

CSAW



News

The Colonel K.L. Campbell
CENTRE for the STUDY of
ANIMAL WELFARE

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Can pigs count the minutes?

Research report from Marek Spinka (CSAW supported visiting scientist from Czechia), Ian J.H. Duncan and Tina Widowski (Animal & Poultry Science)

A new method for evaluating pig comfort was examined by measuring the animal's reaction to varying lengths of confinement. The goal was to determine if pigs could 'count' the minutes they were housed in crates and exhibit their preference for housing conditions.

Prolonged or permanent housing of farm animals in close confinement is one of the main factors thought to compromise their welfare. The terms "prolonged" and "permanent", however, reflect human perceptions of time and little is known of how animals perceive such time intervals. The aversiveness of any confinement may differ considerably depending on how the animals perceive its duration and whether they are able to anticipate its conclusion. These issues are particularly important for adult female domestic pigs who spend the majority of their adult lives confined to crates. Although there is some indirect evidence that long-term confinement of sows in stalls affects their welfare adversely, it is difficult to directly "ask" sows what they feel about confinement.

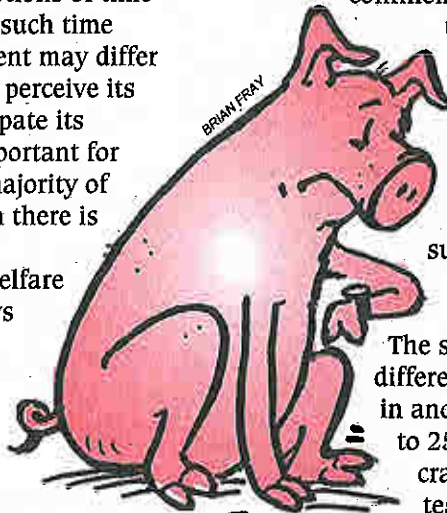
In this study, sows were given a choice between two conditions - periods of 30 or 240 minutes of confinement. We followed their preferences and behaviour over time to see if they would perceive the two situations to be different from each other. If sows demonstrated a preference for one of the treatments, we would feel reasonably confident that pigs can learn to associate cues with two different periods of confinement, and anticipate the long-term consequences of their choice in a preference test.

Twelve sows housed in two large, straw-bedded pens were trained to go to two sets of 12 crates, positioned on

each side of a choice point, for feeding twice a day. Following initial training, the two sets of crates were marked with contrasting visual patterns and the patterns were associated with either 30 minutes (short) or 240 minutes (long) confinement in the crates after entry. During 16 days of preference testing, sows were sent alternately to one side or the other in the mornings and allowed to choose in the afternoons.

Over the 16 days of testing, eight sows chose the short-confinement side more often, two sows chose the long-confinement side more often and two chose each side an equal number of times. These results indicate that most sows learned the association and preferred to be released shortly after feeding. Some sows still chose long confinement, suggesting they didn't find 240 minutes of confinement very aversive.

The sows demonstrated their ability to differentiate between confinement periods in another way - by their behaviour for 20 to 25 minutes after being locked in the crate. During the first eight days of testing, sows lay, sat and stood the same proportions of time during this period, both in short- and long-confinement crates. During the last eight days, the proportion of time spent lying increased from about 30 per cent to about 70 per cent for sows in the long-duration crates. Over time, these sows learned they would not be released from the long-confinement crates after feeding and they lay down.



continued on page 3

A report from the Director, Ian J. H. Duncan

Gas stunning studied

More humane slaughter methods on the way for poultry

New gas stunning methods for killing poultry, currently being used in England, may be the most stress-free, humane poultry slaughter method available.

Humane slaughter legislation is designed to ensure all food animals are killed quickly, painlessly and without any suffering, but there has been concern in the poultry industry that current stunning methods are not effective.

Water-bath stunning is the method adopted in recent years by all the larger poultry processors to render birds unconscious before being killed by exsanguination. This method means birds are unloaded from the transport system and shackled in a conscious state by the legs on a line that leads to a water bath. The shackle line is arranged so that the bird's head passes into the bath and electrical potential between the shackle line and the bath renders the bird unconscious. Shortly after leaving the stunning bath, the blood vessels in the neck are cut, usually automatically by a machine.

