Veal Calves and Factory Farming

Senators, urging passage of this bill?

One of the principal targets of the critics has been the poultry and egg business as now carried on by the large commercial producers. This was the subject of Report No. 41. But one can do little to deal with that problem until passage of H.R. 1464 is out of the hands of the Committee. The Committee will not give adequate attention to more than one important humane bill at a time. So, the

human movement can kill two birds with one stone, so to speak, by helping to speed passage of H.R. 1464.

BABY CALVES

The second phase of factory farming that perhaps has come in for most criticism is veal. In his book Animal Liberation, Peter Singer, says: Of all the forms of intense farming now practised, the cruelty involved in raising animals as the most morally repugnant, comparable only with barbiturates like the force-feeding of geese...that produce pate de foie gras.

The general lack of awareness of conditions in the production of food animals is strikingly illustrated by the fact that even those elements of the human movement who have been exploiting the killing of baby seals almost to the exclusion of other far greater sources of animal suffering, have overlooked the sentimental value for their fund-raising publicity of the baby calf. A veal baby calf has large, limp ears, as if it has starved a few days from nature; and a plaintful bawl which seems to come from heart of any mother, bovine or human

In fact, there are few animals more appealing than baby calves (puppies and kittens, of course, must head the list). What with the migration of farm population to the cities in recent decades, few members of the younger generation pave ever heard of a mother's love for her newborn baby calf. But the newborn bull calf was considered to be factory farming, and not an assembly plant, the value of bull calves was less. At calving time the farmer might ride out to the pasture to see what the night had brought. A heifer calf was welcomed with open arms, taken to the barn and placed in a pen with its mother. But the newborn bull calf was like as not knockked in the head and cast as a ball-point hammer carried in a loop on the saddle, and left for the vultures and terrors of the desert. The accompanying meat of the dead calf was thrown over the saddle and taken to the hog pen to provide protein for the swine. The calf hide sometimes provided a useful product in addition, if the farm boy wanted to take the trouble to skin it. Better than casting the better part of a day taking the live bull calf to a market in town. Obviously, even in the good old days the birth of a bull calf on a dairy farm was an event of great importance to the milk output. And this country has even referred to the plight of these poor creatures, much less tried to do something to alleviate their suffering?

One reason for this is that humanitarians know little or nothing about veal production and marketing, and hence do not demand that their humane societies do something. Even most society officers and directors know little about veal production. That is why this article must go into such detail about calf raising and marketing. It is not a subject that can be summed up in a few paragraphs. We really have to start from scratch.

VEAL CALVES

The bull calf on the ordinary dairy farm is of no value except for veal, and is worth only a few dollars. The mother's milk, on the other hand, is valuable for human consumption, and usually brings more dollars than the increase in weight of the milk-fed calf is worth. In the good old days, when one wished to get a veal calf, a farm was a farm and not an assembly plant, the value of the bull calves was less. At calving time the farmer might ride out to the pasture to see what the night had brought. A heifer calf was welcomed with open arms, taken to the barn and placed in a pen with its mother. But the newborn bull calf was like as not knockked in the head and cast as a ball-point hammer carried in a loop on the saddle, and left for the vultures and terrors of the desert. The accompanying meat of the dead calf was thrown over the saddle and taken to the hog pen to provide protein for the swine. The calf hide sometimes provided a useful product in addition, if the farm boy wanted to take the trouble to skin it. Better than casting the better part of a day taking the live bull calf to a market in town. Obviously, even in the good old days the birth of a bull calf on a dairy farm was an event of great importance to the milk output. And this country has even referred to the plight of these poor creatures, much less tried to do something to alleviate their suffering?

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DIFFERENT KINDS OF CALVES

There are different kinds of calves: beef and dairy, heifer and bull. Calves of the beef breeds are used almost solely for meat production. A bull calf is as desirable for this purpose as a heifer calf, since it is painlessly castrated and becomes a veal. Research has shown that an uncastrated calf, if market-ed before 18 months of age, turns into a beef animal as good as or better than a castrated one, and that the rate of gain and feeding efficiency are better than for calves that have been castrated. To try the best industry away from castration of millions of beef calves would eliminate a vast amount of suffering; but that is a subject for another article.

Some aspects of beef cattle feeding may be considered to be factory farming, but the beef industry has been used to designate the finishing of young calves for veal. Veal calves are nearly all of the dairy breeds. The heifer calves are saved to the cities in recent decades, few members of the younger generation pave ever heard of a mother's love for her newborn baby calf. But the newborn bull calf was considered to be factory farming, and not an assembly plant, the value of bull calves was less. At calving time the farmer might ride out to the pasture to see what the night had brought. A heifer calf was welcomed with open arms, taken to the barn and placed in a pen with its mother. But the newborn bull calf was like as not knockked in the head and cast as a ball-point hammer carried in a loop on the saddle, and left for the vultures and terrors of the desert. The accompanying meat of the dead calf was thrown over the saddle and taken to the hog pen to provide protein for the swine. The calf hide sometimes provided a useful product in addition, if the farm boy wanted to take the trouble to skin it. Better than casting the better part of a day taking the live bull calf to a market in town. Obviously, even in the good old days the birth of a bull calf on a dairy farm was an event of great importance to the milk output. And this country has even referred to the plight of these poor creatures, much less tried to do something to alleviate their suffering?

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CALVES — FROM PAGE 1

farms was nothing for anyone, including the calf, to celebrate. Sex discrimination against females is reversed.

In most recent years the shipment of calves by air to European countries where they are fed out and slaughtered for veal, and the increased numbers of specialized calf feeders in this country, has increased the market value of these calves. So, the farmer is likely to keep the calf for a few days during which the mother's milk, which is called colostrum, is available for the critical period after birth. This milk is essential for human consumption, so the farmer does not lose anything by permitting the calf to nurse.

