



COMPANION ANIMALS

Alleviating Surface Transit Stress on Horses—Thesis Abstract

A horse transported in a horsebox/trailer facing the direction of travel experiences stress because the physics of motion is dysfunctional to its anatomy: it cannot balance naturally. Compounding the physiological stress is the animal's fear of entering a conventional trailer's "dark cave," and of colliding with the bulkhead during braking. Such trauma exposes transported horses to various debilitating illnesses such as azoturia, choke, colic, colitis, hypertension, laminitis (founder) and transit tetany (staggers, railroad disease). There is also serious risk of accidental injury or death.

A century and a half of equine surface transport has seen few improvements. Except among some specialists in equine ethology, the horse's safety and comfort have tended to be disregarded, partly because of conservatism and inertia, and partly because the mechanics of transport have not been understood. Also, men seem to derive satisfaction from "disciplining" horses. Carl Gustav Jung's dream symbolism research indicated masculine resentment of the feminine archetype associated with horses.

In the 1960's, Wentworth Tellington and David J. Holmes, horsemen

and engineers, independently developed systems of shipping horses facing away from the direction of travel, which greatly reduced stress. Holmes' Kiwi Safety Trailer, in particular, was adapted to maintaining the horse's balance. It eliminated the "dark cave" syndrome by backing in the horse. It improved hauling stability and gas mileage, and minimized sway, jackknifing, and accident risk.

The author validated the Tellington and Holmes research by successfully loading and hauling in a Kiwi trailer an abused horse previously judged unmanageable in transport. Based on this and other research, the advantages of rear face are contrasted to the disadvantages of front face transport. Change strategies are suggested for promoting rear face transport and for overcoming the psychological reluctance to accept safe, humane equine transport.

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Fad Dogs

In an interview with *DVM* (11[5]: 28, 1980) on trends in purebred dog ownership, *American Kennel Club Gazette* publisher John Mandeville expressed concern over the rapid rise and equally rapid fall in popularity of particular breeds. The "breed of the moment" phenomenon, according to Mandeville, attracts unscrupulous breeders who capitalize on temporary high demand for a certain type of animal by failing to screen out dogs with unsuitable dispositions and in the process abdicate responsibility for the long-term effects on behavior in a particular line.

Mandeville also stated that a potential owner's zeal to possess a fashionable breed can result in dogs being placed in environments and situations inappropriate to their needs, as in the case of a St. Bernard in a small

apartment, or a hunting dog that is confined indoors. However, owners of purebred dogs may at the same time be very anxious to maintain their pets' physical health and, in Mandeville's observation, they often have a closer relationship with their veterinarians than with their own physicians.

LABORATORY ANIMALS

More Light on Animal Care

Both seasonal and daily variations in the periodicity of light affect the biorhythms of animals. These circadian rhythms have important effects on a variety of factors including reproduction and physical activity. However, lighting patterns and the effects of different lighting regimes have not been studied in any detail in laboratory animal facilities. A recent review (*Lab Anim Sci* 30:440-450, 1980) reports that hamsters fared better under lighting with close similarities to sunlight than under conventional fluorescent lamps, and that albino rats will suffer retinal degeneration if exposed to continuous light at a fairly low level of illumination for four days or more. Another study (*Lab Anim Sci* 30:252-254, 1980) describes a dimmer device which provides "twilight" periods in the animal room to simulate the gradual transition from light to darkness in the natural environment.

CSPCA Toxicology Panel Report

The Canadian Society for the Prevention of Cruelty to Animals (CSPCA) is, in its own words, "...determined to work towards the elimination of procedures that inflict pain, suffering, stress or discomfort on laboratory animals and also towards the ultimate replacement of animals used in this way." As part of its efforts in this regard, the CSPCA sponsored a

workshop with toxicologists to explore the potential for developing and using alternatives to laboratory animals in the pharmaceutical and chemical industry. The report of this panel, composed of such luminaries as Dr. G.L. Plaa (a recent editor-in-chief of *Toxicology and Applied Pharmacology*), Dr. R. Burford (President of the Canadian Society of Toxicology) and Dr. R.F. Willes (Executive Secretary for Science Policy of the Canadian Federation of Biological Societies), is now available from the CSPCA (5215 Jean Talon West, Montreal, Quebec H4P 1X4, Canada).