Although very few proper, scientific surveys exist, it is estimated that up to two thirds of all birds slaughtered are not properly stunned...raising concern over the humaneness and effectiveness of current methods of poultry slaughter. This concern has sparked a great deal of debate and research into developing new methods of stunning in the U.K. in recent years.

Recently, I visited the first commercial gas stunning installation in Europe at Eye, Suffolk in eastern England. My observations led me to conclude that this new method offers the most humane method for poultry slaughter ever developed.

For about the past 10 years, a group at the University of Bristol in the U.K. have been looking at the possibilities of stunning poultry using gas mixtures. One of the big

advantages of gaseous stunning is that birds can be stunned in their transport crates, eliminating the handling stress associated with uncrating and shackling. Through a series of experiments, the Bristol group has found a mixture of gases that rapidly and humanely renders birds unconscious and quickly kills them. The British government was so convinced of the humaneness of gas stunning that

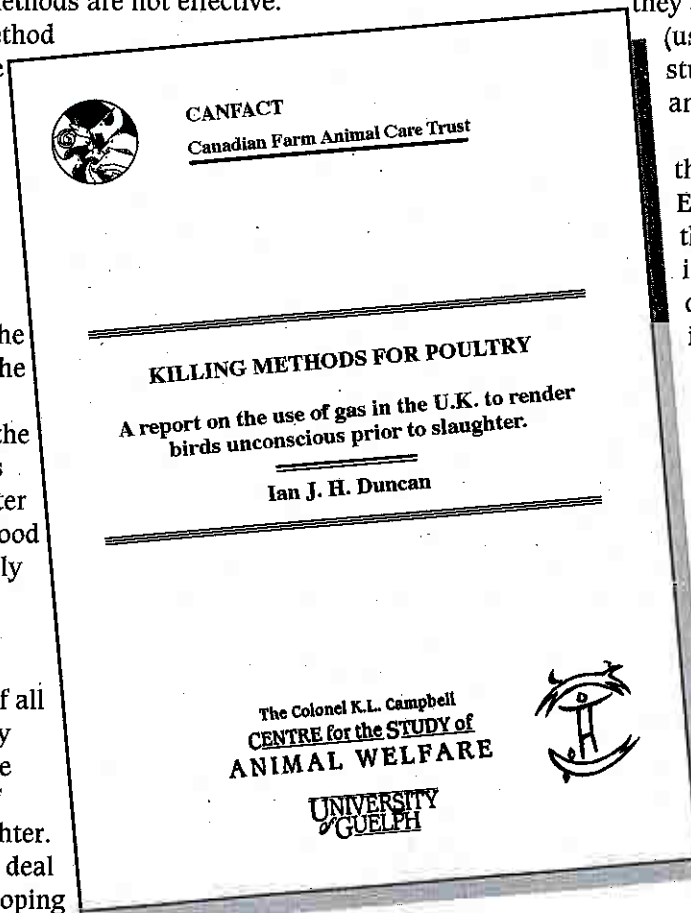
they approved of two gas mixtures (using mainly argon) for stunning and killing chickens and turkeys in the U.K.

The birds I observed going through the new facility in England were quiet throughout the operation. They remained in the transport crate until dead, and the killing procedure itself was fast, painless and efficient. There was no risk of the birds recovering from unconsciousness. There are many other advantages to gas stunning - the gases used are extremely safe, and the environment for the workers is clean, well-lit and very much improved over traditional shackling. Best of all for the poultry industry, is the improvement in the quality of product.

A full report on the potential for gas stunning in Canada was widely

circulated to influential policy-makers including the Canadian Expert Committee on Farm Animal Welfare and Behaviour. The committee has recommended that this method of stunning poultry be introduced to Canada. Steps have begun to alter regulations to allow this to happen.

For a copy of the complete report, write to the CSAW office. To cover printing and mailing, please include a cheque for \$10 (Canadian funds) made payable to University of Guelph.



Do fish have psychological needs?

BY JENNY TYE

If fish could only express their feelings it would make all the difference to fish welfare.

