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Opportunities in Applied Ethology

In the past six months I have attended the annual meetings of three scientific societies, and talked with members of our Society who have attended other meetings. We have reached a similar conclusion - that there are opportunities in the field of applied ethology, and that members of ISAE are equipped to meet them. The application of behavioural knowledge to the care and management of companion, zoo and laboratory animals and managed wildlife is a need being recognized by those involved in such work, just as agricultural scientists continue to recognize a similar need in terms of farmed animals. Our Society has recognized these needs in its Aims, included in our Constitution. Although species differences are important, applied ethologists see many similarities in behavioural aspects of management of agricultural and non-agricultural species. As well as contributing to the well-being of non-agricultural species, we can gain further insights into our traditional area of farmed animals by interacting with workers specializing in those which are not farmed. Our Society will be including more opportunities for such expansion in future congresses.

A second area of encouragement is the evidence of applied ethological studies in the development of new management systems. Behavioural knowledge is being used, both by applied ethologists and other agricultural scientists, to analyze problems and effect improvements in systems such as new designs for group management of sows. We see our work of the past two decades reaching fruition in these developments. I am convinced that our knowledge will continue to be used in the future, as we extend our own understanding of animals through our research.

An exciting development for our Society is being announced in this Newsletter. For the past three years the Council has been involved in discussions and negotiations concerning journals in the field of applied ethology. Past Newsletters have solicited your opinions, and kept you informed of our progress. In this Newsletter, we are able to announce our arrangement with Elsevier Publishing

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**Membership Subscription Rate
increases to £10 from 1 June 1994**

See Page 3 for details

for individual subscription rates to *Applied Animal Behaviour Science*, available to ISAE members. In addition, the Society will serve as "guest editor" for a special edition of the journal each year; included in this edition will be abstracts from our meetings, and invited papers intended to challenge our discipline. Please consider subscribing to the journal, and encourage others to join our Society and to subscribe too.

Finally, I want to express my appreciation to the Society for giving me the opportunity to serve on the Council, and in the role of President. I look forward to working with you in the next two years.

Harold Gonyou

ISAE Officials

President:	Harold Gonyou
Senior Vice-President:	Herman Wierenga
Junior Vice-President:	Jan Ladewig
Secretary:	Mike Appleby
Assistant Secretary:	Henrik Simonsen
Membership Secretary:	Mark Rutter
Treasurer:	Mike Mendl
Editor:	Jeff Rushen
Legal Assessor:	Bill Jackson
Council members:	Lindsay Matthews (91-94)
	Frank Ödberg
	Joy Mench (92-95)
	Ruth Newberry
	Elisabetta Canali (93-96)
	Marek Spinka

As indicated in the last newsletter, the activity of the Society's Regions is being strengthened, and so the appointment of Regional Secretaries is currently being reviewed.

Applied Animal Behaviour Science

The International Society for Applied Ethology (ISAE) and Elsevier Scientific Publishers are pleased to announce the establishment of **personal subscription rates** to the Elsevier journal **Applied Animal Behaviour Science**. Further details are enclosed with the newsletter.

This arrangement must be confirmed by the end of 1993 to ensure the availability of personal subscriptions for 1994, and it will only be possible if at least 50 subscribers are confirmed by that time. So please fill in the form as soon as possible and send it off to Mark Rutter.

ISAE news

East Meets West

After crossing the ocean to Pittsburgh last year, our annual congress made another important step this year. At the end of July the conference was held in the Charité centre of the Humboldt-University in Berlin, a few hundred metres to the east of where the remnants of the former Berlin Wall still stand. As Professor Tembrock demonstrated in his introductory lecture, Berlin has a strong tradition in studying animal behaviour which was not interrupted by the division of the city. In this spirit, the congress succeeded in strengthening the contacts between ethologists in the formerly divided Europe. More than one fifth of the contributions were authored or co-authored by ethologists working east of the former Iron Curtain. Their attendance was generously supported by the Deutsche Forschungsgemeinschaft.

The scientific programme was nicely balanced. Five main topics were covered: Behavioural disturbances, Ontogeny of behaviour, Stress, Human-animal interactions, Effects of environment on social behaviour. The message common to the papers and the discussion was that it is not enough to call a behaviour stereotyped, stress-induced, abnormal, imprinted or whatever fashionable label we may invent. In order to understand the behaviour, it is necessary to disentangle its causes painstakingly, taking into account how the animal perceives the situation and what behavioural options it has. Most of the contributions had clear implications for practice. The poster session was rich in themes, and a little bit disorganized, but then this has been a problem at every scientific conference I have attended.

