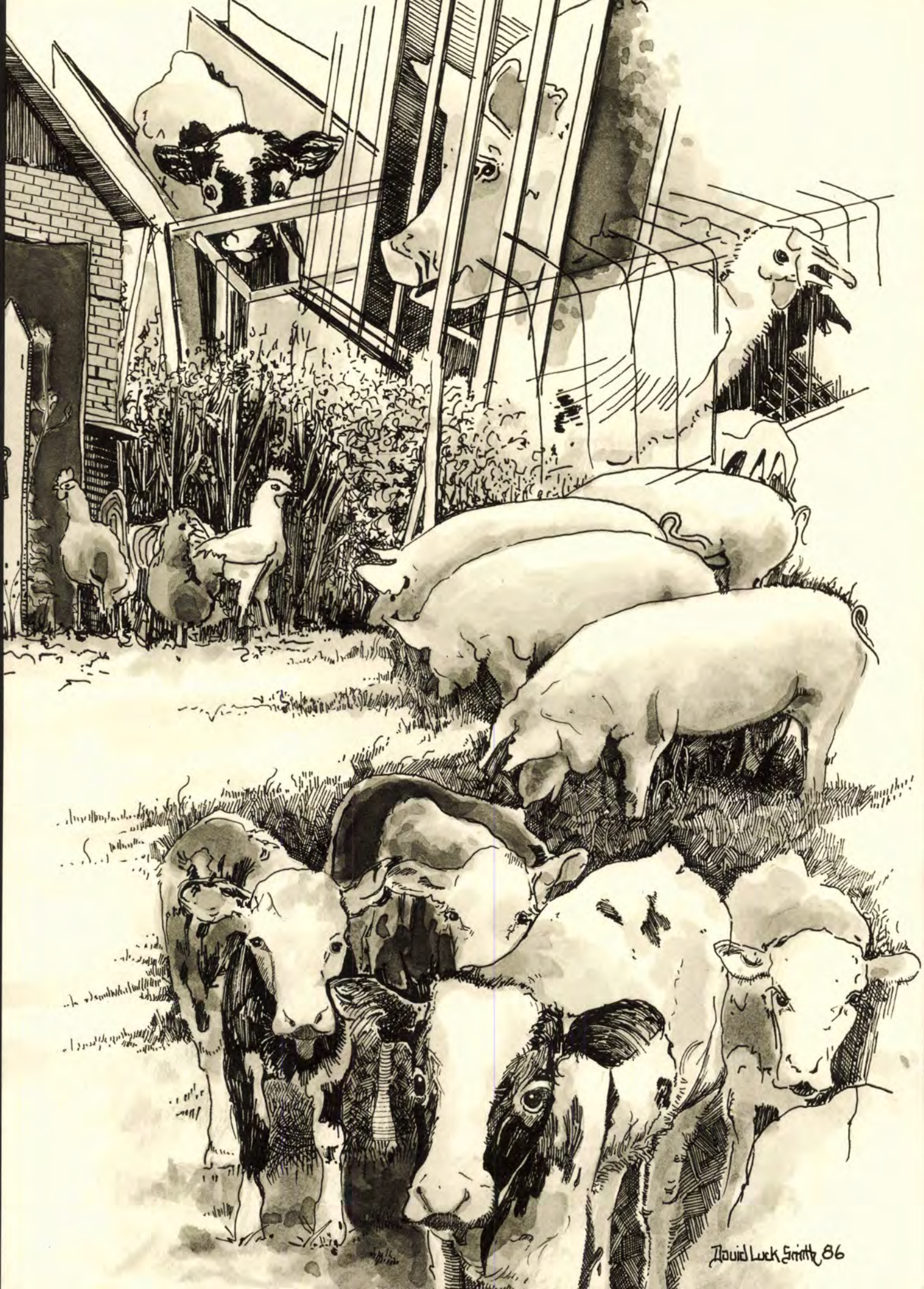


FACTORY FARMING: The Experiment That Failed



David Luck Smith 86

FACTORY FARMING: THE EXPERIMENT THAT FAILED

*A compilation
of articles and photographs*

with contributions by

Rachel Carson
Bernhard Grzimek
Ruth Harrison
Desmond Morris
George Wald

ANIMAL WELFARE INSTITUTE

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**Factory Farming: The Experiment
That Failed**

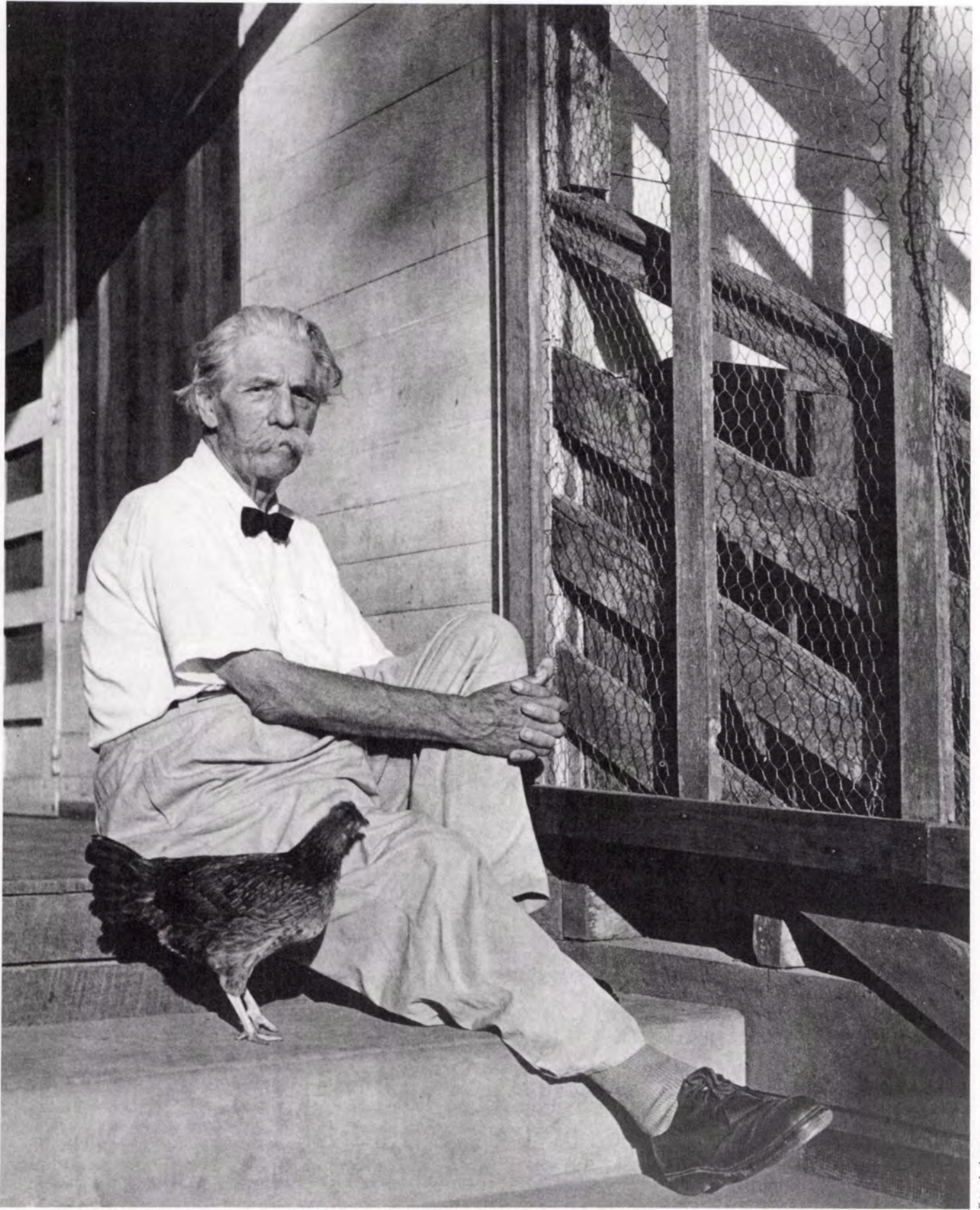
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INTRODUCTION



Erica Anderson

Albert Schweitzer: "We need a boundless ethics which will include the animals also."

INTRODUCTION

Factory farming has held out a promise of profits to farmers and investors, but objective scientific analysis shows the pitfalls which have come about through failure to consider the nature, the feelings and the basic needs of the veal calves, the pigs and the hens severely deprived and confined for months in crates or cages so small they cannot even stretch out their limbs. Many small farmers have gone out of business when investment in expensive equipment they were led to believe would result in profits, led instead to bankruptcy.

Because too many animals are forced together it is necessary to dose them with a variety of drugs to keep disease from wiping them out. The yolks of eggs must rely on artificial dyes in the feed to give the illusion of eggs from free range hens. Residues of carcinogenic growth hormones have been repeatedly found in white veal.

Overproduction constantly threatens farmers. According to the May 18, 1987 issue of *Feedstuffs*, analysts said the industry is "in for a long period of narrow to red margins. . . . Conditions have many producers on 'an edge,' commented one southeastern trader. 'This could be the beginning of the end for them.' Added an analyst on the west coast: 'A lot of them will be calling it quits.'" So the overproduction has continued, and egg producers throughout the world are looking for government handouts rather than looking at the methods of their industry which call out for change.

"Eggs fall to 50 cents; eggmen under 'horrendous stress'" cried the headline of an article in *Feedstuffs*, January 7, 1985. Said this report: "Across the U.S., market sources suggested that the industry is now in extremely serious trouble, with eggmen far under bottom lines. Prices are now under not only overall production costs but feed costs, which means producers have no more areas left for cost-cutting and other savings, analysts said. . . . Consumer demand is relatively good, but production remains way ahead of what demand can move."

Overproduction would readily come under control if battery cages were phased out and hens kept in comfortable housing. See pages 29 and 76-77 for alternative methods utilizing modern automated egg collection, yet at the same time providing the hens with nests, roosts and scratching areas in place of cramped cages.

When Congress passed the Humane Slaughter Act in 1958, the American public had learned the facts about animal suffering in slaughterhouses. President Eisenhower told a press conference shortly before he signed the bill into law that if he went by his mail he would think that Americans

were interested in nothing but humane slaughter. Thus we have a measure of the concern an informed public feels for the animals that supply the nation with animal protein.

The United States had lagged far behind other western democracies in barring painful slaughtering methods (Switzerland mandated humane slaughter in 1874!). The reason was that most Americans *assumed* that the slaughterhouses inspected by the federal government would use the most humane possible means of killing animals for food.