As soon as the mother's milk is edible (about five days after birth of the calf), the calf usually is taken away from its mother and sold at a local auction, directly to a calf feeder, butcher or packing plant. Or, it may be kept on the farm and fed skim milk and calf feed for a few weeks, then slaughtered for home consumption or sold to some nearby butcher, livestock dealer or meat packer. In some cases it may be pastured as soon as it can eat grass, to be sold after varying lengths of time and at varying weights. These calves are used for veal, but do not have the weight or degree of finish (fat and conformation) which brings the highest market prices. Putting on gain in weight and finishing is the function of the specialized calf-feeding operation.

But the farmer is a dairymen, not a meat producer, so usually when the calf is a few days to a week old it is thrown into a gosspack and slung in the trunk of a car, or tied in the back of a pickup truck, and taken to a nearby livestock auction, local butcher or livestock dealer.

Data on numbers and weights of calves marketed are very deficient, so it is impossible to give accurate figures how many of the calves marketed by dairymen fall into these different categories. Using the available data, mostly of our distributors, Arthur Brainerd, has solved some simultaneous equations which we are unfamiliar with, and has come up with an estimate of roughly 300,000 calves used for veal, of which perhaps two million go through a calf-feeding operation and one million are slaughtered shortly after birth. What is described in this article applies to the approximately two million animals, still in a marketable number!

CALF MARKETING

The marketing and transportation of the young calves from dairy farms to slaughterers, exporters or calf feeders involve some of the most revolting conditions for animals to be found anywhere. The way the animals are handled and treated is a matter of public concern. The calves are both cute and innocent, so some attention must be given to improve their lot.

The calves set off to market are about three days to a week old. When purchased, they should have no obvious deformities or disease (evidenced by dull, cloudy eyes, a wet navel, and signs of scour—diarrhea). The calves frequently are drenched with lime powder immediately after leaving the farm, since lime reduces the growth rate. The smaller calves in poor condition are more likely to be bought by local butchers or individuals living in the country who slaughter them for a home meat supply.

MARKETING FINISHED CALVES

The calves are fed for about 15 or 16 should be "well finished," with fat on both sides of the tail and on the flanks (see Fig. 1).

The finished calves are sold to nearby meat packers, local butchers, or to super-markets and restaurants which have them custom slaughtered and dressed. The "high-grade," pale and tender veal production generally sells for good prices, being in demand by gourmet diners in expensive restaurants.

TYPE OF OPERATION

Calf feeding usually is conducted on small specialized "farms" near a city or town, not on large general or dairy farms. It is generally a family operation, like the contract "farms" growing pullets and producing eggs described in Report No. 41. The farmer may have a job in town, depending on his family for much of the labor. If proper management practices are followed, it may make a very profitable family business. The gross profit before interest on the investment and depreciation may run about $60 per calf. With 600 calves marketed in a year, that comes to about $36,000 annually, not bad for a rural family with an investment of perhaps $30,000 for buildings and equipment.

In recent years there has been a strong tendency in calf feeding, as in poultry and egg production, for what may be termed "franchising" operators to enter the business. The calf feeder follows the carefully-worked-out plans of the franchiser, setting up the physical facilities, management, purchase of the franchiser's specially mixed feeds, feeding practices, and the procurement and marketing of calves. The farmer furnishes the land and buildings, buys the equipment from sources suggested by the franchiser, and provides the labor. The franchiser provides the "know-how," continuous consultation with and advice for the farmer, and a special services offering service designed to get the most out of the finished calves. The result seems to be advantageous to both the franchiser and the farmer. Other feeders provide these services themselves, buying the feed from local feed suppliers who mix it in their own facility or handle the brands of national feed manufacturers like Purina.

PHYSICAL FACILITIES

Almost any kind of clean, draft-free building is suitable for use as the barn...
CALVES—FROM PAGE 2

accommodate 50, 100, 250 or more calves, usually arranged in sections holding 40 or 50 calves in two rows each containing 20 or 25 calves in separate stalls (see Fig. 1). One of the more modern barns, shown in Fig. 2, is 100 feet long and 50 feet wide.

Light and ventilation in the barns vary from rudimentary to fair. It is important, in maintaining the health of the calves, to avoid drafts or extremes of temperature. The objective is to keep the temperature in winter within a range of 55 degrees, and in summer to a not too intolerable level. Air conditioning is rarely if ever installed.

The description of calf-feeding operations in England and Europe have made a major point of the "dark 'dungeons" in which the calves are kept. Calf barns in this country also are lighted only during the brief periods when the calves are fed and the stalls cleaned. Others we have seen in England and the Continent would merit this description. The purpose of keeping the barns with little light is not, as many suppose, to keep the calves anemic and hence to produce a pale, tender veal. That is accomplished in other ways. Operators find that the calves are less hungry, eat more, and make better gains, if kept in subdued light or darkness for most of the time, but in the operations we have observed the object is to keep the animals in absolute darkness. Outside doors may be left open as they go about their daily chores, but the barns have windows (see Fig. 2, photo upper right).

CALF STALLS

The individual stalls in which the calves are kept, from the time they arrive at the farm until the time they are marketed at 15 to 17 weeks of age, are made of rough lumber, preferably hardwood. The stalls can be made of pine, but when stalls used in California may be made in Wisconsin of native hardwood. The reason for the substitution of hardwood is to permit the produce of a stall box soft and fine, to coat the calves with a soft, tender veal which is in greatest demand in the Los Angeles market, and to prevent the calves from becoming extreme in iron (but not entirely so, or the calves die) and hence must be kept from eating roughage.