The atmosphere was very friendly, good beer was provided for a very popular price, and the buffet was rich, especially in vitamins. Berlin received us warmly both on the free evenings and on the Wednesday afternoon when an excursion to the Zoological Garden was organized. It was stimulating to see how rich environments could be designed for so many species in a rather restricted area. Agreeably tired by the walk, we gathered in the zoo buffet to hear speeches, to eat and chat. On the last day, there was a choice of three excursions, either to nature reserves, or to the second zoo in Berlin.

Thank you, Berlin.

Marek Spinka

Prof. Dr Piet Wiepkema: Honorary Member

Some time ago the ISAE Council decided to appoint Professor Piet Wiepkema as an Honorary Member of ISAE. A conference held in Wageningen in April this year on the occasion of his retirement provided an opportunity to present the certificate to Piet and to comment on our reasons for the appointment.

First of all Piet is an eminent scientist, active for a very long period in the area of animal behaviour and physiology. He has played an important role in bridging the gap between pure and applied ethology. When he moved to the Agricultural University in Wageningen he became active in the area of applied ethology but kept in contact with scientists in pure ethology and physiology. At Wageningen he presented a model which was helpful in explaining and understanding animal welfare problems. With his model he had an essential influence on the further development of applied ethology into an adult science. His influence on this development seems to be underestimated. Piet Wiepkema was involved in applied animal behaviour research both directly and indirectly, and on both a national and international basis. The retirement conference gave a good impression of his comprehensive influence, including work on laying hens, sows, veal calves, rabbits, fur animals and zoo animals. Many scientists in the Netherlands and from many other countries collaborated with him, often by spending some time in Wageningen. Piet always had a keen interest in learning about the ideas and experience of other scientists and presented his own ideas without any hesitation; often such discussions with Piet resulted in the next step in scientific development!

Piet has also served ISAE well, at a stage when it was still the SVE. In 1985 he was President, and he organized an excellent summer meeting in Wageningen in the same year.

In appointing Piet Wiepkema as an Honorary Member, the ISAE Council wishes to honour his scientific work and to underline his essential influence in the development of applied ethology into an adult science.

After the conference Piet and Janny Wiepkema invited a group of his students and close friends to join their family for a very nice dinner. It was good to see that there were several ISAE members at this occasion!

Herman Wierenga

ISAE Membership

I was honoured to be invited to take over as membership secretary after Carol Petherick unfortunately had to resign now that she has moved 'down-under'. The new contact address is given below:

Dr Mark Rutter, ISAE Membership Secretary,
Institute of Grassland and Environmental Research,
North Wyke, Okehampton, Devon EX20 2SB UK
Tel: (0)837 82558
Fax: (0)837 82139
E-Mail: RUTTERM@UK.AC.AFRC.NW

Although the transfer from Edinburgh to Devon has been comparatively smooth, I am sure that I have over-looked some correspondence. Also, although mail addressed to Carol's old address should be re-directed to me, this system may not be perfect. So if anyone has been expecting to hear from the membership secretary but hasn't, please don't hesitate to get in touch with me.

Membership Subscriptions

The last AGM (held in Berlin on 28th July 1993) agreed to **increase the ISAE annual subscription** rate from £5.00 to **£10.00** with effect from **1st June 1994**. Note that any member who has already paid their 1994 (or subsequent) subscriptions in advance does not have to pay the increased rate. I will contact those members who pay by Standing Order early next year.

Membership Directory

A number of members have complained that their entry in the membership directory is either incorrect or missing certain details. However, the information in the directory is only as good as the information you have provided the society! If you would like to update or correct your record for the next membership directory, please send me the details (address at the top of this section). Note that a full entry consists of:

Title (e.g. Prof., Dr), **First name(s)**, **Surname**, **Mail Address** (inc. Country), **Phone** and **Fax** number, **Electronic Mail Address**, **Qualifications** (e.g. BSc, PhD) and **Research Interests** (no more than 12 words please).

