human great apes are concerned, the empirical claim as to their lack of autonomy can be sensibly challenged, a deeper problem with this view is immediately evident. Vulnerable humans such as children and mentally disabled cannot consent to being experimental subjects and yet, far from this being considered as a reason for sacrificing their interests and using them in research, their vulnerability is seen as calling for special protection. Indeed, to give just one example, in the very guidelines which give such a prominent role to voluntary consent, the restrictions on experimenting on humans with diminished or no autonomy are even more severe than those governing normal humans, and guardians are appointed to safeguard their interest. Against such a background, how can the double standard that separates research on humans from research on the other great apes be defensible? The implications of the Great Ape Project, as far as the practice of laboratory experimentation is concerned, are clear: what we should do is simply extend the restrictions already existing on scientific research on humans to chimpanzees (and gorillas and orang-utans).

The method of achieving this specific end, as well as the more general aim of total enfranchisement for the other great apes, can only be political. In the essay that concludes this book, we explore the possibilities of bringing about change in a situation in which (as has often been emphasized with reference to the liberation of non-humans) the oppressed beings lack the ability to stand up in their own defence. It is evident that substantial interests support the exploitation of the other great apes, and that, in spite of all challenges, human chauvinism is far from having been ousted. But this is certainly not the first instance in history of a difficult struggle on behalf of beings who cannot themselves give support to the struggle. Both the fact that in the last two centuries
human slavery has been eliminated, or virtually so, from the face of the earth, and the on-going activities of "human rights" organizations in favor of political prisoners, show that often powerless humans also must—and can—be rescued through the help of other humans.

What we envision is thus an international movement that can play, for the liberation of the other great apes, the role that in the past was played for humans by the Anti-Slavery Society. Its immediate goal will be to ensure that, both morally and legally, chimpanzees, gorillas, and orangutans are removed from the category of property, and included in the category of "another," i.e., in the class of beings who are credited with personhood. The fact that they cannot be part of the group of paradigmatic human rights-holders, and that accordingly guardians will be needed to protect their newly sanctioned rights to life, liberty, and freedom from torture, is not an obstacle: as we have seen in the case of experimentation, this is exactly what already happens with the immature or less gifted members of our species. However, due to the radical extraneousness of the other great apes to our community, the long-term goal of the Great Ape Project will be the creation in their homelands of protected independent territories where they will be able to exercise their specific forms of agency and autonomy without any guardianship whatsoever. This idea too is not without precedent, as the existence of the non-self-sufficient human regions, the United Nations Trust Territories, shows. Its international impact and resonance make it reasonable to hope that it could, over the next few years, gain enough political support to relegate the assumption that we are entitled to enslave and exploit our closest kin to the junkyard of discredited ideas.

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NOTES

12 Visscher, M. Ethical Constraints and Imperatives in Medical Research. Springfield, IL: Thomas, 1975.

Chapter 14
Attitudes to Animal Research
Andrew N. Rowan and Valerie de Liedekerk

**Historical Development—Four Periods**

The animal research issue has waxed and waned as a focus of societal interest over the past two centuries. It currently is near its all-time high point over the past hundred and fifty years. Public concern over animal research rose from 1850 to about 1890, remained relatively stable and high for a decade or so, and then fell dramatically during and after World War I.

Despite continuing anti-vivisection activity, the public did not again begin to express concern about animal research (trusting medical professions to do what was right) until the late 1950s and early 1960s. Public concern then increased steadily into the 1980s and peaked around 1990. Interest still remains high and particular issues (such as the use of chimpanzees) can still garner significant public and political attention. The two periods during which it commanded significant public support were between 1860 to 1910, and from 1960 to the present day (Rowan, et al. 1995).

The first phase of protest against animal research began in earnest in the second half of the nineteenth century (French). Anti-vivisectionist sentiment and activity surged throughout Europe and in the United States. “This was a time in which animals, along with children, were increasingly becoming the objects of bourgeois sentimentality, reflected by the popularity of pet-keeping. The Victorian anti-vivisectionists protested the infliction of pain upon animals, and more broadly, the way in which family physicians were being transformed into cold-hearted scientists” (Groves). The most important factors that influenced the rise of the Victorian anti-vivisection movement were philosophical developments and the influence of the Darwinian revolution.

Anti-vivisection sentiment was influenced by philosopher Jeremy Bentham’s utilitarian arguments about the moral importance of animal pain and distress. In addition, Charles Darwin’s *The Origin of Species* (1859) influenced human attitudes regarding the status of humans and animals and challenged the anthropocentric view of nature that placed human beings at the teleological center of the universe (Sperling, 87-88). Darwin’s theory of evolution provided a scientific rationale for endorsing the use of animals to learn about humans. However, he also believed in an emotional continuum between humans and animals and was troubled by the suffering that experimentation could cause (Mukerjee). The Darwinian revolution thus weakened claims about the uniqueness of human beings and blurred the absolute qualitative differences that had been considered to exist between humans and animals.

Public attention over the plight of research animals dwindled after World War I and the animal movement entered its second phase of establishing animal hospitals, shelters, clinics, rescue leagues, rest homes for work animals, and animal cemeteries, in addition to promoting humane education programs and enforcing animal cruelty laws. They also fought for leash laws and sound pet care (Jasper and Nelkin; Rowan et al, 1995).
The third phase of opposition to animal research began in 1950 and continues unabated today. The Animal Welfare Institute (1951) and the Humane Society of the United States (1954) were founded in part because of concern about animal research and focused renewed attention on the issue. In 1959, William S. Russell and Rex L. Burch published *The Principles of Humane Experimental Technique* in which they put forth the “three Rs,” (replacement of animals; reduction of their numbers; and refinement of the experiment to cause less animal distress). Starting in the 1960s, humane organizations began to fund studies to develop alternative methods.

A major landmark in the growth of the animal movement was Peter Singer’s book *Animal Liberation* published in 1975. This helped launch the new animal rights movement and a broad renaissance among anti-vivisection groups. Thus, as in the nineteenth century, new philosophical developments influenced the growth of concern over animal research. In addition, the behaviorist traditions were breaking down and giving way to new ideas about animal thinking, awareness, and feeling. Television and film has helped to promote the view that animals think and feel and, as in the late 19th century, people are again much more concerned about animal pain, distress, and suffering.

**TRENDS IN ATTITUDES TO ANIMAL RESEARCH**

**Current attitudes**

In 1989 *Parents Magazine* conducted a poll of 1,004 randomly selected adults in the U.S. regarding their attitudes to various uses of animals (see Table 1). The poll found that 80% felt animals have rights but opinions on a range of other uses varied widely. The poll demonstrates that unless the use of animals benefits mankind in substantial ways, the public opposes using animals. For example, 63% thought killing animals for fur should be illegal. Fifty-eight percent felt that it should be illegal to test cosmetics on animals but only 18% felt medical research on animals should be illegal with an additional 18% disapproving of such research. In general, about 15–20% of the public would like to see all animal use in research and testing stopped immediately, while another similar segment is uneasy about the practice but is prepared to accept it because of its perceived benefits (Rowan, 1995).

Table 1: Public Attitudes to Various Uses of Animals

<table>
<thead>
<tr>
<th>Activity</th>
<th>Wrong: Should be illegal</th>
<th>Disapprove: But not illegal</th>
<th>Acceptable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Killing for fur</td>
<td>63</td>
<td>22</td>
<td>13</td>
</tr>
<tr>
<td>Cosmetic research</td>
<td>58</td>
<td>23</td>
<td>13</td>
</tr>
<tr>
<td>Killing for leather</td>
<td>46</td>
<td>23</td>
<td>27</td>
</tr>
<tr>
<td>Hunting for sport</td>
<td>33</td>
<td>27</td>
<td>36</td>
</tr>
<tr>
<td>Medical research</td>
<td>18</td>
<td>18</td>
<td>58</td>
</tr>
</tbody>
</table>

*Bioethics and the Use of Laboratory Animals*
Performing animals 16     16     63
Capture for zoos    12     17     66
Killing for food    5       7     85

USA attitude trends

Support for animal research has been declining.

Back in 1949 the National Society for Medical Research (NSMR), a group founded to support animal research, commissioned a poll of the public’s attitudes to animal research. They found that the public was very supportive of animal research—85% approved of the use of animals in research and only 8% disapproved (Anon, 1949).

Recent surveys indicate that public attitudes toward animal research have changed substantially since then. The biennial Science Indicators survey commissioned by the National Science Board in the US has asked a question on animal research since 1985 (NSB 1997). Survey participants were asked to express their level of agreement or disagreement with the statement: “Scientists should be allowed to do research that causes pain and distress to animals like dogs and chimpanzees if it produces new information about human health problems.” The level of agreement with this statement has dropped over 10 percentage points (from 63% agreeing in 1985 to only 50% agreeing in 1996). It appears as though the public is becoming less tolerant of the use of animals in research (see Table 2).

Table 2: NSB Surveys of Public Attitudes to Animal Research (cf. NSB, 1997)

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Support</td>
<td>63</td>
<td>53</td>
<td>50</td>
<td>53</td>
<td>50</td>
</tr>
<tr>
<td>Oppose</td>
<td>30</td>
<td>42</td>
<td>45</td>
<td>42</td>
<td>46</td>
</tr>
<tr>
<td>DNK/NA</td>
<td>7</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

Many other surveys of American attitudes to animal research have been commissioned with the following composite results. About 75% of the public accept the use of animals in research while about 65% actually support the practice (Rowan et al., 1995).

The public is more concerned with the care and treatment of research animals today than in 1949 (see Table 3).

In the first half of the 20th century, the public in general felt that laboratory animals were being properly cared for and used only when necessary and therefore supported their use in biomedical research.
Table 3: Public Attitudes on Laboratory Animal Care Over Time (Anon, 1949; FBR, 1985)

**Do medical schools take as good care of animals as individual owners would? (1969)**

<table>
<thead>
<tr>
<th>Response</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>As good</td>
<td>77%</td>
</tr>
<tr>
<td>Not as good</td>
<td>11%</td>
</tr>
<tr>
<td>Can’t compare</td>
<td>2%</td>
</tr>
<tr>
<td>Do not know</td>
<td>12%</td>
</tr>
</tbody>
</table>

**Research animals are treated in a considerate manner. (1985)**

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very often</td>
<td>9%</td>
</tr>
<tr>
<td>Fairly often</td>
<td>31%</td>
</tr>
<tr>
<td>Not very often</td>
<td>14%</td>
</tr>
<tr>
<td>Not at all</td>
<td>10%</td>
</tr>
<tr>
<td>Do not know</td>
<td>34%</td>
</tr>
</tbody>
</table>

This sentiment had changed by 1985 when the Foundation for Biomedical Research found that public attitudes on laboratory animal care had become much more critical.

*Women generally oppose animal research more than men.*

Three quarters of American animal-rights activists are women (Mukerjee). The finding that women are more likely to oppose animal research holds true for all countries surveyed (Pifer, et al.). Women are more pro-animal and anti-vivisectionist than men (Pifer, et al.; Gallup and Beckstead, 1988; Galvin and Herzog; Herzog, et al., 1991; Herzog, et al., 1987).

It is not clear why more women are concerned about animal research. It may be a function of social conditioning which fosters nurturing, responsiveness, and caring behavior. It was found that women tend to be more empathetic and positive toward, knowledgeable about, and nurturing of animals than men (Kellert and Berry). Research also points to differences in gender role socialization as the cause of the differences (Berk; Vander Zanden; Shapiro). Women are socialized to retain an empathic style of understanding and a personal style of relatedness. In addition, women’s identification with non-human animals may occur because the oppression of animals shares certain structural and linguistic terms with the oppression of women (Adams; Shapiro).

*There is a generation gap in attitudes to animal research.*

Surveys find that those who are older or less educated are more likely to see animals as resources, whereas those who are younger or more educated tend to view animals with compassion (Mukerjee).
International attitudes

Pifer et al. conducted a poll on attitudes toward the use of animals in research in 15 countries based on the NSF statement. They found they were able to divide the countries into three categories: those opposed to research; those with moderate views toward animal research; and those pro-animal research. Their findings are as follows.

Anti-research

Belgium (60%), France (68%), East Germany (60%), West Germany (66%), Ireland (56%), Italy (59%) and Spain (51%) are characterized by a high level of opposition to animal research. Each country had a large segment (more than a third) of the population strongly opposed to animal research.

Moderate

Canada (49%), Denmark (53%), and Great Britain (56%) are characterized by a moderate level of opposition toward animal research. Denmark and Great Britain had a large segment of the population strongly opposed to animal research (35% and 41% respectively).

The Netherlands (45%), Japan (42%), and the United States (42%) are characterized by a lower level of opposition toward animal research. Few of the respondents took an extreme position. Strongly opposed views accounted for only 20% in Canada, 30% in the Netherlands, 6% in Japan, and 14% in the United States. In the US both opposition and support for animal research are of a moderate nature compared to many of the European countries.

Pro-research

Only Portugal (35%) and Greece (36%) were characterized by a low level of opposition toward animal research.

Science knowledge and attitudes to animal research

Opposition to animal experimentation is often said to derive from anti-science sentiments, aggravated by poor public knowledge of science. However, the Pifer survey found no clear and consistent relationship between the extent of science knowledge and attitudes toward animal research.

In some nations there is a positive relationship between scientific knowledge and support for animal research, with individuals with higher levels of scientific knowledge being more likely to support animal research. For example, in Greece (57%), the Netherlands (60%), Portugal (56%), and the United States (56%) support for animal research is positively related to science knowledge. In other nations there is a negative relationship between scientific knowledge and support for animal research. Individuals with higher levels of scientific knowledge were more likely to oppose
animal research as, for example, in Belgium (63%), France (71%), East Germany (66%), West Germany (67%), Ireland (55%), and Italy (67%).

Out of the fourteen countries surveyed, eleven had high levels of scientific knowledge and seven of these were opposed to animal experimentation, while only four supported animal experimentation. Scientists have suggested that scientific education is the answer to the anti-science sentiment. The Pifer (1994) survey shows that for seven out of eleven countries, education and improved knowledge was not the answer. Takooshian (1988) had earlier found that positive or negative attitudes toward animal-based research were associated more with people's attitudes toward animals rather than the respondent's attitudes toward the advancement of science.

Environmental concern

Richards and Krannich (1991) found that 98.4% of their animal activist respondents indicated strong support for the environment, with 72% claiming to be active in the environmental movement. A relationship between concern for the environment and concern for animals' rights has been suggested by several authors (Collard; Greanville) and it is thought that animal rights activists have deliberately sought to align themselves with the environmental movement in order to make their cause more acceptable to the public (Knox). However, the Pifer (1994) survey indicates that concern for environmental issues is related to positive attitudes toward animal research in eleven of the nations.

Types of research

It has been found that public attitudes toward animal experimentation change in accordance to the type of research being conducted. The Foundation for Biomedical Research (1985), polled US residents about their attitudes to different types of research and found that, while only 12% oppose the use of animals in medical research on cancer and diabetes, 20% of the same sample opposed the use of animals to test medical products, and 27% oppose the use of animals on allergy testing. Other studies indicated that as much as 60% of the public opposed the use of animals to test cosmetics. Support also declines for alcohol and drug addiction research, household product testing, and basic research as opposed to goal-oriented medical research (Anon, 1984; DDB, 1983; Gallup Organization, 1982; Gallup and Beckstead, 1988; NABR, 1985; NSB, 1989 and 1993).