Today a similar misconception exists concerning the rearing and management of livestock and poultry. The general public assumes that these creatures live in the relative freedom that, until the last twenty-five or thirty years, obtained for most farm animals. Few Americans are aware that the majority of veal calves spend the whole of their short lives in crates so small that they cannot even turn around or lie down with their legs stretched out. Nor is it commonly known that nearly all the millions of hens who lay the nation's eggs are confined to cages in which they cannot spread their wings normally and that they are so crowded that one of the four or even five hens shoved into a 12" x 18" cage has to stand on top of the others. Not many people know that the birds are often "debeaked" to keep them from injuring one another as they struggle for space in these intolerable conditions, nor that their feet may become deformed on the sloping wire cage floors which have no nest to lay eggs in nor roosts to grip in normal hen fashion, nor that by the end of a year in the batteries they are half naked of feathers and, under the title of "spent hens," are packed off to chicken soup, pet food and fertilizer factories.

Americans are unaware that traditional hog farms are rapidly being transformed into hog factories by large corporate farms which gain tax breaks by writing off the hog factory building as "equipment" and using cash accounting, a simplified accounting system ostensibly created to help family farmers. In hog factories the pregnant sows are locked into narrow stalls for their nearly four-month-long pregnancy. They live on concrete slabs that injure their feet. They grind their teeth against the bars in frustration, but there is no release.

In short, Americans are generally as uninformed about grim deprivation on factory farms today as they were about the grim last moments of the animals in slaughterhouses in the 1950s.

This compilation of articles is intended to open the doors on the usually windowless factory farms so consumers can have a glimpse of what goes on inside and let the government and the press know how they feel about it. Only through determined public demand will changes take place.

They *can* change rapidly for the better because alternative methods, carefully worked out by humane scientists and humane farmers, can be substituted for the extreme overcrowding and close imprisonment now being forced on veal calves, laying hens and pigs.

These alternative methods, far from being old-fashioned, are the most modern and forward-looking. They take the feelings of the animals into account, and they take into account the normal behavior of each species, rather than attempting to make living, vertebrate, warm-blooded fellow creatures into machines for producing money for people who never even lay eyes on them, much less care for them.

Even those taking in the cash are sometimes shocked when a rare occasion brings them into direct contact with the "animal machines." A feed manufacturer who took an AWI representative to see a battery hen house full of half-unfeathered, vile smelling, protesting hens muttered something about their "not looking so good." But, he brightly suggested, "You ought to see them when they're first brought in." Apparently, he had seen handsome hens, well feathered and glossy, put in the batteries to eat the feed he sells, but had never viewed them at the other end of the cycle after months of incarceration had reduced them to tattered caricatures of their former selves.

The purpose of this small volume is to put before both farmers and consumers the possibilities now available. We urge the humanitarians in both groups to press for extensive voluntary change wherever severe deprivation is now occurring.

American agriculture now has the opportunity to change for the better without the outside compulsion which has unfortunately proved to be necessary in other nations.

The Animal Welfare Institute will continue to report on and to encourage development of the very best methods of housing: among egg producers such outstanding examples as Pierre Rannou's Ferme St. André in Quimper, France (pages 76-77) and Globovolg in Switzerland (page 29), and among scientists developing the best in the raising of pigs, Dr. Alex Stolba at The University of Zurich (pages 30, 58-65), Dr. David Wood-Gush at the University of Edinburgh (pages 61 and 64) and Dr. Ingvar Ekesbo of Sweden (page 31).

These methods are practical, they provide outlets for normal behavior that are acceptable to the animals themselves. They can provide a living for those who maintain the livestock and poultry, and they need not be so regimented as factory farmers have made them today. A variety of methods meeting these criteria may prove to be acceptable from both the humane and economic standpoints, some being more suitable to one climate and culture, another to a differing situation.

AWI grants for development of systems in which animals can enjoy their brief lives while farmers can make a reasonable profit, have been modest of necessity. But they have already played a useful part in such progress as has been made. Grants to the Farm Animal Care Trust, founded by Ruth Harrison, contributed to improvement of the straw yard system for veal calves researched at the University of Bristol and to the Pig Family Pen system researched at the University of Edinburgh.

Rachel Carson, the author of *Silent Spring*, was a scientific advisor to the Animal Welfare Institute. When she was asked to write the preface to Ruth Harrison's pioneering study, *Animal Machines* (1964), she sent the manuscript to AWI to learn whether such cruel deprivation actually existed. Factory farming had never before been thoroughly examined from the animals' standpoint. Both women were scrupulous in their accuracy, and their books influenced government actions.

Animal Machines led to the first government inquiry into factory farming in Britain and the well-known "Brambell Report" named after the Chairman, a distinguished zoologist, was published in 1965 by Her Majesty's Stationery Office, the equivalent of our Government Printing Office.

But even though these studies appeared in Britain, and even despite the 1981 U.K. Parliamentary inquiry (see page 22), Switzerland is the leading country in the effort to provide modern intensive husbandry that meets the animals' needs and takes account of their feelings. It does so because in a nationwide referendum, 80% of the population of Switzerland voted to get the hens out of battery cages and to improve housing for other farm species. The straw yard system of veal rearing is the traditional one in Switzerland and is still the system under which the majority of calves are reared there. Under the provisions of a Swiss law enacted in 1981, all existing commercial batteries for hens must be phased out by 1991, and nest boxes and perches must be provided.

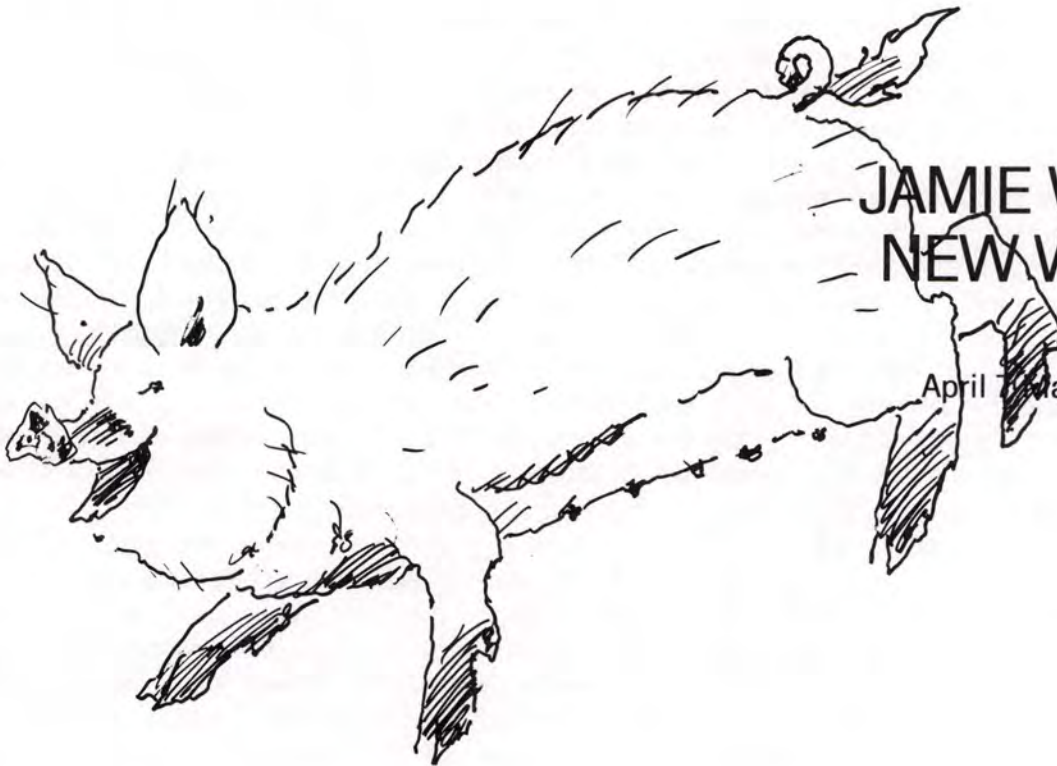
Factory farming has taken the joy out of the lives of millions of calves and pigs, and billions of hens; it has driven countless family farmers off the land; it has polluted streams and rivers; it has injected massive amounts of antibiotics and other drugs into the public food supply resulting in serious health risks. It has lowered food quality. Its chief beneficiaries have been people who have profited from "farming the tax code" and who already had so much money they were able to ride out losses till peak prices could be obtained. Others have been bankrupted. Hence the title, *Factory Farming, The Experiment That Failed*. But the vested interests and supporters in academia, funded by

drug and equipment manufacturers, have not yet recognized the failure, so ordinary citizens have to take the matter into their own hands by rejecting factory farm products.

This short book, made up largely of articles from *The Animal Welfare Institute Quarterly* (formerly the *Information Report*) are reproduced just as they appeared on the date given for each. The reader thus can follow developments, recognize the enormity of the problem, and gain information on the alternatives which can give back to farm animals the opportunity to be themselves and enjoy their lives. Enjoy life they will if given the chance. . . . As demonstrated by this cheerful young gilt whose **joie de vivre** has been captured in a quick sketch by a great animal portrait painter, Jamie Wyeth.

C.S.

Dr. Christine Steward



JAMIE WYETH:
NEW WORKS

April 7 - May 12, 1986

PREFACE

Factory Farming is an International Problem



Painting of free-range hen with her chicks

PREFACE

Commentaries by Desmond Morris, George Wald, Bernhard Grzimek and Rachel Carson

The following statements by four intellectual leaders from three countries present the case against factory farming.

Britain.

Desmond Morris, author of *The Naked Ape* and *The Biology of Art*, wrote in *The Sunday Telegraph*, London, England:

The real price of eggs

In Britain the living space we allocate for each of our 50 million battery hens is roughly seven inches by ten. The living space which the Ministry of Agriculture hopes to gain for our battery hens "after a reasonable transitional period" is a massive nine inches by ten. They see this as heralding a new dawn of enlightenment.

But to put it into perspective, it means that these brave new hens will be enjoying a living space of less than a sheet of foolscap paper. They stand for 17 out of each 24 hours on a sloping wire floor, and crouch on the same floor for the remaining seven hours of darkness. And please do not tell me that battery hens are happy because they lay eggs. They really cannot help it. These are the facts, and they are justified solely on the grounds that this method provides marginally cheaper eggs.

Anyone who has studied the social life of birds carefully will know that theirs is a subtle and complex world, where food and water are only a small part of their behavioral needs. The brain of each bird is programmed with a complicated set of drives and responses which set it on the path to a life full of special territorial, nesting, roosting, grooming, parental, aggressive and sexual activities, in addition to the simple feeding behavior. All these other activities are totally denied the battery hens.

Seeing ourselves today as part of evolution we have at last become concerned about the creatures with which we share this planet. But somewhere along the line those long-suffering servants of ours, the food-producing farm animals, have lost out. Their lot has worsened.

The moral, if you happen to be a

bird or a mammal, is not to provide mankind with any valuable form of food. If you merely provide companionship as a pet, or beauty as a wild creature, you will be well treated; but if you give more—if you provide your eggs, or your meat, for human sustenance—your reward will be a life sentence in an animal concentration camp.