New Members

Morten Bakken, Dept Animal Science, Box 5025, Agricultural University of Norway, 1432 Ås, Norway

Jacqueline A. Burbridge, Flat 5, Stonegate House, Stonegate Street, Kings Lynn, Norfolk PE30 5ES, UK

Dr Prospero Cagnetta, Dipt di Produzione Animale, Univ. Degli Studi Bari, Via Giovanni Amendola 165/A, 70126 Bari, Italy

Jane Geismar, Swedish University of Agricultural Sciences, Dept Animal Hygiene, PO Box 345, S-532 24, Skara, Sweden

Stefan Gunnarson, Dept Animal Hygiene, Swedish University of Agricultural Sciences, PO Box 345, 532 24 Skara, Sweden

Marx Gunther, Inst. for Small Animal Research, Celle/Merbitz Research Station, Merbitz, D-0-4107 Nauendorf, Germany

Ms Moira Harris, Prairie Swine Centre, PO Box 21057, 2105-8th Street East, Saskatoon, Saskatchewan, S7N 0N7 Canada

Prof. J.F. Hurnik, Dept Animal & Poultry Science, University of Guelph, Guelph, Ontario, Canada

Mr James Morris, SSPCA, 19 Melville Street, Edinburgh EH3 7PL, UK

Miss Kathryn Anne Murray, 20 Gorsefield Ave., Bromborough, Wirral, Merseyside, L62 6BZ

Rhonda I. Nicholson, 8008 W. 34th Number 53, Lubbock, Texas 79407-4807, USA

Ms Mateus Paranhos Da Costa, Dept Melhoramento Genetico Animal, FCAV/UNESP, 14.870-000 Jaboticabal-SP, Brazil

Mr Peter D. Penning, Institute of Grassland and Environmental Research, North Wyke, Okehampton, Devon EX20 2SB, UK

Dr Andrew J. Rook, Institute of Grassland and Environmental Research, North Wyke, Okehampton, Devon EX20 2SB, UK

Paul L. Sensky, Dept Clinical Veterinary Medicine, University of Cambridge, Madingley Road, Cambridge CB3 0ES, UK

Mr Jaydee H. Smith, AFRC Silsoe Research Institute, Welfare Science Division, Wrest Park, Silsoe, Bedford MK45 4HS, UK

Janice Swanson, Kansas State University, Dept Animal Science & Industry, 134C Weber Hall, Manhattan, KS 66506, USA

Reinstated

Mr J. Salavessa, Rua Joao de Deus Ramos, 5-4^a Dto., 1700 Lisboa, Portugal

Change of Address

Dr Sandra McCune, Waltham Centre for Pet Nutrition, Waltham-on-the-Wolds, Melton Mowbray, Leicestershire LE14 4RT, UK

Mrs Nicola Mount (nee Bartle), 100 Smalley Drive, Oakwood, Derby, UK

Cathy Pereira, 20 Osborne Park, Neyland, nr Milford Haven, Dyfed, UK

Dr J. Carol Petherick, Swan's Lagoon Beef Cattle Research Station, Private Mail Box 4, Mail Service 54, Millaroo, via Ayr, QLD 4807, Australia

Dr Adroaldo Zanella, Ludwig-Maximilians Universität München, Institut für Tierhygiene, Verhaltenskunde und Tierschutz, D-8000 München 40, Schwere-Reiter-Str. 9, Germany

Resigned

Dr M. Vince, Cambridge, UK

Dr E. Walser, Cambridge, UK

Sean Smith, Penicuik, UK

Mark Rutter

David Wood-Gush Memorial Fund

As members of ISAE will be well aware, David Wood-Gush, who died suddenly at the end of last year, was a biologist of great distinction whose achievements in the field of animal behaviour and animal welfare are recognized internationally. He was also a person of outstanding personal qualities who made close friends wherever he went. An appreciation was included in the last newsletter.

A group of his friends and colleagues in Edinburgh have decided that the most suitable memorial to David's life would be to endow an annual lecture to be delivered by a distinguished research worker in the field of animal welfare science, to which he himself contributed so much. Rather than have a lecture in Edinburgh, we believe that it will be more useful and appropriate to link its delivery to the annual congress of the International Society for Applied Ethology. These are held in many different countries and this will ensure that the David Wood-Gush Memorial Lecture will become a recognized part of the international calendar in this branch of biology. I am glad to report that this suggestion has been enthusiastically approved by the Council of the Society.