Species and attitudes

Support for the use of animals also changes according to the types of animal used. A 1985 poll surveying 1412 individuals found that 88% would accept the use of rats but only 55% would accept the use of dogs in medical experiments (Stet, 1985) (see Table 4).
Table 4: Species Attitudes to Animal Research (Approve/Disapprove of Use in Medical Experiments)

<table>
<thead>
<tr>
<th>SPECIES</th>
<th>APPROVE</th>
<th>DISAPPROVE</th>
<th>DON'T KNOW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rats</td>
<td>88%</td>
<td>9%</td>
<td>3%</td>
</tr>
<tr>
<td>Rabbits</td>
<td>77%</td>
<td>19%</td>
<td>4%</td>
</tr>
<tr>
<td>Monkeys</td>
<td>69%</td>
<td>25%</td>
<td>6%</td>
</tr>
<tr>
<td>Cows</td>
<td>58%</td>
<td>35%</td>
<td>7%</td>
</tr>
<tr>
<td>Dogs</td>
<td>55%</td>
<td>40%</td>
<td>5%</td>
</tr>
</tbody>
</table>

In a similar survey, Harold Herzog found that questions phrased in terms of rats yielded a far more pro-vivisection outcome than those mentioning dogs (Muñoz).  

ATTITUDES TO PAIN

Pain and distress

Although it is recognized that most research and testing performed on animals usually results in death, for many people it is not the taking of life which is of primary concern. (They believe that the majority of procedures are done for a worthy cause such as medical advancement.) Rather it is the perceived pain, distress, and anxiety experienced by the animals during scientific research that is of concern to the public. The public is more likely to support animal research if they are assured that the animals will suffer no pain or injury (Miller). The public also tends to accept animal research and testing when it appears to be of obvious benefit and does not produce too much suffering.

When the project is perceived to produce a great deal of animal suffering, then the benefits have to be significant, immediate, and self-evident if the public is to accept such research (Rowan, et al., 1995). In 1984, two cases involving the use of baboons grabbed public attention. In one, the public strongly supported the use of the animal; in the other, they were very critical of the research. The difference between the two cases was the public’s view of the perceived suffering and the perceived benefits from the research.

Baby foe case study

On October 26, 1984, a twelve-day-old infant with hypoplastic left ventricular syndrome received a baboon heart transplant at Loma Linda University Medical Center. Three weeks later she died of kidney failure. The operation unleashed immense debate and criticism. Public opinion was greatly in favor of this experiment because it was perceived to have high benefit and because the perceived suffering of the baboon was low. Animal activists criticized the experiment and argued that the baboon was needlessly killed. Neither the media nor the public sympathized with the
activists. A Boston Herald editorial cartoon (11/6/84) was typical of the media response. It featured Baby Fae on one side with the animal activists on the other and the captions read “Born with half a heart” and “Born with half a brain” respectively. Thus, animal protectionists were perceived as crazy to be supporting a baboon’s right to life as opposed to Baby Fae’s chance for a heart and life.

Head trauma study

Compare this to the studies of head trauma conducted on baboons at the University of Pennsylvania Medical School. The laboratory used baboons to study non-impact (e.g., whiplash) damage to the brain and spinal chord. Over the Memorial Day weekend in 1984, five individuals broke into the head trauma laboratory and removed 60 hours of videotapes of the activities in the laboratory filmed by the research personnel. People for the Ethical Treatment of Animals (PETA) was given the tapes and condensed the 60 hours into a 25 minute videotape that was distributed very widely.

The PETA videotapes of the treatment of the animals resulted in an investigation by the National Institute of Health (NIH) into the research experiments. The NIH concluded that the laboratory had failed to comply with animal care standards and eventually suspended the project. The public and media were appalled by the treatment of the baboons and thus sided with the animal protectionists. Both conservative and liberal commentators and media outlets expressed outrage at what they saw.

Suffering versus benefit

“These two cases—Baby Fae and the Head Trauma Laboratory—are very useful contrasts in the public reaction to animal research issues. When animal activists criticized the killing of the baboon in the ultimately futile attempt to treat Baby Fae’s heart problem, the public and the media regarded the criticism as at best, unfounded and misplaced. By contrast, the condemnation of the head trauma experiments by animal activists was echoed and reinforced by the media [and public]. The critical differences between these two cases that explain the different public and media reactions are, it is suggested, perceived differences in human utility and animal suffering.” (Rowan et al. 1995:23)

Attitudes to pain

Attitudes toward animal pain have also been studied amongst psychologists. Scott Ploos, in 1997, surveyed psychologists and found that, although 80% overwhelmingly support the principle of animal research, very few supported research which caused physical pain or death. In fact, 62% opposed pain and death in primates, 60% in dogs, 44% in rats, and 47% in pigeons (see Table 5). This study also shows attitudinal changes in regards to type of animal used for research among scientists as seen earlier among the general public. A greater number of scientists (34%) would use rats in research involving pain or death than primates (18%). It is also of interest to note that only
30% of the psychologists strongly supported the use of animals in research, with 9% opposed and 5% strongly opposed.

Table 5: Psychologists’ Support for Animal Research [Plous, 1997]

<table>
<thead>
<tr>
<th></th>
<th>Primates</th>
<th>Dogs</th>
<th>Rats</th>
<th>Pigeons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observational studies in nature</td>
<td>96%</td>
<td>89%</td>
<td>87%</td>
<td>86%</td>
</tr>
<tr>
<td>Research involving caging or confinement</td>
<td>63%</td>
<td>63%</td>
<td>77%</td>
<td>74%</td>
</tr>
<tr>
<td>Research involving physical pain or death</td>
<td>18% (62% opposed)</td>
<td>19% (60% opposed)</td>
<td>34% (44% opposed)</td>
<td>30% (47% opposed)</td>
</tr>
</tbody>
</table>

In addition, Plous found that psychologists with doctoral degrees (PhDs) earned in the 1990s are half as likely to express strong support for animal research as those with PhDs from before 1970 (Mukerjee). Plous also found that respondents strongly supported a government-mandated pain assessment process. Even among those who supported animal research, for example, 78% also supported a mandatory pain assessment.

ATTITUDES OF SCIENTISTS AND ATTITUDES TO SCIENCE AND SCIENTISTS

Attitudes of scientists

Scientists are also ambivalent about what is done to animals in experimental laboratories despite the common dogma that they are unfeeling. Actual data from studies of scientific attitudes indicate that many researchers do have reservations about animal research (Birke and Michael; Takooshian). Arluke (1988), Takooshian (1988), and Birke and Michael (1992) have conducted a variety of studies of scientific attitudes toward research which reveal more support for the practice than among the general public but still considerable concern.

Takooshian’s (1988) survey revealed that research scientists were only marginally more supportive of animal use than the general public. (The groups that gave animals the lowest rating and vivisection the highest were farmers, hunters, and clergy.) Grodsky (1983) points out that Takooshian’s study did not find any significant differences between the attitudes of scientists and the attitudes of the general public toward the use of animals; both were found to have mixed feelings regarding animal research. Arluke (1988 and 1990) conducted ethnographic research on the culture of a variety of animal research laboratories in Boston and found that scientists and technical staff experienced significant conflict in their use of animals. In general, Arluke’s research indicates that scientists and technical staff are just as concerned and caring about animals as other people but that they need to assimilate into the research culture that emphasizes avoidance of expression of emotion and feeling about the animals.
Attitudes to science

Public attitudes towards science and medicine have waned since 1974 but still remain relatively high. In 1974 60% expressed a great deal of confidence in medicine and 45% in science. In 1978 46% supported medicine and 36% supported science, in 1982 medicine was down to 45% and science was up to 38%; in 1986, medicine was again at 46% and science was up to 39%. In 1990 medicine remained around 46% and science went down to 36% (from NSB Science and Engineering Indicators—1991. Washington, DC: US Govt. Printing Office (NSB, 91–1)). Polls indicate that scientists belong to one of the most admired professions. In the US, 88% of the public believe that the world is better off because of science and scientists are second only to physicians in public prestige (NSB, 1989). In the UK, the three most respected public institutions are medicine, the military, and scientists in that order (Kenward).

The public may admire science but its perception of science has fallen since the halcyon days of the 1950s (Allen) when it was felt that federally funded science could surmount any problem the country or world could throw at it (Rowan, et al., 1995). A 1975 survey reported that scientists were seen as remote, withdrawn, secretive, unpopular, and single-minded souls (Pion and Lipsey). Other surveys identify qualities such as rationality, objectivity, and coldness with scientists (Gerbner; Weart). Beginning in the late 1960s and lasting throughout the 1970s more and more of the public began to ask whether science might not be more harmful than beneficial.

Gerbner (1987) examined the images of scientists portrayed on television and found that TV images of scientists do include some positive roles, but ambivalent and troublesome portrayals of scientists are more common. Gerbner (1987) also states that public exposure to science and technology through television tends to cultivate a less favorable orientation toward science. Scientists are more often portrayed badly compared to doctors and law enforcers. One out of five scientists is portrayed as bad as opposed to one out of nineteen doctors and one out of forty law enforcers. Perhaps this is due to the fact that the media has focused more attention on the human fallibility of scientists and has not simply concentrated on scientific breakthroughs (Rowan, et al., 1995).

Moreover, Gerbner (1987) found that heavy TV viewers (four hours or more a day) were more negative about science and scored high on the index wishing to place restrictions on scientific activity. He also found that a college education reduced negative attitudes only by a small amount in heavy TV viewers. This finding could also be used to question the assumption that education would dispel anti-science views.

The perception of scientists' personalities by the public has always been stereotyped and distorted. Television invented neither the ambivalent views of science nor the negative images of science. Instead it streamlined it, put it on the assembly line and delivered it into American homes (Gerbner). The caricature of the curious, if not mad, scientist who ignores the dangers of his research in his relentless quest for knowledge is found throughout literature (e.g., Dr. Jekyll and Mr. Hyde, Frankenstein, The Island of Dr. Moreau, and Jurassic Park). Starting at the end of the 19th century researchers were perceived by the public as unfeeling individuals who deliberately and without feeling carried out experiments. Research scientists commonly reinforce this media image by failing to express concern for the moral ambiguities of animal research and by using dispassionate language and rational arguments, further alienating the general public.
SOME CONCLUSIONS

- There is less public support today than in the past for animal research. For example, there is a lot less support for cosmetic testing and household safety product testing on animals. In addition, the public is less supportive of repetitive experiments and basic research that uses animals.

- Both scientists and the general public have ambivalent feelings about the use of research animals, especially non-human primates and companion animals. Both the general public and scientists have particular moral reservations about using animals in invasive or painful experiments.

- For people to support research there must be a direct benefit (human utility) from animal research usually accompanied by little animal suffering, if any.

- Public attitudes will change significantly when convinced that elimination of animal pain and distress is energetically and effectively addressed. The general public wants more regulation concerning research animal use and proof that the use of alternative methods has been seriously considered.

- Support for animal rights remains reasonably strong although media coverage of the movement has dropped in the 1990s. Currently, media coverage on behalf of animals used for fur, as research animals, or for meat has declined in the US since 1990 (Jones). [Jones (1997) proposes that the decline in media coverage since 1990 of animal rights protest events can be attributed to a combination of three factors: (1) topic no longer newsworthy; (2) loss of available resources; and (3) counter-movement organizing.] The role of the animal-rights community has acted as a check on the scientific community and has spurred change in the practice of animal experimentation. The underlying force behind these changes are society’s evolving views of animals.

- Improving scientific literacy may not diminish opposition to animal research.

- The scientist is often viewed by the general public as a narrowly focused and cold-hearted individual. Scientists must be allowed by the scientific community to voice their ambivalent feelings. This would probably lead to a boost in public trust and a more favorable public image of both science and the scientist.

NOTES


DDB. *America's Binding Relationship with the Animal Kingdom*. New York: Doyle Dane Bernbach, 1983.


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**ADDITIONAL READING:**

Chapter 15
Informing the Public: AMP’s Perspectives

Jacquie Calnan, MPA

Americans for Medical Progress (AMP) believes in the humane and proper use of animals in medical research. We challenge the misinformation surrounding animal-based biomedical research, and we continue to fight so that all people—and animals—may benefit from medical innovation and scientific progress.

We’ve watched with great satisfaction the development of strong guidelines governing the use of animal models in research. For this, we salute both the biomedical research community and also those in the animal protection community whom we believe most accurately reflect the values of the public at large. Animal-based research is vitally important, but should always be carried out under the most humane and ethical conditions.

Sadly, there are some animal rights groups that reject all uses of animals, including animals in medicine. These groups spend well over $200 million a year in an effort to shape public opinion. Many of their efforts are focused against medical research:

- In labs, scientists and other animal research professionals are singled out for intimidation and personal attack. Medical research facilities are targeted for vandalism, illegal break-ins, and arson.
- In schools, teachers are offered slick pseudo-science curriculum materials aimed at turning children against research.
- In the media, hundreds of thousands of dollars are spent on stunts that misrepresent the nature of animal research.
- In Congress, well-financed lobbyists push unnecessary legislation designed to hobble medical research with red tape that has little to do with animal care.

Over the past seven years, AMP has initiated several successful public information campaigns designed to counter the efforts of these fringe groups. Our Hollywood Information Project shines a spotlight on celebrities who see nothing inconsistent with raising money for medical research and supporting animal research abolitionist groups such as PETA at the same time. Our work with AIDS research advocates to emphasize the vital role of animal research in the quest for new treatments for AIDS garnered worldwide broadcast and print news coverage. In conjunction with the American Association for Laboratory Animal Science Foundation, we have just launched AMP’s Women’s Health Campaign, designed to alert women that their donations to anti-research animal rights groups are working against their own health interests.

However, we know we have much work ahead if the public is to fully understand and appreciate the necessity of animal research in medicine. The hope is to conquer cancer, AIDS, heart
disease, Alzheimer’s, diabetes, mental illness... the reality is that cures for these diseases can only come like every cure before them, through animal research.

So what have we noted about the public’s perception of animal-based medical research? First, we have found that most people, when presented with accurate information about animals in research and the current limits of alternatives, do understand and support the use of animal research in the fight against disease. Most people are also willing to hear and accept that development of vaccines and medications have occurred as a result of animal-based research and that the promise of future medical advances depend on the same.

The popularization of the animal rights issue and the effectiveness of the communications of many of the national animal rights groups have resulted in serious misinformation reaching the public. These groups try to lead people to believe that animal-based research occurs behind closed doors, unwatched and unregulated; that it is haphazard, with research designs that are not carefully thought out; that researchers are insensitive to animal distress and do not take steps to minimize it; and that the results of this research are irrelevant to understanding the course of human disease. We know nothing could be further from the truth.

Certain animal activist groups punctuate their anti-research diatribe with graphic and misleading images of animal research, which naturally repulse those of us who care about animals. We’ve all seen these pictures in circulation. As a result of this type of emotive and deceptive marketing, the question shifts from “do you support the humane use of animals in medical research?” to “are you in favor of animal torture?” If given only these two options in a debate, how would you respond?