The calves are often hungry so much that they would gnaw the heavy boards composing the stalls if hard- wood were not used. The notches in the upper board at the front end of a stall shown in Fig. 3 (photo upper right) are evidence of attempts by a calf to bite the wood to satisfy this craving for roughage. No straw bedding is used, and no hay is fed. The absence of roughage also helps to keep the calves sufficiently hungry to consume maximum amounts of the concentrated liquid food which produces the most rapid gains in weight and fat.

The stalls on the two California calf-feeding "farms" we inspected were approximately two feet wide, 3½ feet high, and 4 feet long. In some barns they are as narrow as 22 inches. These dimensions are just sufficient for the calf to stand, but inadequate for any movement or to permit getting up and lying down without great difficulty. The floors of the stalls are of concrete and a foot above the sloping concrete floor (see Fig. 3, photo lower right).

No stall in the calf extremely limited in movement while on its feet; it can lie down only with much difficulty. To do so it must lie on its own feet and legs, which are not in normal position. The slatted floors are supposed to permit feces and urine to pass through to the concrete floor below, and hence to the drainage trough in which it passes from the barn. But the feces are watery, and split the calf's legs. The slatted concrete floor which prevents the calf from turning around, and from backing out of the stall, also is shown.

The calves make remarkable gains in weight and finish during the approximately 15 weeks they are kept. At one farm we visited the calves gained one pound of weight for every 1.7 pounds of feed consumed. This is a remarkable gain, not encountered in any type of livestock operation known to us.

HUMANE OR INHUMANE?

The descriptions of calf feeding contained in the books on "factory farming" make of this whole process a chamber of horrors. As Peter Singer puts it: "Calves kept in this manner are unhappy and unhealthy animals." The principal conditions to which this end result is attributed are: (1) close confinement of the calves in semi-darkness; (2) the "forced feeding" of the calves on rations designed to make them anemic.

OBJECTIONS TO CONFINEMENT

Singer finds support for the first of these reasons in the report of the commit­tee set up by the British Ministry of Ag­riculture in 1964, the Brambell committee, to evaluate factory farming methods. An appendix to that report written by N. H. Thorpe, Director of the Department of Ani­mal Science at Cambridge University, says: "Whilst accepting the need for such restriction, we must draw the line at con­ditions which completely suppress all or nearly all the natural, instinctive urges and behavior patterns characteristic of the high degree of social organization as found in the ancestral wild species and which have been little, if at all, bred out in the process of domestication. In particular, it is clearly cruel to re­strain an animal for a large part of its life that it cannot use any of its normal locomotory behavior patterns."

Accepting this view, Singer says, the Brambell committee enunciated the following modest, but fundamental, principle to govern the degree to which an animal may be confined: "...we disapprove of a de­gree of confinement of an animal which necessarily frustrates most of the major activities which make up its natural behav­ior...." This seems to be the principal foundation for the critics' denunciation of calf feeding.

If humanitarians and humane societies, much less legislators and the general pub­lic, were to accept this view as applied to food animals, to be consistent they would have to eliminate most of the (See CALVES, page 4, column 1.)

Fig. 3. Calf stalls are constructed of heavy lumber, with a fixed front stanchion for the calf's head when feeding (photo to lower above). The curved boards in front are built to hold the galvanized or plastic pails of li­quid feed. The curved boards at the front of a calf stall (photo to the right above) are evidence of a calf's attempt to get the feed off. All roughage is denied the calves in order to produce white veal and avoid throwing the calves off feed. There is not even an inch of real floor. Photo at lower right shows the slatted wood floor, about a foot above the concrete floor. The slatted wood floor, which prevents the animal from turning around, and from backing out of the stall, also is shown.
restrictions which make the lives of humans and animals different from what they were in "prehistoric" times or even a hundred years ago. All of us, people and domesticated animals, necessarily live under restrictions which have changed our existence drastically. Is the pet dog "unhappy and unhealthy" because it is spayed or neutered, confined to the house, yard or leash, and limited to food other than freshly-killed animals? The Brambell committee that "An animal should at least have sufficient freedom of movement to be able without difficulty to turn around, go to bed, eat, drink, lie down and stretch its limbs." These essentials are not provided in commercial calf-feeding operations.

At the same time, we must point out that some of the most inhumane conditions for calves encountered under "natural conditions" on the open range, where calves have freedom of movement but are subjected to bitter cold, open heat, dust storms, blizzards, lack of food which sometimes results in a slow death by starvation, and an assortment of other times or even a hundred years ago. All of these may have been part of the life of our domesticated animals' prehistoric existence. The dairy cows confined in a barn may be worse off because of inability to satisfy their instinctual cravings for free movement, but only by running about in a more peaceful happy scene than a barn full of cows chewing their cud and awaiting the ministrations of the mechanical milking machine.

What is clear is that the term "natural" must "live its entire life chained in darkness" also may not be as serious as it at first appears. Consider the assembly-line-raised calf in the good old days, out in the pasture, beset by chill winds, rain, snow or sleet and a bleak horizon. A warmer confined in the even temperature and humidity of the calf-feeding barn, with a plentiful supply of good food. The calf is an animal likely to be affected much by the beauty of his surroundings as extolled by rural poets. And compared with the uninflected beauty of a veal calf a short while after birth, and killed inhumanely in the back room of some local butcher, the assembly-line-raised calf might indeed feel better off.

One thing to be avoided in trying to make veal production more humane under the present system, is casting the poor calves from the frying pan into the fire. That would be the result of any attempt to go back to the formerly existing system for disposing of bull calves of the dairy breeds. On a few dairy farms calves thrive under conditions better than those prevailing in the present specialized units, but generally speaking the bull Infertile has always been kept on conditions analogous to that of surplus puppies and kittens: unplanned, unwanted and to be gotten rid of in the easiest and quickest way possible.