AWI Quarterly, Fall, 1982



The measure of cruelty. The wingspan of this chicken covers almost 3 three-bird battery cages, each of which is 12" wide.

Compassion in World Farming

United States of America.

Professor George Wald, Nobel Laureate, and Professor of Biology, Harvard University

VIEWS OF A NOBEL LAUREATE ON FACTORY FARMING

George Wald, Professor of Biology Emeritus, Harvard University, Nobel Laureate in Physiology or Medicine, 1967, has written AWI giving his permission to publish his opinion on the extreme confinement and other deprivations suffered by livestock and poultry on factory farms.

Professor Wald states: "Never before in human history have the animals that bring meat to the table been subjected to such cruelties as in present factory procedures. Always heretofore animals raised for meat have lived some degree of normal animal lives up to the dreadful day of slaughter. But a few years ago the realization began to be exploited that an animal allowed to move thereby grows and fattens more slowly. Hence, every-

thing now is done to see to it that animals move as little as possible during their entire lives. Either they are fastened in stanchions, or boxed in narrow stalls, or packed in pens or feedlots so that they can hardly move. Chickens are so crowded throughout their lives as to be unable to move about. That irritates them so that they try to peck one another; but that would spoil their skins. So they are de-beaked; and if allowed to live long enough, may be de-beaked again. In part, to reject such brutalities my family has gone semi-vegetarian. We permit ourselves fish and invertebrates—clams, mussels, shrimp, scallops: animals that live free until taken. But we find it neither hard nor unhealthful to do without meat altogether."

AWI Quarterly, Winter, 1980



This calf never knew life beyond this incredibly cramped stall until it was slaughtered.

Dex Harrison

Federal Republic of Germany.

Dr. Bernhard Grzimek in his book, *From Grizzly Bear to Cobra:*

As food consumers, we are collaborators in the torture of animals. Few of us are aware of how much suffering is involved in the production of eggs and veal and pork.

Calves live in complete darkness in cells so narrow they cannot turn around. Their only nourishment is a milklike fluid. When thirsty they lick urine from the walls and floor. Because of their diet, designed to make them anemic, these calves have difficulty breathing and their swollen legs will hardly support them. Because of their dietary deficiency, they crave iron and will also lick anything made of iron that they can reach.

Pigs—similar to dogs on the biological scale—are squeezed between iron bars and forced to lie, without bedding, on iron gratings. They are also kept in the dark, in this case to prevent tail biting, with no chance for any normal activity.

Three of every four eggs are produced by horribly tortured hens. They are crowded into wire cages stacked one above the other. These cages are so cramped that birds are crowded beneath and atop other birds. The wide-spaced wiring of the cage floors means the hens can never stand naturally. The bottoms of the cages (sloped so that the eggs roll forward) increases their discomfort. Muscles and tendons are strained, joints ache. Such "battery hens" can never rest on a comfortable perch, stretch their wings, or even, take a dust bath. The mucous membrane of the cloaca protrudes after an egg is laid, and the other birds will often peck at this sensitive area. Crowded, bored and frustrated hens fight, pull out each others feathers, and sometimes kill and cannibalize each other. To help prevent this, beaks are notched with a hot knife which makes pecking, even for food, extremely painful. Such birds are constantly plagued by mites because they cannot use their damaged beaks to groom themselves.

In Germany alone, 6,000,000 hens are housed like this. Because of this overcrowding they are very susceptible to disease. High egg-yield is no indication of health or well-being. Most battery hens have degenerated livers. Their droppings have a high water content indicating that many trace elements and water-soluble vitamins are lost. The pale yellow yolks are artificially colored to make them more appealing. 15 shades of yellow are currently available. It is worth noting that owners and employees of such poultry "factories" usually get their own eggs from free range hens.

Factory farmers seem only to consider high yields and low labor costs. It is cheaper to allow a certain percentage of the animals to die rather than pay for

adequate caretaking. Thousands of calves once suffocated when artificial ventilation failed during the night. Near Plattling, 100,000 chickens died within an hour when the air conditioning broke down.

Animals have in theory won certain rights. According to a new law anyone who does not provide suitable housing or limits the movements of animals, so as to cause pain, suffering or injury, can be prosecuted. This law is administered by the Minister of Agriculture. Although only a scientist specializing in animal behavior is qualified to determine the housing needs of each species, the Minister of Agriculture appointed a committee of "experts," mostly poultry producers or representatives of the poultry industry.

A Dusseldorf court dismissed a complaint against this author claiming that he had called chickens kept in batteries "concentration camp hens." He did not invent this expression. It had been approved by Martin Niemoller and Dr. Wankel, former concentration camp prisoners themselves. Two Nobel Prize laureates, Professors Konrad Lorenz and Karl von Frisch have publicly stated that keeping hens in batteries constitutes extreme cruelty.

Under pressure from the industry, as well as from countless humanitarians, the Minister of Agriculture responded by allotting 1,500,000 marks (about \$700,000) of taxpayers' money for a study to determine whether keeping hens in batteries was not, in fact, inhumane in spite of the fact that many exhaustive studies are already in existence. This meant a 5-year delay was won for the factory farmers of the poultry industry.

Many dairy cows *never* see sunlight or grass from their birth to their death. The goal of ever higher milk and meat production quotas requires an ever increased daily intake of high protein feed which contains many insecticides. While some are excreted by the animals, others, like DDT, remain in the milk. Antibiotics and the hormones that are mixed with feeds for a quicker weight-gain leave residues which are then ingested by the human consumer. The widespread use of penicillin and related antibiotics gives rise to resistant strains of bacteria. These various drugs can also cause allergic reactions and hormonal imbalances so that they are not effective when really needed.

The government is trying to restrict the use of these dangerous substances by changing the law. It is doubtful that they can succeed. Over 50,000,000 marks a year changes hands in the black market. There are not enough trained inspectors to

test the constantly increasing number of toxic agents and other additives in our foodstuffs, and, even more seriously, in animal feeds. When investigators studied carcasses of 521 pigs and 137 calves that had passed inspection, dangerous substances were found in 14½% of the pigs and in 82½% of the calves.

Minister of Agriculture Josef Ertl has written that where there are large numbers of animals, medication cannot be given on an individual basis and that, when the outbreak of a disease is feared, drugs must be administered simultaneously to every animal. Since disease is a constant threat, Dr. Ertl recommends that antibiotics be used regularly as a food supplement.

Small amounts of pesticides are retained in the human body, particularly in the liver. Even when liver damage is not evident, its defenses against pathogenic agents may be weakened. This may be the reason for the prevalence of hepatitis and other infectious diseases.

Animal husbandry is being taken over by large business firms. Since farming began, it has always worked hand in hand with nature. Manure was spread on the fields where it was broken down by soil bacteria and changed into humus. The enormous amount of manure produced by factory farms cannot be handled this way. Liquid manure is polluting brooks, rivers and lakes which are already polluted. Sometimes, it is spread on the ground or placed in underground containers. Salmonella, which causes so much intestinal damage in man and animals, can easily live in liquid manure for over a year. When manure gets into rivers and lakes, it promotes a heavy growth of algae which decomposes and kills fish and other forms of life.

Agriculture is necessary for our survival—it should be supported by revenues from industry. We cannot return to the horse and the plow. Without a fuel supply, fields would lie fallow. But those responsible for our agrarian policy should not artificially industrialize our agriculture—to the detriment of the farmer and our environment.

The distinguished scientist and author, Dr. Bernhard Grzimek, gave his permission to reprint this translation of an excerpt from his book From Grizzly Bear to Cobra recently published in West Germany. Editor of the major German Animal Magazine, Das Tier, and author of Serengeti Shall Not Die, Dr. Grzimek has played a leading role in conserving African wildlife.

AWI Quarterly, Summer, 1981

United States of America.

Rachel Carson wrote the preface to Ruth Harrison's *Animal Machines* published in 1964:

The modern world worships the gods of speed and quantity, and of the quick and easy profit, and out of this idolatry monstrous evils have arisen. Yet the evils go long unrecognised. Even those who create them manage by some devious rationalising to blind themselves to the harm they have done society. As for the general public, the vast majority rest secure in a childlike faith that 'someone' is looking after things—a faith unbroken until some public-spirited person, with patient scholarship and steadfast courage, presents facts that can no longer be ignored.

This is what Ruth Harrison has done. Her theme affects practically every citizen, for it deals with the new methods of rearing animals destined to become human food. It is a story that ought to shock the complacency out of any reader.

Modern animal husbandry has been swept by a passion for 'intensivism'; on this tide everything that resembles the methods of an earlier day has been carried away. Gone are the pastoral scenes in which animals wandered through green fields or flocks of chickens scratched contentedly for their food. In their place are factorylike buildings in which animals live out their wretched existences without ever feeling the earth beneath their feet, without knowing sunlight, or experiencing the simple pleasures of grazing for natural food—indeed, so confined or so intolerably crowded that movement of any kind is scarcely possible.

As a biologist whose special interests lie in the field of ecology, or the relation between living things and their environment, I find it inconceivable that healthy animals can be produced under the artificial and damaging conditions that prevail in these modern factorylike installations, where animals are grown and turned out like so many inanimate objects. The crowding of broiler chickens, the revolting insanitary conditions in the piggeries, the lifelong confinement of laying hens in tiny cages are samples of the conditions Ruth Harrison describes. As she makes abundantly clear, this artificial environment is not a healthy one. Diseases sweep through these establishments, which indeed are kept going only by the continuous administration of antibiotics. Disease organisms then become resistant to the antibiotics. Veal calves, purposely kept in a state of induced anaemia so their white flesh will satisfy the supposed desires of the gourmet, sometimes drop dead when taken out of their imprisoning crates.

The question then arises: how can animals produced under such conditions be safe or acceptable human food? Ruth Harrison quotes expert opinion and cites impressive evidence that they are not. Although the quantity of production is up, quality is down, a fact recognised in a most significant way by some of the producers themselves, who, for example, are more likely to keep a few chickens in the back yard for their own tables than to eat the products of the broiler establishments. The menace to human consumers from the drugs, hormones, and pesticides used to keep this whole fantastic operation somehow going is a matter never properly explored.

The final argument against the intensivism now practised in this branch of agriculture is a humanitarian one. I am glad to see Ruth Harrison raises the question of how far man has a moral right to go in his domination of other life. Has he the right, as in these examples, to reduce life to a bare existence that is scarcely life at all? Has he the further right to terminate these wretched lives by means that are wantonly cruel? My own answer is an unqualified no. It is my belief that man will never be at peace with his own kind until he has recognised the Schweitzerian ethic that embraces decent consideration for all living creatures—a true reverence for life.