It is the role of Americans for Medical Progress, working in concert with the research community, to dispel these myths and misrepresentations about animal research as presented by animal rights activists.

The timing could not be better for us to state our case for animal research. The miracle of modern medicine is evident everywhere, and it’s a hot topic. Open up any newspaper. Look at the featured selections on the shelves of your local bookstore. The results of ground-breaking studies are picked up by the local newspapers and extolled by science reporters on nightly newscasts. The story of medicine is in, and often research is its hero.

Anti-research rhetoric has been distributed to hundreds of thousands of people across the country. This material has undoubtedly reached the homes of families grappling with the care of a relative with Alzheimer’s, or perhaps they’ve lost a young person to AIDS. It’s possible that a reader of such literature was stricken by polio as a child. How do they view the animal rights arguments? Do they take it for granted that medical research has ensured that a grandchild will not suffer the same? Americans for Medical Progress will make sure that these reasonable questions are asked, and that important success stories about animal research are told.

We know that most people do not support the notion that an animal’s life is morally equivalent to that of a child. With their extreme statements and bizarre campaigns, groups such as PETA are doing an excellent job themselves of driving rational, thinking people away from the animal rights philosophy.

But we also know the public will reject any callous or cruel treatment of animals. For public support of animal-based medical research to continue, we must talk honestly and openly about the
humane conditions under which laboratory animals are studied, and about their intrinsic value to advances in human—and animal—health.

Americans for Medical Progress will continue to work in the arena of public opinion because the medical advances that we all rely upon today, and those for which we wait, are inextricably linked to the proper and ethical use of animals in research.
Chapter 16
Informing the Public:
Foundation and National Association for Biomedical Research Perspectives
Barbara Rich

The earliest known opinion poll on the subject, conducted for the National Society for Medical Research in 1949, estimated that 85% of the American public favored laboratory animal use in medical research and only 8% opposed such use. Subsequent national surveys conducted for the Foundation for Biomedical Research (FBR) continued to show majority support for animal research, but with growing opposition. In 1985, 77% of the public respondents approved and 16% disapproved. The same survey done again in 1990 disclosed that 72% approved while 21% disapproved.

Other national pollsters have had troubling data to report for the 1990s. Those replying to a 1993 Los Angeles Times poll split almost equally on their acceptance of the statement, “Animals are just like humans in all important ways.” In response, 47% agreed, 51% disagreed, and 2% did not know. Two-thirds of those polled by the Associated Press in 1995 agreed that “an animal’s right to live free of suffering should be just as important as a person’s rights to live free of suffering.” Of that two-thirds, 38% strongly agreed and 29% somewhat agreed. Although we cannot be sure that the views of youth will remain the same, the worst news may still be to come. When questioned about how much they supported or opposed animal rights, including bans on all laboratory and medical tests that use animals, a 1991 Gallop Poll said U.S. teenagers aged 13 to 17 years replied as follows: 40% support very much, 25% support somewhat, 18% somewhat opposed, 14% very much opposed, and 3% had no opinion.

FBR commissioned its fourth and most recent national survey in 1996. The changes in attitudes reflected in FBR polls over the years point out issues that must be addressed by the biomedical research community. Awareness of the animal research controversy is on the rise. Nearly 70% of those queried told the Foundation in 1996 that they were concerned about using animals for medical research and testing; about 50% said they were concerned in 1982. Despite our past public educational efforts, the number of people questioning the quality of laboratory animal care is increasing. Thirty-six percent (36%) feel animals used in experimental research are not being treated considerately, compared to 24% who gave this response in 1982. Belief in the existence of alternatives to the use of animals in research is becoming more prevalent. According to the 1996 poll two out of five people, or 40%, think there are alternatives to animal experiments, compared to 25% in 1982. A modest majority, 54%, believed that the use of animals is necessary in medical research as of 1996.

While similar to prior instruments, the 1996 FBR survey also supplied more sophisticated information upon which to base future educational efforts. First, the survey showed that public attitudes fell into three fairly equal segments. Analysis of their responses reflected that 35% of those polled held average views; that is, they neither strongly supported nor strongly opposed the use of animals in research. Another 31% evidenced relatively high support and low opposition to
animal research. On the other hand, 34% indicated low support and high opposition. The two primary indicators of differing attitudes were gender and age. Females and younger age groups are much more likely than males and older age groups to be opposed to animal testing.

In addition to characterizing the public audience, FBR sought to identify the information about animal research that Americans need to know. The 1996 survey tested a variety of messages to determine their effectiveness in influencing public perceptions. Following are the top six messages in rank order. Below the message is shown the percentage of the overall survey population and each of the three segments that said learning this fact would make them more supportive of using animals in research. In particular, note how important these messages are to the average views group. Since this significant portion of the population does not hold strong opinions one way or the other, they may benefit the most from receiving factual information. Also, the statistics suggest what knowledge is more likely to influence women and young people who express opposition to animal research.

4. “Rats or mice are used in most research—not species such as dogs, cats, or monkeys.”

   68% Average views group
   57% High support/low opposition group
   63% Low support/high opposition group
   62% Overall population

Response to this statement demonstrates the public’s tendency to view rodents differently than the other species mentioned. For the low support group this message was the most influential.
Without question all animals must be humanely treated in research for scientific and ethical reasons. This should be conveyed at the same time that the public is told that most research animals are rodents.

3. “Progress in finding new treatments or cures for diseases such as AIDS and Alzheimer’s would slow down considerably if animals could not be used in research.”

71% Average views group
77% High support/low opposition group
41% Low support/high opposition group
62% Overall population

Informed predictions about the lack of medical progress should animal use be prohibited are very important to the average person. A specific illustration related to the personal life of the speaker or listener may make the best example, especially for the young.

2. “Tough federal laws require that research animals be treated responsibly following strict guidelines.”

74% Average views group
66% High support/low opposition group
54% Low support/high opposition group
65% Overall population

Given the public’s concern about the quality of animal care and the widespread belief that laboratory animals are not well treated, it is essential for everyone to know that scientists must comply with strict laws protecting animal research subjects. Hearing the details of federal requirements can further reassure any listener.

1. “Scientists do all they can to limit the pain and suffering research animals experience.”

74% Average views group
79% High support/low opposition group
47% Low support/high opposition group
66% Overall population

From the perspective of NABR and FBR, the central theme of public information programs, like the purpose of biomedical research itself, must be improving the quality of life. This means preventing pain and suffering as much as possible for research animals as well as for research beneficiaries. First and foremost, the public wants to know that scientists and others who work with animals in the laboratory actually care about them. Having dedicated their professional lives to both animals and research, ACLAM members are uniquely qualified to convey this message.
Chapter 17
A Scientist’s Perspective of the Value and Ethics of In Vivo Research

Peter W. Nathanielsz, MD, PhD, ScD, FRCOG

The study of the biology of animals and humans can be performed at both the reductionist and systems biology levels. Recent fundamental discoveries in the understanding of how each individual cell works are truly amazing when one recalls that the structure of DNA was only clarified forty-five years ago. We now talk of walking the gene. Evaluation of the function of whole cells in culture, or cell homogenates linked to biochemical and molecular techniques permits detailed analysis of how individual cells and sub-cellular particles replicate and interact. These in vitro approaches have their strengths and weaknesses. It is now clear that, even within an organ, interactions between cells at the paracrine level greatly modify cell function. The problem of understanding how the whole mammalian body works is further complicated by the regulatory functions of the endocrine and nervous systems. To a mammalian biologist, it is inconceivable that we can ever completely understand how the whole organism works without conducting some studies in vivo. The ethical choice is straightforward. Either it is acceptable to use animals to obtain information that is critical to human and animal patient care or we must consciously forego the benefits.

Because it is my area of expertise, I will illustrate the impossibility of obtaining needed information from cell systems alone in two areas of research with which I am acquainted. In both of these areas critical studies must be performed in vivo. It is important to understand that without these studies the areas of research that I will describe will be greatly restricted to the point of delivering insufficient knowledge for us to understand the whole picture. First, I will outline how experiments in fetal sheep and non-human primates have clearly shown that the fetus plays a central role in the initiation of labor and delivery. The importance of this area of study is that it informs us of both normal delivery and premature delivery. Second, I will outline research approaches that have been of value in unraveling the story of how prenatal life, life before birth, programs our health for a lifetime. How we are ushered into life will greatly affect how we are ushered out of it.

In the late 1960s and early 1970s, Liggins undertook a series of elegant studies in pregnant sheep that clearly showed that the fetal pituitary adrenal axis plays a central role in delivering the signal that initiates birth. He demonstrated that interruption of the fetal pituitary adrenal axis either by fetal adrenalectomy or fetal hypophysectomy prolonged pregnancy. Alternatively, infusion of glucocorticoids or adrenocorticotropic to the fetus shortened gestation. In 1991 McDonald and Nathanielsz demonstrated that lesions of the fetal paraventricular nucleus also prolonged gestation, thereby implicating the fetal brain in the signal that starts labor. The fetal brain–pituitary–adrenal axis is responsible for the maturation of vital organ systems that the fetus will need to successfully complete the transition to an independent extra-uterine life. Glucocorticoids of fetal origin are responsible for the maturation of the fetal lung, gut, and kidney. By using the adrenal glucocorticoid system to initiate maturation of critical organ systems that will be needed for inde-
ependent life after birth as well as to start the birth process, the fetus protects itself against a mismatch between being born and being able to air-breathe, control its body temperature and intermediary metabolism. These topics have been reviewed at length elsewhere.1

The fetal ovine adrenal secretes ever increasing quantities of cortisol as term approaches. The cortisol travels via the umbilical circulation to the placenta and simulates the enzymes responsible for the conversion of placental progesterone to estrogen. As a result, maternal plasma progesterone concentrations fall and estrogen concentrations rise. Progesterone inhibits uterine contraction and estrogen has a stimulatory influence on myometrial activity. Thus, this change in placental hormone production is key to the initiation of labor. In pregnant non-human primates and pregnant women, however, there is no fall in progesterone at the end of pregnancy. The placenta cannot convert progesterone to estrogen since it lacks the necessary enzymes. So the fetal primate has to adopt a different strategy. At the end of gestation, the fetal primate adrenal increases its secretion of androgen which the placenta converts to estrogen. This role for fetal adrenal androgen is born out by studies in which premature delivery is produced by the administration of androgen to the pregnant monkey in late gestation.7

These comparative studies in pregnant sheep and pregnant monkeys show that at the level of estrogen function there is considerable commonality between primates and ruminants. Determination of the role of estrogen in delivery from experiments in non-human primates is being put to use by the development of tests for estrogen in the saliva of pregnant women. Maternal salivary estrogen concentrations rise early in pregnancies that are more likely to result in premature delivery.3,8

![Graph showing the change in DHEAS and cortisol levels during pregnancy.](image)

Figure 1. Comparison of the main fetal adrenal hormone, DHEAS, in fetal monkey blood and cortisol in the fetal sheep blood in late fetal life shows the similarity in the rise in the blood concentrations of these fetal adrenal products. (Reproduced with permission from reference 1.)

Premature labor can be precipitated in pregnant rhesus monkeys by the infusion of androgen at eighty percent of the way through gestation. Maternal plasma estrogen rises, the uterus starts contracting with the normal labor patterns, and the mother delivers prematurely.7 Inhibition of the conversion of androgen to estrogen will inhibit the ability of androgen to precipitate labor.9 Direct infusion of estrogen to the pregnant monkey does not produce delivery.9,10

Supply of androgen as precursor for estrogen production rather than estrogen itself shows how it is necessary to study the sum total of all the tissues involved in critical physiological pro-
cesses. Labor and delivery is a multifactorial process involving the fetus, placenta, and mother. Each of these participants recruits the several cell-types involved in producing autocrine, paracrine, and endocrine regulators. It is thus important to study both the function of the isolated cells in a reductionist manner as well as to undertake in vivo studies to determine how the whole process commences and is brought to a successful conclusion.

Time-of-the-day dependent phenomena are not easily studied in vitro. It is clear that oxytocin plays a role in labor. It has been shown that in monkeys as in humans there is a rise in maternal plasma oxytocin at night time and that this rise is the likely cause of the fact that women generally go into labor during the hours of darkness.$^{11}$ Knowledge of the role of oxytocin in labor is helping to design strategies for treating premature labor. Premature labor only occurs in about 10 percent of pregnancies. However, prematurity is responsible for 75 percent of neonatal death and 50 percent of long-term handicap. There is a need to understand the totality of all the redundant, backup mechanisms that occur during labor so that effective procedures can be designed to diagnose and treat this major problem of pregnancy.

One of the most remarkable new concepts in biology is the developing story that the quality of prenatal life we experience in the womb programs our health for a lifetime.$^{2,3}$ I will make two central points at the outset. First, life in the womb is a period of the individual's life span at which nature, the genetic make up of each individual and nurture, the intrauterine environment, interact closely. I will provide evidence to show that this interaction will be fundamental to the health each individual animal or human will enjoy throughout life. Second, the interaction involves a myriad of systems and cell types in the mother, placenta, and fetus. Although much can be modeled in vitro, the final picture of how the fetus develops and how a sub-optimal intrauterine environment may alter development permanently can only be put together in studies that employ in vivo techniques.

Recent research into the lifetime health records of babies born in the early part of this century show that the health we enjoy throughout life is markedly affected by the conditions we experience in the womb before we even enter this world. The consequences of an unfavorable environment in the womb may even be passed across many generations. This prenatal determination, or programming, of the quality of our lives is a fascinating story with vital consequences for each and every one of us. The concept of programming of lifelong health and disease by prenatal life has important health implications for future generations of our children and the society in which they will live.

We ignore at our peril the biological rules by which we live. Every individual in every species faces similar challenges: obtaining enough food and oxygen, maintaining a normal body temperature, and excreting waste products that the body no longer needs. Essentially, our bodies are machines that function according to a precise set of biological rules, rules that are as fundamental as the physical laws of geology or astronomy. How the heart functions is a good example of these fundamental biological rules in action. The heart is a pump that beats about once every second to circulate blood through our blood vessels to all the tissues in the body. When the blood vessels become constricted due to spasm of the muscle in their wall or clogged by plaques of cholesterol, the flow of blood around the body is impeded, and blood pressure is raised. When this happens, the heart has to work harder to pump the same amount of blood. If the heart is unable to increase the force with which it pumps, the flow of blood will decrease, just as an electrical current decreases if the electrical resistance in a circuit rises. The biological laws that govern the flow of blood through the body are as incontrovertible as the laws of conduction of electricity in the wires around our homes. Attempting to study electrical circuits by focusing solely on the power source or the con-
ducting medium would be a very incomplete exercise. It is difficult to see how Ohm's law could have been demonstrated with just one electrode or a piece of copper wire from the circuit without a power source.

The underpinning of the idea that prenatal life programs our lifetime health comes from three main sources: epidemiological studies, clinical practice, and observations in animals (see Figure 2). Over the past thirty years, a mounting and overwhelming body of epidemiologic evidence has accumulated from many countries throughout the world. The evidence came to light slowly through the '60s, '70s, and '80s. Much of the credit for bringing these issues to the forefront of scientific and medical thinking must go to Dr. David Barker and his Medical Research Council (MRC) Epidemiology Unit at Southampton University in England. As a result of his pioneering efforts, many researchers in this field call the concept of prenatal programming the Barker hypothesis. David Barker and his colleagues have studied birth records from babies born in the United Kingdom between 1910 and 1930 and related their weight at birth and other physical characteristics to the health these individuals enjoyed and the illnesses they endured during their lives. Many of the subjects of these studies have now died and it is possible to relate the cause of their death to their weight and body from when they were born.