POSSIBLE IMPROVEMENTS

The most humane arrangement for calf feeding probably would be to house the calves in pens holding, say, 20 calves; with feeding arrangements similar to those now used. The floors could be slatted to facilitate removal of feces and urine; the bedding arrangements similar to those now used. The calves could move about, get up and lie down, and be in touch with others of their kind. They could be fed a little hay, or eat some of the straw if they desired. However, this would satisfy the craving for roughage. This is the most critical distinction in which feeding of older cattle seems to be headed: toward smaller, more confined housing for the cattle fed for meat, but still permitting them to move around some.

There are three principal objections to such a system for calves: (1) the investment calves sold at the auctions, are the point in veal production that deserve first and most critical attention. When justice is done by correcting these conditions, not only calves will be affected. Horses and other animals also will be benefitted.

Detailed studies of these conditions must precede their improvement. Humane Information Services has such a study definitely on its agenda. All we need is more manpower and funds for field investigations.

VEAL CALF SLAUGHTER

A substantially larger proportion of veal calves than of most other livestock is slaughtered in small establishments, that have never even heard of humane slaughter laws which apply in plants operated by the large firms which process beef and other commerical products for the federal government agencies. From 1971 to 1976, federally-inspected commercial production of veal was up 57 percent, whereas other commercial production was up 4 percent, indicating that the proportion slaughtered without the necessity for confirming with humane slaughter standards is increasing. On the average, slaughter of veal calves is accompanied by more suffering than for most other food animals. This inhumane condition will be greatly improved by passage of H.R. 1464, the humane slaughter bill now before Congress. It would extend the provisions of the present humane slaughter act to many more slaughtering establishments having federal or state meat inspection, and permit effective enforcement.

Fig. 4. At contract farms the only feeds used are especially formulated mixtures which include medications and dried skim milk. The feed is mixed in specially-made portable mixers in which the resulting semi-liquid is rolled directly to the calf's stall.

what larger; (2) the gain in weight per pound of feed would be somewhat less; (2) the veal produced would be less pale, although not as much as might be claimed.

ANEMIC CALVES AND WHITE VEAL

The "quality" of the veal, as interpreted by many housewives as well as by meat-market managers, meat packers and meat graders, was "improved" by the elimination of roughage. The resulting bright, light color is confused by many consumers with the color of the milk with which milk-fed calves are supposed to be fed. Actually, it is the transposition of the white color from milk to the flesh of the calf that makes it "white veal," but the absence of coloring materials in the feed. So the color of the flesh is no more an indication of its quality than the amount of yellow color in an egg yolk is a measure of its quality. It has been suggested that the solution of this problem is to "educate" consumers and marketers about the factor affecting veal quality, so as to at least eliminate the misguided belief that pale veal is superior. However, Humane Information Services has never put much faith in such consumer campaigns, either for or against particular kinds of products. It costs too much to affect appreciably the market demand for any product.

It might be possible to start an educational program for consumers and veal marketers, tying it up with merchandising programs for specific veal market- ers designed to obtain for them higher prices for humanely-produced veal. If a few individual programs of this kind were successful, others could be counted on to follow.

But is the unsatisfied craving for roughage a sufficiently serious inhuman condition? After all, millions of cows depend on these for their food, and for some disease, or to stay sober. Yet, many of them manage to live a happy life.

LIVESTOCK AUCTIONS

Improvement of the livestock auctions.

NITROGEN - FROM PAGE 6

A substantial increase in the number of veal calves and the proportion of veal sold has not been satisfactorily demonstrated, and we recommend that humane slaughter be practiced in all veal production.

We can, however, agree wholeheartedly with the greatly modified final conclusion of the Brambell committee that "An animal should at least have sufficient freedom of movement to be able without difficulty to turn around, go to bed, eat, drink, lie down and stretch its limbs." These essentials are not provided in commercial calf-feeding operations.

At the same time, we must point out that some of the most inhumane conditions for calves encountered under "natural conditions" on the open range, where calves have freedom of movement but are subjected to bitter cold, open heat, dust storms, blizzards, lack of food which sometimes results in a slow death by starvation, and an assortment of other times or even a hundred years ago. All of these may have been part of the life of our domesticated animals' prehistoric existence. The dairy cows confined in a barn may be worse off because of inability to satisfy their instinctual cravings for free movement, but only by running about in a more peaceful happy scene than a barn full of cows chewing their cud and awaiting the ministrations of the mechanical milking machine.

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USE OF T-61 INCREASING

T-61 is the trade name of a comparatively new veterinary product, manufactured by National Laboratories, Inc., of Somerville, New Jersey, for use as an injectable for "euthanasia." The drug is used widely in West Germany in 1961 and has rapidly gained in popularity in the United States, where it is cheaper than sodium pentobarbital, for which T-61 has been substituted.

In the United States, T-61 has been on the market for "quite awhile," according to Dr. Harry C. Rowsell, leader of a group of veterinary researchers at the Colorado State University, which did the testing on T-61. Dr. Rowsell states that T-61 has not been generally used in the past few years that the use of T-61 has rapidly increased. This was largely because sodium pentobarbital is a reagent which has become progressively more difficult to obtain and use except in states having special legislation permitting use of the drug. In this country, T-61 generally costs more than sodium pentobarbital purchased in bulk. Thus, there is no cost advantage as there is in Europe.

A continuing survey made by Humane Information Services of 193 shelters and pounds during a period of six years ending in November, 1977, indicates that approximately six percent of shelters and pounds use T-61, although not in all cases as the exclusive agent for destroying animals. A mailed questionnaire survey by the American Society for the Prevention of Cruelty to Animals and Humane Information Services indicated that the 438 respondents, seven percent used T-61, representing about five percent of the animals. On the basis of these findings, it is clear that the probability that the percentage using this method will increase rapidly unless disclosure of factually bad T-61 studies should stop or reverse the trend.