Thus I am writing to you and to other relevant groups in the hope that you will subscribe to this memorial fund whose purpose will be to yield an income sufficient to cover travelling expenses and a lecturing fee for each speaker. We aim to have the Fund operating and the first lecture delivered at the ISAE Congress in Denmark next year. Cheques payable to The University of Edinburgh Development Trust (David Wood-Gush Memorial Fund) can be sent to:

Development Office, Old College,
South Bridge,
Edinburgh
EH8 9YL, UK

(forms for donations and for covenants are enclosed with this issue of the Newsletter).

We will keep you informed of progress. I hope that you will agree that this is both a useful and a fitting way to remember David and his remarkable achievements.

On behalf of the group,
Aubrey Manning
Professor of Natural History

IEC in the Sunshine

The XXIII International Ethological Conference was held in Torremolinos, Spain this year from the 1st to 9th of September. The conference drew delegates from all parts of the world, with mainland Europe particularly well represented. A plenary session was dedicated to Applied Ethology and Animal Welfare, and sponsored by a Spanish animal welfare organization as the Spaniards appeared anxious to improve their reputation in the field of animal welfare. There were four speakers in this session. Patricia Monaghan from the University of Glasgow argued that applied ethology should not be seen as completely divorced from the theory and methods of pure ethology and behavioural ecology. With reference to the housing of broiler chickens, Ruth Newberry of Agriculture Canada, British Columbia, questioned the view that merely making pens larger will lead to better welfare. Frank Ödberg from the University of Ghent examined the interplay between scientific and ethical thinking in relation to animal welfare. Finally, the talk from Shakunthala Sridhara of the College for Basic Sciences and Humanities, Bangalore, India, gave us a reminder that although studies of the behaviour of pest species may not be in the 'high-powered' scientific league, they are of vital economic importance to developing countries.

There were two oral sessions entitled Animal Welfare and Applied Ethology which included presentations on farm and laboratory animals in relation to specific problems and in the broader ethological sense. Sessions concerning motivation, decision making, hormones, cognition, parental recognition and conservation biology also contained papers of direct relevance to those of us in the applied field. A UFAW-University of Cambridge symposium - 'Animal welfare: improving captive environments for mammals' - pursued the problem of the housing of animals in impoverished environments and what might be done to improve the situation.

A large number of posters were presented at the conference with a significant proportion of these on applied ethology. And if all this was not enough to satiate the most knowledge-hungry conference goer, there were videos presented in the evening on environmental enrichment, domestic livestock be-

haviour and the maternal behaviour of sheep.

The conference was generally well organized, and I felt that I gained a great deal in being presented with a view of the techniques, methods and theories currently in vogue in the wider field of ethology. The IEC will be held in Hawaii in 1994 and will be in Vienna in 1996.

Marie Haskell

Society for Companion Animal Studies

The Journal of SCAS often has news which would be of interest to members of ISAE. In the Autumn 1993 edition, for example, are reports of meetings on Pet loss and support for bereaved owners and on Dogs and the Law (as well as on our own Berlin meeting!). There is also information about Waltham Research Awards, which are intended to help with the cost and effort needed to prepare good grant applications concerned with pet ownership. Details of these can be obtained from: Dr I. Robinson, Waltham Centre for Pet Nutrition, Waltham-on-the-Wolds, Melton Mowbray, Leicestershire LE14 4RT. Details of SCAS can be obtained from the Director, Anne Docherty, 1a Hilton Road, Milngavie, Glasgow G62 7DN, UK.

EAAP in Aarhus

The annual meeting of the European Association for Animal Production was held this year in August in Aarhus, Denmark. Behaviour and welfare of animals were discussed in particular in two sessions of the Commission of Animal Management and Health.

A session on Consequences of Automatic Milking Systems was prepared and chaired by Herman Wierenga (The Netherlands). After an introduction to the current state of development of milking robots, various aspects of applying automatic milking systems in dairy farms were discussed. Milking robots allow cows to be milked more than two times daily, resulting in an increase of milk production of about 15%. They are used in cubicle houses and the cows are expected to visit the milking stations regularly, so cows have to learn the system and training may be necessary. Although much work remains to be done it seems possible that cows will be able to adapt to automatic milking systems.

At present it is difficult to assess the economics of milking robots. On the one hand there are the costs of the system itself and various extra expenses (e.g. the costs of more sophisticated herd health control),

but on the other hand there is potential extra income from increased milk production and reduced labour costs. For family farms in particular one of the most important advantages will be that farmers are less tied down to the farm.

