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Andrzej Elzanowski
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CONFERENCE REPORT

The Second World Congress on Alternatives and Animal Use in the Life Sciences

Andrzej Elzanowski
Department of Vertebrate Zoology
National Museum of Natural History, Smithsonian Institution

The First Congress on Alternatives and Animal Use in the Life Sciences convened in Baltimore in 1993. Initiated through U.S. and European cooperation, the Congress was conceived as a platform for discussion on broadly conceived alternatives to the use of sentient animals and "to promote dialogue between the animal protection and scientific communities" (Goldberg & van Zutphen, 1995).

The Second World Congress on Alternatives and Animal Use in the Life Sciences convened for 4 days (October 20–24, 1996) at the Department of Veterinary Medicine of Utrecht University in the Netherlands. Most of the 759 attendees represented the industrial nations, the ten best represented being the Netherlands, United States, United Kingdom, Germany, France, Belgium, Japan, Switzerland, Italy, and Sweden. Altogether, 37 countries were represented at the Second Congress, 13 more than at the First Congress.

The program included seven plenaries, two platform sessions, six workshops, and poster sessions displaying approximately 220 posters. In addition to presenting research and reports on the development and validation of alternatives in many experimental fields, the program covered alternatives in education, animal welfare and ethics, environmental enrichment, journal policies with respect to the (usually unsatisfactory) publishing of animal welfare information, and the world of databases. The Congress was broadly commented on in Science (Roush, 1996) and Nature (Abbott, 1996).

Requests for reprints should be sent to Dr. Andrzej Elzanowski, National Museum of Natural History, Smithsonian Institution, NHB Stop 116, Washington DC 20560.
Plenary addresses were of uneven quality. Balls, a coorganizer of the Congress and Director of the European Centre for Validation of Alternative Methods (ECVAM), offered a brilliant perspective on the current status of alternative methods. He said that progress in the implementation of the three Rs (reduction, refinement, and replacement) is not satisfactory because of the validation and other barriers, and the current model for the validation of alternative tests by matching them with animal tests is flawed because animal tests themselves have never been validated and often provide poor quality standards. What is needed now is a revolution, but a peaceful one: Balls condemned violence against scientists (such as laboratory break-ins) and by scientists (such as the use of LD50, or sending immobilized primates into space). Balls protested against the use of animals out of availability rather than necessity. In particular, he condemned a recent proposal to use “surplus” chimps for research on the “mad cow disease.”

Paradoxically, some of the most promising techniques for reducing the numbers of animals used in many screening and testing procedures are those based on genetic engineering (Balls et al., 1995). For example, Glatt of the German Institute of Human Nutrition spoke about the enzymes that catalyze most toxification and detoxification processes. The expression of genes coding for these enzymes in cell lines and bacteria permits detection of carcinogens that cannot be detected in other in vitro systems. It also facilitates the study of the ways of action of these enzymes, which in turn helps optimize animal studies. Osterhaus of Erasmus University in the Netherlands stressed the role of biotechnology in helping to reduce the numbers of animals used in the quality control and production of vaccines and other immunobiologics, but admitted that biotechnology also leads to an explosion of research and development involving the use of animals.