Until recently, no one had thought much about welfare issues pertaining to fish. Many feel that unlike mammals, fish are incapable of feeling pain or experiencing stress the same way other creatures do.

But now, researchers are beginning to examine and evaluate the sensory capabilities and psychological needs of fish to determine if welfare action is necessary.

Once it's known what areas of fish welfare are most pertinent to define and debate, these ideas may lead to the establishment of voluntary codes of practice for industry and government use.

"The aquaculture industry is a rapidly expanding sector of livestock production," says Prof. Richard Moccia, coordinator of the Alma Aquaculture Research Station. "It's important that we seriously discuss whether fish have legitimate needs beyond basic life support, so that welfare measures can be taken before the industry becomes rigidly set in its methods."

Moccia feels the most important issue that needs to be addressed by welfare experts and researchers concerns fish and pain. Studies monitoring reflexes, neurological responses and hormone levels in fish have

demonstrated that fish do indeed respond to physical stimulation and experience stress. However, that doesn't prove fish experience pain the way other animals do.

Moccia sees that the rise of technology used to manipulate aquatic animals to improve their production quality and quantity, as another important issue that

needs to be addressed. The

aquaculture industry uses a number of systems and technologies that require evaluation by animal welfare experts. These include reproductive manipulation, transportation, growth manipulation, production systems, harvesting practices and euthanasia methods.

"Determining where all animals fit into the animal welfare picture is very difficult and subjective because, of course, we compare and rank the importance of all animals in accordance to ourselves," says Moccia. "Formally debating welfare issues will help us base our placement choices on objective, scientific information and not just aesthetics."

Professor Moccia, Department of Animal & Poultry Science, is the newest CSAW Associated Faculty. Reprinted in part from "Aquataalk" Vol. II, No. 1, 1997. The writer is a student journalist from the Office of Research at the University of Guelph.



Pigs counting continued from page 1

The cognitive abilities of animals with respect to perception of time and anticipation of future events have important implications for their welfare. No attempts have ever been made to measure a farm animal's perception of time as it relates to confinement. But we know that animals have internal timing mechanisms that help them know the time of day and predict when events may occur. Animals are also able to learn time intervals between events.



Although the time differences used in this experiment (30 minutes versus four hour crating) do not reflect real-life situations on commercial operations, our results do demonstrate a pig's ability to discriminate and anticipate differences in durations of time. These results open the door for further methods to be developed to "ask" pigs what they feel about various durations of confinement...information that would certainly have on-farm application for swine operations.

Freedom Food

European labelling identifies "cruelty-free" products



Ever since the mad cow disease scare in the U.K., the British public is really thinking about what they are eating. They are reading food packaging labels very carefully, and making considered choices about what they consume. They are also showing that they care about farm animal welfare and are prepared to dig a little deeper in their pockets to prove it.

"Freedom Food" is a food labelling scheme devised by the Royal Society for the Prevention of Cruelty to Animals (RSPCA) aimed at linking the farming industry directly with consumers. The program has been running for approximately six years, but has only recently become a significant player in the retail market.

Freedom Food provides consumers with an easily identifiable choice of products derived from farm animals that have been reared and cared for in accordance with RSPCA farm animal welfare standards - covering everything from rearing through to slaughter.

Producers interested in joining the labelling effort can undergo an on-farm assessment to determine their suitability.

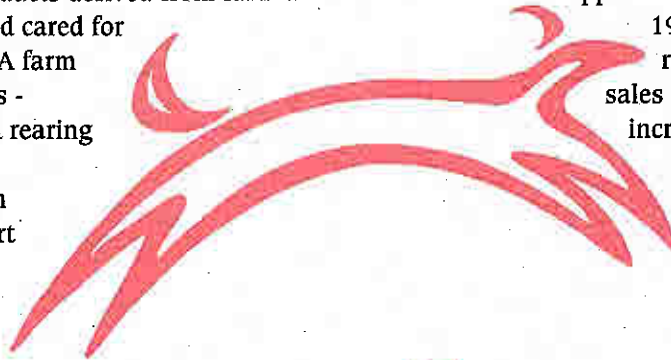
Producers qualifying for the new labelling scheme receive up to a 10 per cent premium for their product for strictly adhering to European farm animal welfare standards.