In the discussion it was stressed that the time has come for the development of automatic milking systems to be more influenced by animal scientists. Further research should put emphasis on animal health, behaviour and welfare.

A session on Opportunities for Reduction of Diseases and Disturbed Behaviour in Pig Production was organized by M. Tielen (The Netherlands). Large numbers of polyfactorial diseases exist in the dense pig population of Denmark, North Germany, South Netherlands and Brittany. Reduction of incidence requires diminution of stress and/or reduction of microbial load. In five main papers the most important stress factors were clearly presented and the possibilities for problem management were discussed. The Danish SPF system and a new Dutch SSF system (Special Stress Free) improve the health, welfare and production of pigs. A Swedish 'sow pool' strategy helps small farms to achieve planned and sectional production, thus decreasing the disease pressure in herds.

In three contributions the occurrence of disturbed behaviour of pigs and possibilities of reducing these behavioural abnormalities were discussed, introduced by Mette Hagelsø.

Herman Wierenga

Situation Situation

Postdoctoral Research Fellow working in applied animal ethology

Funds are available through the Saskatchewan Agricultural Development Fund to finance a postdoctoral research fellow in applied animal behaviour/welfare research. Emphasis is primarily on investigation of behaviour in beef cattle and the application of findings to improve productivity and welfare. The successful candidate will have the opportunity to interact on current research projects, but must be capable of initiating and publishing original research. Opportunities to collaborate on and initiate research projects using swine also exist. The position is a one year term with the option to renew for an additional year. Stipend is set at \$27,000 Canadian/annum to parallel the NSERC National Award rate, but exceptions are possible. Applicants must have completed a PhD on animal behaviour and will preferably have completed behavioural

research projects using one of the domestic food animal species. Interested candidates are invited to submit a letter of application and a current resumé and provide 3 letters of reference to:

Dr Joseph M. Stookey (email stookey@sask.usask.ca)
Dept of Herd Medicine and Theriogenology, Western College of Veterinary Medicine, University of Saskatchewan, Saskatoon, Saskatchewan S7N 0W0 Canada

Certification of Applied Animal Behaviorists

In relation to the letter about Behavioural Therapy in the last newsletter, it may be worth reminding members that the Animal Behavior Society has a scheme for certification of applied animal behaviourists. Details can be obtained from Dr John C. Wright, ABS Board of Professional Certification, Department of Psychology, Mercer University, 1400 Coleman Avenue, Macon, GA 31207 USA. If any members are aware of other certification programs, I should be grateful if they could send information to me. I would like to compile a list and comparison of such programs. This would also include veterinary certification in behaviour. My address is Prairie Swine Centre, PO Box 21057, 2105-8th St. East, Saskatoon, Saskatchewan S7H 5N9 Canada.

Harold Gonyou

letters

Dear ISAE Members,

The United States Department of Agriculture, Animal Welfare Information Center (AWIC), located in the National Agricultural Library, is working in cooperation with the Universities Federation for Animal Welfare to produce a comprehensive bibliography on environmental enrichment for laboratory species other than primates. Due to the varied terminology used to describe enriched environments and environmental enrichment strategies, AWIC is requesting assistance in gathering reprints, book chapters, articles and so on that are relevant to environmental enrichment to be included in the bibliography. Contributors will receive a copy of the final bibliography free of charge. Materials may be sent to: Animal Welfare Information Center, National Agricultural Library, United States Department of Agriculture, 10301 Baltimore Blvd, Beltsville, Maryland 20705-2351 U.S.A. Telephone 301-504-5174. Internet address: AWIC@NALUSDA.GOV

Animal Welfare Information Center

Crane Seminar

This meeting took place in Skara, Sweden, last April. Maybe for some of the 46 people who attended that seems a long time ago and memories of the meeting have faded, but that's not the case for me. I have attended quite a few meetings during my career and with many I've been left with a feeling of anti-climax, wondering what I'd actually got out of them. No so this time! I returned to the UK feeling stimulated, full of enthusiasm for my work and feeling that I'd really learned a lot; quite appropriate considering that the topic for the meeting was 'Animal Learning'!

This seminar was the fifth in a series of courses which started in 1985, and was organized by Per Jensen at the Swedish University of Agricultural Sciences at Skara. It comprised three different but complementary approaches to the subject, the lecturers being Tony Dickinson (Cambridge, UK) on 'Instrumental learning', Gabriel Horn (also from Cambridge) on 'Neural mechanisms of learning and memory: the case of imprinting' and Louis Lefebvre (Montreal, Canada) on 'Social learning: mechanisms, ecology and population diffusion'. Prior to the course, participants were sent papers to read which provided some background on the topics to be covered, which was extremely useful. Then on the day of registration each lecturer gave a brief 'trailer' to his topic and the way in which he would be covering it.