Information on the number of animals used in the pharmaceutical industry is very sketchy indeed, being limited to a few estimates in the literature. The CSPCA report provides an estimate for the year 1977 which should prove reliable in light of the knowledgeability and experience of the panel. In contrast to the relatively low level of preclinical screening of chemicals for potential new drugs in Canada, 24,000 technical and professional staff were directly involved in pharmaceutical screening procedures in the United States in 1977. These scientists used 35 million mice, 6 million rats and 1 million Syrian hamsters plus an undisclosed number of dogs, monkeys and other species. The report also notes that the numbers of animals employed in the testing of chemicals (the above figures refer only to drug screening, which does not necessarily include toxicology testing) is escalating due to societal pressure toward greater control over the use of chemicals and a growing public awareness of new safety problems. Concerns focus not only on carcinogenic properties, but also on altered fertility, abnormal embryonic development, immunodeficiencies and changes in behavior.

The report discusses the potential for developing an *in vitro* system to replace the Draize eye irritancy test and mentions two such methods which

have already been explored. One method employs cell death in cultured fibroblasts as an endpoint, but the data showed very little correlation with Draize test irritancy scores. A subtler indicator, the release of radiolabeled serotonin from mast cells, gave a better degree of correlation, but was still not satisfactory. Furthermore, such tests are very expensive in terms of capital and labor when compared with the rabbit eye irritancy test.

The advantages and disadvantages of short-term tests for mutagenicity and carcinogenicity are discussed and tabulated, together with an outline of the monetary costs of animal testing. In addition, the report touches briefly on the use of yeast cells, human cell cultures, plant models and the uncertainties involved in risk assessment.

The concluding remarks of the report contain a number of pithy statements, including the following:

"Numerous nonanimal models are being developed which offer a great deal of potential for reducing the use of animals for testing the safety of chemicals.... Usually they provide only additional supportive evidence on safety and do not replace animal studies. Only with increased research to validate these procedures will their potential for reducing the use of animals in testing programs be realised."

"Animals are used for assessing the safety of chemicals out of legal necessity rather than choice.... A reduction in the use of animals in chemical testing programs would require changes in the laws or regulations governing such (animal test) procedures."

"There is a need to educate and inform the public regarding the

concepts of risk and safety.... Unrealistic requirements for safety result in the use of increased numbers of animals and in an unwillingness to accept and utilize various nonanimal models for safety assessment."

"The scientific community needs to be more aware of the regulatory problems involved in toxicological testing procedures. Scientists should be encouraged to devise effective alternatives to current testing methods."

"The individual scientist, as a member of society, has the responsibility of comprehending the consequences for the live animals he uses while endeavouring to attain scientific exactitude."

The report recommends that the federal and provincial government departments and agencies and other relevant organizations "...initiate and fund research programs with the specific objective of developing and validating nonanimal models for use in the safety evaluation process."

Experimenting on Endangered Species—A Legal Challenge

Animals belonging to several endangered species are used in research laboratories around the world. In some cases, researchers claim that their studies, e.g., on reproductive performance and behavior, will help to preserve the species. In others, it is clear that the studies have little or no relevance to preservation of the species. For example, the program at the University of California (Davis) Comparative Oncology Laboratory involves inoculating gibbons with a C-type virus which can cause death nine to fifteen months later of a leukemia-like disease.

The gibbons are listed as endan-

gered by the U.S. Fish and Wildlife Service. Under the U.S. Endangered Species Act, permits are required to harm or kill members of an endangered species. However, Dr. Kawakami, principal investigator for the virus project, did not file for a permit before starting the research, and the very active International Primate Protection League (IPPL) served a Notice of Violation of Section 9(a) (1) (B) which lists as one of the prohibited acts the "taking" of an endangered species without being granted the necessary exemption by the Secretary of the Interior. Since "take" is defined in the Act as including harassment, harming, wounding or killing, IPPL contends that inoculating gibbons with a fatal virus constitutes "taking" and is thus prohibited unless a permit is issued providing the necessary exemption.

According to the Permit Office of the Fish and Wildlife Service, the Davis laboratory is now applying for a permit, but there are several other interesting implications arising out of the innovative IPPL action. If it is determined that laboratory research which results in the death of an endangered animal constitutes "taking," then a number of primate laboratories will have to file for permit applications, thus exposing their proposed research protocols to public comment—a process which can be uncomfortable. Merck, Sharp and Dohme, for example, eventually forfeited their request to import 125 chimpanzees after they failed to respond to questions raised when the proposal was opened for public comment. It is possible that the Fish and Wildlife Service will interpret "taking" as not applying to research activity, but the Davis case is unlikely to stop there. Given the many questions about the research itself and the manner in which the gibbons have been obtained (IPPL News 7[1]:2-5, 1980), there will undoubtedly be further initiatives by IPPL.