An assessor visits the farm making a full audit of all facilities and management standards. If the assessment is successful, a contract is drawn up between Freedom Food and the producer, and the producer receives a certificate of accreditation under the Freedom Food scheme. If the facilities do not meet Freedom Food standards, a consultancy fee will be charged and the producer will be advised about what is

needed to achieve acceptance. Accredited producers are inspected annually for a minimal fee...and are generally assured of a 10 per cent premium for their product.

Several leading supermarkets in the U.K. are retailing Freedom Food products, that are very clearly marked and merchandized in attractive in-store displays. The marketing appears to be very successful. In 1996 and early 1997, sales of Freedom Food products rose from an average of six per cent of sales compared to similar products, to an incredible 32 per cent.

Perhaps the best thing about Freedom Food is that it offers consumers the freedom of choice. It would be interesting to test such a scheme on the Canadian public.



CSAW provides new support for graduate course

CSAW is providing financial support for a mandatory one-day course on animal welfare, held annually by Animal Care Services and the Faculty of Graduate Studies for new graduate students. When funding for the course was substantially cut by the University this year, CSAW stepped in to help cover operating costs. The course, aimed at students working

with animals in teaching or research, is designed to familiarize them with animal care regulations, demonstrate methods for improving laboratory welfare and discuss the ethical obligations of animal users. CSAW funds will help offset the cost of teaching materials, and CSAW staff and faculty will participate in teaching the course.

Research Reports

New blood sampling method minimizes pre-anaesthesia stress in mice



The welfare of laboratory rodents can be improved significantly by using proper handling and anaesthesia prior to the collection of biological samples, according to a recent study by Kimberley Shipp and Bill Woodward (Human Biology and Nutritional Sciences).

The study suggests that the stress of laboratory procedures can be minimized when animals are kept in their own familiar room, rather than transported to a different room for anaesthesia.

Results of Shipp and Woodward's research also suggest that carbon dioxide (CO₂) may be a less stressful anaesthetic than inhalants that have a pungent odour or cause irritation of the eyes before animals become unconscious.

The researchers used corticosterone, a hormone released into the blood during stress, as an indicator of the stressfulness of different procedures. The mice were anaesthetized with either CO₂ or with methoxyflorane (a common inhalant anaesthetic) - administered either in the mouse room where they lived or after being transported in their cages to an adjacent room unfamiliar to them. Corticosterone levels were lowest in mice anaesthetized with CO₂ in the mouse room, indicating that this was the least stressful procedure. Corticosterone levels from mice anaesthetized and sampled one right after the other in a series did not increase with the number of mice sampled, suggesting that the mice did not communicate any distress to their neighbours during this procedure.

Award-winning research

CSAW recently provided MSc student Kim Shipp (Department of Human Biology) with financial assistance to attend the 1997 Canadian Association of Laboratory Animal Science meeting held in Montreal. Shipp presented the paper "Improved Method for Obtaining Basal Serum Corticosterone Concentrations in the Laboratory Mouse". Shipp and advisor Bill Woodward were selected as first place recipients for the Working for Animals used in Research, Drugs and Surgery (WARDS) Refinement Project. The WARDS organization awarded a cash prize of \$5,000. See Research Reports on this page for a summary of their work.

New chair of expert committee named

Dr. Ian Duncan has been appointed Chair of the Expert Committee on Farm Animal Behaviour and Welfare. The committee, which reports to the federal Minister of Agriculture and Agri-Food, examines issues and sets research priorities. Duncan replaces Frank Hurnik who served as committee chair for many years.

Interactive CD now available from CSAW

A new interactive CD-Rom - "Relieving Pain: Assessment and Management of Post-Operative Pain in Dogs and Cats" - will soon be available through CSAW. Produced by Dr. Karol Mathews (Veterinary Teaching Hospital, OVC), this multi-media teaching exercise uses video clips of actual post-operative cases before and after analgesics are administered.

The CD illustrates the behavioural indices of pain, indicates appropriate use of analgesics, and includes information on dosages and contraindications for dogs and cats. The CD includes video demonstration of epidural technique - a valuable teaching tool for veterinary students, veterinary practitioners and animal health technicians. Contact the CSAW office for ordering information.