One full day was allocated to each approach, with lectures, workshops and group discussion. There were no assumptions about the previous knowledge of the delegates: the lecturers started from the basics and followed through to very recent and more complex findings and theories. For the workshops there were lists of questions and topics to be dealt with which involved practical aspects of experimental design as well as more philosophical issues. I particularly recall that one statement caused considerable discussion: 'The day of ethology was over when the day of molecular neurobiology dawned'. No prizes for guessing which of the renowned lecturers posed that one! (although I must add that he conceded that ethology's greatest potential was in the application of our knowledge to practical problems).

On the final day three delegates whose work

involves animal learning each gave a 30 minute presentation. Björn Forkman (who had just nailed his thesis to the library door at Stockholm University!) talked about his foraging studies with gerbils, Klaus Vestergaard spoke of his work on dustbathing in jungle fowl and I described some of my studies on cognition and motivation in hens. I'm not sure how the others felt, but I found it pretty daunting to be addressing such an eminent audience.

It wasn't all work; the title Crane Seminar was given because the meeting is held at the time that the cranes are migrating and stop in that part of Sweden to feed. These large birds, feeding and 'dancing' in their thousands, were certainly spectacular. Another spectacular sight was seen on the night of the banquet: some amazing examples of animal behaviour were seen as delegates mimed animals during an entertaining game of charades! However, my fondest memory (and I wonder if it is the same for all who attended) is of us all standing shivering in the dark on the marshes at Lake Hornborgasjön, straining our ears for the booming of bitterns and the 'galloping horses in the sky' of snipe, but only hearing the howling wind and the rain spattering on waterproofs!

Overall it was a memorable meeting and thanks must go to Per and his colleagues for their excellent organization. Thanks too, of course, to Tony, Gabriel and Louis who must have found the whole thing as exhausting as the delegates did.

Carol Petherick

Five Minute Philosophy: Applied Behavioural Ecology

This is a series of articles in which prominent members of the society are asked to expound on ideas which concern them, off the cuff and without being held to account for the exact details. Constructive correspondence will be welcome.

This has been bugging me in my occasional baths over a period of years. I feel that too much research is done on a 'suck it and see' basis - we have a phenomenon or a process which clearly has a number of factors surrounding it, and we manipulate each in turn with the approach of 'Let's see what happens when we vary this?' Too little research is driven by a burning desire to understand underlying mechanisms and develop theoretical models.

This is a trend that is common to much scientific research these days, in an age where politicians want a quick commercial 'fix' from the money they invest

in science. It is also encouraged by the 'publish or bust and in quantity no matter what the quality' attitude currently prevalent in all academic institutions. However, I feel that we in ISAE are particularly prone to this: we work in an applied world where the obvious purposes and pressures are to determine the immediate effects of practical husbandry conditions on the welfare of animals or on production efficiency. We are not given the incentive to investigate theoretical issues but, rather, pressed to solve practical problems. As a result, I estimate that about 75% of papers at the Berlin Congress fell into the suck-it-and-see category (I have just edited them all!), not really directed at advancing understanding but at solving an immediate practical problem.

However, all of us are really dealing with behavioural ecology. The ecological constraints are concrete environments and human commercial husbandry rather than forest or savannah ecosystems. But we are concerned with the impact of the environment on behaviour, the way that animals adapt their behaviour to cope with changes in environmental constraints and the mechanisms underlying this. Therefore, the well-defined models developed by 'pure' behavioural ecologists in recent years to deal with natural environments should be just as appropriate to formally equivalent situations in our artificial ones. The advantages of working more strategically are well known. Basic principles are generally applicable to a wide range of specific situations of the kind we normally tackle: the understanding gained, therefore, goes a long way to solving a large number of them. Furthermore, with ingenuity experiments can often be designed to examine the basic principles in the context of tackling a specific applied problem. I shall illustrate this with a few examples.