FARM ANIMALS

Great Britain Bans Removal of Antlers in Velvet from Live Deer

The U.K. Farm Animal Welfare Council (FAWC) has recommended to the Ministry of Agriculture, Fisheries and Food that the harvesting of antlers in velvet from live, farmed deer be prohibited unless they are removed by a veterinary surgeon for veterinary reasons. According to the published Council report, the profit to the deer farmer for selling antlers in velvet on the export market to the Far East, where they are used for yet to be validated medical purposes, "...is insignificant when weighed against welfare and ethical considerations."

In the initial stages of growth, deers' antlers consist of soft, vascularized and innervated osteoid tissue. The antlers are covered with skin and short, fine hair; hence the term 'velvet.' As the antler matures into a bony structure, it loses its nerve and blood vessel supply. The velvet then begins to degenerate and is eventually shed. Because of its frayed appearance, naturally shed velvet has no economic value. The question thus arose in Great Britain, where deer farming is on the rise, as to the animal welfare implications of amputating antlers still in velvet from live deer.

The Council set out to determine whether the procedure causes pain and distress to the animals, and if so, whether the pain and distress could be justified by "sound ethical, economic or other reasons." After hearing and reading testimony from deer interests, the British Veterinary Association, animal welfare organizations and private individuals, the Council concluded that the practice does entail pain (owing to the nature of the antler tissue) and distress (owing to the subjection of naturally flighty animals to handling and restraint). The Council was not convinced of the adequacy of analgesic drugs or the effectiveness of local anesthesia. Although general

anesthesia would ensure the absence of pain, its administration under field conditions is difficult and impractical. In any case, the animals would be undergoing a highly stressful procedure at least once a year.

Having established these facts, the Council examined the ethical aspects of the practice and concluded that the arguments presented in favor of amputation, e.g., prevention of flystrike, safety of stockmen and animals, were insufficient: "...there is no overriding need on medical, veterinary or husbandry grounds for amputating antlers in velvet and (that) the economic value of the product should not prevail against these other considerations."

The Agriculture Ministers responded to the Council report by accepting its major recommendations and setting the necessary legislative processes in motion to effect prohibition. Peter Walker, MP, Minister of Agriculture, Fisheries and Food praised the work of the Council in a 29 April Ministry press release: "The excellent report by the Farm Animal Welfare Council...demonstrates the value of this independent body.... I congratulate [them] on the speed and thoroughness with which this report has been produced." Ag, however, took a cynical view of the recommended ban (No. 59, June 1980, p. 5): "[C]ood news though the ban is, it must be stressed that it is only a small step. At this stage, nobody should be fooled into thinking of FAWC as a credible body.... The real proof of the Farm Animal Welfare Council's credibility will come when it decides to ban animal abuses in which its members have vested interest—battery egg production, live exports and confinement stalls for sows—to name only three."

Copies of the FAWC report are available for £1.25 from the Ministry of Agriculture, Fisheries and Food (Publications), Tolcarne Dr., Pinner, Middlesex, HA5 2DT, UK.

Effects of Housing Systems on Growing-Finishing Swine

Three different experiments were conducted on growing-finishing swine to examine the effects of two housing systems—enclosed building and open front building with outside feeding area—on performance and carcass development (R.C. Wahlstrom and G.W. Libal, *J Anim Sci* 50:1045-1050, 1980). The authors showed that the enclosed confinement building rearing resulted in inferior performance. Provided that pigs are kept in draft-free quarters with a dry sleeping area, they can adapt to a wide range of temperatures in open front buildings. The researchers were not able to identify which factor(s) was linked to the decreased rate of growth and feed consumption of pigs confined in the enclosed building. High levels of ammonia, dust and hydrogen sulfide, common in hog confinement buildings, were not considered significant because a continuously operating pit fan was used to lower the content of these components to levels below those normally found in confinement housing. No health problems were found in the animals in either environment.

