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14. World impact of ISAE: past and future

D.M. Broom

Centre for Animal Welfare and Anthrozoology, Department of Veterinary Medicine, University of Cambridge, Madingley Road, Cambridge CB3 0ES, United Kingdom; dmb16@cam.ac.uk

Abstract

When the ISAE was formed in 1966, studies of farm, companion or other animals kept by humans were thought of as a side issue for real science, and those who did such work were considered to be second-rate scientists. Since that time, applied ethology has moved on to become an established and respected scientific discipline. Many of the major contributions to our understanding of motivation in recent years have come from work on domestic animals. The causation of many behaviours that are used as welfare indicators has been explored, and much work on the mechanisms controlling behaviour development has been done on farm animals. On a global scale, the work of ISAE members, through their collective knowledge and expertise, has played a significant role in the development of animal welfare legislation and global policies. This chapter explores how far reaching the impact of the ISAE has been. Since the early 1980s the work of ISAE members has been widely used by the EU in determining the current state of the scientific knowledge prior to drafting new animal welfare legislation. Consistently ISAE members have been part of the EU scientific working groups as well as serving on committees for the World Organisation for Animal Health and the Food and Agriculture Organisation of the United Nations. The work of ISAE members continues to spread through publications in *Applied Animal Behaviour Science*, the official journal of the ISAE, and other related journals. Annual ISAE conferences and regional conferences have focused on broadening the scope of and influence of this science, with meetings aimed at increasing the utilisation of research in particular areas, such as encouraged collaboration between applied ethologists and agricultural economists. In recent years, the ISAE has become involved with education and information provision on animal welfare. Looking forward, it is anticipated that the ISAE will continue to have strong impact in education as well as in research related to genetics, environment and management of captive and domestic species.

Keywords: applied ethology, OIE, animal welfare, legislation, education

14.1 Introduction: developing the science

When the Society for Veterinary Ethology (SVE) was founded in the UK in 1966, animal behaviour was a young and expanding science and animal welfare was not thought of as a scientific concept. I was working for my PhD, on the effects of experience on behaviour development in domestic chicks, in the Department of Zoology, Sub-Department of

Animal Behaviour in Cambridge University at that time. My supervisor was Bill Thorpe, who introduced the concept of animals having needs with a biological basis, including needs to show certain behaviours, when he was a member of the Brambell Committee (Broom, 2011, 2014; Thorpe, 1965). My principal advisor was Robert Hinde whose publications on motivation made most ethologists realise that understanding how the brain controls what animals do and when they do it is a central issue in animal behaviour, including human behaviour (Hinde, 1970). Thorpe had clearly been influenced by Hinde when he was writing about needs. Thorpe and Hinde were trying to persuade psychologists and psychiatrists that ethology had valuable lessons for these subject areas, Thorpe by organising regular seminars with Oliver Zangwill, then Professor of Psychology in Cambridge (Thorpe and Zangwill, 1961), and Hinde by a long series of publications on the behaviour of non-human primates and children (Hinde, 1974). However, although applying ethology to humans, the Sub-Department of Animal Behaviour in Cambridge was not then applying ethology to domestic animals. The emphasis of Niko Tinbergen's ethology group in Oxford was the evolution of behaviour and domestic animals were thought of as changed by humans, perhaps as degenerate (Hemmer, 1983) and therefore inappropriate for the study of adaptive behaviour. There was not much thought of applied ethology in the other main ethology centres in the world, for example those of Baerends and van Iersel in the Netherlands, Lorenz in Germany, Fabricius in Sweden, Hediger in Switzerland, or Lehrman and Rosenblatt in the USA. Lorenz had previously written about dogs and Hediger about zoo animals but none of the mainstream ethologists were working principally on applied ethology. Scientists who moved their research area to ethology in the 1960s, and contributed to the development of applied ethology, included Wood-Gush in Scotland, Signoret in France and McBride in Australia.

Where the main aim of an ethologist was to understand how the mechanisms controlling behaviour had evolved, studies of farm, companion, working, laboratory or other animals kept by humans were thought of as a side issue for the real science. Those who did such work were considered to be second-rate scientists. However, if the aim of the ethologist, or other behavioural scientist, was to understand the causation of behaviour, it was acceptable to study laboratory animals. Some of those who worked on motivation also started to use farm animals as subjects but this was also thought of by many mainstream ethologists as questionable, perhaps because the researchers might have tainted, applied objectives. If the principal question for the researcher was how to increase animal productivity, or make animal management easier and more efficient, or how to improve animal welfare, it was obvious that the species used commercially should be the subject of the research. Many of those who carried out research with applied objectives were also investigating fundamental questions of ethology in the course of their work.