Although Ruth Harrison's book describes in detail only the conditions prevailing in Great Britain, it deserves to be widely read also in those European countries where these methods are practised, and in the United States where some of them arose. Wherever it is read it will certainly provoke feelings of dismay, revulsion, and outrage. I hope it will spark a consumers' revolt of such proportions that this vast new agricultural industry will be forced to mend its ways.

Rachel Carson



*Rachel Carson, author of *Silent Spring* and *The Sea Around Us*, has been memorialized by a 1985 postage stamp illustrated here.*

Factory Farming Under Scrutiny

A selection of criticisms from different viewpoints

*A robin redbreast in a cage
Puts all heaven in a rage.*

William Blake

One robin caged—and heaven's mad!
But when to just that one you add
Vast flocks of battered battery birds
And half-starved calves in crated herds
And multitudes of tethered sows
In narrow stalls—these horrors rouse
All heaven to a rage so wild
Its former rage seems wondrous mild.

Factory farmers used to state:
“Our animal machines are great!
The more they're crowded (studies prove),
The less they are inclined to move;
The less they move (as studies show),
The more they and our profits grow.”
But now increasingly they cry:
“Our problems mount and multiply.”

But agribusiness won't be fun
When earth and heaven rage as one.

Patrick Allen

ANIMALS IN FACTORY FARMS

by Ruth Harrison

Progressively over the last twenty years farmers have had to increase the productivity of their land in order to meet rapidly rising costs. The squeeze has been especially serious for the farmer with a limited acreage. The only way he has been able to increase output has been by the improvement of crops and of livestock. At the same time the human population has been growing not only in numbers but also in affluence, and affluence has led to a higher demand for animal products and especially for meat.

Agriculture had not previously appeared an attractive enough market on which to devote funds for research, but its prospects as a growth industry opened up possibilities to a wide range of commercial interests. Geneticists and other agricultural scientists, manufacturers of housing and equipment, of drugs and feeding stuffs, poured money into research to produce an animal, house, feed and medicate it, so that it put on the maximum amount of flesh in the shortest possible time and with a minimum of effort on the part of the producer.

The farmer is consequently faced with a wide choice of products, each firm claiming to have produced by experiment that their product will bring him the extra success and profit that he needs. Competition is fierce and he is pressured by high powered salesmanship and advice. Every aspect of his management and methods is open to improvement, and as equipment

and materials become more sophisticated and gadgetry more ingenious he is under constant social pressure to modernize his methods.

The terms 'intensive farmer' and 'factory farmer' are usually taken to be synonymous, but in fact they mean very different things. All farming is, in general terms, intensive today in that farmers are intensifying their output. The intensive farmer uses technology with discretion. He makes use of improved knowledge to increase the productivity of his livestock through better breeding and better management and feeding. He may increase livestock numbers and stocking rates but *he does not significantly change the pattern of life his animals lead.*

The factory farmer aims at a maximum turnover of capital with a minimum of effort, his main criterion being immediate profitability. He uses new systems—developed first and foremost for his own convenience—which *subject the animals to conditions to which they are not adapted*, systems which, in their extreme and stringent forms, have been described by a psychiatrist as "characterized by extreme restriction of freedom, enforced uniformity of experience, the submission of life processes to automatic controlling devices and inflexible time-scheduling . . . and running through all this the rigid and violent suppression of the natural." Many of these farmers are not really farmers at all but business interests running their farms from their offices by remote control.



Boxed for life—veal calves.

Ruth Harrison

In most European countries, including all member states of the European Economic Community (EEC), there are laws making it an offense to treat animals cruelly.

The Swedish Animal Protection Act of 1944, which covers animals kept in captivity, states that "animals shall be treated well and as far as possible protected from suffering. The . . . animal housing shall provide adequate space and shall be maintained at a satisfactory level of cleanliness . . . Animals shall be provided with the necessary food and water." The Danish Act of 1950 and the Norwegian Act of 1935, amended in 1951, have similar provisions. The Criminal Code of the Netherlands, in dealing with offenses against morality, makes it an offense to injure the health of animals, to inflict unnecessary injury or pain, or unreasonably to withhold necessary care from animals. The French Rural Code simply lays down that the willful ill treatment of domestic animals is forbidden. The Swiss Penal Code makes it an offense to intentionally ill-treat, seriously neglect or unnecessarily overtax an animal. The 1965 Animal Welfare Act of Luxembourg makes it an offense to treat animals cruelly and includes as an act of cruelty "the housing of domestic . . . animals . . . in such a manner that they suffer from the lack of space in the stall or enclosure in which they are kept or from inadequate ventilation, lighting or protection from the elements." It also lists "failure to supply animals put out to pasture with sufficient water for regular drinking."

All these provisions come under acts offering protection to animals in general and are not designed specifically to protect animals on the farm.

There are, however, clauses specifically dealing with farm animals. For example, in Germany, Norway, Denmark and Luxembourg, force-feeding is forbidden; in Denmark and Sweden tethering so as to cause discomfort or pain is forbidden; in Norway, Denmark and the Netherlands it is forbidden to insert or fasten anything other than a smooth ring to the snout of a pig to stop it rooting. In Norway the castration of poultry is forbidden, in other countries castration of farm animals is controlled, so are other mutilations.

In Britain the 1911 Protection of Animals Act makes it an offense to cause unnecessary pain or unnecessary suffering to an animal, and lists some acts which cause pain and some which cause suffering (to torture, infuriate or terrify an animal). In 1968 an Act was passed, the Agriculture Miscellaneous Provisions Act, which was designed to give specific protection to livestock situated on agricultural land. It makes it an offense to cause 'unnecessary pain or unnecessary distress' to such animals, gives the Minister power to make regulations covering every aspect of the animal's life, and enables the Minister to issue Codes of Practice to give guidance to stockmen—the codes to be voluntary and not enforceable. So far four Codes have been issued (for Cattle, Pigs, Domestic Fowl and Turkeys), and regulations have been made prohibiting the docking of tails in cattle, controlling it in pigs, and proscribing surgical castration of poultry, any operation on a bird with the object or effect of impeding its flight, and the fitting of blinkers to a bird by a method involving the penetration or other mutilation of the nasal septum.

The 1968 Act in Britain was introduced on the recommendation of the Brambell Committee—a technical committee set up in 1964 to examine the conditions under which livestock were kept in 'intensive husbandry systems' and to make recommendations where necessary. This, I believe, was the first such committee to be set up anywhere covering farm animals, and it had as its chairman Professor Rogers Brambell, a distinguished zoologist, and amongst its knowledgeable members Dr. (now Professor) W.H. Thorpe, an ethologist of international standing. The Committee published its Report in 1965 and this report has had a profound influence throughout Europe. The Committee's principal finding was:

"In principle we disapprove of a degree of confinement of an animal which necessarily frustrates most of the major activities which make up its natural behavior."

They were especially concerned as to "the possible cumulative effect on the animal of the long continuance of conditions which might be tolerable, or even acceptable, in the short term. Factors producing prolonged stress, discomfort or deprivation . . . may, on occasion, be of much more significance for the total welfare of the animal than more acute, but transitory, suffering."

The mandatory regulations they suggested (which have not been implemented) were based on five basic freedoms:

"An animal should at least have sufficient freedom of movement to be able without difficulty to turn round, groom itself, get up, lie down and stretch its limbs."

Other recommendations for immediate alleviation of suffering were that an animal's diet should be such as to maintain it in full health and vigor, that there should be sufficient light in animal houses for routine inspection; they condemned lack of bedding and totally slatted floors, mutilations such as de-beaking of poultry and docking of pigs' tails, and also close tethering other than for short periods.

Long term recommendations were for a new act specifically to protect farm animals (see above); for a Standing Committee to carry on where they left off and to advise the Minister; for more behavioral studies to be carried out on the behavior of farm animals; and for work to be undertaken as a matter of urgency into developing and improving loose housing systems to replace systems of extreme confinement.

The German Animal Protection Act of 1972 is the first Act anywhere to recognize behavioral distress. It lays down that:

"Any person who is keeping an animal or who is looking after it:

1. shall give the animal adequate food and care suitable for its species; and he shall provide accommodation *which takes account of its natural behavior*; (emphasis supplied)
2. shall not permanently so restrict the needs of an animal of that species for movement and exercise that the animal is exposed to avoidable pain, suffering or injury."

So far there have been no EEC Directives covering the conditions under which farm animals are kept. [Note: After years of discussion the EEC issued a directive in 1986 requiring a minimum of 450 sq. cm. (about 70 sq. in.) floor space for each caged hen, even less than current industry practice in Denmark and the United Kingdom.]



This crate confines a nursing sow and makes even getting up difficult for her.

Diane Halverson

However, the Council of Europe, of which all EEC countries are members, as well as Austria, Cyprus, Greece, Iceland, Norway, Sweden, Switzerland, Turkey, has drawn up a Convention "On the Protection of Animals kept for Farming Purposes" following a recommendation from the World Federation for the Protection of Animals. Conventions of the Council of Europe may be signed and consequently ratified by member states. Signing is only an indication of general agreement with the convention, ratification is only possible if the country concerned passes—or already has—legislation covering the conditions contained in the convention.

Article 3 of the Council of Europe Convention states:

"Animals shall be housed and provided with food, water and care in a manner which—having regard to their species and to their degree of development, adaptation and domestication—is appropriate to their physiological and ethological needs in accordance with established experience and scientific knowledge."; and Article 4 states:

1. The freedom of movement appropriate to an animal, having regard to its species and in accordance with established experience and scientific knowledge, shall not be restricted in such a manner as to cause it unnecessary suffering or injury.
2. Where an animal is continuously or regularly tethered or confined it shall be given the space appropriate to its physiological and ethological needs in accordance with established experience and scientific knowledge."

Other general principles are set out. Those states ratifying the convention will then set up working parties to draw up detailed regulations to be applied. So far no state has yet ratified the convention but it is hoped that some will do so in the near future. [Note: As of April 1987, fifteen nations had ratified.]

All of which sounds splendid on paper and one can but hope that it will lead to effective action. But so far, in spite of all this legislation throughout Europe hens are kept in cages in which they cannot spread even one wing, can only stretch their necks by putting them through the bars of the cage, are forced to stand permanently on a 1:5 slope of wire mesh (which often damages their feet), and are allowed less than half a square foot of floor space. If you open up your AWI Information Report and hold the narrow end close to you, you will have a 'battery' floor space (14" wide by 17" deep) which will house up to five birds—each weighing up to 6 lbs—throughout their productive lives. Turkeys, ducks, quail and broiler chickens are similarly crowded.

In spite of the legislation calves for the 'white veal' trade are kept throughout their lives (this can now be up to 22 weeks of age) in pens so narrow that after the first few weeks of life they are unable to turn around and in the last few weeks even to groom themselves. We can approximate the size of a veal pen with AWI Reports. If you take four reports, open them and lay four sheets with the wide sides below each other you have a space 56" deep by 17" wide. Add another 5" or 7" down the side and you have a space 22" (or 24") wide by 56" deep (sometimes 60") in which a calf will stay until it reaches around 350 lbs. in weight.