INGREDIENTS AND THEIR PURPOSES

T-61 is a compound containing: (1) a quickly acting local anesthetic intended to minimize the "excitation stage" of anesthetic from the injection itself, (2) a strong narcotic agent designed to produce anesthesia (loss of consciousness from the injection) and to affect upon the respiratory center but which by itself in the dosage recommended would not result consistently in death of the animal, and (3) a curariform-like drug which exerts a strong paralytic action and induces circulatory collapse. The latter is responsible for producing the "excitation stage" of anesthesia which otherwise might accompany the anesthetic of the curariform agent to produce death from respiratory arrest (suffocation), supposedly after the animal is unconscious.

MANUFACTURER'S SUPPORTING EVIDENCE AND OTHER TESTS

Humane Information Services has examined statements and data purportedly used by National Laboratories in applying for approval of T-61 by the Food and Drug Administration (FDA). FDA approval simply means that T-61 works, i.e., it kills, and does not carry any implications with respect to humanity of the product.

T-61, the curariform component, and the combination of these two components found in T-61 generally do not provide, in our opinion, a satisfactory basis for definitive conclusions. Other laboratory tests conducted at the Colorado State University, which also has tested rapid decompression anesthesia, substantiated the findings of which the researchers to found to be humane. The Colorado test, made by Dr. W. V. Lum and associates, was reported in the Journal of the American Veterinary Medical Association for January 15, 1978. It tends to confirm the results reported by the manufacturer and others.

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ADULT DOGS

For adult dogs, intravenous injection is recommended. Cerebral excitation, accompanied by clamping, biting, howling and other signs which may or may not indicate pain or stress, may occur if intravenous injection is not made strictly according to the manufacturer's instructions. The first two-thirds of the dose must be injected at a slow rate and the remainder rapidly.

Under the stress of shelter conditions, with the desire for speed, and generally with intractable or very active dogs which only with great difficulty can be held still for the time required for injection of the drug slowly, there is a strong temptation for shelter personnel to ignore this requirement for proper injection.

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T-61 — FROM PAGE 5

less satisfactory for dogs due to varia
tions in dosage response. The company
does not explain why intravenous injec-
tion was not given for the first two-thirds of the dose, whereas no such
limitation seems to be placed on intracar-
diac injection. If too rapid IV injection in
cats is more humane or any other reasons,
then intracardiac should be even more
contraindicated, inasmuch as drugs admin-
istered by this route reach the brain even
more quickly than via IV injection.
Is it possible or practicable to give an
intracardiac injection at the rate recom-
manded for IV?

Humane Information Services has observ-
eed cases of T-61 given by an expert in this method of injection.
The results were unsatisfactory to us be-
because they were not as uniform as for so-

Dr. Rowsell has tried intrathoracic
injections, but does not recommend this
method because of the possibility of hem-
orrhage being produced when the animal
moves and the lung is torn. If there is
excessive bleeding, absorption of the drug is poor.

Canadian authorities recommend only intravenous injection of
T-61, which is being considered for in-
cardiac injection as practiced by the Ontario Ministry of Agriculture and
Food. Sodium pentobarbital is not avail-
able in most veterinarian's shops in Canada
without the supervision of a veterinarian
responsible for the possession and use of the
narcotic component. Canadian authorities
have been interpreted more restrictively
in Canada than in the United States, where
exemptions for research applications ex-
cept in states that have passed special
laws permitting use of the drug without
direct veterinary supervision (e.g., the
State of California).

USE IN VETERINARIAN'S
PRIVATE PRACTICES

Some veterinarians seem inclined to
read the manufacturer's claims for T-61
and to consider the probable action of the
ingredients from a theoretical standpoint.
For this reason Dr. Rowsell says that he
wishes to avoid being bothered by requests
to cooperate in obtaining sodium pentobar-
bital for use in the United States, where veteri-
arians may recommend T-61 without taking into
account the obstacles to turning theory into
practice. Even in their own practices veter-
inarians would probably reserve themselves
from keeping involved in using sodium pentobar-
bital to be inconvenient, and there is
danger that they may get into illicit use, subjecting them to possible
regulatory action.

Dr. Rowsell believes that even if veterinarians
in their own practices, even though they may agree that
sodium pentobarbital is better.

CONCLUSIONS

(1) T-61 has not yet been sufficiently tested to
certify approval for mass euthanasia of dogs and cats. At
the very least, the instructions for use of the drug in the
plains are lengthy and complete to different methods
of injection, and limitations on the use of T-61 for animals other than adult
dogs.

(2) It has not been established that there is no danger that the curariform
compounds used in T-61 may induce the animal's
become unconscious from the ef-
ts of the narcotic component. Canadian experimenters
have not found such dangers. For dogs,
(3) For dogs, only intravenous injec-
tion at the rate recommended by the manu-
facturer is appropriate for the conditions encountered in shelters and
pounds is quite likely that directions
will not be followed, and unavoidable movements of the slow
injection impossible even for careful
operators. This misuse probably would lead to a diminution of effectiveness.
(4) Tests using the intracardiac method of
injection are needed before this method can be approved on the basis of tests made
exclusively by the IV route. It is not
made plain even in the manufacturer's di-
rections whether or not the slow initial
rate of injection applies to the intracar-

diac as well as the intravenous method of
injection. If it does not, the directions appear inconsistent and potentially
cause untoward results.

(5) Intravenous injection, recom-
ended by the manufacturer for cats, too
frequently may result in pain, and there
is a danger of an animal's struggling and
injecting into the pleural cavity, or producing hemorrhage with resultant slow
absorption of the drug. This procedure, as
opposed to the method. Dr. Rowsell
sues: "I would object even to a veteri-
narian giving T-61 by the in-
tracardiac route."

(6) T-61 is not suitable for in-
travenous injection for animals. A
manufacturer writes: "No exactly avail-
able injectable anesthesia agent is suit-
ate for this method."