![Diagram](Image)

_Epidemiological Information

Clinical Research

Animal Research

**Figure 2.** The interaction of different sources of information on programming during life in the womb. (Reproduced with permission from reference 3.)

David Barker has shown, for example, that the likelihood that an individual will die as a result of heart disease is increased by over 50 percent in men whose birth weight was less than 5.5 pounds, compared with men with a birth weight of 9.5 pounds. The relationship of this increased risk of an early death from heart disease to poor early growth is further demonstrated by the fact that boys who weigh less than 18 pounds at one year of age have two-and-a-half times the risk of dying of heart disease in adulthood when compared with boys who weigh more than 26 pounds at one year of age. At all stages of development, male fetuses and infants grow faster than girls. Cells that are growing and dividing are generally more vulnerable than slowly growing cells to the effects of inadequate supply of nutrition. When cells are growing faster, they need more resources. So, if the resources are cut off, cells that are growing rapidly are less able to survive the cutbacks. It is likely that this increased rate of growth is responsible for the greater vulnerability of boys than girls at all stages in life.
A single instance of epidemiologic correlation between two events cannot define the mechanism that causes one or both of the events to occur. In some instances, when changes take place in the environment, looking at correlations before and after the change can help to discover the cause. It is at this stage that we have to look for mechanism as to how adverse conditions in the womb may produce long term effects on health and disease. David Barker has said that the answer to heart disease will not come from clinical cardiology but from carefully controlled animal studies, especially those designed to evaluate how adverse conditions in the womb can program the cardiovascular system.

The fetus responds to adverse conditions such as hypoxia or hypoglycemia in late fetal life by centralizing its blood supply to its vital organs, heart, brain, adrenals, and placenta. This is a very clever response in the short term since it protects the fetus' very existence. However, in the long term, fetuses that are compromised will become growth-retarded. Such fetuses show the classical stigma of asymmetric growth retardation, having spared to a large extent the brain but at the expense of other organs. The classical way to detect the form of intrauterine growth retardation that occurs late in pregnancy is to measure the fetal head and the fetal abdomen. When the head circumference to abdominal circumference ratio is high that is a clear indication that the fetus was restricted of nutrients and/or oxygen in the uterus at a critical time of fetal development.

The long-term consequences of adverse intrauterine conditions are only just beginning to be worked out. However, David Barker has shown that blood cholesterol at the age of 50 is inversely related to abdominal girth at birth. This is highly likely to be due to a fundamental impairment of liver function that occurs prenatally. It will be necessary to carry out precisely controlled animal experiments to determine what mechanisms are impaired by adverse conditions in utero. Only then can effective remedies be worked out either to prevent the problems from occurring or reversing them after birth if it is not possible to prevent them from occurring prenatally.

In summary, we see that whole animal research is vital to a better understanding of the critical periods of development that occur antenatally. We pass more biological milestones before we are born than after birth. At this critical stage of development, maternal, placental, and fetal mechanisms are interacting in a way that cannot be completely understood by in vitro studies. I would repeat the analogy of the electrical circuit. Just as the sum of the function and capabilities of a circuit cannot be known from just one of its parts, so the function of the mammalian body cannot be understood without detailed study of that same body.

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NOTES


Chapter 18
Public Attitudes, Opinion, and Accountability:
Informing the Public, an ACLAM Specialist’s Perspective

Thomas E. Hamm, Jr. DVM, PhD

We are fortunate to live in a time and in a country where the public has the luxury of worrying about our issue, the quality of laboratory animal care. Unfortunately, this is a relatively new concern for the general public, and we have discovered that we aren’t very good at communicating with them. The recent 10- to 15-year period has been further complicated by more militant factions of the so-called “animal rights movement.” Their violent actions have created a siege mentality which also blocks effective communication. Our response should be to become the most open we have ever been to the public. The following quotation fits my subject perfectly: “In the animal kingdom the rule is to eat or be eaten, in the human kingdom, define or be defined.” It is important that ACLAM diplomats do everything they can to define our field instead of allowing others to do it for us.

When I began my scientific training, which we can assume began about the time I became a veterinarian in 1968, I was taught that my job as a “scientist” was to “do science” and let public affairs professionals, politicians, lawyers, and others determine how science would be used. I was taught that my job as a laboratory animal veterinarian was to provide adequate veterinary care for the animals, and it was up to others to deal with the public. I was taught that most professionals other than scientists, especially politicians, lawyers, and the press were not to be trusted and to avoid them if possible. After 30 years of being a laboratory animal veterinarian I have found all of these concepts to be incorrect as have many others. We need to work closely with politicians, lawyers, and the press or the public will suffer from lack of qualified scientific input to the process. The National Association for Biomedical Research, Americans for Medical Progress, or your local organizations can help provide training and information.

Based on the rhetoric of the so-called animal rights movement, I have felt for many years that we are headed back into the dark ages. In recent years I have had to amend my belief because I have recognized that some people in our society never left the dark ages and seem to view science and technology as enemies. These individuals cling to a pessimistic view of what humanity, using science, has accomplished or can accomplish. I have come to believe that the core of the so-called animal-rights movement is more anti-human and anti-science than they are pro-animal. It is not hard to understand why the public is so confused about science. Arthur Kantrowitz published an excellent discussion of this issue. He writes that “today’s dominating version of the fall from the Garden of Eden is that nature is sacred and the works of man defile nature.” He notes that even scientists are not immune to this ideology and illustrates his point with the warning from the Union of Concerned Scientists that “grave threats imperil the future of humanity and the global environment.” He continued that society has moved away from faith in progress to the concept of “sustainable development.” Under this fear-driven doctrine, innovators will bear the added burden of proving sustainability, and central planners will be charged with the responsibility of deciding
whether proposed advances are sustainable." He further observes: "... we have no protection against hijacking the credibility of science for ideological purposes. This loophole has enabled the renewed wholesale transformation of ignorance into fear...."

There is obviously a mountain of information about the problem we are in and I hope I have laid enough foundation now to go into what I think ACLAM diplomates need to do to deal with this problem: I hope to convince everyone who works with laboratory animals that we need every one of you to talk to the public about what you do. Everyone isn't suited or inclined to get involved in debates on TV. However, everyone can help by participating in the following suggestions.

One major reason it is difficult for us to understand why anyone believes the activists' propaganda is the fact that we are in our facilities everyday and we know what really goes on there. Remember that the average member of the public does not share that perspective and needs to find out about the high quality animal care we provide or they may be easy prey for a skilled activist. One of the most important things we can do is to continue to open all of our existing facilities to inspection by anyone who is interested. What we do is important and it is fascinating. The more members of the public that see how we conduct our work the more likely they will support us. Even if some choose not to support us they will be making that choice based on the reality and not only the perception of what is happening.

There are several considerations that should be addressed prior to giving the first tour: First, you need a program you are proud to show to others. Second, you need to do a risk analysis with public affairs and public safety and be prepared to deal with an attack on your facility. Third, you need to protect confidential information. Fortunately these three steps are needed regardless of whether or not you give any tours. Most facilities already have the first three steps in place, but I will give you a few suggestions for these steps before moving into my suggestions for how to conduct the tours.

1. **You need a facility that you are proud to show to others.** If you are ashamed to show to the public any of the projects in your facility, or the facility itself, then you have a problem that needs to be addressed. Nothing we do is secret and if you are ashamed of something then many other people in the organization may feel the same way. The best facilities are AAALAC accredited. Unfortunately only about 1/3 of the facilities that could be accredited are accredited. We should all re dedicate ourselves to trying to get all of our facilities accredited. If you have a good facility (accredited or not), your IACUC is doing a good job, and the research follows the protocol; you should be proud to show your facility and your programs to the public.

2. **You need to do a risk analysis with public affairs and public safety and be prepared to deal with any attack on your facility.** One good way to do this is to use the National Association for Biomedical Research Crisis Management Manual. Have your press releases written in advance and have a plan for who will present them. If you are attacked the news event may last for only a few days. It is difficult to respond unless you have materials prepared in advance. In addition to press releases consider creating videotapes of controversial projects. Ask your local news organizations what format they use for their broadcasts and create these videotapes in that format in addition to the common format that will work in a home VCR. The way to create tapes to be used for this purpose is first to determine which projects you think might be attacked. Select projects that use
primates, dogs, or cats and projects that might be difficult to justify to the public such as behavioral
or neurobiological research. If local activists have already mentioned projects in their literature
include these as well. Then, to keep the activists from simply having the list of what you think is
controversial, add several projects that you do not consider controversial but simply important areas
of research using animals that should be communicated. Then each month have one investigator
from the list give a one-hour seminar to present his or her research, why the work is important and
why animals are used. Open the seminars to the public and tape them. You may never have to use
the tapes to defend any of the projects but you will have them if needed and will have had an
outstanding lecture series that will be enjoyed by everyone who participates.

Some people think that giving tours compromises security. In the first place most if not all of
the “break-ins” to date have apparently had inside information. They don’t have to go on a tour to
find out about your facility. In many cases they can get plans, keys, and so forth from current
employees, or activists can simply become one of your current employees. So don’t keep the public
out under the false idea that you are preserving security. Install a good security system with cameras
at strategic points. In the final analysis most of our facilities, no matter how sophisticated the
security system, can probably be easily breached. The real security we have is good programs that
will withstand critical review and the will to rigorously defend them.

3. You need to consider the potential for the accidental release of confidential information.
Many facilities post a great deal of information on the doors and cage cards of the facility that are
not needed for the management of the facility. All of the information you need is in the IACUC
protocol or is filed with an IACUC reference. Therefore, if the IACUC number is on the door or
the cage card, you really don’t need the name of the sponsor, the vendor of the animals, the name
of the investigator, several home phone numbers, etc. The less information you put on your doors
and cages the less likely you are to accidentally release confidential information. Remember to train
your staff to consider what they put on the doors. During a tour of my facility at Stanford one of the
tour members noted and brought to everyone’s attention a note from one of my staff which said,
“The cages are wet again doesn’t anyone care about the animals?” As tour director I had to make a
difficult explanation. Later I found out that often the pace of cage-washing resulted in wet cages
being delivered to the rooms. This was easily corrected by reminding the cage-wash staff of the
standard operating procedures. The note wasn’t needed, but we sometimes say things when we are
frustrated that can easily be misinterpreted by individuals who are already suspicious.

Now that you have a facility that is ready for tours you need to answer at least the following
questions:

1. Who gives the tours? The tour director needs to know the various things that should be
discussed (why animals are needed, the laws, the research, the cage enrichment, etc.) and needs to
be good at answering a wide range of questions. I think that the director of the facility is one of the
best people to do this. I give most of the tours in my facility. I think this is an education for the tour
director, too. I would not have the appreciation for this activity if I had made somebody else do all
of these tours. Several people need to be ready to give tours since you should give them on the
shortest notice possible and with the fewest restrictions. This is difficult if it must always fit the
director’s schedule. One way to train to give tours is to go on tours with somebody who has given
many of them. A consultant who knows how to give tours can be considered. Remember that communicating effectively with the public (or anyone) is a skill and just like other skills requires some prior study and practice if you wish to become good at it. In a recent article Mary Woolley from Research!America made the following excellent points about communicating with the public: “Many non-scientists simply don’t understand scientific jargon, so we should refrain from using it outside scientific contexts.” That sounds like common sense but our problem is that we often don’t even know what the public considers jargon. I can give one good example of this problem. While working on the Research!North Carolina campaign the members of our committee decided to promote “Biomedical Research.” When we conducted focus groups to evaluate the brochures and videotapes we had developed for the campaign we found that “Biomedical Research” was not understood by the public or had a negative connotation to them. The term “Medical Research” was considered positive. Especially now that “Bio” is known to the public from “Biohazard,” the term Medical Research is probably more appropriate when talking to the public. So we used “Medical Research” in our campaign to describe what we do even though we did not feel that the term represented all the research implied by “Biomedical Research.” If we had not used focus groups to look at our materials we would have had a much less appealing message even though it looked very good to us. Another good comment that Mary Woolley had in her article was: “As recipients of taxpayer dollars, members of the scientific community have an obligation to be both accountable and accessible to the public, whom we should refrain from calling ‘laypeople.’ We should instead think of the public as ‘fellow citizens’ and refer to them as such.”

2. Who gets to go on the tours? I have always limited my tours to anyone over 15 years of age who makes an appointment. This was instituted because most facilities will not allow you to hire an individual under 15 years of age, and individuals younger than this often cannot appreciate the matters that will be discussed. Don’t overlook giving tours to your own staff. It is good practice and they want to know what is going on, too. Work with public affairs to offer tours to other groups that might not request a tour such as the local press and local elected officials. Have a press conference and discuss a new building, a new research project, a new research finding, or your activities in general. Answer all of the questions and then give tours. This provides a good mechanism to meet the press, government officials, and your neighbors prior to a problem and to establish some rapport with them. Ask them in advance what kind of materials they would like you to provide the day of the tour such as photographs, video-tapes, etc., and then provide them. Don’t forget to invite non-animal facility staff, police, fire-fighters, residence hall residents, alumni club members, sponsored project office staff, etc. Remember to keep a log of your visitors. This can be helpful in ways you don’t even anticipate. During a political attack to prevent the construction of a new building at the Stanford campus, the activists made allegations that the work in our animal facilities was kept secret. We produced the tour log which showed that many of these activists had toured the animal facilities on several occasions. This illustrated that their claims of secrecy were exaggerated.

3. What should you show? Ask the tour members what they want to see and try to show them whatever interests them. I usually don’t tell the staff in advance that a tour is coming so the tour will see whatever is going on, not something staged for them. The staff is informed when large groups are coming since usually they need to assist in some way. When I first began giving tours I took the tours into the animal rooms. Now I just let them look through the window in the door or through an open door but do not enter the rooms to avoid additional stress to the animals and to prevent
possibly moving a disease from room to room. Difficulties will arise with access to certain areas (such as biohazard suites, surgery rooms, etc.). If you have an area that can't be visited try to find a mechanism to make seeing the area possible. Cameras can be installed (or be portable on a cart) that allow you to show these “hidden” areas without entering them. I like to take the tour to see implants into cat brains if any are available and to talk to them about the reason for the procedure. I ask them to observe the cats and notice that they aren't trying to remove the implants, which they would do if they were painful. I also like to show transgenic animals since activists are attempting to get the public to believe that every transgenic animal is in pain. Again the majority of these animals are not in pain and in fact, as anyone who works with transgenic animals knows, many must be analyzed to determine if they are transgenic or not.