In spite of the legislation piglets may now be kept in either individual cages or multiple cages, and sows in stalls designed to prevent them turning around. Close tethering of sows, causing neck and body lesions, is common.

In Switzerland the federation of animal welfare societies recently conducted a massive campaign aimed at getting rid of hen batteries and veal crates. They rightly pointed out that there were perfectly sound alternative methods for keeping these animals. So far they have not achieved their aims, but they have been successful in alerting the agricultural industry to the

intensity of public disquiet and causing the poultry industry to look seriously at its future methods. An international poultry journal recently carried the following warning to producers:

"When your cages reach the end of their working life, what will you replace them with? Indeed, will you be replacing them at all? . . . the environment of the future may be different perhaps involving more space for birds, which the industry must be prepared to consider."

On a more hopeful note a little more work is now taking place to develop alternative systems to those of close confinement. In Britain, the Universities Federation for Animal Welfare employed a zoologist to study the behavior of hens under battery and deep litter systems. He then developed a cage aimed to give advantages to both the farmer and the bird. The cage, measuring 1 meter deep by one meter high, had littered nesting boxes at ground floor and 'first floor' levels, perches on which the birds could rest. Partitions between nesting boxes soon fell away permitting the birds free access between cages. This meant that birds could escape aggressors by going through the nesting boxes into another cage. The birds could also scratch around in the litter when egg laying was completed for the day, and the fact that very little time was spent on the wire prevented the development of over long claws seen in ordinary cages.

Work is proceeding on similar lines all over Europe and, hopefully, will help to turn the tide away from the present severe confinement of birds.

In several European countries it has also been found possible to keep veal calves in groups bedded on straw and fed through teats on automatic milk machines. It has been found that the small amount of straw ingested by a well-fed calf up to around 16 weeks is not enough to darken the flesh significantly and the animals can lie comfortably and move freely.

Extreme methods have developed largely through expediency, and have been encouraged on the basis that 'what is new is progress and must be good—we must never halt progress'. In Britain at least they have been actively supported with government grants, government research, by being derated, and by the side-stepping of really effective legislation.



Prison bars of typical British sow stalls.

The Federation of American Scientists seeks to catalyze the formation of an organization of scientists concerned with animal welfare. In this regard, the FAS is following the path of the British Universities Federation for Animal Welfare (UFAW).

THE VOICE OF SCIENCE ON CAPITOL HILL

F. A. S. PUBLIC INTEREST REPORT

Formerly the FAS Newsletter

SPECIAL ISSUE:

ANIMAL RIGHTS

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CAN SCIENTISTS HELP THE ANIMAL KINGDOM?

Consciousness-raising has a momentum of its own. The rights of political and other minorities, of women and of children, have steadily expanded with time. Resistance to religious discrimination encouraged resistance to racial discrimination and its success laid a groundwork for an attack on sex discrimination.

Within the human species, the direction is clear. In this century, the repression of man by man for reasons of race, religion or sex have a defensive and furtive quality that foreshadows its future decline.

By comparison, the treatment of other animals by man — the most intellectual animal — is still a closet subject. Persons of humane sentiments generally prefer not to know the conditions under which the meat they eat once lived, or how the animal used, for example, for cosmetic testing or a fur scarf, may have suffered. Many feel that too much knowledge may inoculate them with a psychic resistance to continuing an established lifestyle. If, for example, a revulsion to eating meat overcame them, how would they live?

With regard to eating habits, there is some justification for the fear of knowledge. Animals mass-produced for the marketplace often live an artificial life of considerable psychic stress quite apart from the pain of mutilations (castration, debeaking) necessary to keep the animals quiescent in conditions of concentration camp crowding and tedium.

Obviously, most animal experiments are necessary, and most researchers are presumably conscious of the desirability of avoiding unnecessary pain. But it is worth observing that when medical science is practiced

on humans, the patients themselves, the Hippocratic oath, intraspecies empathy and a closely enforced framework, all serve to remind the medical practitioners to keep suffering at a minimum.

No comparable restraints operate to remind the animal experimenter to limit animal suffering and stress to the minimum necessary to the human goal. It is noteworthy that British experimenters have long accepted and supported restraints and regulations in excess of those we have. But more important than the sometime medical excesses, or the experimenter's possible insensitivity to behavioral needs, may be the potential for unnecessary pain in commercial testing of questionable products.

There is also the problem of cruelty in hunting wildlife, and its simple lack of necessity. And there is, of course, the animal counterpart of what, in human terms, we would call genocide — the extinction of a species or subspecies. Here, quite apart from suffering, there is a still higher imperative. It would seem to apply with special force to the case of whales — so large, so similar to us in structure, with such promising indications of intelligence, and whose hunting is so unnecessary to the way of life of those that kill so many.

In the 20th century, man has generally accepted his evolutionary descent from lower animals. But he has not yet accepted an obvious corollary to Darwinian evolution — a spectrum of emotional awareness and of intellectual ability among the animals.

This blindness must eventually fail. It has long been universally conceded at least that animals can

suffer. Human empathy is such, happily, that this should be enough to proscribe needless animal suffering. From such a beginning, one can begin to consider thereafter in what balance the concept of "needless" should be struck. Empathy with other species need not lessen any valid claims of our own.

All of these issues raise questions of special interest to scientists of a humane instinct. To what extent is the eating of how much meat necessary or even unhealthy? How much suffering, and how much behavioral stress, is involved in modern factory farming and how can it be alleviated? Can scientific methods be devised that would make unnecessary a fraction of the tens of thousands of painful tests on animals each year? And can the pain of many of the remaining experiments be significantly or importantly diminished? Above all, what can science bring to bear on the questions of our intellectual and emotional descent from the animal kingdom?

It is now 150 years since the formation in England of the Society for the Prevention of Cruelty to Animals. Rapid recent progress in communication with primates has enhanced the possibility of a significant leap forward in the empathy with which the human species treats other species. But, as with so many other issues in this industrial age, this improvement cannot be made without the active involvement of scientists who care. Revised and approved by The FAS Council

FACTORY FARMING

Although of special interest to scientists, medical experimentation on animals is only the most dramatic of three sectors where improvement is possible. A second area, more important in numbers, lies in the so-called factory farming in which animals are brought up in environments of such enormous crowding and tedium as to produce mental suffering and stress. Take, for example, the treatment of 3 billion barnyard chickens each year. The success of the poultry industry in reducing the price of chicken has been extraordinary. From the "chicken in every pot" luxury to which Herbert Hoover referred, we have now the Kentucky Fried Chicken outlet on every block. But how was it done? An article "Brave New Chickens" by Stephen Singular described the Orwellian world in which the chicken lives.

One day after hatching, the chickens are given to local growers. A single building may receive 75,000 chickens who never thereafter see the light of day. (Indeed, the artificial light is kept dim to keep the birds calmer.) Their food is dosed with the cosmetic xanthophyll to make them yellow. On the tenth day they are "debeaked" to avoid the cannibalism that would otherwise result in the crowded quarters which their growth will soon induce. Sometimes, they cannot stretch their wings. After seven or eight weeks, they are passed through an electrified solution that is supposed to stun them, hung upside down and steered into a blade that slits the throats of five birds a second.

The chickens are no longer fed diethylstilbestrol (DES) which it is believed causes cancer of the vagina and upsets human hormone balance. But they are fed antibiotics

which, when their residues are absorbed by the human stomach, encourage human resistance to penicillin and other antibiotics. And the stress produced by crowding causes a cancer in chickens (Marek's disease) and other diseases as well.

Those whose opposition to eating meat stems from compassion even have problems with eggs; they talk of restricting themselves to "free range" chickens because most egg-laying hens do not today have free range. Far from it. Since hens lay more eggs when eggs are taken from them, the modern procedure simply removes the eggs at once by tilting the cage. Here the light is kept on 21 hours a day since this was found to encourage egg laying. One problem arises when hens run out of calcium to produce the shells; the resultant shortage of calcium in their bones also makes it impossible for them to stand.

What is one to think about the life led by such animals? Obviously the chicken would be happier and healthier in a barnyard. The sounds made by the chicken (shrieks and moans replace the contented clucking of the barnyard chicken) — and the cannibalism that would result if debeaking did not occur — all testify to the stress involved as does the heightened risk of disease. (The British Universities Federation for Animal Welfare recently hired a zoologist to study the behavior of hens under various conditions and to design a cage that would have some natural features including the possibility of escape from pecking aggressors by passage into another nesting box.)

About 140 million cows, sheep and pigs are raised each year, often in very constrained surroundings. (If one ignores rats and mice, this is 100 such animals for every animal involved in experimentation and 1,000 for every animal involved in painful experimentation.) To take one example, calves may live out their lives in boxes which are, after the first few weeks of life, too small to permit them to turn around or even groom themselves. They seek to ruminate but are permitted no roughage. Forced to be anemic so that veal will have the right texture and color, they are denied sufficient iron and try to lick the nails in their stalls.

In regulation of factory farming, the British are again more advanced than we are. An act of 1968 makes it an offense to cause "unnecessary pain or unnecessary distress" to livestock. It has prohibited the docking of tails in cattle, controlled it in pigs, and proscribed surgical castration of poultry.

The Brambell Committee whose recommendations led to the act suggested five basic freedoms:

"An animal should at least have sufficient freedom of movement to be able without difficulty to turn around, groom itself, get up, lie down and stretch its limbs."

It condemned debeaking of poultry, diets that precluded full health and vigor, and close tethering other than for short periods. Other nations have also gone further than have we. In a number of Western European states, force feeding is forbidden. And in Germany, owners of animals must provide accommodation "which takes account of its natural behavior". According to the Animal Welfare Institute's Information Report, this is the first example of law which recognizes behavioral distress.

reprinted in *The AWI Information Report*, Fall, 1977

HUMANE PROTECTION OF ANIMALS OFFICE ESTABLISHED IN FRENCH GOVERNMENT

An office in France's Ministry of Agriculture has been established for humane protection of animals according to the current issue, No. 929 of the Bulletin of Oeuvre d'Assistance aux Betes d'Abattoirs (OABA), an organization devoted to the protection of livestock and poultry.

"The creation of this office greatly facilitates our work," said Madame Jacqueline Gilardoni, OABA President, "and ensures, in emergency cases, a rapid solution. Rapidity, this key word in ending suffering, is appreciated by us to the full." The initiative was taken by Director of Quality, Dr. Matheiu, and the responsibility for carrying out the work assigned to the Controller-General and the Chief Veterinary Inspector of the Ministry of Agriculture.