I do not want to make enemies of friends in ISAE with whom I drink ale at conferences by invidious public comparisons. So I have chosen a positive example for examination, and one by a member who doesn't often make it to the same meetings as myself! The 'eye' teeth of newborn piglets are sharp and jut out sideways. Because they result in lacerations of both the sow's udder and the faces of adjacent piglets on the udder, they are usually clipped off soon after birth. We may ask sensible, practical questions like whether the clipping is a welfare issue and whether the growth and performance of the litter is affected. David Fraser and his colleagues went back further to ask why they evolved at this curious angle, which appears not to be appropriate for feeding, and so

what their function is (Fraser and Thompson, *Behavioural Ecology and Sociobiology* 29, 9-15). In a neatly controlled series of experiments they demonstrated that clipping teeth reduced weight gain in clipped piglets, especially in large litters in which competition is most intense, and that unclipped piglets have a better chance of acquiring anterior teats compared to clipped littermates. Further, leaving the lightest piglets in a litter unclipped resulted in a reduced within-litter variation in growth rate without affecting the overall litter weight gain. Thus they have developed ideas, backed by evidence, about the evolution and function of 'eye' teeth, that may relate to other multiparous species with similar dentition (if there are any!), as well as making a contribution to practical pig production.

Here are a couple of other problems 'out of the hat' which may be illuminated by thinking as an applied behavioural ecologist. First, we may think about how a dairy herdsman should programme his time watching his herd in order to maximise his success in spotting oestrus as a problem in optimal foraging. If we do, the problem becomes susceptible to precise mathematical analysis and it directs our attention to a range of very specific data needed to tackle it. Further, it may shed light on how the optimal mating strategy of a bull is affected by husbandry conditions. Second, my own thoughts turn naturally to the very different suckling processes in cows or sheep and in pigs. It is useful simply to describe them. But if we think about why they are different, as well as how, we identify the different constraints to which the processes have adapted and the causal relationships between them. Some of these constraints vary within species as well as between them and some vary with husbandry conditions. We then get clues to how a range of husbandry conditions may affect the efficiency of suckling.

Of course the generalization I made above about papers in Berlin is an oversimplification: most authors looked for causes behind their effects, asking 'Why' at a certain level. But most were concerned with immediate determinants, not general theoretical mechanisms: there is a major difference between asking 'Which of these environmental variables cause X?' on the one hand and 'What basic function does X have, what is its mechanism of action and hence what variables ought to influence it?' on the other. Also I accept that pure fact-finding research is necessary and valuable. First, in the initial stages of

tackling a phenomenon we need to have some basic descriptive facts in order to ask intelligent questions; second, ideas about function and mechanisms need to be evaluated against specific facts obtained in experiments. However, I should like to see us generating more of our facts in the context of theoretical models.

Finally I know that these thoughts are not original: most ISAE members may have had similar ones. But perhaps these 'bubbles from the bath water' will encourage some of you who have not had contact with the world of 'pure' behavioural ecology to find the time to go away and find some ecologists' models and think about how they apply to artificial environments. If so, something will have been achieved.

Ian Horrell

Book Review

Twelfth Report of the Study Committee on Intensive Farming: 'Animal Welfare and Computer-Directed Livestock Farming' Dutch Society for the Protection of Animals, 1991. Pp 86, Dfl. 10.00.

Technological achievements in the field of automation, warning systems, signalization and robotics are leading to increased utilization of and reliance on these systems in livestock farming. The advertised advantages to the prospective farmer are increased profits and a reduction in manual labour. However, the effect which these systems have on animal welfare needs to be addressed before the uptake of this technology becomes widespread. This study aimed to do this.

The report describes how these technologies can be and are being used in livestock farming for both management and animal husbandry. The implications of this on animal welfare are then assessed in each situation and future modifications to safeguard welfare are suggested.

The report supports the use of technology in livestock farming, but warns that there is a need to ensure that the farmer spends more time with the animals, for example to ensure that diseases and other problems are treated quickly. Therefore the systems should under no circumstances be advertised as reducing the hours which the farmer needs to work.

Although containing no new ideas, this is a comprehensive and easily understood report on animal welfare in a growing area of livestock farming.

Janet Spensley

Legal Scene

European Community Law

In November 1992 the Commission held that Ireland had failed to accept pure-bred bovines for breeding purposes and, in a separate case, that it had restricted the importation of porcine and bovine semen.

UK Dangerous Dogs Act (1991)

Pit bull types and similar animals must be muzzled at all times in a public place. In two cases before the Divisional Court it was held that 'type' is not the same as 'breed'. The court could look at the American Dog Breeders' Association breed standard as a starting point and it followed that it was relevant whether the dog exhibited the behavioural characteristics of a pit bull terrier.