Since the early days of the SVE, ethology has moved on to become an established discipline in science and its application to animals used by humans has developed rapidly (Broom, 2011) and has had a major impact on the public. The aspects of behaviour best known to many of the general public are now abnormal behaviours, considered as an indicator of poor welfare of animals, and studies of learning and sentience in domestic animals (Broom, 2014). Many of the major contributions to our understanding of motivation in recent years have come from work on domestic animals. The causation

of many behaviours that are used as welfare indicators has been explored, and much work on the mechanisms controlling behaviour development has been done on farm animals. There has also been rapid progress in studies of cognitive abilities and feelings of farm animals and companion animals, as well as on wild animals in captivity. Some of the researchers have had objectives to show that the animals have complex abilities and should not therefore be treated in ways that result in poor welfare. At the same time they could find out about the cognitive and emotional mechanisms themselves. Studies of interactions between farm or companion animals and humans have also been of great benefit to those who use these animals, and many studies of animal behaviour have helped our understanding of human non-verbal behaviour.

The world impact of the Society for Veterinary Ethology (SVE), called International Society for Applied Ethology (ISAE) after 1991, is described below with reference to a range of activities of its members. The biggest impact has come from the actual research results. Scientific understanding of cognition, motivation and the important fundamental issue of the methods of animals coping with negative impacts of their environment, has been greatly aided by the research of applied ethologists. Many of the research results are reviewed by Broom and Fraser (2015) and discussed in other chapters of this book so will not be detailed here. Scientists, government officers, veterinarians, farmers and other animal users now use the information about animal welfare and behaviour produced by the many thousands of publications of ISAE members. Some future areas where there is likely to be further impact are discussed in the last section of this chapter.

14.2 Actions on behalf of ISAE in international committees

The constitution of SVE/ISAE, stated in 1990, included under Aims of the Society: 'To provide a pool of expertise to government, industry and animal welfare organisations which deal with problems involving animal behaviour'. As a consequence, if ISAE has been formally asked to send experts to meetings, this has been done where possible. There have also been many occasions where ISAE members have been appointed to committees because of their scientific knowledge and have informally reported back to ISAE about their activities, as discussed in the next section.

The Council of Europe has produced a series of Conventions that have had very important influence in the world. In the years before and soon after the European Union (EU) started, the Council of Europe, which had representation from all European countries except communist countries, was the principal forum for discussion of ethical issues affecting all countries and its meetings on many subjects were often attended by observers from outside Europe. Council of Europe Recommendations, once adopted by the member countries, were legally binding. The Recommendations of the Standing Committee of the European Convention for the Protection of Animals Kept for Farming Purposes (T-AP) were generally adopted and put into legislation within one year. Hence they formed the basis for much EU and national legislation. This continued until the expansion of the EU to over 20 countries, after which the EU committees became relatively more important and the influence of the Council of Europe Standing Committees waned.

The main stimulus for the discussions that led to the European Convention for the Protection of Animals kept for Farming Purposes (Council of Europe, 1976) was Ruth Harrison's book *'Animal Machines'* (Harrison 1964) and the ensuing Brambell Report (Command paper 2386, 1965) and legislation in the UK. Ruth Harrison later became a member of SVE/ISAE and used the scientific information available at its meetings to good effect (Broom, 2013). This same stimulus had led to the formation of SVE. In the early 1980s, after the T-AP Committee was set up, SVE was asked to send a scientist to provide evidence for the Committee. In order to pay the costs of travel and accommodation for ISAE scientific experts, the Society had to set up a fund and asked various organisations for donations to this fund.

When the welfare of pigs was being discussed, Gerrit van Putten attended meetings in Strasbourg and when laying hens were discussed, Henrik Simonsen attended. In 1987 when the welfare of cattle was to be discussed, Donald Broom was appointed by SVE Council to attend and I continued to do so until 2000, during which time there were discussions of Recommendations on the welfare of cattle, goats, sheep, domestic fowl, ducks, Muscovy ducks and mulards (Muscovy × mallard hybrids used for foie gras production), geese, ratites, turkeys, animals kept for fur production, as well as amendments to the Convention that dealt with several issues including genetics and farm animal welfare. Other ISAE members who acted as scientific advisors have included Neville Gregory on the European Convention on the Protection of Animals for Slaughter, Code of Conduct on Stunning and Slaughter; Frank Ödberg on the European Convention for the Protection of Vertebrate Animals used for Experimental and other Scientific Purposes; and Markus Stauffacher on the European Convention for the Protection of Companion Animals. Other ISAE members who contributed scientific information to the T-AP Committee included Ingvar Ekesbo who was the Swedish representative and Andreas Steiger who was the Swiss representative. Both of these also served as Chairman of the T-AP Committee. The Council of Europe Recommendations included many that have subsequently been incorporated in legislation, not just in Europe but in many other countries around the world.