This would be dis-

(7) If it really is impossible to ob-
tain sodium pentobarbital, properly-admin-
istered intravenous injection of T-61 for
adult dogs may be well more humane than
available methods. Dr. Rowsell says:
should be frequent verification by shelter
directors that the instructions are properly
plied intravenous injections. This moni-
toring, of course, is also
needed for any injection method, but
since the requirements for T-61 are more
stricter, it would seem that the institution
of its own recommendations, it would seem
that this warning may be even more called for in
the use of this device.

(9) Injection of sodium pentobarbital,
although also subject to improper adminis-
tration, constitutes a more humane
method of euthanasia, and is the preferred method
for most shelters and pounds at this time.

NITROGEN — FROM PAGE 7

"The nitrogen inhalation euthanasia
method is somewhat like the attitude meth-
of in that death occurs due to hypoxia.
However, quite unlike the rapid decom-
pression method, there is no physiological pres-
ure change and, therefore, virtually no
chance of painful effects resulting from
such a change. Furthermore, unlike the
inhalation procedure, nothing is physically done to the animal( s) which
cannot be done in any other way ( except
by extending the life of the animal)
A reader of the above quotation could
hardly believe that it was written by a
member of the same research team which
produced the rapid decompression method.
( A reader of the above quotation could
hardly believe that it was written by a
member of the same research team which
produced the rapid decompression method.)

IS NITROGEN FLUSHING HUMANE?

The statement by Fitch goes on to give
the essential elements of the claim that
nitrogen flushing is humane:

animals show increased breathing
rates just prior to unconscious-
ness, they do not struggle or suffocate.
Air containing nitrogen gas and gas-

temporarily, with the single
change being a steadily increasing nitrogen to

gas ratio of the inspired air.

Perhaps the crux of the hu-
maneness of the nitrogen inhalation meth-
od, it may be worthwhile to look to
regulations. In the dog, the nitrogen has
been mixed in gas mixtures in which part of the normal
oxygen content of the air had been replac-
ed with nitrogen. In the cat, no such studies have been conducted where
human subjects have reached the point of uncon-
sciousness due to increased nitrogen and decreased oxygen content. The nitrogen
was supplied to them to breathe. Air with normal oxygen
content was, of course, immediately re-
supplied to the dog and it was able to recover
consciousness. However, it is
important to note that subjects of these
studies reported no pain or distress in
association with their loss of conscious-
ness.

That statement represents the view of many
canine and feline veterinarians who believe what it says. They consider ni-
trogen flushing to be a completely humane
cessful activity.

"The use of nitrogen in dogs, rec-
ended by Fitch and supported by the Amer-
ican Humane Association, has been studied,
using other techniques. Dep-

dependent upon the size of the chamber used,
dogs at approximately 5 seconds in an
environment at 1.5 to 6-8 percent
(0.2-0.3) struggle, vocalizing loudly and persis-
tently. In numerous studies the chambers were
reproducibly opened at the time of the vocalization. It was observed that in
each case a corneal reflex was present in
most dogs, and that the dogs exposed the dogs to an increase in oxygen
from 1.5 to 6-8 percent. Within 15 sec-
onds the dogs were in a dorsal recumbency
position. Under conditions of behavioral
inhibition, the dog was maintained at a level of 1.5 per-
cent oxygen, the anoxic state will persist and the animal will die.

If the chamber is not opened for a time
and during that time the length of time that the animal is sen-
sitive to its surroundings? At this time
the dog is maintained at a level of 1.5 per-
cent oxygen, the anoxic state will persist and the animal will die. At
this time the dog is maintained at a level of 1.5 percent oxygen, the
animal will die. At this time the dog is maintained at a level of 1.5 percent oxygen, the
animal will die. At this time the dog is maintained at a level of 1.5 percent oxygen, the
animal will die. At this time the dog is maintained at a level of 1.5 percent oxygen, the
animal will die. At this time the dog is maintained at a level of 1.5 percent oxygen, the
animal will die.
We are greatly indebted to Mrs. Fred B. Johnston, II, of Columbia, South Carolina, and other members of the American Humane Information Service, Inc., for information contained in this article and the one on T-61.

The use of nitrogen flushing is one of the newest and least understood methods of killing unwanted pets.

**WHAT “FLUSHING” MEANS**

Nitrogen is a colorless, tasteless, odorless gas that constitutes about 78 percent of the atmosphere by volume and is a constituent of all living tissues. The air contains only about 21 percent oxygen. An animal normally inspires more nitrogen than oxygen so that, in time, the oxygen becomes a vital element in the animal’s life processes.

For “euthanasia,” the nitrogen is purchased in metal cylinders from dealers located in or near most cities in the United States. It comes in either liquid (which turns into gas at a low temperature) or gaseous form. Through controls which regulate the flow, the gas is conducted from the tank to the metal cabinet in which the animal has been placed and the opening sealed. As the nitrogen under pressure enters the cabinet, it displaces air which is forced out by a small opening. This reduces the oxygen content of the mixture of nitrogen and air in the cabinet to 1.5 percent, at which time the flow of nitrogen is cut off and the sealed cabinet is left for five to ten minutes, after which it is opened, the dead animal removed, and the cabinet cleaned.

From this it should be evident why the process is called nitrogen flushing. The nitrogen is merely a vehicle for displacing the air, and hence the oxygen in the cabinet, by “flushing” the latter out of the cage or cabinet. It is not the direct effects of the extra nitrogen inspired by the animal in the cabinet that produces death, but the decrease in the amount of oxygen inspired. This produces hypoxia or anoxia in the animal, which causes death. Anoxia also is the cause of death by many other methods of euthanasia, although they differ in regard to the way in which anoxia is induced and the other effects which accompany the developing hypoxia and final anoxia.