However, in two Scottish cases decisions of the Sheriff Court that dogs which looked like pit bull terriers but were of placid temperament were therefore not pit bull terriers were incorrect in law. The sheriffs were directed to convict. If a dog resembled a pit bull terrier its behaviour was irrelevant.

Cats versus Dogs

A report in the UK Daily Telegraph of 21/4/93 suggests that cat lovers will be enraged at a Crown Court ruling that cats have no legal protection against dogs. The Dangerous Dogs Act (1871) protects cattle, pigs and poultry but not cats. The judge said 'If Parliament had intended to protect cats it would have said so. There can be nothing more natural than for a dog to chase a cat'.

Abandoned Animals

The UK Queen's Bench decided that an animal was abandoned only if the owner had totally disregarded the duty of making arrangements for the welfare of the animal. Where an owner had made or attempted to make arrangements for the animal's welfare the animal could not be said to have been abandoned.

Destructive Animals

An order operative from 1/1/93 has been made prohibiting the keeping of mink on certain offshore islands of the UK.

Book: 'Your Dog and the Law'

by G. Sandys-Winsch. Shaw and sons, 1993. Paperback £3.99. ISBN 0-7219-1012-2.

Bill Jackson

ISAE Meetings

UK Winter Meeting 1993, 1st December, London. The main subject will be 'Farm animal behaviour and welfare: practical solutions to practical problems', and details are enclosed.

Nordic Winter Meeting 1993, 9th to 10th December, Siuntio (west of Helsinki), Finland. The main theme of this, the sixth Nordic ISAE meeting, is 'Rearing conditions for young animals in relation to their behaviour and health'. There will also be free papers. The deadline for participation is 1st November. The meeting is being organized by Heli Castren and Hannu Saloniemi, College of Veterinary Medicine, Department of Animal Hygiene, PO Box 6, SF-00581 Helsinki, Finland.

ISAE International Congress 1994, 3rd to 6th August, Foulum, Denmark. The main sessions and poster topics at next year's meeting will be as follows.

- Stress in relation to production
- Response of animals to environmental enrichment
- Individual variation in response patterns
- Teaching/training in applied ethology
- Free papers

Preliminary details of the meeting are enclosed, and you are invited to register your interest in attending and contributing on the appropriate form.

ISAE International Congress 1995, Exeter, UK.

ISAE International Congress 1996, probably in Guelph, Canada.

ISAE International Congress 1997, probably in Prague, Czech Republic.

Other Meetings

Pet Facilitated Therapy, 3rd November 1993, Northwood, Middlesex, UK. A meeting of the Society for Companion Animal Studies. Contact Lynda Jackson, Macmillan Centre for Cancer Support and Information, Mount Vernon Hospital, Northwood,

Middlesex HA6 2RN, UK. Tel. 0895 278177.

Awareness in Domesticated Animals, 31st August to 2nd September 1994, Gregynog, Wales, UK. The meeting will consider definitions, different aspects of awareness and the implications and applications of research on this topic. Contact Dr H.M. Omed, School of Agricultural and Forest Sciences, University of Wales, Bangor, Gwynedd LL57 2UW, UK.

Behaviour and Welfare of Extensively Farmed Animals, 3rd to 4th September 1994, Edinburgh, UK. A satellite to the EAAP meeting, organised by the Scottish Centre for Animal Welfare Sciences. Contact Dr Michael Cockram, Veterinary Field Station, Easter Bush, Midlothian, UK.

Environmental and Management Systems for Total Animal Health Care in Agriculture, 12th to 16th September 1994, St Paul, USA. This is the VIII Congress of the International Society for Animal Hygiene. The program areas will be on Animal housing, Health and productivity research, Environmental safety, Case studies/investigative strategies, Animal well-being and Disinfection/disinfestation. Contact VIII Animal Hygiene Congress Secretariat, 225 Veterinary Teaching Hospitals, College of Veterinary Medicine, Gortner Avenue SE, St Paul, Minnesota 55108, USA.

Animals, Health and the Quality of Life, 6th to 9th September 1995, Geneva, Switzerland. This will be the Seventh International Conference on Human-Animal Interactions. Contact AFIRAC, 7 rue du Pasteur Wagner, 75011 Paris, France.

ISAE newsletter

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