Another organisation with international impact that has received scientific advice from ISAE is the Association for Assessment and Accreditation of Laboratory Animal Care (AAALAC), which sets standards for laboratory animal management, treatment and care. The current ISAE advisor is Brianna Gaskill.

14.3 Other actions of ISAE members on international committees

The research of scientists, such as ISAE members, becomes known in the world to some extent if it is presented at scientific meetings but it must be published in respected scientific journals and books if it is to have any real impact. The information can then be found by those who might be able to use it. However, mere presence within the scientific literature does not necessarily lead to useful influence. The information has to be put in a form that is intelligible to the user and in a place that is accessed. Work on domestic animal

behaviour and welfare can be communicated to students and users by summarising the results in books, in magazines and journals read by animal users, on internet sites, in newspapers and in radio and television programmes. Some ISAE members have done this and there is much public interest in such material. Governments and major animal user and animal protection groups need scientific information in high quality reviews in order to utilise it. As explained above, the Council of Europe, whose committees are made up of national representatives, sought scientific advice backed up by reference to actual publications when producing its influential Recommendations. Other national and international bodies are now adopting this 'science based' approach in relation to animal welfare.

The European Economic Community (later EU) started to organise small scientific meetings, publish their proceedings and use scientific working groups to summarise the state of scientific knowledge prior to drafting new legislation relevant to animal welfare in the 1980s. Publications included Bessei (1982), Baxter (1983), Wiepkema *et al.* (1983) and Smidt (1983). SVE members who were members of scientific working groups included Donald Broom, Ian Duncan, Gerrit van Putten, and Piet Wiepkema. The working group meetings were organised by staff of the relevant Directorate of the European Commission and reports were submitted directly to the European Commission. Such reports preceded each of the Directives on animal welfare matters, e.g. on welfare during transport, welfare of calves and welfare of pigs. In 1990, this was formalised when the Scientific Veterinary Committee was formed with a section on animal welfare whose chairman was Donald Broom. This was followed in 1997 by the Scientific Committee on Animal Health and Welfare run by the Public Affairs Directorate of the European Commission and then in 2003 by the Scientific Panel on Animal Health and Welfare of the European Food Safety Authority (EFSA: see also Chapter 7; Algers, 2016). The members were solely scientists selected for scientific merit and no one was a representative of a member state, industry or animal protection society. ISAE members who were Chair or Vice Chair of these committees were Pierre Le Neindre, Donald Broom and Jörg Hartung. Others who have been members of the committees, as well as having major influence on scientific development in their own countries, include: Piet Wiepkema, Jean-Pierre Signoret, Robert Dantzer, Per Jensen, Harry Blokhuis, Marina Verga, David Morton, Xavier Manteca, Bo Algers, Linda Keeling, Mohan Raj, Lotte Berg and Antonio Velarde. Figure 14.1 shows retiring members of the EFSA Panel in 2012. Many other ISAE members served on the working groups of these committees.

The reports, later called opinions, of these committees concerned a wide range of animal welfare issues and were used in subsequent EU legislation discussions. They are available on the internet and have been used by animal producer and animal protection organisations as well as by governments. The sequence of events that led to EU legislation on veal calves is described by Broom (2009, 2014).

ISAE members have also served on OIE, FAO, and other international and national committees. For example, David Fraser is on the OIE (World Organization for Animal Health) committee, he and Mateus Paranhos da Costa have spent time in Rome advising FAO (Food and Agriculture Organization of the United Nations). Francisco Galindo,



Figure 14.1. Retiring members of the EFSA Scientific Panel on Animal Health and Welfare in 2012: (from left) Don Broom, Mike Sharp, Philippe Vannier, Martin Wierup, Oriol Ribo (EFSA staff), Mo Salman and David Morton.

Stella Huertas, Paolo Dalla Villa, Lindsay Matthews, Clive Phillips and others have been involved with OIE regional activities.

The consequences for animal welfare of ISAE contributions to Council of Europe, EU, OIE, FAO and other committees have been substantial. It is now recognised in many countries of the world that evidence from animal welfare science is valuable, and should be used in the formulation of laws or codes of practice. The scientific information has been used in the laws and codes that require stunning before painful killing methods are used to slaughter food animals. Animal transport in over-stocked vehicles, with journey lengths, handling procedures and driving methods that cause poor welfare have become less common. Housing systems that do not meet the needs of the animals, such as close-confinement of calves and pregnant sows in pens where they cannot turn around, keeping of hens in battery cages, and systems that lack manipulable materials for pigs or bedding for several species, are gradually being prohibited or made economically unviable because consumers are forcing food retail companies to ban practices. Some of the changes have still occurred only in pioneer countries or states, whilst others are now supposed to be changed in all 180 countries that are signatories to the World Organization for Animal Health (OIE).