**DEVELOPMENT OF THE METHOD**

When the first use of nitrogen flushing in England by Vinter in 1957, as a result of her search for a more humane method of killing mink for pelting on fur farms.

Vinter, a veterinary surgeon and professor of the Faculty of Medicine of the University of Ottawa, Canada, reported in 1958 that she had observed the use of nitrogen for euthanasia in Japan in 1957, before any experiments with it in the United States.

The two American Veterinary Medical Association (AVMA) panels on euthanasia (1962 and 1972) recommended that trials be made to determine the suitability of nitrogen for euthanasia. Drs. Fitch, Hall and Herin of the Colorado State University College of Veterinary Medicine and Animal Sciences started a project financed partly by a grant from the American Humane Association (AHA), made such tests in 1974.

**COLORADO STATE UNIVERSITY TESTS**

As succinctly stated by Dr. T. Carding and associates of the World Federation for the Protection of Animals, headquartered in Zurich, Switzerland, in their “Special Report on Euthanasia of Dogs and Cats,” issued in April, 1977:

“In their investigations, Fitch, et al. ... killed 313 dogs, 36 cats, one pig, two rabbits and eight ducks. Electroencephalograms (EEG) were recorded from 34 dogs as well as electrocardiograms (EKG) and arterial blood pressure. The animals were placed in a chamber to which pure nitrogen gas was introduced ... At an oxygen concentration of 1.5 percent the nitrogen flow was stopped and the animals held in the chamber for five minutes. EEG patterns showed the characteristic for sleep and unconsciousness in an average of about 40 seconds and became isoelectric at 80 sec.

...The animals become unconscious and collapsed within one minute. There were no signs of pain in any animal before unconsciousness excluding cases in dogs withemporary disease. After unconsciousness, there were instances of muscle twitching, gasping, convulsions and halving. The authors suggested that there was a result of acute hypoxia occurring in the unconscious animal. They also noted that the technique was successful in all species for domestic pets and kittens, reptiles and amphibians.

These apparently favorable results brought early endorsement or tentative approval of nitrogen flushing by the AHA and some other humane organizations.

**COMMERCIAL APPLICATIONS**

It was not long until several equipment manufacturers were on the market with cabinets especially manufactured for this purpose. These are of similar sizes and acceptable costs even for the nitrogen used, any shelter contemplating purchase of a nitrogen cabinet should take great pains to see that any off-the-cuff estimate be carefully checked before acceptance.

As Fitch, one of the authors of the Colorado report on nitrogen flushing, puts it:

This is the killing of very young puppies and kittens in the cabinets, although the Colorado tests indicated this should not be done.

At the present time there are to our knowledge three companies manufacturing and/or dealing with nitrogen flushing equipment. They are: (1) Anconco, Inc., P. O. Box 1233, Kansas City, Missouri 64108; (2) Kirschner-Gollison, P. O. Box 459, Abbe­ deen, Maryland 21001; (3) Snyder Mfg. Co., 5500 E. Pacific Place, Denver, Colorado 80222.

These cabinets are priced from the manufacturer’s plant, so freight and installation costs must be added. This brings the total cost of a cabinet to vary within a range of about $3500 to $5000.

Careful shopping by prospective purchasers is advised, because at least one of the cabinets we viewed is reported by the shelter to have already shown defects, because of moisture from the animals getting into the glove or plastic outer coating of the cabinet. Some of the doors also reportedly have become ineffective and allow escape and, of course, air to enter the cabinet.

![Fig. 2. Possible misuse of the nitrogen cabinet is illustrated by this view of a dog, 28 inches high, weighing 60 pounds, which cannot stand up in the cabinet. The larger outer compartment to the left was not used for this dog because the cost for nitrogen would be much greater.](image)

**COSTS OF OPERATION**

To our knowledge, no adequate study of the costs of operation of nitrogen cabinets, taking into account depreciation, interest on investment, maintenance, material (bottled nitrogen) and labor, has been made. We have seen greatly varying cost estimates even for the nitrogen used, ranging from three cents to three dollars per animal, depending on size of animal, the number of animals placed in each compartment, the local prices for gas in liquid or compressed gas form and the type of gas used. Obviously, with such a range of estimated costs, any shelter contemplating purchase of a nitrogen cabinet should take great pains to see that any off-the-cuff estimate be carefully checked before acceptance.

As can be said with considerable confidence, however, that this is one of the most expensive of the alternative methods of euthanasia, and more expensive than injections of sodium pentobarbital.

**NITROGEN VERSUS DECOMPRESSION**

When the volume of oxygen passing over the lung tissue is greatly reduced, the haemoglobin of the blood can pick up less of it to carry to the tissues composing the various organs. The resulting tissue impairment causes the mechanisms which control consciousness, breathing and heart action to quickly cease functioning.

Thus, it is not in the kind or degree of hypoxia that makes the results of decompression and of nitrogen flushing so different. The major undesirable effects of decompression are of a “mechanical” nature. With nitrogen flushing, these same mechanical effects do not arise.

As Fitch, one of the authors of the Colorado report on nitrogen flushing, puts it:

The use of nitrogen is an alternative that should consider the side effects and whether they are acceptable in the long run.
LETTERS TO THE EDITOR

INCREASING ADOPTIONS

"I think your article 'How to Increase Shelter Adoptions' is absolutely great. All points were very well taken and gave me other reasons to purchase a pet at a shelter, in addition to a reason for a cat..."--Mrs. Ann Brice, Director of Public Information, The San Francisco SPCA, San Francisco, California.

"Bravo--you hit the nail right on the head in your article 'How To Increase Shelter Adoptions,' in the December, 1977, issue. I am proud to say that five years ago our organization made the decisions that you advocate in your article. Animals that we receive from the streets or abandoned by owners, they all receive whatever shots and medical care are necessary before being placed for adoption. They are either altered by us at our facility, or they are given a certificate that is redeemable for us a refund when the animal is altered at the proper time.