AWI Quarterly, Winter, 1979

A CALL FOR ETHICAL CONSIDERATION OF HUNDREDS OF MILLIONS OF ANIMALS ABNORMALLY IMMOBILIZED BY MEAT INDUSTRY

The recently published "The Ethology and Ethics of Farm Animal Production, Proceedings of the 28th Annual Meeting, Commission on Animal Management and Health," held in Brussels, Belgium, August 1977, contains valuable information pointing to the urgent need to reform the intensive livestock industry. Selected quotations from the eleven papers are given below.

Professor H.C. Adler of the Royal Veterinary and Agricultural University, Copenhagen, Denmark states in part: "Intensive systems are characterized by more animals per unit, less space per animal and mechanical equipment instead of persons attending the animals.

"For Denmark the development can be illustrated by a few figures. The amount of animal production was approximately the same in 1960 and 1974, the number of production units have been almost halved, their average size almost doubled, the manpower halved. Two more figures may also deserve mention. One is that 130,000 men fired from agriculture during the period concerned is a figure which is very near the figure for the total unemployment in Denmark at present. The other point is that capital investment for farm buildings in 1974 was 4 times as much as in 1960.

"Never before has man placed his food-producing animals under circumstances so far from their original environment. Never before has man required so much in respect of their adaptability, and never before has he paid so little attention to the behavioural needs of his animals."

Professor I. Ekesbo, Veterinary College, Skara, Sweden states in part: "The fact that we are losing exact expressions for different animal behaviour patterns is one of many obvious examples of the great changes that have taken place in animal husbandry in the last decades and which are closely related to other changes in society. As a matter of fact, we no longer talk about animal husbandry but about livestock production. The change from 'husbandry' to 'production' has meant some problems both ethologically and ethically..."

"An appraisal of animal health shows that while the number of cows in Sweden decreased from about 2.1 million in 1947 to about 750,000 in 1973, the disease incidence - reported by the veterinarians to the National Board of Agriculture - did not decrease at the same rate. The same development with regard to disease applies in principle also to swine..."

"The increase of mastitis is due to many different factors. However, the most common cause is most likely traumatic

injuries to the udders. One important factor is that the udders have become increasingly large through the production growth. These traumatic injuries occur more easily when the animals are prevented from getting up or lying down normally. A combination of a too short stall and an unsuitable tie or feeding rack inhibit the animals' normal movements with risk for udder injuries. Slippery concrete surfaces are equally risky. If the stall is too short, the animals get abnormally dirty which may also be a predominating factor for mastitis. The importance of bedding is emphasized by one investigation showing that cows with access to straw bedding had 3.9% trampled teats while cows without such bedding had 10.1%...Sows in stalls or cages in barren environments often maniacally bite the tubular wall of the cage front...Naturally, if the environment causes injury to the animals, their behaviour changes. Cows exposed to manure gas poisoning develop an abnormal leg position, poultry in cages deformed claws etc..."

"Right now the discussion concerning ethics, ethology and animal health is carried out with great optimism in Sweden. In 1973 the Swedish Parliament took the internationally unique decision of ordering that all plans for re- or new construction of animal environments have to be examined from the point of view of prevention of cruelty to animals through the agricultural boards by veterinarians specially trained for the purpose."

Dr. G. van Putten, Research Institute for Animal Husbandry, Zeist, The Netherlands, describes comfort behavior in pigs. Citing The Brambell Report (1965) he emphasized its advice that every animal be able to carry out exploratory behavior and comfort behavior. Dr. van Putten describes the pig's care of its skin through wallowing, bathing, and rubbing and the normal appearance of the skin of healthy pigs. However, he points out, "Pigs, kept in a pen, have to be satisfied with lying down in places, which have become wet from urine and faeces. In this situation they look very dirty. Many pigs, however, find out that they can make their own wet place by splashing water out of the drinking bowl. If they have only a drinking-nipple, they may press their backs to the valve and thus take a shower, or they bite or press the valve and let the water run out of their mouth to wet the floor. This is the reason why many pig-keepers cut off the water supply for the self drinkers during the major part of the day."

Van Putten also refers to pigs' "sounds of pleasantness" citing Grauvogl (1958) and stating that "pigs have a highly developed vocabulary." He concludes, "Pigs have very complicated patterns of behaviour. Domestic pigs are by no means degenerated to walking sausages. However, modern husbandry systems offer only very limited facilities to express the behaviour they want. Neither do modern housing systems provide stimuli eliciting the most important patterns of behaviour, like for instance comfort behaviour."

"Comfort behaviour is very important in the everyday life of the 700 million pigs (Schwark et al., 1976), sharing this planet with us. Nevertheless we construct their pens or stands in such a sophisticated way, that there is no possibility left to carry out the most essential forms of comfort behaviour."

He recommends that "we should take the decision to provide every new pig pen at least with showers for the necessary cooling and with horizontal and vertical bristles to enable grooming of the sides and the backs of the pigs involved. This is a responsibility we have accepted by taking pigs out of the natural environment to which they were adapted, to keep and select them for our own benefit."

Ruth Harrison, author of "Animal Machines," stated "Last year, in Britain alone, around half a million sows were kept in stalls in which they were unable to turn round. They stood on an unbedded floor of concrete or slats. Some were kept almost continually in darkness. Some forty thousand young calves were

reared for the 'white veal' trade in slatted floored crates, unable to turn round, unable to lie down freely, unable even to groom themselves freely. Some were kept in near darkness. Around forty five million hens were kept in crowded battery cages, unable to spread even one wing and balanced permanently on sloping wire. There are other similar systems...The systems have been embraced by business interests entering farming rather than by

farmers, and by some scientific and government circles adhering to the philosophy that anything that is new is progress and progress must not be halted. This has resulted in an unfortunate bias in research and in subsidies, grants and taxation."

Excerpted from "The Ethology and Ethics of Farm Animal Production," available from Birkhauser Verlag, P.O. Box 34, CH-4010 Basel, Switzerland.

AWI Quarterly, Winter, 1979

Australians oppose factory farming

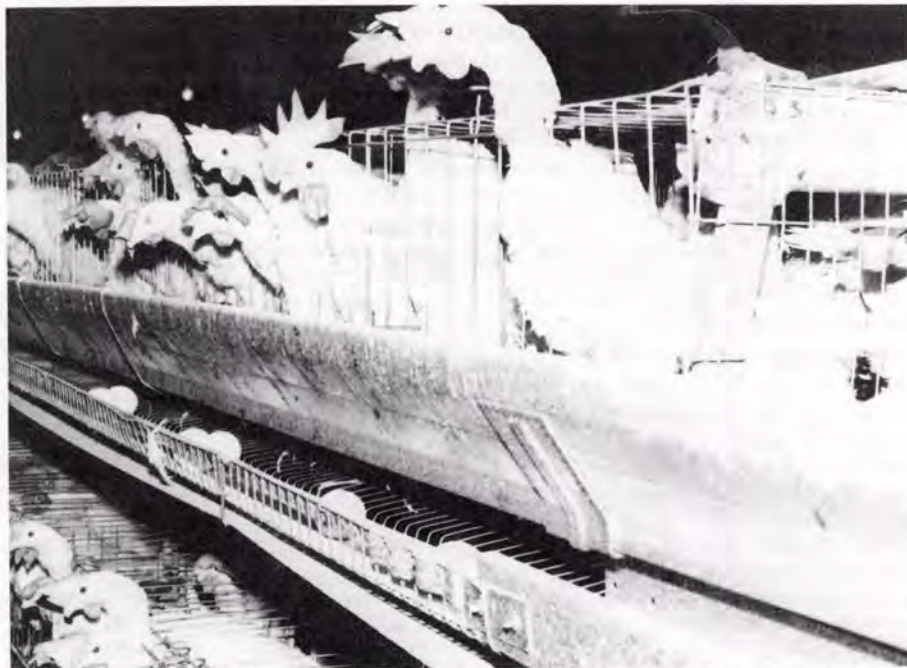
A poll published in Australia's *National Farmer* magazine on people's views of factory farming has come up with surprising and very pleasing results. Of women who gave definite answers, 92% opposed battery hen farming and 84% opposed intensive pig farming. The men lagged somewhat but most of them still ended up on the right side. Of those giving definite answers, 68% opposed battery hen farming and 64% opposed intensive pig farming.

AWI Quarterly, Spring, 1985

Livestock protection

The First European Conference on the Protection of Farm Animals was held 17-18 April 1979 in Amsterdam. The proceedings of this conference form a special issue (Vol. 3 No. 1, 2) of *Animal Regulation Studies*—a multidisciplinary journal sponsored by the World Federation for the Protection of Animals. The publisher is Elsevier, 52 Vanderbilt Avenue, New York, NY 10017. Free sample copies are available on request.

AWI Quarterly, Winter, 1980



"Around forty five million hens were kept in crowded battery cages, unable to spread even one wing and balanced permanently on sloping wire."—Ruth Harrison

Cathy Liss

Farm Animal Welfare Discussed at Major Veterinary Meeting

Intensive practices in maintaining livestock and poultry were discussed at the annual meeting of the Animal Welfare Committee of the U.S. Animal Health Association in Nashville, Tennessee, 9 November. USAHA is the long-established organization of federal and state regulatory veterinarians which holds a five-day meeting each year.

Government, industry, academic research and animal welfare concerns were represented by Dr. Daryl King of the U.S. Department of Agriculture, James Mallman of Provimi, Dr. Stanley Curtis of the University of Illinois and Diane Halverson of the Animal Welfare Institute. Dr. King reported on progress of the research underway using a \$380,000 USDA grant to study stress produced by different types of intensive methods. Dr. Curtis told of his European trip to interview producers, farm groups, animal welfare activists, government personnel, and scientists about current activities abroad. He noted that his four-week trip was paid for by the American Meat Institute, American Farm Bureau and the National

Pork Producers Council. Speaking of farm animal welfare regulations in Switzerland and Sweden, he said, "Many people told us they expected to see things turning back in Sweden."

Diane Halverson's experience in the seven countries she visited over a two-month period was decidedly more positive. She showed slides of mechanized houses for laying hens in Switzerland which do not confine the birds to cages but allow them to choose scratching in litter, roosting on rails, laying eggs in a nest, stretching and flapping their wings, and similar activities engaged in by hens from time immemorial. She described the development of the pig family unit at the University of Edinburgh (see page 8 of this Quarterly) and its replication financed by the British Ministry of Agriculture. Veal calves on working farms, kept on thick straw bedding in group pens, were shown on the screen as were gestating sows in Sweden free to move about from feeding to resting areas.

Mallman reported on research being conducted at Provimi using ad lib feeding from

artificial teats and group pens with straw bedding or slats for veal calves.

Neal Black of Livestock Conservation Institute reported that in response to curriculum guides prepared by the Humane Society of the United States on farm animals, a number of groups in agriculture have produced "a more realistic educational approach" now being distributed to Iowa schools.