Remember that our fellow citizens may misinterpret what they see. The facilities look and smell like hospitals, and most people are uneasy in a hospital. Many have been told that they will see horrible things and that is what they expect. On one tour of the tour members recoiled in horror after looking into a room and said “look at the horrible thing they have done to that dog.” I looked and a dog near the door had about the top third of his ear turned down. Nothing had been done to this animal; it had just turned the ear down probably by touching the cage. When I showed this to everyone and showed that nothing had been done to the animal the person realized that they had overreacted. On another occasion a person who worked for me turned out to be an animal activist who had been placed in the facility to try to find something bad to report to the press. I got several calls from the press and they said one of the allegations was that we had ripped the skin off a lamb in front of this individual. Since the individual only worked in the cage-wash I could not figure out what he was seeing and I assumed he made this story up. Then a few days later I was walking down the hall and I noticed a lamb being returned from surgery. It was wrapped in a blanket we used for this purpose that looked like sheepskin. I never got to talk to this person again but I really believe that he saw the lamb in the cart and somebody pulled the blanket up to look at the lamb and in the process “pulled the skin off it” to somebody who could not interpret what he was seeing.

4. Should you allow photographs? I have always allowed anyone to take any photograph they want as long as they use fast enough film that flash is not required. Since I am proud of everything we are doing I have no problem with photographs. Taking photos has never resulted in a problem of which I am aware. Remember that the worst thing they can photograph in your facility is probably better than the old photographs they use and claim are from your facility. We will show anything that normally takes place in the facility and we might even schedule something for a particular time that is convenient for the photographer. But we won't stage anything just so a photograph can be taken. I usually don't wear a white coat so I won't wear one for a photograph. On one tour at Stanford one of the tour members made a point of taking pictures of every entry door. I still don't know why this was done, perhaps to intimidate me; however, having pictures of the doors did not make my facility any less secure and I have no objection to taking such pictures. This openness is convincing to your visitors.

Once you have made these decisions you will need a visitor policy that includes the requirements for a tour. The following is the 1990 policy from Stanford University as an example. Note that this policy includes everyone who can enter the facility, not just tourists.
Visitor Policy

All individuals that enter animal facilities must have prior approval from the Division of Laboratory Animal Medicine and have been issued an access card by Medical Center Security. They must have a Stanford Identification and an identification that includes a picture with them whenever they are in the facility.

Anyone, over 15 years of age, who desires a tour of the animal facilities at Stanford University may do so by calling 415-723-3876 and making an appointment. Photographs may be taken during the tour although flash is not permitted.

No visitors under 15 years of age are permitted in the animal housing areas. Children under 15 years of age are permitted only in the office area of RAF 1.

If Stanford faculty and staff wish to bring visitors that do not plan to participate in a scheduled tour into the animal facilities they should obtain prior approval by calling 415-723-3876.

Speakers are available to give talks to groups who are interested in animal use for research. Please call 415-723-3876.

Another important thing we can do is consider the public when we design new facilities. Consider adding windows and cameras that will give visitor access to all areas of the building. This will help with all visitors including sponsors, USDA, AAALAC, and your IACUC even if you never give tours. An Environmental Impact Statement should be prepared during the planning of each new building. This is a very valuable document during the planning stage and may identify issues that need to be addressed. This is a good time to form a “Good Neighbor” Committee and involve the members in the Environmental Impact Statement review. The members of this committee should be selected with the advice of the staff of the local office responsible for approving the building. Include people who really live near the facility. They are probably going to be told at some point, usually when you are ready to start construction, that you are going to expose them to hazardous material and you are going to abuse animals. You need to show them what really goes on. Once your building is under construction this committee should be given tours of the construction site at regular intervals and briefed on the progress. Consider keeping the committee indefinitely if public concern continues.

You should also be available for giving talks to any group that requests one. Whenever I go out to give a talk I try to take an animal or two with me. Usually I take a pair of nude mice in a standard filter top cage. If the group is young I tell them the mice are named “pinkie” and the “brain.” Lots of children watch the “Pinkie and the Brain” cartoon on TV and this gives me instant rapport. With older individuals I can discuss the research uses of the nude mouse. I also like to take a transgenic rat and discuss the concept of transgenic animals. In each case I usually give a short introduction about my job which is, simply stated, making sure that all research animals are treated humanely. Then I answer questions. I am always amazed at the great questions that are asked. However, anyone who does this quickly learns that it is a lot of fun but you reach a relatively small audience. One technique for reaching a larger audience is when you are asked to speak to a class to make sure that other classes at that school are informed that you are coming. You may be able to talk to several classes the same day. We also provide materials for any age student to write papers
about animal research. Much more attention has been given in recent years to participating in the training of teachers since each teacher can reach a much larger audience especially over time. We are fortunate in North Carolina in that the North Carolina Association for Biomedical Research has a very active teacher training program which includes an excellent set of lesson plans which include the use of animals for research. This year NCABR had a booth at the annual science teachers' convention and had daily seminars by scientists discussing the use of animals for research.

I hope each of you will take every opportunity to talk to your fellow citizens about what you do for a living.

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NOTES

2 ‘Adequate Veterinary Care,” American College of Laboratory Animal Medicine, <http://www.aclam.org/aclam/adeqvet.htm#adequate care>
3 National Association for Biomedical Research (NABR), <http://www.nabr.org/>
4 Americans for Medical Progress, <http://www.ampf.org/dspfrm.htm>; 421 King Street, Suite 401, Alexandria, VA, 22314–3121. Phone: (703) 836-9595; Toll Free: (800) 426-7872; Fax: (703) 836-9594; E-Mail: info@amprogress.org
6 Association for Assessment and Accreditation of Laboratory Animal Care (AAALAC), <http://www.aaalac.org/home.htm>
7 *Crisis Management Manual*. National Association for Biomedical Research (NABR), 818 Connecticut Ave, NW, Suite 303, Washington, DC 20006; Phone (202) 857-0540; Fax (202) 659-1902.
9 *Rx for Science Literacy: The What, Where, How and Why of Health Science Research, A Teacher's Manual About Biomedical Research*. NC: North Carolina Association for Biomedical Research (NCABR), 2761:–5459. PO Box 25459, Raleigh NC; Phone (919) 829–3911; Fax (919) 829–3912
Appendix 1

Summaries of Discussion Groups Held at the Forum

The following are unedited versions of individual discussion groups submitted by volunteer scribes. These summaries give the reader some of the flavor of the interaction between presenters and members of the College. Since notes were taken by numerous scribes, the formats differ significantly but it is believed that these summaries will be informative.

Special Ethical Considerations for Non-human Primates and Endangered Species

Facilitators: Tom Butler and Chris Abee
Scribe: Marilynn Brown

Key points discussed:

- Primates are a very diverse group. Less than 2% of the animals used in research are non-human primates yet they are a focus of animal rights groups.

- The use of endangered species is rare. The major reason that they are endangered is due to a problem of loss of habitat. Most people put a greater value on these groups—why?

- What do we do about overpopulated captive breeding programs when there is no place to put these animals?

- No one in the group had problems with the concept of xenotransplantation. There was a concern about giving primates to zoos and sanctuaries because it was felt that we are being pushed into putting the animals into substandard settings. These areas cannot take potentially hazardous animals. Permits still leave the institution (the primary person responsible) liable for these animals. There needs to be greater financial support of sanctuaries and greater oversight. A case was discussed of repatriating chimps to Africa into a country now at civil war. The animals are now starving. What about the liabilities of potential human exposure if these animals are infected with anything? What separates monkeys from other research animals? It is visceral and emotional—some look like humans. They have been fictionalized. It was felt that the cognitive ability of non-human primates is overstated. In a society far from the reality of where meat comes from, these are issues.

- What about multiple survival surgery? Primates live longer and thus are more likely to be transferred from one protocol to another—need mechanism to track procedures. There is a double standard about multiple survival surgery—ok for medical reasons but not for research. The question is if the procedure is intentional or not. Does it benefit the individual (as in medical procedures) which makes it more justifiable.

- What about subjecting animals to daily anesthesia because of the risks of handling awake animals? Barring human risk, think about the pain of multiple ketamine injections. Can this be minimized with training and PPE alternatives?

Cultural, Religious, and Ethical Biases in the Animal Research Laboratory

Facilitators: Chapple and Parker
Scribe: Peggy Danneman

The discussion centered on the manner in which cultural background and religious beliefs can shape attitudes about the relationship between humans and animals. Most members of the group were comfortable with the tradi-
tional Judeo-Christian belief that humans are superior to animals and have stewardship over them. According to this tradition, animals must be cared for and treated with kindness. While it is acceptable to harm or kill them for the betterment of human life, harming them for frivolous reasons (the Draize test was mentioned here) is not defensible.

Discussions of some encounters with different cultures emphasized that many people throughout the world view the relationship between humans and animals quite differently. For example, Americans generally find the concept of eating "pet" or "noble" animals abhorrent. However, there are many cultures in which there is no relationship between respecting, or even loving, a particular species and eating it. In some Far Eastern cultures, dogs are viewed as both pets and food (dogs as a species are viewed as both, individual dogs are viewed as one or the other). In some cases, these differences are due to religious differences, but cultural differences are at least equally important. It was pointed out that the same religion (e.g., Catholicism) may be practiced in very different ways by members of different cultures. For example, bullfighting and cockfighting are generally condemned as cruel by Catholics in the US, but enjoyed as entertainment by Catholics in Mexico. There was a lengthy discussion of animal souls. It was pointed out that the traditional Christian view is the Aristotelian concept that all living creatures have souls, but that only humans have immortal souls. However, there are Western religions (e.g., Latter Day Saints) that teach that animals too have immortal souls. Two additional ideas were presented that were well received by the group. The first was that it is inappropriate for Americans of Judeo-Christian background to indulge in the common practice of trying to impose their beliefs on others. The second was that Americans who identify themselves as Christians often demonstrate an unfortunate tendency to divorce their religion from other aspects of their lives. Thus, behavior that would be denounced as unchristian on Sunday may be practiced without recrimination during the rest of the week.

Effectively Debating Ethical Issues

Facilitator: Robert Veatch
Scribe: J. Hawkins

There are two objectives in a debate of ethical issues: first, to get a morally correct answer and second, to win the argument. The debater must distinguish between emotional appeals versus intellectual arguments and there must be a realization that scientific facts will carry the discussion only so far. The limitations of the utility of scientific fact require that a moral premise also be involved. Also in the course of a discussion of ethical issues the political, public relations, and regulatory issues should be separated from the ethical issue. Professor Veatch asked for examples of issues that have been discussed by the IACUCs of the institutions represented within the group. The merits, limitations, regulatory aspects, animal welfare issues as well as the utility of alternatives to monoclonal antibody production in mice were discussed.

Beyond the Regulations—Ethical Obligations of IACUCs

Facilitator: Andrew Rowan
Scribe: Tim Mandrell

Initial discussion opened with a question from the leader asking how many in the group have ethicists on their IACUCs. Only 3–4 responded positively. One indicated that the ethicist on his committee questioned animal numbers, the need for new transgenics, as well as issues related to animal pain and distress. One participant indicated that he had a theologian on the committee who routinely looked at the goal of the study and asked about relevance and justification for the project.

The statement was made that there should be an advocate for the animals on the IACUC. One participant stated that everyone on the committee should be, but it is often the veterinarian who assumes that role.

When asked about scientific merit, many participants indicated that their IACUC relied on peer review by granting and other funding agencies. Committees are often faced with review of the science as it relates to use of animals, yet investigators may feel that this is not the role of the Committee. One participant indicated that his committee required investigators to submit scientific peer review or a summary of critiques for the proposed study. One participant indicated that his institution had a separate committee to review scientific merit. At many institutions, scientific merit is addressed by a sign-off from a Department Chair or Dean.
Is NIH review sufficient in judging the value of research? Is peer review from outside sources adequate? There are numerous questions that should be asked in judging the science. This supports the need for peer review at some level beyond the committee. What is the real value of the science and who can make that judgement?

The group also discussed the cost of animal research in terms of animal pain or distress. Animal suffering is a vague term. Distress indicates maladaptive behavior whereas suffering is an emotional word. Do animals experience suffering, as in emotional suffering? Is there a difference in pain versus distress? One participant commented that his USDA inspector (and committee) no longer accepted statements such as "analgesics as needed". Several indicate that they relied on David Morton's score sheets for assessment pain or discomfort in animals.

The Ethics of Cloning Laboratory Animals

**Facilitator:** Jon Gordon, MD, PhD  
**Scribe:** Steve Dixon

The consensus of the group was that there did not appear to be any significant ethical issues regarding cloning as a form of genetic engineering in laboratory animals. However, there was considerable discussion regarding scientific issues involved with cloning laboratory animals. Laboratory animal rodent in-bred strains have already been developed and these strains are close to being homozygous at almost every known genetic locus. These strains of animals are not likely to be cloned since historically it has been difficult to clone mice and the cloning process, if performed, would freeze the evolutionary process at that point. With breeding, as opposed to cloning, improvement in the strain always is possible. The largest impact of cloning of laboratory animals probably will be with swine in xenotransplantation research, medical protein production in the milk of cattle and sheep and differentiated cell therapy. There was considerable discussion devoted to the perception of the general public regarding the cloning process and the ethics of cloning human beings. The group indicated that the general public needs to be educated specifically on the value of techniques used in the cloning process that are essential for medical research. A general prohibition on techniques used in cloning could severely limit progress in medical research in many areas.

Ethical "Cost"—Scientific "Benefit" Determinations and the Charge to the IACUC

**Facilitator:** Jerry Tannenbaum  
**Scribe:** Bruce Ewald

The review of protocols, species considerations, and monitoring animal research were the main topics discussed. Ethical reviews of protocols are conducted when issues of pain, relief of pain, animal numbers, and justification for the research are considered. A utilitarian review of all protocols would be virtually impossible because of time restraints and accurately determining the benefits, which are more appropriately determined by the funding agency. Even though there is a different level of scientific review for internally vs. externally funded protocols, the primary function of the IACUC is to conduct a soundness review not a scientific review. Various methods to determine scientific validity include relying on granting agencies, investigator reputation, and distributing protocols to external reviewers after obtaining investigator approval. Species hierarchy is practiced in various ways including determining IACUC review procedures, time allocated to review, and pain evaluation. It is frequently easier to determine the presence of pain in higher species. A trust of investigators is basically required to assume that all studies are conducted appropriately. Training is an effective means of assuring that procedures are employed correctly. Databases and coordination with human resource groups can reduce the time-consuming effort to determine who is performing procedures. The capabilities of investigators may also be evaluated using CVs, protocol essay questions, and observation. The outcomes of research may also be assessed by review of publications and annual progress reports. The greatest limitation is the time available to review protocols and outcomes and to audit all research areas. Some facilities utilize multiple committees but this only reduces the time of each member, but not the total personnel time required.
Appendix 1

Effectively Debating Ethical Issues

Facilitators: Roger Balk and Barbara Rich
Scribe: Amy Andrews

Roger Balk began by recommending that we not “debate” ethical issues, but that we strive to have an effective dialogue such that actual communication takes place. Barbara Rich agreed, stressing that a majority of the American public wants to know the very information that ACLAM members are in a unique position to provide—why animals are used in research, how is that research regulated and what do scientists do to reduce any pain and suffering research animals may experience. Both leaders encouraged creating opportunities to share with others our concern for animal well-being and our ethical perspective about animal research.