CSAW on the web

Visit CSAW on the world wide web at <http://www.aps.uoguelph.ca/~csaw> for listings of staff, faculty and publications.



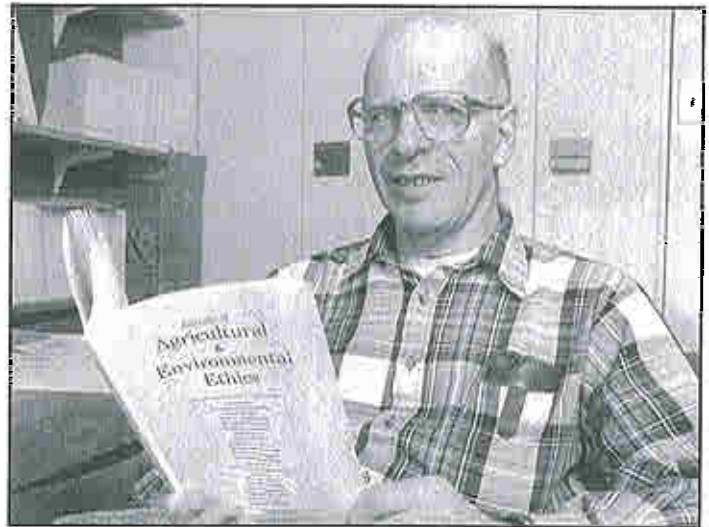
Spotlight on associated faculty

A fond farewell to founding members

Two of the founding Associated Faculty of the Centre for the Study of Animal Welfare retired over the past year.

Frank Hurnik (Animal & Poultry Science) and Hugh Lehman (Philosophy) recently retired from the University of Guelph. Both were involved in the initial establishment of CSAW and have served on the Steering Committee since its inception.

Professor J. Frank Hurnik has long been at the forefront of the farm animal welfare movement in Canada. Hurnik



Hugh Lehman

Hurnik's book, *Dictionary of Farm Animal Welfare* (1997, Iowa State University Press), is now in its second edition.

In retirement, Frank enjoys more time with his wife Gertraude on their farm in Eramosa.

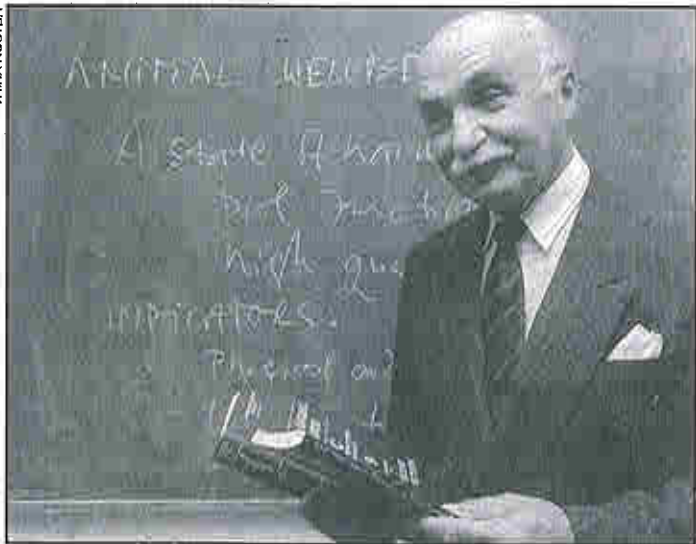
For most of his academic career, Professor Hugh Lehman had his mind on science, agriculture and animals. As well as teaching a variety of courses in philosophy of science, education and ethics, Lehman introduced a course on ethics in agriculture, helped teach Hurnik's course on farm animal welfare and participated in the course Genetics: Our Uncertain Future.

In 1979, together with Hurnik, Lehman organized a conference on "Ethical Issues Concerning the Use of Animals in Agriculture and Scientific Research", bringing together a number of very important speakers to the campus, including Peter Singer, Ruth Harrison, Michael W. Fox and Harry Rowsell.

In 1995, Lehman's book, *Rationality and Ethics in Agriculture* was published by the University of Idaho Press. Lehman was also an active member of the university's Animal Care Committee for over 20 years.