We have established a minimum adoption fee of $15 for a dog and $5 for a cat. We have a location where we work, but if it has a market value of more, we then raise the adoption fee accordingly (presently our maximum is $85). The extra monies we receive because of these adoption fees we simply pour back into giving more and better care to the animals we receive. In other words, the more we get the more we are able to give the animal and the person who adopts it. I have constantly heard the argument 'Why should the adopter have to pay the adoption fee? ...' Let me state that before we instituted this program we were adopting out approximately 15 percent of the animals that we take in. Now we adopt out 50 percent. The many animals we receive, which is four times as many! I feel that in great part this is because those people who are looking to adopt do not just come here on the day they have done everything that is possible to assure they will be receiving a healthy pet.

"As you see, we support the concept of your article completely and believe that we would be able to attract any adoption we can to anyone contemplating this type of program."--Eugene J. Herrmann, Executive Director, The Humane Society, Inc., Bellevue, Washington.

"When I lived in Mount Carroll, Illinois, there was a dog shelter but nothing for cats. I had to adopt a cat, so when I was visiting Rockford I called the shelter there. They refused to even consider me because I resided over 35 miles from the shelter and they said they had to check with their board each month to check with more than 35 miles away. How they mean well--to check up, to even send a visitor, is a great idea. But rather than turn down all the people who are looking to adopt a dog, they should have a phone list and maybe letter checkups, with references. I, for instance, have been active in animal protection for 40 years, and had an ideal home for a cat, and could give references to prove it..."--Sister Rita Atkins, La Plume, Pennsylvania.

"I've put your article on increasing shelter adoptions on our shelf. Everyone in our working very well on our adoption program. We adopt out about 450 dogs and cats a month. Our team of volunteer 'Adoption Specialists' is growing (no volunteers were used at our shelter until last year). They are the indispensable aid in adoption screening and follow-ups. Every adoptable pet is now vaccinated, and the new owners of an SF/SPCA pet get a certificate for a free veterinary exam from inspection of the SF/SPCA and the SF/SPCA pet get a certificate for a free veterinary exam from the San Francisco Veterinary Medical Association. "--Ms. Ann Brice, Director of Public Information, The San Francisco SFCA, San Francisco, California.

HUMANE SLAUGHTER

"I find it (Report to Humanitarians) very informative, fair and of course very gratifying... Why do you think it is imperative to exclude kosher slaughterhouses from federal regulation?"--Ms. Maria Davies, Bolton, Ontario, Canada.

"We receive similar inquiries from many members. To make ritual slaughter subject to the provisions of the federal humane slaughter law is politically impossible (see Report to Humanitarians, March, 1972)...."--Gustafson, Providence, Rhode Island, 1851 to 1959

REPLY:

"I agree completely with what you say. We admire and respect Defenders of Wildlife. They do what their members expect them to do, neglecting almost completely the equally important problem of domesticated animals. This is done, we believe, because it is easier to obtain contributions for the spectacular wildlife cause which has all the glamour of the National Geographic! We know that others share your evident erroneous belief that HS is against wildlife and wildlife organizations. Not so! We do not advocate disregard of the wilderness and national legislation, which were looking up with the appearance of the leg snares, are now gloomy. The Ohio referendum was a damaging blow. One more such disaster, and one is on the way (in Spokane, Washington). One more cruel snare law, and the picture may be changing, however, with the advent of leg snares to catch terrestrials. A supporter of HS who has just written to the Washington, D. C.

"REPLY:

"Our two organizations seem to have been in general agreement on some important problems of mutual concern. Those who do the most public breast-beating about wildlife seem to be among the least effective.

THE BIGGEST PROBLEM

"I think that the biggest problem in animal welfare work is the humane societies who lead people to believe that they are taking care of all the animals' problems. If they were, I could relax and enjoy your letter and all others like you."--Mrs. Dorothy Cheek, O'Brien, Plymouth, Massachusetts.

BRIEF BUT SWEET

"Re your 'Christmas message': For years I have felt this way but never quite knew how to express it. You have, perfectly! Now I know how to tell people why we were not able to give a gift, when it is right inside most of us--kindness!"--Miss Roberta L. Scharath, Wollaston, Massachusetts.

"I attended the Euthanasia Symposium sponsored by the Iowa Federation of Humane Societies September 24, at which your representative, Steve Hagan, was present. We as the group are responsible, along with information provided by other speakers, for our local shelter's immediately halting its use of Succiann for euthanasia. We have also made the local veterinarians in coming to the shelter to euthanize with sodium pentobarbital. I'm impressed that your organization was willing to participate in a symposium so far from its home base."--Mrs. Beth McKinney, Clinton, Iowa.

"I would like to thank you very much for being our main speaker at our public hearing on the 6th. Without you I'm afraid it might have gone badly for our cause. You were super! I was so glad that I finally got to meet you. Thank you again for being so kind in coming to our rescue when we really needed someone..."--Mrs. Carol K. McCurdy, Irmo, South Carolina.

"I need Humane Information Services--its range is incredible, brilliant, in-depth, practical, and the authors THINK I am human and privileged to know you personally."--Mrs. Jasper F. Hagan, Louisville, Kentucky.

"I have read your Report to Humanitarians for years and find it the most helpful publication in its field. I have many copies of yours..."--Mrs. Paul Lutz, Secretary, The Seneca County Humane Society, Tiffin, Ohio.

"You are doing a tremendous job. How we need a publication like yours! The humane movement is indeed indebted to you, and all humane workers should study your publication thoroughly."--Mrs. Peggy Moning Pogoette, Lomas Altas, Mexico

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