General discussion followed based on the experiences and questions of those present. Ideas expressed and suggestions about effective strategies included: Don’t be contentious or overly defensive, state your views sincerely and as simply as possible. Try not to be overwhelmed or intimidated when animal rights movement propaganda is brought up, people will not have the chance to hear otherwise if we don’t speak up in support of using animals in research. Identify with the people with whom you are talking and with their information needs, e.g. telling people about the existence of IACUCs and what they do is often helpful. When faced with a person who opposes animal research, try first to find some common ground, such as that, as a veterinarian, you care very much about animals and animal welfare.

Avoid scientific jargon and technical terminology when speaking with the public as a way to ensure more effective communication. If you are not an experienced public speaker, begin in a familiar or friendly environment such as the local vet association, civic or fraternal organization, local school, etc. When speaking to children, a good idea is to show a video to introduce the subject and stimulate discussion. The Foundation for Biomedical Research has several: “Science in Action,” “Why I Should Stay Awake in Science Class,” and “Hope.” Several present told of their experience with excellent programs and resources for young people made available through state organizations such as the Massachusetts Society for Medical Research and the Pennsylvania Association for Biomedical Research.

It was also mentioned that ACLAM is developing educational slide sets for member use when making presentations to a variety of public audiences. (Slides were requested.) One member said she takes along her Labrador as an “ice-breaker” when meeting with children. Another idea is to make things personal by asking if anyone in their families has had cancer or heart disease, for example, and then talking about how animal research has contributed directly to that research. Many research institutions have summer intern and other programs for science teachers. A successful week-long program scheduled annually by one facility is offered to seniors through Elder Hostel. “Alumni” of this program are not only very supportive of research, they have become effective messengers to the larger community.

Many agreed that encouraging internal education about animal research for all staff at their own institutions was essential. In addition, supporting open houses and tours for the public was supported. In summary, a wide range methods are available and used by individual ACLAM members and their institutions to show the public responsible animal research and to discuss ethical concerns in the process.

Ethical Issues in the Use of Animals in Science Education

Moderator: Frank Loew
Scribe: Bobby Brown

The group decided to divide the discussions into four areas:
1: Classroom Animals
2: Study of Animals in High Schools
3: Science Fair Animals
4: Undergraduate College Animals

Classroom Animals

It was generally concluded that teachers like to have them in their rooms in that it helped them to get to some students and it served as a lead in for areas of discussion. Some groups gave discussions on animals and their use to
classrooms and felt that having animals there allowed them to talk about animal husbandry issues and how they were beneficial for research and the appropriate levels of animal welfare. Some even donated the animals to the classes, mostly guinea pigs. It was felt that issues such as allergies, weekend care, and veterinary care must be addressed before animals could be left in classrooms. There was also some concern raised that the student might view that particular species as a pet animal from then on and feel they should not be used in research. Most everyone felt that the good far outweighed the bad as long as there was proper planning, discussions, and follow-ups.

**Study of Animals in High Schools**

Most of the discussions centered around the dissection of freshly killed or preserved animals in high school science classes. It is an option in many states now. Most felt it could be very educational and beneficial, but agreed that it should not be mandatory that each student do so as this usually made the teacher look bad and may actually push kids away from science or research. It was pointed out that animal protection groups have used these issues to set about a perception of disgust from eating meat or killing animals. The use of the high school vocational farms for animal and science related studies was pointed out as being very useful.

**Science Fair Animals**

Most felt that animals properly used in science fairs could be very beneficial if done properly. Those who participated had protocols prepared and cleared through their IACUC. It was concluded that most of the problems associated with animals in science fairs were usually from lack of knowledge and/or supervision by the teacher. It was pointed out that the National Association of Biology Teachers and the National Association of Science Teachers have developed guidelines that are available from ILAR.

**Undergraduate College Animals**

The group felt that the use of animals in undergraduate college courses was beneficial, especially if they were not invasive. All studies must be cleared through the IACUC.

**Ethical “Cost”–Scientific “Benefit” Determinations and the Charge to the IACUC**

**Facilitator:** Peter W. Nathanielz, MD, PhD, ScD  
**Scribes:** Richard C. Simmonds, DVM, MS and Robert D. Gunnels, DVM, MS

The group had great difficulty in identifying the guiding principles that could be used in defining the criteria for determining the ethical cost of a study when compared to the scientific benefit. One participant felt that an objective determination of the ethical cost of a study would be best evaluated using some form of a mathematical formula; however, most agreed that they were not sure that this was possible.

One definition of ethical cost could be linked to the cost of individuals (i.e. IACUC and research staff members) becoming desensitized to the pain and distress that the animals are experiencing even though the studies are scientifically justified. Also, what is the value of the research animals’ lives? Another factor is related to the societal costs of doing or not doing the research.

Another question discussed, “Does the ethical cost become less important when the societal benefit is more apparent?” Some felt that the ethical cost is the same regardless of the benefit but the increase in the societal benefit makes it easier to justify. However, in pharmaceutical research with novel or unknown compounds, the benefit to society is probably unknown.

Many felt that the IACUC is the institutional conscience in determining the costs versus benefit. Several attendees felt that all involved should share in the ethical cost determination.

It was suggested by one attendee that conscientious application of the 3-R2s provides at least an implicit indication that ethical considerations were included in the protocol. Further elaboration on this theme included comments that the PI should “refine the procedures to the greatest extent possible,” “use the least sentient species possible,” and “replace the animals with non-animal systems when possible.”
One concern voiced by an attender is that the ethical cost may be at the highest level in protocols that are internally funded at an institution because of the potential of less rigorous scientific review and/or oversight from departmental and/or senior management.

A side-bar discussion related to the proposed NIH study section procedure of approving protocols prior to institutional IACUC review.

Two issues were mentioned: (1) Some participants felt that this procedure would increase substantially the institutional pressure on the IACUC to approve “already funded” protocols. These pressures may result in less attention to ethical issues than is currently done by many IACUCs. (2) The other issue comes from the PI perspective in which an IACUC could disapprove or question the science of a protocol based on the issue of adequately addressing the alternatives question even though the NIH study section should be the experts in this area.

Dealing Effectively with Allegations of Ethical Misconduct

Facilitator: Ralph Dell
Scribe: M. Chimes

Ethical misconduct was a common source of frustration to the participants in this session. Misconduct was primarily attributed to investigators, who were described as sometimes less than truthful about disclosing what their projects involved or when changes were made to approved protocols. The definition of “ethical misconduct” was unclear to the participants (does it have an intent component?), as was the definition of what constitutes a “significant” change to an on-going protocol. While everyone agreed that violations of institutional rules were wrong, participants pondered if moral deviations should be considered even more serious.

Veterinarians seemed to naturally be expected to bear the brunt of the policing of ethical misconduct involving animals, but the participants agreed that this responsibility was better shifted to the IACUC and the institution and, if necessary, PHS/OPRR. Participants were afraid of losing effectiveness by “crying wolf” to these other groups every time a violation was discovered, but were unsure where or how to draw the lines. The effect on the animals and whether the misconduct appeared to be intentional or inadvertent were viewed as critical factors. Concern was raised that even when an IACUC was notified some committees failed to take the misconduct seriously and even notification to the OPRR of an investigator’s misconduct had little lasting effect.

Participants offered various solutions on how to deal with these problems. Most importantly, enforcement should be shifted to the IACUC and the investigator’s peers and supervisors, allowing the veterinarian to be perceived as support. The problem should be analyzed thoroughly and any possible preventative measures put into place to avoid repetition. Ideally, a written policy should be in place and widely disbursed describing end-points and step-wise actions to be taken when misconduct is discovered, to help prevent such misconduct and to guide responses to it objectively and fairly. The IACUC should realize that its approval of a protocol includes approval of the entire grant package. If unable to review all grant proposals, the IACUC could put investigators “on notice” that random checks will be done and the funding agency will be notified if any discrepancies are found.

Investigators’ records should be reviewed in any investigation resulting from a report of misconduct, which can be done in a friendly way by telling the investigator that his or her protocol has been “selected for review,” and demonstrating proper methods of animal handling, even if misconduct is denied. Whenever serious misconduct is discovered and responsive action is necessary, the investigator as well as the department chair should receive detailed letters of explanation. Peer pressure was considered by the participants to be quite effective, so publication of enforcement actions within the institution is useful also. If possible, all manuscripts involving work done with animals should be screened by the IACUC to be sure the work described was in compliance with an approved protocol, as is done at one of the participants’ institutions.

While this session was unable to solve everyone’s problems, the discussion was productive and emphasized that everyone in the research community is responsible for ensuring that animals involved in research are treated appropriately and humanely.
Ethical Issues in Safety and Efficacy Testing or Traditional "Toxicology Testing"

Facilitator: Dr. R. Simmonds
Scribe: J. Donovan

This session explored only a few of many ethical issues concerning the use of animals for the testing of pharmaceuticals, biologics and consumer products including cosmetics and other personal care products. Ethical distinctions between using animals for consumer product testing versus medicines were explored. A pivotal question posed by the group was: What is the obligation of laboratory animal medicine and toxicology to apply resources to the development of "alternatives" (in the context of the "three Rs"), while unmet medical needs and safety of products remain high priorities for the public? Should a finite amount of already limited resources for discovering and developing a new product be diverted to a search for new alternatives, risking delayed access to medicines which could save lives or reduce human suffering? Another key issue identified was the need for greater public education on the spectrum of activities and technologies now employed in the process leading to the availability of a new medical or consumer product to the public.

The public was perceived by session attenders as ill-informed on the current scope and magnitude of non-animal R&D that precedes and augments in vivo studies for the delivery of a new product to market. If the public were to better understand the current role and recent advances in non-animal technologies such as combinatorial chemistry, high throughput screening, in vitro testing, computer modeling, transgenic animals/functional genomics and the chronology of refinements developed for many in vivo studies, then the potential for being misled by the claims of some activists that "three Rs" technology is available but not being applied would be greatly reduced. In addition, a more balanced debate would be enabled.

Some findings of the group were:

It is unethical not to test products in animals before human clinical exposure.

The scientific community needs to define and implement strategies for the end-points used in toxicology studies through a multidisciplinary approach. Laboratory animal veterinarians should be more directly involved in this particular aspect of a study both through the IACUC and as clinical veterinarians responsible for adequate veterinary care.

The primary driver of in vivo safety and efficacy testing in the US are regulatory requirements. Some participants expressed concern regarding use of regulatory requirements as the sole justification for animal use in the IACUC review process as there have been occasions where the FDA has required studies that a company did not view as scientifically justified.

A discussion took place regarding the ethical aspects of using wire bottom cages for rodents being used in toxicology tests. Some participants indicated that they agreed with the emerging consensus that such cages are not in the animals' best interest. Other participants indicated that they had seen data that indicated that such caging was not materially detrimental to the animals, especially for relatively short studies (i.e., those measured in weeks or a few months). No consensus was reached by the participants in this session.

The group discussed the ethical aspects of exposing technical and animal care staff to potentially hazardous substances with incomplete safety profiles. It was the consensus of those present that all possible engineering and management precautions should be implemented when poorly characterized substances are being tested.

There now exist major efforts in the US and around the world, especially in Europe, to develop, validate, and gain regulatory acceptance for alternatives to animal testing. However, the results to date have been disappointing and the timelines longer than expected, e.g., the Limulus lysate test took 15 years to replace the rabbit for pyrogen testing. Dialogue and consensus on the roles, responsibilities, and funding for alternatives research is needed.

Laboratory animal medicine can and should play an important role in the refinement of techniques of animal experimentation. As veterinarians and members/leaders of organizations with a focus of laboratory animal science and veterinary care, the laboratory animal medicine community should take greater responsibility in advancing refinements.

The ACLAM Foundation is an appropriate mechanism for this community of scientists to take a leadership role in the area of refinement by focusing funding and RFPs on this topic.

Bioethics and the Use of Laboratory Animals
Genetic Engineering of Animals—Ethical Considerations

Facilitator: Jon Gordon
Scribe: Jerry Van Hoosier

Dr. Jon Gordon was the discussion leader for approximately 15 participants that included Drs. Rollin and Tannenbaum. Jon opened the session by asking for opinions about whether rights existed or had to be given or conferred. In response to a comment, Jon replied that gays, women, blacks, etc. and other humans had rights that were conferred by the constitution and that his question referred to animals. The welfare of pigs housed in confinement was the second topic discussed. Comments were made on whether or not there was scientific evidence of stress, e.g., elevated blood levels of cortisol or abnormal behavior. A third topic concerned agreement or disagreement with Bernie Rollin’s statement during his formal presentation to the effect that animal experiments with potential adverse effects were only the tip of the iceberg regarding laboratory animal suffering. The disagreement was based on the fact that 90 percent or more of the animals used in research are rodents which are housed in appropriate cages with their creature comforts being met, e.g., food, water, disease control. The participant disagreeing based his opinion that they were not suffering on the frequent observation of large numbers of mice and rats and the absence of scientific evidence for indicators of stress or abnormal behavior. It was also pointed out that laboratory mice had been adapted to laboratory animal housing conditions for many generations. A variety of opinions were presented on each of the three topics and no attempt was made to reach a consensus. [The participants chose to discuss topics of interest that were only peripherally related to genetic engineering.]

The Pro’s and Con’s of Animal Modeling—Evaluating the Case For and Against

Facilitator: Andrew Rowan
Scribe: Jim Hall

References noted:

"Brute Science" by Shanks and Lofelett
1) a crude critique of the use of animals as research models.
2) "No animal can model a human condition"
   a) Animals and humans are not equivalent
   b) Similarities are not significant
3) Only by looking at humans with human conditions can true answers be found.

"Animal Models in Psychiatry" by Ken Shapiro—Provides a much better analysis and critique of using animal models for human conditions. Emphasis: eating disorders
AMA White Paper—summary and critique of animal issues

Only through animal models can humans discover how to deal with diseases. Absolute statements lead down wrong paths. If animal models are wrong what should we use? The public has differing opinions on animal use in research. A recent poll in 1997 indicated:
40% use clinical human trials
30% must use animals
30% use non-animal alternatives

Examples of animal success stories should be very familiar to each of us in the laboratory animal medical support arena. For example, polio vaccine story and the diabetes treatment story. Another case is with anorexia nervosa. Metabolic processes can be determined in an animal model, but the reasons why people become anorexic can’t be determined in animals.

Statements included:
"Point to the percentage of Nobel Prizes awarded in medicine which involve the use of animal models at some stage of the research efforts?"; "For moral reasons we should eliminate animal use"; "Medicine can not proceed at the same pace that the public has come to expect if animal use is eliminated."
Summary of Discussion Groups

“The Discovery of Insulin” a new book by Goldstein, reviewed in “Science” is a good example of how good things come out of even poor science.

Most people don’t understand the debate. All animals are nucleic acid base genetic code determined. There is 90 percent homology between the DNA of mice and man. Large portions of the genome are identical. Many of the same enzymes are the same with identical genetic coding.

Science has even learned a lot from Drosophila (fruit flies).

Apoptosis (the process of cell destruction including coagulative necrosis and shrinkage) is the same in animals and man. Physiology (functioning of various organs) is very similar.

Much understanding worked out in animals has been applied to humans.

What the public should be criticizing is care and behavioral management of animals and not what is being done scientifically. Science has basically gotten into trouble because of all-too-numerous incidents of egg-on-the-face syndrome.