Three resolutions were passed by the Animal Welfare Committee commending government agencies for law enforcement and members of Congress for legislative efforts on behalf of laboratory animals and horses being transported to slaughter houses; however, only the fourth resolution was adopted by the full U.S. Animal Health Association: "Be it Resolved that advances in farm animal welfare based on scientific studies and practical application in the United States and abroad be further encouraged by the U.S. Animal Health Association."

AWI Quarterly, Fall, 1982

Britain—factory farming comes under scrutiny

Factory farming was relatively new in 1965 when Professor Brambell and his colleagues undertook a Parliamentary enquiry into the issue. They were shocked by much of what they saw, though not half as shocked as they were when they saw how the Government had “watered down” their recommendations to appease the farming lobby. These recommendations, if implemented, would have outlawed most modern husbandry methods, including crated veal calves and tethered sows.

But while the producers and the welfareists remain locked in mortal combat, the two sides accusing each other of, respectively, sentimentality and greed, some interesting developments have been taking place both in Britain and in mainland Europe. A group of pioneering scientists and enlightened farmers have been making discoveries about animal behavior which show that forcing the pace of Nature not only causes suffering but can also reduce the farmer's profit.

Little by little evidence is emerging that the paraphernalia of factory farming that once seemed so convenient—the cubicles that enabled the farmer to cram twice as many sows under one roof as their free-running herd behaviour would tolerate, the veal crates that seemed so hygienic, the slats that did away with the need for straw and mucking out—might, after all, be an expensive snare.

Official reaction to these discoveries, which tend, again and again, to endorse Mother Nature's methods, not only on humane, but more significantly on economic grounds, is grudging and often prejudiced. The Ministry's reaction to a five-year study by Volac, the veal producers (showing that calves in straw yards were significantly healthier than their crated counterparts), was of the “it's still too early to tell” variety. Likewise while Sweden as a nation has virtually abandoned intensive pig-farming after studies proved that free-range sows lived longer, needed less medication and produced more piglets, Experimental Husbandry Units run by the British Ministry of Agriculture are enthusiastically weaning earlier and earlier, even keeping tiny piglets in heated battery cages, to force the sow back into pig the sooner.

The biggest study carried out so far into the performance of sows in various systems is that of Professor Ingvar Ekesbo of Sweden. His study, of 2464 sows housed in groups in straw pens and 1678 confined in stalls, has had a radical effect

on pig farming in his country. Where strawless, confining systems were once favored there as much as they still are here, now 85% of sows in Sweden are once again reared on straw in pens.

Ekesbo found that the sows allowed freedom of movement and straw were twice as healthy as those confined. Of the “free” animals 12.8% experienced some health problem, while among the confined animals the proportion rose to 24%. When giving birth only 2.3% of the free animals took longer than eight hours, compared with 5.4% of the confined sows. Just over 10% of the sows in pens needed medical treatment, as against 16.8% in stalls. The rate of stillborn piglets was higher in the confined sows, with the number of mummified, shrivelled piglets born seven times higher. Traumatic injury was likewise far higher in the confined group. Only 0.8% of the penned sows experienced this type of injury, compared with 6.1% of sows in stalls.

Gerrit van Putten, a Dutchman, has also studied the behavior of sows. His findings show that while the degree of lighting on a pig farm has no significant effect on behavior, the presence of even a minute amount of straw does. Pigs totally deprived of straw showed aggression towards their fellows on average every two minutes. After being provided with only 100 gms of straw each the picture changed dramatically. While tail-biting, a phenomenon dreaded by the farmer as it quickly contaminates the carcass, occurred among 18% of the pigs who had no straw, among those with straw it affected only 5%. On conflict behavior—nibbling other pigs—the disparity was more dramatic, with 45% of the pigs without straw participating, as against 13% who had straw.



A pregnant sow isolated in a narrow stall

Hedley Hawkins, a successful Norfolk pig-farmer with 25 years experience, has tried and rejected the straw-free slats, the early weaning espoused so eagerly by workers at the Experimental Husbandry Unit just down the road at Terrington St. Clements, and now, having come back to more “natural” methods, describes the Ministry of Agriculture System as “10 years out of date.”

Hawkins, who farms 2100 sows, 1400 of which live in old-fashioned free-range luxury on the sandy soil of his farm just outside Norfolk's Kings Lynn, believes the farmer should ignore the blandishments of the equipment manufacturers and invest what money he has in pigs, not plant. His experience bears out entirely the findings of Ekesbo—that allowing sows freedom of movement and resisting the temptation to force too many pigs per year from them will lead in the end to fitter, longer-living sows and therefore more piglets per sow.

No tail-biting problems

Unlike the breeding pigs in the Ministry Unit his sows are not tethered. The inside ones live in pens of five, on sweet-smelling straw—sows he says are extremely fastidious once their habits are understood. He has no tail-biting problems because his stocking density is right and the sows all know each other. Tethering, in his opinion, is cruel and unnatural, and leads to foot lesions, prolapses and back problems as the sow seeks constantly to find a new spot for her foot.

He says he is regarded as a “bit of a nutter” because he keeps pigs outside, a practice, he says with a hint of irony, that is now unfashionable. Stressing that to do it you have to have a light soil, he points out that while to set up an intensive system with stalls, slats and slurry pumps costs £1500 per sow, to set up an extensive unit costs between £220 and £250 per animal. “If you only have £100,000 to spend you'll be able to get a lot more pigs if you go extensive.”

Professor John Webster of the Department of Veterinary Medicine at the University of Bristol has spent the last five years studying the behavior of veal calves reared in crates, compared with those reared in straw yards. Like Ekesbo with pigs, his findings have revolutionized veal rearing methods in Britain where 75% of veal calves are now reared in this manner.

Stressing that he is a scientist, not a welfare campaigner, Webster admits that the findings—that calves mingling together and feeding themselves from an automatic dispenser are healthier than their crated, segregated counterparts—surprised him. “The intensivists argue that it is in the in-

Diane Halverson

terests of the animals to keep them tethered or in individual crates to prevent disease, but the straw yard method shows that this is manifestly untrue."

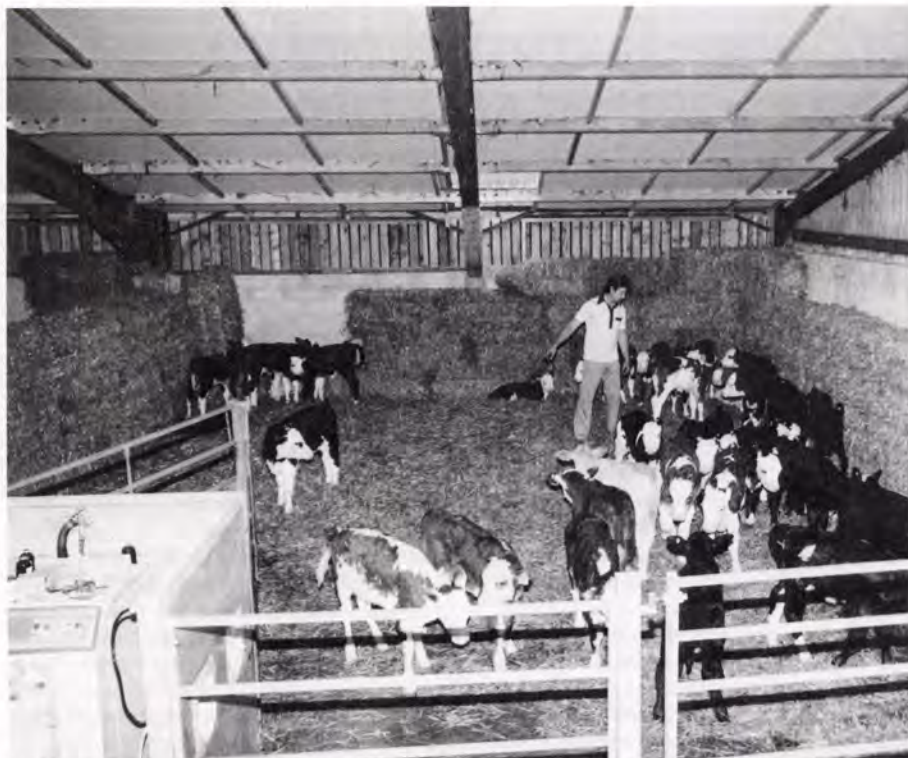
Webster found that diarrhea and pneumonia, the two diseases that commonly afflict calves—which, unlike pigs and chickens, are not disease-free stock bred on the premises, but are brought in from markets all round the country—went down markedly in the straw yards. Vets' bills for calves in the straw yard system were about a third of those incurred by the crated animals. While 22% of the straw-yard calves needed some form of veterinary attention, in crates the figure was 55%.

Webster's explanation for the improved health of the calves, in spite of their being able to touch and groom each other, is that the straw yard is more natural. "If they were in the field with their mothers they would suck from them about 16 times a day—exactly the way they use the feeder. In the crates they were fed twice daily from a bucket. Taking all that half day's feed down in 45 seconds overloaded the gut and allowed bacteria to colonize at a time when the calves had virtually no natural immunity." The drop in respiratory ailments he attributes to the bigger, airier buildings using natural ventilation.

Cheaper and more humane

His verdict on the straw-yard system is certainly that it is cheaper, with lower labor costs, far lower building costs and—without the need for heat or automatic ventilation—greatly reduced running costs. He is also pleased that it is the "humane" alternative which has triumphed. One of the aspects of crating which distressed him was that calves could not chew the cud and instead would lick the walls and bars of their cage for up to 10 hours a day. "Our experiment has exploded a few myths—that if you let a calf chew straw the meat will darken; that if you let it mix with its fellows they will cross-infect each other. The old farm-animal welfare codes state that a basic necessity for animal welfare is the provision of a husbandry system appropriate to the health and behavioral needs of the animal. In my opinion the old crate system did not fulfil either and the straw yard fulfils both."

While in pig and veal farming the new findings indicate that methods of husbandry which take more account of the animal's needs are more economic, the picture is reversed when it comes to egg production. Nevertheless the market in free-range eggs is booming with more and more of the supermarket chains begging producers to step up their output—a fact



Quantock Veal (Volac) turned from crating calves because of the cruelty stigma and adopted this straw-yard method. Professor John Webster investigated and improved upon the straw-yard in research at the University of Bristol (see page 41 for excerpts from his 1986 report.)

Quantock

which would seem to suggest to the pessimists in the National Farmers' Union that a sizeable number of people would be prepared to pay more for a product which they believed to be tastier, more nutritious and produced in less disturbing circumstances than the battery egg.

Aware of this growing lobby the Government has recently voted a small amount of money for research into alternative methods of egg production; and an aviary system, where the hens are free to perch, peck and dustbathe is currently being studied at the Ministry's Experimental Husbandry Unit at Gleadthorpe, Lincs.