British Company Abandons Crate Rearing of Veal Calves

Quantock Veal, a division of Volac, which supplies almost 90% of the veal retail market in the U.K., has abandoned the rearing of calves in the traditional crates or stalls, which have been the focus of strong criticism for several years, in favor of straw-filled group pens. The company hopes that the new method will dispel the qualms of veterinarians and consumers who are disturbed by the crate method of producing milk-fed calves. In a *Veterinary Record* article (106:450, 1980), veterinarian P. Paxman, Marketing Director of the Volac group, stated: "The calves are contented and healthier, the culling rate

has halved. The system is less costly for the farmer; less capital need be tied up in buildings which need not have been expensively purpose-built for a controlled environment. Loose housing costs about £78 (\$154 U.S.) per calf compared with £175 (\$350 U.S.) for the crated system."

According to the *Veterinary Record*, the calves live in "groups of 30 in straw-filled pens with natural light and ventilation and where they have room to move, ruminant and groom themselves. Iron-laced milk is available on demand from teats on Volac feeders. Smaller calves, unsuitable for rearing for beef or for veal with the traditional method, perform well in the loose housed system. These calves are cheaper for the farmer."

Ag, the U.K. journal for non-violence in world farming, concludes that with this system there can no longer be any excuse for white veal crates and that they should therefore be declared illegal. The Institute for the Study of Animal Problems (Washington, D.C.) has collated data on the adverse effects of crate rearing of milk-fed calves which indicate that it is in the best interests of both the animals and the producers to adopt a calf rearing system similar to the one now used by Quantock Veal.

WILD ANIMALS

A New Image for Wildlife Management

'Wildlife management,' though in itself a deliberately neutral term, evokes powerful negative images to those who are morally opposed to the methods and aims which are the reality behind the phrase. For these people, 'wildlife management' is a prime example of bureaucratic obscurantism, a semantic cloak for government sanctioned harassment and destruction of animals whose way of life interferes with human interests. In the past, wildlife management agencies

have tended to dismiss these sentiments and to concentrate attention on their true constituents, the hunters and trappers. However, as the so-called "antis" garner more credibility and a firmer political base, wildlife management is waking up to the fact that it must either improve its public image or face continued criticism for its overemphasis on programs that support hunting and trapping.

An article in the *Wildlife Society Bulletin* (8[1]:55-60, 1980) entitled "Public Relations, Public Education, and Wildlife Management," by Arlen Todd, a fur biologist with the Alberta (Canada) Fish and Wildlife Division, stresses the need for wildlife managers to be cognizant of two current social convictions which challenge the acceptability of fur trapping and sport hunting, activities which Todd calls the "tools" of wildlife management. These convictions are: "(1) awareness of man's dependence upon, and responsibility for, natural ecosystems, and (2) awareness of the value of living individuals, whether human or not." Todd argues that although these beliefs are more often associated with hunting and trapping antagonists, sincere commitment to and interest in the future of wildlife are traits held in common by the pros and the antis. In a 1977 study of attitudes of hunting opponents in Michigan (W.W. Shaw, *Wildl Soc Bull* 5:19-24, 1977), deer hunters and opponents of hunting shared the notion that the most important values of wildlife are ecological, aesthetic and existential, i.e., animals are valuable in and of themselves. However, radically different moral constructs, superimposed on basically similar ideas, have created the deep rift between those who regard sport killing and other consumptive uses of wildlife as beneficial to man and animal and those who regard such activities as unconscionable.

If wildlife management is to change with the times, it must begin

to acknowledge, if not actually serve the interests of, this latter group. Todd sees the role of wildlife management shifting from defender of hunting and trapping to rational arbiter in the debate over the meaning of long-term welfare for wildlife. This shift does not represent a philosophical realignment on the part of wildlife policy planners; it is an attempt to mold public perceptions, to persuade the undecided, uninformed portion of society that 'wildlife management' stands for a responsible, scientific approach to reconciling the needs of humans and other animals while maintaining and improving the environment.

According to Todd, a successful public relations campaign must take into account the distinction between *antihunting* and *antihunter* sentiments. The former is more prevalent in urban areas and is an outgrowth of moral and philosophical principles, while the latter finds expression among landowners and other inhabitants of rural areas who have had distasteful experiences with hunters, but who do not necessarily condemn sport hunting per se. (A similar dichotomy exists in the public view of trapping vs. observed conduct of individual trappers.) In view of this distinction, hunter education and instruction in humane trapping would only partially mollify the antihunting sector, but might significantly influence landowners and the undecided. In any case, Todd chooses not to elaborate on the concept of hunter education or the state of the art in trapping and instead focuses on hyping a new image to the public through vigorous promotion of wildlife management as the protector of all species.