In retirement, Lehman is still writing, supervising a PhD student and doing some teaching. He and his wife Barbara, a retired professor of mathematics, spend considerable time visiting their six granddaughters.

Professors Lehman and Hurnik have worked together as friends and colleagues on many scholarly endeavours related to ethics and animal welfare. They are co-founders and co-editors of the *Journal of Agricultural & Environmental Ethics*. Fortunately for the Centre, both men have offered to remain active on the Centre's Steering Committee.



Frank Hurnik

was one of a handful of people who initiated the writing of the Recommended Codes of Practice, contributing to the Codes for poultry, pigs, beef and dairy cattle. Hurnik also served as Chair of the Expert Committee on Animal Welfare and Behaviour for a number of years.

As professor of Animal & Poultry Science, Hurnik taught the undergraduate courses Principles of Farm Animal Care and Welfare, Behaviour and Biometrics and the graduate course Ethology of Farm Animals for over two decades. He supervised numerous PhD and MSc students in his applied research programme aimed at improving farm animal housing.



Public Lecture

A dog's best friend?

Clashing culture values of the domestic dog

BY NATALIE FEISTHAUER

Attitudes towards dogs, and animals in general, vary widely among cultures, but in most there is an absolute moral barrier between humans and non-humans. Dr. James Serpell, Professor of Animal well-being and Ethics at the School of Veterinary Medicine, University of Pennsylvania explored the varying roles of dogs in modern society at a public lecture on March 26, 1997.

Entitled *From Pariah to Paragon: Some Reflections on Human Attitudes Towards the Dog*, Serpell's presentation was based on a chapter of his book *The Domestic Dog*, Cambridge University Press. He explained that the barrier between humans and their pets, rooted in history, still exists today, but is semi-permeable due to strong social bonds formed between humans and animals, such as dogs and cats.

Dogs are unique in that they will show strong alliance to humans whether it is desired or not. No other species shows such unusual closeness and affinity, yet this bond is viewed differently depending on culture and context. The earliest use for dogs was as hunting companions, and since hunters with dogs were more successful, there is widespread affection and respect for dogs in hunting societies. This connection is seen in the unequivocal affection for dogs found in hunting societies in New Guinea and aboriginal Australia.

Other hunting societies, such as native North American, rural white Georgian and pygmy tribes in Africa, treat dogs with more ambivalence. While the ownership of a good hunting dog is valued highly, the dog itself is often treated quite cruelly. Eating dogs was, and is, widespread. In theory, dogs should be viewed with as much detachment as livestock, but they are not.

In West Africa, Korea and the Philippines, dogs are eaten only for special reasons and one's own dog is never dinner. Sioux native North Americans historically valued their

hunting dogs very highly, but celebrated by eating them, and their death was viewed as an ultimate sacrifice.

Dogs have existed as scavengers and outcasts since the start of domestication. Instead of treating dogs as pests however, human societies treat them once again with ambivalence. On the Ivory Coast, feral dogs are never given attention or affection, but if injured they are nursed carefully back to health.

Dogs in modern western societies have no economic function, but are cherished, pampered and considered paragons of loyalty. Attitudes can change rapidly however, as witnessed by anti-Rottweiler and American pitbull hysteria in Britain following dog attacks. Millions of dogs in these societies are also abused and abandoned.

There are many theories that attempt to explain human ambivalence towards dogs. Perhaps dogs are held as symbols of the "animal within" that we as humans repress. The role of dogs conflicts - dogs are companions but are also food or experimental subjects. Most likely however, it is because dogs are at the thin edge of the moral wedge. The closeness of dogs threatens psychological barriers set up by humans for thousands of years and reminds us of the feelings, individuality and rights of other animals. Dogs inhabit a no-man's land between the highest animal and lowest human, and force us to question how far, if at all, our moral boundaries should cross between other species, and how long should we justify living at the expense of other sentient beings.

Domestic dogs are on the thin edge of the moral wedge - acting as companions but also as food or experimental subjects.



FRISCOLA BARRETT, CAMBRIDGE UNIVERSITY PRESS

The author is a student in the Department of Environmental Biology.



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