Gordon of the Mt. Sinai School of Medicine, New York, featured the benefits of the use of transgenic animals, which leads to reduction in numbers of animals used in developing new animal models of human disease. However, the main emphasis of Gordon’s lecture was on the limitations to modeling biological systems (and thus to applying alternatives), especially because of unpredictability in developmental processes subject to chaos dynamics (as exemplified by differences in the coloration design between genetically identical mice). An essential question that Gordon left unanswered is how important this marginal unpredictability is for biomedical research. The scientific clarity of Gordon’s presentation contrasted with his evidently poor understanding of the alternatives, and indeed, what the entire Congress was about. For Gordon the use of alternatives meant replacing “animals with mice,” where animals to be replaced are “exotic, large, and endangered [as species]”; large animals such as woodchucks are lucky to belong to the privileged category because they are more difficult to handle (and they bite). Gordon’s attitude, unfortunately, may be representative of that of other molecular biologists, most of whom have little knowledge of the whole animal, let alone of animal behavior and psychological needs.
Categorically against the alternatives was the plenary address delivered by Garattini of the Instituto di Ricerche Farmacologiche “Mario Negri,” Italy, which was essentially a repetition of his talk (published as a “point of view”) at the First Congress (in Goldberg & van Zutphen, 1995, pp. 727–735). Garattini questioned the very concept of alternatives and recommended calling them “complementary methods” because, in his view, they can never replace animal research in biomedicine. This view followed from Garattini’s assertion that it is impossible to accurately model the conditions in vivo if, for example, the physiologic effects of a studied substance are changed by the presence of other substances. The question of why all potentially active substances (e.g., as determined by mechanistic studies and molecular modeling) cannot be represented in vitro was not addressed. Garattini claimed that another reason it is impossible to replace whole animals in experiments is that such effects as convulsions and tremors cannot be observed in tissue cultures. Again, the essential question of why the molecular correlates of convulsion and tremors are undetectable in vitro was not raised.

The lectures by Gordon and Garattini revealed psychological barriers to the implementation of alternatives. Researchers who do not take animal welfare seriously are not likely to be creative in inventing alternative techniques (unless doing so pays off in a different way). Even if available, the use of alternatives (except in standard testing procedures) is extremely difficult to enforce if researchers do not see the point of using them.

Garner of the University of Leicester, United Kingdom outlined the response of the UK and U.S. political systems to the rise of the animal protection and rights movement. Inasmuch as the role of governments in pluralist societies is to balance competing legitimate interests, the abolition of animal experimentation cannot be achieved by parliamentary measures. In the United States, by comparison to the United Kingdom, weak government control of animal use is due to (a) an overall antigovernment climate, (b) the influence of the National Institutes of Health, and (c) the fragmentation of the U.S. legal system into state-level laws that easily frustrate legislative initiatives.

The only philosophical plenary address, “Ethical Principles and Animal Research,” was delivered by Brennan of the University of Western Australia. Brennan offered a potpourri of disparate comments, ending with an attack on Singer’s “morally dangerous and theoretically misconceived” philosophy. Singer’s philosophy was said to be morally dangerous because it diminishes the status of humans; and, because the cost/benefit calculus restricts animal experimentation, it reduces the chances for serendipitous discoveries (so, one might conclude, let’s stop worrying about animals and use them as in the good old days, hoping that great discoveries will come of it). The speaker noted that Singer’s (and others’) philosophy would not be possible without Darwin and his followers, who demonstrated the evolutionary continuity of humans with their animal ancestors. This suggests that Brennan is ready to give some responsibility for these moral dangers to Darwin
and other notorious biological villains (identified before by generations of churchmen). Overall, Brennan’s lecture was poor philosophically and damaging to the cause of promoting ethical responsibility in animal experimentation.

Despite unusually high expectations, nobody was disappointed with the special lecture by Russell of the University of Reading, UK, coauthor of *The Principles of Humane Experimental Technique* (Russell & Burch 1959/1992). The lecture provided the expected entertainment and many deep insights, including those concerning the importance of special education for animal experimenters (already obligatory in some countries such as the Netherlands, Sweden, and the United Kingdom).

This series of Congresses currently provides the only world forum for addressing basic animal issues. Alternatives to the use of sentient animals cannot be effectively promoted without agreement that these animals have individual interests that need to be protected. Because most experimental (in particular molecular) biologists are notoriously unclear about the scientific basis for the recognition of sentience and its ethical implications, this subject should be better exposed in the next Congress, which will be held in Bologna, Italy in 1999. This Congress will be coorganized by Balls of ECVAM and Rowan of the Tufts University Center for Animals and Public Policy—a team for whom I have high expectations in this and other regards.

**REFERENCES**