Example:

Thalidomide Story—tested in cell culture showed toxicity but the data were ignored. When given to rats and mice it caused no problems. Therefore animal testing did not prevent the problems. It doesn’t matter that the drug was not properly tested on other animals. If it had been tested on other species it would have demonstrated significant toxicity. Scientists have a tendency to stick with certain models too long.

Limitations of models—HIV and AIDS—Some statements made not based on facts then had to be retracted. (Exact models approach is too simplistic)

Science is complex and messy. Scientists don’t do a very good job of explaining interactions.

Science should be emphasizing the power of difference between various animals, because these differences can lead to new knowledge. Narrative explanations are most important—explanations by scientists are black and white in a world of gray.

“The best propaganda is the truth.” Andrew Rowan!!

What are the topics that your opponents will most likely use for their arguments? Research these, develop good arguments to rebut their arguments and you will at least be even. Be able to point out the holes in their arguments.

Make sure you define end-points that are quantifiable (e.g. a two-degree drop in body temperature). Evaluation of study end-points is important. If unknown design a pilot study to determine painless end-points.

Perceived value versus perceived ethical cost. Public wants to know and have a more active role in the reduction of pain and distress.

How can we inform the public: tour your facilities, train teachers, talk to elected representatives, talk to service clubs, present public seminars. Establish professional research ethics committees to review proposals. If we in the animal welfare business don’t define what we know to be correct others will define it some other way.

Incremental Standing and Animal Use

Facilitators: Lanny Kraus, Peter Singer

Scribe: Pat Brown

Dr. Lanny Kraus’ model of incremental moral standing based on David DeGrazia’s book was presented and discussed. Andrew Rowan and Tom Beauchamp have used similar themes to take biology and ethical principles and put them together. For moral standing, some interest of being must be affected. So, nociception may not be the threshold for moral standing. The occurrence or development of emotional states may create a threshold of mental states, separating invertebrates from higher animals.

Some great apes and man have autonomy, language, and self-consciousness. This may create the maximal moral standing. Not all great apes have self-consciousness. This scale contains an aggregate of cognitive abilities. It could be used to establish moral value or the increasing ethical burden to justify harm.

The 1994 book, Rethinking Death by Peter Singer, considers the sanctity of life ethic. Life or death decisions related to humans are made now more and more based on quality of life versus preserving the sanctity of life even at a very diminished level. Where does the death of a normal human and the harm done equate to the death of an animal other than man? The highest quality of value for a rabbit is not near the level of a normal human being. Where does the quality of life carry over into the animal kingdom?

Peter Singer agrees in general with Lanny Kraus’ model of the wrongness or the seriousness of taking a life. He suggested having separate graphs for the ethical burden of inflicting pain and for the taking of a life. In order to protect
Appendix 1

a being with self-awareness, can one take the life of a rabbit? Harm of death is different from inflictng pain and must be a separate consideration.

Currently in the US, a continuum exists for many types of medical research (e.g., cancer) where therapy trials start in mice, move to a higher species, and then progress to Phase I clinical trials. Is it coercive to have patients participate in clinical trials? This was considered an autonomous decision. A person with an incurable disease can choose if he is competent and fully informed, depending on the risk of living with the disease versus the treatment and its risk of harm. In the future, if cloned body parts or even cloned persons were developed, how would these issues of autonomy be addressed? Most in the group were more comfortable with growing body parts from stem cells and not from identified persons.

Capacity for suffering is of exceeding importance in the understanding of moral standing. Humans appear to have far more potential to suffer than most other animals. We don’t know if animals can be aware of mortality or anxiety about their death. Lanny’s graph depicting his theory of incremental moral standing was considered by the group as a first attempt that could be improved through research on animal self-awareness, animal moral agency, and animal altruism to better locate where on the chart these ethical traits develop.

Genetic Engineering of Animals—Ethical Considerations

Facilitator: Bernie Rollin
Scribe: Bill Britz

This session was opened by Dr. Rollin who gave a short overview of the subject. He addressed the primary ethical concerns as being very similar to cloning. Specifically:

1. There are certain things humans are not supposed to do. It is a transgression of the natural order, and may be against the will of God.
2. There may be a fear of something going amuck. Laboratory workers could be in the most danger.
3. There should be concern for the plight of the creature. This may be the biggest ethical issue for scientists.

He discussed the primary uses of genetic engineering as being: (1) The commercial propagation of desirable animal characteristics for human use and consumption; and, (2) the preparation of animal models for medical research. He addressed several examples to more specifically define these uses and to identify problem areas.

The general discussion that followed expanded on these uses concluding that the development of animal models would most likely be the primary use of genetic engineering in animals. Following that, the discussion centered on the concerns with the welfare of the animals involved and the safety of the laboratory workers. It was generally agreed that the laboratory worker would be in far more danger than the general public. The participants felt that the IACUC must play a primary role in research involving genetic engineering. They felt that investigator naivete is a big problem, and that the IACUC must maintain close control by requiring in-depth primary and frequent interim reviews, requiring the investigator to provide an environmental impact statement prior to initiating the project, and requiring evidence that they are capable of informing the public adequately and that they are ready for public retaliation in the event of a disaster.

Further discussion involved the longevity of the animal and the amount of suffering that would be allowed in the interest of scientific benefit. It was the consensus that the animal care staff must be involved by providing frequent observation and by providing enriched environments for relieving animal stress and suffering. The animal care staff must be directly involved in determining the end-point for individual animals. It was pointed out that the products of these experiments must be dealt with on an individual "one-on-one" animal basis.

With regard to the environmental impact of these experiments, it was mentioned that there should be close control of animals carrying human disease as a result of these types of experiments, and that shipments of the animals must be closely controlled. Finally, the participants agreed that there should be an "in-depth" retrospective evaluation at the end of any studies of this type to document unanticipated, and possibly dangerous outcomes.
Beyond the Regs—Ethical Issues for IACUC’s

Leader: L. Kraus
Scribe: Sam Adams

Most participants in this well-attended session apparently felt reasonably comfortable about what we are already doing. Most viewed IACUCs as conscientious hard-working committees that carefully considered the “Three Rs” when reviewing animal use protocols. While considering alternatives has been a protocol item for years even recently USDA instituted a more complete and documented search requirement. Another attendee backed up the point that we had been dealing with ethical issues for years already; the PHS Policy to which all (?) federally funded biomedical research must comply endorses the U.S. Government Principles for the Care and Use of Animals in which several of the nine (9) principles relate to ethical issues. One participant cautioned of dangers in overusing ethics. An idea, espoused by one ethicist, of having an ethicist on all IACUCs was not well-received. Others expressed concern about balancing cost with ethical benefit. High costs for ethical matters usually work to the benefit of the animal, more so than to the advancements of biomedical knowledge. Some confusion was evident in defining ethical issues; one participant was mixing them with simple scientific considerations; another, with community public relations. Perhaps they are interrelated. Inviting the P.I. to the IACUC meeting was suggested to clarify concerns. It was pointed out that IACUs should obtain expert assistance (sometimes from the outside) regarding protocols for which scientific merit is uncertain. Another participant cautioned against some IACUs too aggressively pressuring for non-animal alternatives when many PIs have established their research and reputations using animal models and to abruptly change to all in vitro work may reduce their chances for continued high-level funding and productive research.

Beyond the Regs—Ethical Obligations of the Institution

Facilitator: D. Ringler
Scribe: C. Parks

Some of the obligations of institutions are to provide resources for the IACUCs, for Continuing Education, for grant obligations such as facilities (including animal space) for PI’s use. These resources cost money—does that money come from per diems or other institutional resources?

Lack of space for animal research is common, which brings up the question of how the institution decides which projects get done in what order, and who makes the decision? Consensus was that it is not appropriate for the animal support departments to make such judgments.

There is also a perceived obligation that the institution support the Three-Rs of Russell and Burch.

Many participants believe it is an institutional responsibility to help support outside organizations such as state biomedical research associations, ILAR, AALAS, etc. These groups can be viewed as vehicles for communication, public relations, education, and a social responsibility. The group agreed that institutions often did not understand the value of these organizations, and must be "sold" on them.

The discussion also included inquiries in the "seats of ethical responsibility" within an institution. These seats included the IACUC, the researchers/PIs, the veterinary and care staff, and the designated institutional official. Many institutions use codes of conduct and signed letters of agreement on the responsibilities of researchers to educate their staff.

The group then asked, "Are there ethical responsibilities owed the animals beyond following the USDA and OPRR laws and guidelines?" The answer was yes. For example, rats and mice are treated equally with other species, even though they are not regulated by the USDA at present. AAALAC accreditation also goes beyond the regs, since it is voluntary. In Canada, there are no regulations by law, only possible sanctions by public funding agencies, yet animal care is generally excellent.

The discussion closed on a note that regulations can in fact be detrimental to ethical care of animals. They can give the sense that once you meet the minimum as required by regs, then nothing more should be done. As a community, biomedical research should protest regulations with no ethical benefits to the animals.
Effectively Debating Ethical Issues

Facilitators: Andrew Rowan, Susan Paris  
Scribe: Terrie L. Cunliffe-Beamer

Andrew Rowan started the discussion with noting that animal welfare is an evolving issue, and reflects cultural differences in attitudes towards animals and their use. He noted that shrines to animals are part of some eastern European and Asian cultures. However, people from this type of culture may not view animal welfare in the same way as a person coming from a western European American culture. These different views can lead to misunderstandings when they come to American institutions to work with research animals.

Susan Paris began by tracing the recent history of animal rights. She noted that in the 1970s animal rights and animal research received minimal press coverage. In the 1980s, the animal rights movements was very effective at creating "good press" for its point of view, and the press did not mention benefits associated with use of animals in research. Katie McCabe’s article in 1985 was cited as one of the first articles noting the negative side of the animal rights movement. In the 1990s, the animal rights movement has been seen to adopt more violence as a means to achieve its goals.

To effectively debate ethical issues, one must learn to talk in ethical terms. An ethical issue currently debated is "speciesism." Does the fact that species "A" is different from species "B" automatically confer higher moral status on "A"? Higher moral status needs a qualifying moral criteria that is based on an attribute other than the fact that one species is different from another species. Defining these attributes is difficult. Discussion of speciesism and defining attributes included comments from the participants which included Peter Singer. He noted that whatever criteria is chosen is likely to exclude some humans and include some animals. One attribute that makes humans different from other animals is the fact that humans consider other species. Humans are moral agents, i.e., capable of making a moral choice. It was noted that some humans are not capable of making a moral choice because of diminished mental capacity. These humans can be considered to be moral patients, i.e., given the consideration of moral status even though they cannot do the choosing.

Discussion then shifted to bringing intellectual argument to the animal rights movement. Susan Paris noted that many animal rights activists are more interested in dogma than intellectual argument. Some animal activists argue that disease is a natural process, and humans have no right to interfere with any natural process.

The animal rights movement encompasses diverse philosophical views and has accomplished some good things. Discussion of moral cost versus benefits of animal research and alternatives for use of animals have become part of the deliberations of animal studies committees. Weighing moral cost against real or potential benefits of a research project is not easy. There is nothing wrong with the goal of reducing the use of animals in research provided that equally good non-animal alternatives are available to carry out the project.

Ethical Obligations of Research Investigators

Facilitators: P. Nathanielz and S. Fisk  
Scribe: Charmaine Foltz

General responsibilities of the investigator include staying within the law, bearing ethical burdens associated with the choice to use animals, and commitment to animal welfare. In some ways the obligations of the investigator have been delegated to the regulatory or accrediting agencies, institution, IACUCs, and animal care programs. However, a burden of responsibility still rests firmly with the investigator. The infrastructure supporting this responsibility (institution, etc.) are essential to overcoming contention or conflict of interest between scientific objectives and animal welfare. Specific responsibilities of the investigator include working constructively with the infrastructure, training of staff, and oversight of the research program and staff. In considering ethical considerations with financial limitations, opinions varied from "do the best you can, do not perform studies for which resources are inadequate," to "never perform a study that is not publishable." In addressing consideration of alternatives, the investigator, IACUC, and institution have responsibility. If serious consideration of alternatives are made and found to be invalid for legitimate reasons all have fulfilled their obligations. For instance unrealistic and costly alternatives, such as developing in vitro methodology for producing a very small amount of antibody, is valid reason for rejecting the alternative. Finally, the investigator should make an effort to weigh personal, animal, and societal costs to determine the ethical cost of a study and measure that cost against its value.

Bioethics and the Use of Laboratory Animals
Special Ethical Considerations for Non-Human Primates and Endangered Species

Facilitators: Dave DeGrazia and Tom Butler
Scribe: Donna Jerrel

Workshop began with Tom Butler giving a historical perspective on trends and public opinion relating to non-human primates. Diversity in regards to the different species as well as the history of use. Dave DeGrazia continued the discussion by commenting on new perspectives including the Great Ape Project which takes into consideration that, due to their complexity, the great apes should be included in a special moral category where they actually have a right to life and liberty. This would equate euthanasia to murder. Acceptable reasons for depriving that right to life would be self-defense and assisted suicide when health status is bleak. Questions which were raised included:

1) Isn’t this also speciesism in that the great apes are being singled out from other non-human primate species? (Response to this question was no because the special consideration is due to cognitive and other complex skills.)

2) If this special category with non-human primates is established, then at what level would the consideration stop? What about species like baboons and macques which may meet some if not all of the criteria?

3) Should we support multiple surgeries on one animal in order to use less animals total (Individual animal distress vs. species conservation)

The other component of this workshop topic involving a moral obligation to protect endangered species raised the idea that “value of different species is based on biodiversity.” What criteria should be used to change this moral standing as a particular species increases or decreases in population? We as humans feel a moral obligation for intervention when endangerment results from actions taken by us. Is intervention like captivity or immunization of animals in the wild an acceptable means of stressing animals (change in environment, capture processes, immunization, etc.) since it is likely to benefit the species as a whole? Examples of various situations where this dilemma exist remind us that there are few to no more truly wild areas (non-intervention from man). What was decided was that animal welfare and protection of animal health should be criteria for proper intervention. What was not decided was the proper level of intervention which is morally acceptable.

A review of the captive-bred chimps population was discussed at length including a recognition that the political and financial considerations are often what decisions are based on. It was stated that currently there is a lack of resources to maintain these animals at the level that the public and that our profession expects. Who should serve as guardian for these animals? Who is the best proxy or has the chimps’ best interest at heart? Many of the workshop participants supported the NRC recommendations that euthanasia is acceptable for health but not for population control and that terminal projects should be allowed with extensive justification. We may come to a point where the good of the whole outweighs individual consideration and that euthanizing some to maintain others may be a valid option. It was emphasized that we may have to allow the current population to experience a poor quality of life in order to ethically justify this type of intervention. Another option which could be considered before the current chimp population got to such a dismal state would be to establish reserves in other countries, preferably countries of origin. Problems in establishing facilities based on American standards are expected. Would there be an obligation on the part of the United States once these animals are sent to another country? Would we not have a moral obligation to the persons of that country from a standpoint of public health concerns since we don’t have a full appreciation for the risks associated with the pathogens that these animals have been exposed? What happens if the country that enters into an agreement to maintain these animals does not fulfill their obligations? Are we still responsible? These are all very important questions considering the reality of infrastructure in many of the countries for which this would be considered.