Expansion of nongame programs, characterized by Todd as a move toward providing wildlife for people rather than game for hunters, is the cornerstone of this image-building effort. Financial support for nongame programs has been hard to obtain, as most of the revenue for wildlife man-

agement comes from the sale of hunting and fishing licenses. Earlier this year, Congress considered imposing an excise tax on nonconsumptive wildlife-related supplies, thereby creating a source of funds from a different segment of the public. This measure failed, but it is clear from the Todd article that capturing the support of the urban nonhunter is a public relations priority, and as such, may require a change in attitude of wildlife managers who have been reluctant to apportion funds to nongame programs.

Todd's recommendations are not aimed at reshaping the views of hunting and trapping opponents, but rather at manipulating the opinions of the uninformed, undecided public. There is nothing sinister in this practice; it is the name of the game that all interest groups play, including antihunting/antitrapping organizations. However, until recently, these organizations have realized with greater clarity the importance of courting the uncommitted. The fact that wildlife management now perceives a need to change its image is proof of the effectiveness of the public relations and public education campaigns of the opposition.

Lamb Mortality—Predation or Scavenging?

Millions of dollars have been spent over the years by state and federal agencies in efforts to reduce the impact of predation on domestic livestock. By most accounts, these programs have met with little success. In attributing their own failures to the wiliness and cunning of the predator, ranchers and government agencies have tended to overlook the possibility that a major portion of the stock on a given ranch may be dying from intercurrent disease and debility.

Dr. Stanley M. Dennis (Vet Med/SAC 75:845-852, 1980) has shown quite clearly that the magnitude of

sheep losses from predation has been distorted by inattention to other causes of death. When dead lambs are found mutilated, it is impossible to determine without a postmortem examination whether the animal was actually killed by a predator or wounded after death by scavengers. Dr. Dennis notes that in many alleged instances of lamb predation, systematic postmortems either were not performed or were too limited to be dependable. Even when postmortem examinations are conducted, it is possible to misinterpret the findings. For example, the presence of subcutaneous hemorrhage is usually taken as evidence of a predator kill, based on the fact that the heart must have been functional at the time of wound

infliction. However, as Dr. Dennis states: "Unfortunately, biologists ignore the possibility that the lamb was ill or dying (nonviable) and look no further for other lesions that could cause or predispose to death."

Although predation of healthy lambs by coyotes and other mammalian and avian predators does occur, failure to differentiate between this and predator/scavenger mutilation of nonviable lambs and lamb carcasses can perpetuate the problem of high mortality; the true causes (mismothering, starvation, stillbirth, etc.), which may have their source in the type and quality of flock management, remain masked while money and energy are poured into programs to 'control' the perceived enemy—local wildlife.

Pasteur and Vivisection

"Ordinarily an experiment once conceived and talked over was put under way without delay," says Dr. Roux. "This one, on which we were counting so much, was not begun immediately. Pasteur, who had been obliged to sacrifice so many animals in the course of his beneficent studies, felt a veritable repugnance toward vivisection. He was present without too much squeamishness at simple operations, such as a subcutaneous inoculation, and yet, if the animal cried a little, Pasteur immediately felt pity and lavished on the victim consolation and encouragement which would have been comical if it had not been touching. The thought that the skull of a dog was to be perforated was disagreeable to him; he desired intensely that the experiment should be made, but he dreaded to see it undertaken. I performed it one day in his absence; the next day, when I told him that the intracranial inoculation presented no difficulty, he was moved with pity for the dog: 'Poor beast! His brain is without doubt wounded. He must be paralyzed.' Without replying, I went below to look for the animal and had him brought into the laboratory. Pasteur did not love dogs; but when he saw this one full of life, ferreting curiously about everywhere, he showed the greatest satisfaction and straightway lavished upon him the kindest words. He felt an infinite liking for this dog which had so well endured trepanning, and thus had put to flight for the future all his scruples against it." — M. le Dr. Roux, quoted in *Pasteur, The History of a Mind*, by Emile Duclaux, 1920. (Submitted by Franklin M. Loew, Editorial Advisory Board)