14.4 ISAE and scientific publishing

When Elsevier set up the journal *Applied Animal Ethology*, later to become *Applied Animal Behaviour Science*, the first Editor was a founding member of SVE, Andrew

Fraser. Andrew continues to be active in writing about the behaviour and welfare of domestic animals (e.g. Broom and Fraser, 2015; Fraser, 2010). In 1993 there was an agreement made between ISAE and Elsevier that the society would liaise over the appointment of the Editor of Applied Animal Behaviour Science and that members would receive a reduced subscription rate. As a result, Per Jensen, Carol Petherick and Sylvie Cloutier have been editors. The academic standard of this journal has clearly been helped by ISAE involvement. Members of ISAE have had editorial involvement with several other journals such as Animal Behaviour, British Poultry Science, Animal Welfare and Animals.

14.5 Collaborative activities with other organisations

After becoming an international organisation in the 1970s, SVE/ISAE has held international conferences in many countries around the world. There have also been a series of regional meetings. Some of these conferences have been aimed at helping in the utilisation of research. For example, as early as 1998 an ISAE meeting was held at the Royal Veterinary College in London entitled: 'Can ethological research contribute to standards in marketing schemes?' This encouraged collaboration between applied ethologists and agricultural economists.

In addition, ISAE has had links to animal science and veterinary societies and joint meetings. Examples include the ISAE joint meeting with the European Association for Animal Production and the Deutsche Veterinärmedizinische Gesellschaft in Germany in 1993, the joint meeting with the Association for the Study of Animal Behaviour on 'Motivation, cognition and applied aspects' in 1994 and a series of meetings from 2002 with the British Society for Animal Science and the World Poultry Science Association in the UK. In Australia and New Zealand, and also in Brazil, there have been many collaborative meetings involving ISAE and veterinary, animal science and animal protection organisations.

Many of the most important consequences of the original scientific work and spread of information about the behaviour and welfare of animals resulting from ISAE activities have influenced the education of veterinary, animal science, biology, psychology and philosophy students. Whilst most of those who took courses 40 years ago heard little or nothing about the subject, many more students today take courses in this area (Broom, 2005; Fraser, 2008; Gallo *et al.*, 2010; Hewson *et al.*, 2005). The relationship between ethics and this subject is discussed in the context of many religions and philosophies (Szücs *et al.*, 2012; Waldau and Patton, 2009). The knowledge about how to manage farm, companion and other animals that is available via books, on-line sources and instructors includes much more good quality information about behaviour currently than it did in the past.

14.6 Future international influence and impact of ISAE

Looking forward, it is anticipated that the ISAE will continue to have impact in the many ways described above. In particular, there is a continuing need for scientific studies of animal welfare, and precise reviews of these, so that good laws and codes of practice can be formulated. There are also exciting new possibilities for education and information provision. The ISAE is now providing scientific evaluation for the Animal Welfare Science Hub. This internet source provides information about animal welfare, how to teach aspects of it, and what teaching material is available. The hub was initiated by the Animal Welfare Indicators science research project, which used some of the valuable information produced by the EU Welfare Quality project. Those who visit www.animalwelfarehub.com can find learning tools, details about welfare courses, protocols for welfare assessment and welfare research information. ISAE validates the quality of the information before it is put on the website. There are also ISAE contributions to the FAO animal welfare gateway and other internet sites, although these do not have the content quality checking that the animal welfare science hub has.

In future, the need for good quality information, such as that on the Animal Welfare Science Hub, will continue and with this comes an ongoing role for scientific societies, such as ISAE, to expand knowledge and check quality. Behaviour and welfare subjects requiring ongoing study include research related to genetics, environment and management of captive and domestic species. Whilst the genetic selection of domestic animals has promoted some adaptations that improve animal welfare and ease of animal management, selection for high productivity has resulted in major animal welfare problems. These negative effects of selection can be carefully investigated, and means of penalising and controlling the harmful traits found. Controlling the early experience of domestic animals can help them to adapt more rapidly to their captive environment. This may be particularly useful in extensive farming situations where the animals have to adapt to humans (Hemsworth and Coleman, 2010; Le Neindre *et al.*, 1996).

It is also likely that there will be developments in how to utilise the new information about the cognitive and emotional functioning of animals. Developments in welfare assessment, appreciation of system sustainability and ethical procedures will affect human actions in relation to keeping animals (Broom, 2014). The ISAE can contribute to such developments and, in doing so, can further benefit the animals that we use and the people who use them.

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