Dealing with Killing (Euthanasia) and the Ethical Cost that Death Extracts

Facilitator: Mel Balk
Scribe: Dorcas Schaffer

Opened session by making three observations:

1. Forum presented excellent talks on religious world views (Western and Eastern religions) but no discussion of secular world views.
2a. Eastern religions are more insensitive to pain and suffering than western religions.

2b. The notion of "rights" is characteristic of secular world views, and not necessarily a component of religious views.

3. Most of us are more influenced by religious philosophy than by secular views; therefore we think in terms of relieving pain and suffering rather than in terms of rights. Universality is the result of being logically consistent but logical consistency is an artifact. There is the feeling that one must be consistent within the logical structure one creates; this usually does not happen. Specific situations were discussed, including euthanasia of culled transgenics. Technicians appear to have great difficulty in taking care of normal animals then having to kill them. The question of whether death is "harmful" to an animal was discussed, as was the idea of whether or not animals care if they are alive or dead.

The concept of critical anthropomorphism (projecting our feelings about death and pain) was discussed. It was stated that this sort of projecting is acceptable, because it provides us the only insight we have into what the animal might be experiencing.

The concept of end-points, particularly the difference between end-points in industry and academia, was discussed. It was decided that certain corporations are re-evaluating the way end-points are viewed, and that industry and academia do not differ significantly regarding end-points. It was also pointed out that age (and consequently attitude) of investigators is the greatest single contributing factor to the investigator is perception of what constitutes as an acceptable end-point. More sophisticated monitoring makes earlier end-points more scientifically acceptable.

The concept of using "moribund" as an end-point was discussed: once an animal is moribund, it is usually past the point of "suffering." Allowing animal techs to be actively involved with the science of the projects permits them to better deal with the death of research animals. Cultural background also affects how PIs view their research animals. Species differences often affect the perception of death as an outcome of a research project. Dogs, cats, and primates generally arouse more sympathy than do mice and rats. There are human-imposed differences between species regarding ethical cost. For example, a pet pot-bellied pig arouses more sympathy than a wild swine, much as the family dog arouses more sympathy than a lab beagle. These are human-imposed differences, not intrinsic differences between species or breeds.

It seems that the problem of ethical cost of euthanasia cannot be solved with logic (no involvement); it was also concluded that it is OK to get involved.

**Beyond the Regulations—Ethical Obligations of the IACU**

*Facilitator: Dr. Jack Hessler  
Scribe: T. Butler*

As a lead-off Dr. Hessler posed the question of, do we want to go beyond the regulations? While some participants felt the "regs" were adequate, others felt that on a case by case basis, there were times when the IACUC had to either liberally interpret regulations or deliberately go beyond them. In these instances, the IACUC has an ethical obligation to document their waiver or exception to the regulations. There was some concern expressed that if we push the regulations too far, it may result in tougher regulations. Another concern expressed was, if several facilities went beyond the regulations, the USDA would consider this as "standard practice", and enforce on other units.

The discussion then progressed to more specific examples of where IACUCs had to apply ethics versus the regulations during protocol review and approval. Examples covered were multiple survival surgeries especially in non-human primates, transgenics, monoclonal antibody use, Freund's Complete Adjuvant and alternatives. No answers were given to these cases but the discussions revolved around what the regulation's specify, scientific justification for the procedures, statistical validation and ethical issues.

The bottom line of the session was the IACUC has been given considerable responsibility and authority and must employ science, animal welfare, and bioethics to adequately respond to each issue.
Ethical Issues in Safety and Efficacy or Traditional Toxicology Testing

Facilitator: Tom Hamm
Scribe: Regina Housey

It is not ethical to not test for safety. End-point definition needs to be spelled out. End-points other than death need to be considered.

Regulatory liability: Are we doing unethical things due to regulations (as opposed to necessity)?
Validation of alternatives needs to be pursued (Forum 2000 is on End-Points)
Can we refine with the use of special transgenic lines?
European Community “Does not allow” testing for new cosmetic agents.

January 1998 6th Amendment to the Cosmetics Act was pushed back (because alternatives have not been defined) and a new 7th Amendment may prevent testing of raw products in Europe. In the US companies buy pretested ingredients (ingredients are tested by the manufacturer).

Regulations and Liability: GLP should be guidelines (not laws) often QA unit drives the IACUC.
Who is responsible for sick animals (on GLP studies)? Essentially all of the following: Study Director, Veterinarian, QA auditor.

How does one practice veterinary medicine under GLP standards?
QA/GLP unit must not be allowed to drive the IACUC
The End-point Battle: Why is death not a good end-point?

Education of Investigators as to better end-points (a lot in the literature). Some investigators are beginning to use other end-points. The validity of other end-points is being recognized (need to get regulatory agency to accept).
The veterinarian in general is not empowered to make decisions on Tox Studies without the study director’s approval. Because the study director is responsible the veterinarian may not take the authority. The veterinarian needs to do what is right and report back to the IACUC. In contract labs veterinarian must take the authority to make decisions. Strongly recommend that vet’s authority be written into job descriptions and study protocols

How is the IACUC handled in Contract Labs? Most do not “really” have an IACUC. IACUC (and Institutional) responsibility for animal care goes along with ownership of the animals. Contract labs generally maintain ownership of the animals on study and provide the sponsor with a report or product. Does a sponsor institutions IACUC need to review Contract Lab projects? May not legally need to but it is strongly recommended to do so.

What about the scientific justification for Tox studies? Justification is to show safety?
What about treating animals on a Tox study? Any treatment should remove the animal from study? A real dilemma!

Beyond the Regulations—Ethical Obligations of Institutions

Scribe: Bob Faith

This session began with a discussion of funding and resource allocation and how these factors affect the way in which institutions approach their ethical obligations. There is great variance in institutional IACUCs, ranging from those that are conceptually minimalistic to those that strive for excellence. Funding and resource allocation often influence where an IACUC falls in this spectrum. Most people in the group felt that institutional commitment often varies with the type of institution. Most felt that academic institutions usually have the highest level of ethical commitment.

It was felt that there is considerable difference in protocol review between institutions, and that scientific review may vary greatly from review to merit. While not required to perform scientific review by the regulations many institutions actually do scientific review of protocols, especially those that are internally funded. Scientific review often involves the moral cost versus the value of the study. For the IACUC to function most effectively it must have strong institutional support.

It was felt by most that academic institutions generally function at good ethical levels. To seek and acquire AAALAC accreditation is a positive step beyond the regulations that institutions can take.
Appendix 2

Important Concepts, Terms, and Definitions

Prepared by A. Lanny Kraus, DVM

One of the problems in any discussion of any complex issue is that each party in the discussion must either use words to mean the same thing or at least tell the other what he means by the word. This has caused, in my opinion, much of the misunderstanding in the “animal debate.” The word “suffer,” for example, is an extremely complex one that is used in many different ways. Unless one understands how one is using any given word, one cannot begin to enter into a constructive dialogue. Some of the words and concepts are presented below as I currently understand them and would use them. The speakers and others should tell us what they mean by any of these words if not used as defined below.

Autonomy:

the condition or quality of being independent

- a uniquely human capacity for self-determination
- a fundamental value and basic right in the moral theory of liberal individualism is that autonomy of persons must be honored

There are three (3) elements of autonomy that are important:

(1) agency: the awareness of oneself as having desires and intentions and acting upon them to achieve same; anomen have desires, but there is no (non-controversial) reason to believe that they have the capacity for self-consciousness that is manifest in having awareness of desires and wanting them to be effective in action.

(2) independence: absence of outside or coercive forces or influences.

(3) rationality: rational decision-making requires that a person:
   a) has beliefs that are subject to standards of truth and evidence;
   b) has the ability to recognize commitments and act upon them;
   c) can construct and evaluate alternatives;
   d) can change his beliefs and values; can change decisions and actions; and
   e) can change rankings in beliefs and values and action commitments.

Beneficence:

actions (moral obligations) to act for the benefit of others (kindness, mercy)

Casuistry:

case-based moral reasoning focused on specific situations or cases
Appendix 2

Distress (see stress):

an extremely unpleasant or adverse mental state brought about by the inability to ameliorate or eliminate a homeostatic stressor by either conscious physical or unconscious psycho- or physiological means

Equal consideration:

giving equal moral weight to the relevantly similar interests of different individuals, e.g. an equivalent severity and duration of pain should be equated when deliberating alternative courses of action

Ethics:

a generic term for various ways of understanding and examining moral life

Incremental standing:

a sliding or Darwinian scale of moral value based upon a combination of cognitive and sensory capacities

Marginal Cases (The argument from):

relates to the inability to include for moral consideration beings (e.g. advanced Alzheimer’s patients or human infants) that do not possess either cognitive or sensory capacities that have been used in ethical theories to generate beings which must be granted moral status. Generally this argument has been used to force the inclusion of non-human animals into the sphere of moral protection with such unfortunate humans that lack those characteristics of normal human adults.

Mental states:

capacity to perceive and feel both positively (e.g. pleasure, satiation, tranquillity) and negatively (e.g. anxiety, depression, fear)

Moral Agency:

the unique human capacity for moral judgment

The definition of a person (possessors of personhood) include those that permit the exercise of responsibilities (obligations) as well as the possession of “rights,” imputing to such rights-holders the capacity for moral agency. Some accept or include as possessors of full personhood some entities, such as fetuses and babies, without requiring reciprocal responsibilities which they may also extend to those profoundly retarded, comatose, or in a persistently vegetative state. (These latter positions are attacked by others as speciesist and without moral rationale or justification.)

Moral agency is distinguishable from moral status or moral standing because the latter concepts are applicable to entities whose personhood is questionable or absent. Moral agency is a much more demanding concept than moral status or moral standing because it imputes both rights and duties or obligations to the entity.

Moral agency:

uniquely human capacity for making moral judgments

Moral philosophy:

the reflection upon morality’s nature and function through exposition of ethical theory(ies) which attempt to enhance clarity, systematic order, and precision of argument in thinking about morality

Bioethics and the Use of Laboratory Animals
Moral pluralism:
philosophical and ethical theory(ies) based upon more than a singular or omnipotent characteristic, e.g. "the capacity to suffer," "being the subject of a life," or overriding theory (e.g. DeGrazia and Kraus vs. Moral monolithism; e.g. Singer and Regan)

Moral status or standing:
the position or rank of an entity along a moral continuum from no to minimal to maximal moral significance; the existence of factors which grant a being a place or rank among. The moral ranking of a being (or thing) is placed along a continuum of values ranging from zero to that of a maximal—i.e. that of a normal adult human being (also called by some "maximally morally significant")

Nociception:
the unconscious detection of potentially tissue damaging or noxious stimuli by specialized peripheral nerve endings which may result in a reflexive response ("the plumbing of the pain pathway")

Obligations:
something by which a person is bound to do certain things out of a sense of duty or results from custom or law; responsibilities towards other beings. Some would argue that if one accepts that one has obligations (towards animals) that the recipient of such obligations have "rights" (Beauchamp); some do not see that rights necessarily flow from obligations.

Pain:
the conscious perception of a potentially tissue-damaging or noxious stimulus by the higher centers of the brain

Person (personhood):
The term for a human being that has the capacities of self-consciousness, rationality, autonomy that plays an active role in the moral community by exercising intellect and judgment as a moral agent. (The Great Ape Project is attempting to secure personhood for some of the great apes, most notably the chimpanzee, Pan troglodytes and Pan paniscus.)
Personhood is questionable for those whose capacity for rational activity is absent, undeveloped or severely compromised.

- Currently the emphasis is on self-consciousness, the subjects of experience, or "connected flow of consciousness" (R. Locke)
- Rational autonomous agency is also important—self determination—considered by some as the supreme principle of morality
- The role played as part of a moral community of moral agents
- Personhood reveals who rather than what someone is

The term "man" indicates a member of either sex of the genus Homo sapiens. The term indicates only that; it does not follow or imply that the being possesses the qualities necessary for personhood. For example a "brain dead" person is not a person by the above definition but is clearly still a member of the genus and species, but with greatly diminished moral value according to the view of many.
Appendix 2

Rational (Rationalism):

opposed to irrationality or without reason; the belief that it is possible to obtain by reason alone a knowledge of the nature of what exists; the commitment to reason as opposed to faith, prejudice, habit, or any other source of conviction thought to be irrational.

Rights (deontological theory = absolute principle):

a moral theory based upon the "inherent" or intrinsic value of an individual being which forbids certain harmful actions regardless of the consequences.

Sentience:

The capacity both for perception and central processing of sensory input, most significantly pain and pleasure as well as the mental states capable of, at least theoretically, producing severe distress and mental suffering.

By this definition, what classes of beings are sentient? Subphylum: Vertebrata (mammals, birds, fish, amphibians, and reptiles)? Order Primates? All? Some? Class Mammalia? All? Some? Class: Aves? All fish (primitive (lamprey), cartilaginous (sharks), bony (rockfish))? (Interestingly, Tom Regan defines, for his purposes, that only all mammals over one year old are considered "sentient.")

While this is how I will define the word, it is used in a variety of ways by many in the animal ethics literature and in practice. From merely the "capacity to react to outside stimuli" (plants reach up to sunlight, and litmus paper changes color) to "reacting to sensory stimuli (lower forms do, e.g. insects) to capacity to feel pain (excludes embryos and certain types of nerve damage in humans, the comatose etc. but includes all vertebrates and possibly others, e.g. cephalopods), individuals experiencing nociceptive stimuli or other experiences and processing them to experience not only conscious pain, but the other distressing stimuli and mentally suffering. This is the range that is used by the term sentience. Depending on the definition used, one may include only some or almost all animals with central nervous systems and even plants or inanimate objects (litmus paper).

Ray Frey makes an interesting point that "if sentience (including the possession of mental states) is used exclusively to gain entry into the sphere of moral concern (include all mammals or even all vertebrates), 'rights' proponents, most notably Tom Regan, do not have an egalitarian theory at all. It merely increases, from those that believe that only humans have 'rights,' the numbers of animals allowed to discriminate and exploit other animals. Put another way, now e.g. all vertebrates or all mammals, can exercise 'dominion' over the rest of the animal kingdom. These other critters not only don't possess moral rights, under Regan's philosophy, they also lack moral standing. But, in my view, they still would be of moral concern."

Speciesism:

a term coined by Richard Ryder that designates an attitude or code of conduct based exclusively upon being a member of a particular species, most notably Homo sapiens; equated by some to racism, sexism, etc.

Stress (see distress):

a normal episodic physiological state in which an entity perceives a deviation in homeostasis that can, and usually is, effectively dissipated by either conscious actions or unconscious psychophysiological adjustments.
Suffering:

Although sometimes associated with pain, suffering is better understood as a highly unpleasant emotional state usually associated with more than minimal pain or distress.

Whether and how much one suffers depends upon the significance attached to the associated pain or distress, or with expectations regarding the future or threats to one’s wholeness. Because suffering can be affected by thoughts of meaning or the future, some have focused on this dimension of suffering and asserted that only humans can suffer. But there is a very strong empirical case that at least some animals have the capacity to suffer. The fact is that suffering provokes moral concern, especially when suffering may be unnecessarily caused, and raises ethical questions, mainly regarding the nature and extent of our obligations to those who suffer.

Utilitarianism (consequentialist theory):

a moral theory that bases all moral decisions on maximizing good (e.g. pleasure) and minimizing bad (e.g. pain)
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