Martin Pitt, a chicken farmer in the little hamlet of Pusey, just outside Marlborough, Wilts, has in fact been making a substantial living out of his version of the aviary for just over 15 years. As the largest free-range egg farmer in the country—his hens produce around 2000 eggs a day—he makes no bones about the drawbacks. It is expensive—costing 50% more than battery production.

Pitt knows quite a lot about battery hens as at present he buys birds at the end of their caged life to tide him over with big eggs while his pullets are growing. "They are in a dreadful state when they arrive. They've produced 270 eggs in 350 days.

That's pushing nature as far as you can. They've often got broken bones and wings—they've deprived themselves of calcium to keep up this hectic rate of egg production. They can't walk. They can't fly. Sometimes it seems cruel to expect them to acclimatize."

Phillip Brown, chief vet of the RSPCA, is convinced that hens suffer psychologically in their cramped cages. "Because they cannot perch, dustbathe or nest they go in for displacement behavior, mannerisms which they have invented because of their barren environment. Head shaking, pacing, shivering. You get the same thing with calves and sows. At the end of the day when you see birds that have been in cages for 10 months their physical condition sums it all up. They are fit only for pies and soups."

To people who believe we are asking too much of Nature on our modern farms the lessons of people like Ekesbo, Webster and Hawkins seem so simple. How long before the Establishment sees the light?

Nicola Tyrer

Nicola Tyrer is a British journalist who has spent three months researching welfare aspects of intensive farming.

AWI Quarterly, Spring, 1981

Book

Animal Factories

by Jim Mason and Peter Singer
Crown, New York, 1980, \$10.95

Since *Animal Machines* first appeared in 1964 there have been many developments world wide. Expert government committees have investigated the pros and cons of the various intensive livestock systems, national laws have been passed and an international convention drawn up among the 21 member states of the Council of Europe for the protection of these farm animals.

It seems remarkable, therefore, that it has taken 16 years for a book to be published on factory farming in the States. It is written in a most readable and pungent style reflecting the enthusiasm of the authors for their subject.

The book describes the development of the extreme systems in the States and some of the pressures behind farmers to adopt them. "For years government policies have favoured size . . . Most pervasive of all is the bias towards agribusiness by farming magazines, agricultural colleges extension agents, and salespeople from the companies that supply products to agriculture. Together, these elements put forth an ideal of farming that represents their view of profitable or successful farming. The progressive farmer . . . is the one who goes all out for production and uses anything and everything to get it."

The new systems proliferate as many problems as they seek to solve. One is the drugs used to prevent disease and to escalate growth. Many farmers do not know what additives are in the feedingstuffs they use. Nor do they often know exactly how long before slaughter the additives should be withdrawn. This problem gets carried over into another of the mammoth problems—waste disposal. The practice of recycling waste as a means of getting rid of it profitably has meant that the drugs contained in the waste go through to the animals fed on it, creating a hidden hazard.

The book has very good sections on energy use and it highlights the extra energy needed in confinement systems in which the animal is completely unable to adjust to its environment: "For example, pigs and poultry have more difficulty than some warm-blooded animals in maintaining body temperature. They easily get too hot or too cold. On a traditional farm, they could keep warm in cold weather by nesting in bedding placed in shelters. In hot weather, they could cool off in shady, damp soil. In the factory, however, when the environment becomes uncomfortable the operator must use energy to adjust it, otherwise productivity falls.

The section on loss of protein, feeding it through animals rather than direct to humans, covers well explored territory, but there is an interesting quote from Ohio University on food energy availability: "Even the best of the animal enterprises examined returns only 34.5% of the investment of fossil energy to us in food energy whereas the poorest of the 5 crop enterprises examined returns 328%."

Hidden costs

Then there are hidden costs: "...costs to the health of consumers who dine on fatty, chemically dosed, antibiotic-fed animals that never exercise or see sunlight; costs to the environment from the accumulation of huge quantities of noxious animal wastes; costs to our limited store of fossil fuels; costs to the starving, whose lives might be saved by the food we are wasting; costs to the land, which is forced to produce more and more grain to be turned into meat; costs to wildlife, whose habitat is destroyed to grow more grain; costs to the quality of life for small farmers who, getting no support from the Department of Agriculture or the agricultural research establishment, can no longer compete with big business and must leave the land; costs to the animals themselves, confined, crowded, bored, frustrated, and deprived of most of their natural pleasures; and finally, costs to our own self-respect."

What of the future? The authors produce evidence that farmers are themselves beginning to question the extreme systems. Some have found that, as one pig farmer put it, "10 years of confinement raises more questions than it answers," and have returned to more traditional ways of rearing their livestock. Nor are these systems less productive than the more extreme ones.

In Britain around 40% of veal producers have returned to the straw yard system of rearing calves, in which the calves are kept in groups in well-bedded pens and fed from the teats of automatic milk dispensers. The pens are in naturally ventilated, naturally lit buildings and the calves can move and feed at will. This system is proving as viable as the alternative veal crates. It is not entirely a 'welfare' system yet, in that the calves are still fed only a critical amount of iron since whiteness of the flesh is still aimed for, abnormal growth rates are still demanded and, from the consumers' point of view, a questionable amount of antibiotics and growth promoters are used. Nevertheless, the system works and solves many of the welfare problems associated with veal production. The system is the preferred one in Switzerland, and is also used on some farms in West Germany, Italy and France.

In Britain the Brambell Committee's proposals for legislation were based on a minimum 'five freedoms' and this, as an easily administered regulation, might be an effective start. "Every animal should at least have sufficient room to be able without difficulty to get up, turn round, lie down, groom itself and stretch its limbs." There is plenty of evidence on the benefits of litter for livestock and another effective regulation could lay down a bedded lying area for all classes of stock.

This is a book, not for the specialist, but for the uninformed. The introduction makes it clear that it is not the whole of livestock farming that is under criticism, not in fact the farmer at all—but only the agribusiness mentality by which he is being pressured. I could have wished that some of the systems had been explained more clearly and that within the body of the text there had been more emphasis on alternative viable systems. But nevertheless this is a welcome addition to the literature on the subject.

Ruth Harrison

*Ruth Harrison is the author of **Animal Machines**.*

Animals & Ethics

Man and his various dealings with animals is the subject of this paperback. *Animals & Ethics* is an admirably succinct statement of the views of a working party covering Man and Wild Animals, Man and Managed Animals, The Animals Man Uses for Food, The Animals Man Uses as Pets, The Animals Man Uses in Research. The book costs \$2 from: Watkins Bookshop, 21 Cecil Court, Charing Cross Road, London WC2.

AWI Quarterly, Spring, 1981

Free range pays

In England demand is growing for free-range eggs, even though they cost slightly more than the "normal" battery ones. A Hampshire farmer, Michael Smith, tentatively started a free-range business in 1981 on 40 acres of land. Today, in association with some 30 farmers in the area, he sells 250,000 free-range eggs every week.

Mr. Smith defines free range as green grass within 12 paces of the hen house. This means a maximum of 250 hens to the acre. Living is good for Mr. Smith's hens. And a good living is what they give him in return.

AWI Quarterly, Spring, 1985

British MPs want an end to factory farming

No more hens in battery cages, no more sows in close confinement, no more calves in crated stalls. After examining from every angle the thorny issue of animal welfare in factory farming, this is what an all-party committee of British MPs is demanding for Britain (and for Europe). Not immediately but soon. And with a combination of new laws and financial suasions to bring it about.

Over many months the MPs visited different farms practising different systems, and interrogated both the "industry" and welfare bodies. In July came their report. It is a radical document. Sharply critical of intensive practices, it endorses a great many of the proposals championed by animal campaigners.

Hens: The report calls for battery cages to be phased out over, say, a 5-year period. Thereafter no battery eggs should be produced and imports of such eggs should be banned. In the meantime the number of birds in each 20" x 18" cage (a widely used size) should be cut from the present four, five, and even six to three. A new law should prohibit beak-trimming except as "a last resort" and then only by a skilled operator.

Contrary to popular belief and farmers' propaganda "the cost of producing eggs in

Today animal welfare is receiving more attention, but we have a feeling that it is still regarded as a tiresome complication engendered by vocal sentimentalists who need to be placated at minimum cost to producers' profits. To the extent that this is true, it is high time for a change of attitude.

strawyards or on deep litter or wire-mesh floors would be only some 20% more than in normal 5-bird cages." This translates to about 12½% extra in the shops—hardly a decisive obstacle to change, especially in view of a Gallup Poll finding that 63% of British women would be prepared to pay more for non-battery eggs.

A switch to a totally free-range system was not recommended, though. Besides costing appreciably more, it would eat up a great deal of land—"more than the county of Berkshire."

Pigs: The MPs found that while pig systems are many, none is a clear-cut winner on welfare grounds. All the same "we

Taxation policy should avoid encouraging undesirable methods of husbandry. Grants and other financial incentives should be used positively to encourage better methods.

cannot bring ourselves to regard close confinement of sows by stalls or tethers throughout their pregnancies—that is, for most of their adult lives—with anything but distaste." The report therefore urges that "financial grants be so directed as to provide positive support to producers using

the 'small-group' system; they should not be given to those using close-confinement methods."

Pigs housed indoors should always have access to a bedded area and should not be

Ministerial and official thinking should give more weight to animal welfare than seems to have been the case hitherto.

kept in total darkness. Castration should be forbidden and tail-docking discouraged. The welfare aspect of very early weaning (nearly 40% of piglets are weaned at under 4 weeks old) should be thoroughly investigated. Sows in close confinement should be given some plaything to relieve frustration and boredom, "even if it is no more than a few bits of straw, a chain or an old motor tyre."

Calves: For veal calves the MPs say that "the evidence is overwhelmingly in favor of the loose-yard system: not only was it advocated by the welfare organizations and the vets, but despite some reservations in their oral evidence the Farmers' Union told us unequivocally in writing that

Society has a duty to see that undue suffering is not caused to animals, and we cannot accept that that duty should be set aside in order that food may be produced more cheaply. Where unacceptable suffering can be eliminated only at extra cost, that cost should be borne or the product foregone.

they 'would actively advocate an adaptation to this system in the future. . . . No grants of any kind should henceforth be made to facilitate crated production."

In effect this section of the report amounts to a ringing declaration in support of Volac, the company which has pioneered the loose-yard system in Britain and which sells its produce under the brand name Quantock Veal. The essential features of the system are that the calves are housed in groups of up to 40 in strawyards, protected by naturally ventilated buildings, with access at all times to liquid

feed and water and freedom to consume roughage. (For a picture of Quantock calves in their spacious home, see the Spring 1981 issue of the AWI Information Report.)

The MPs also want "labelling which makes clear the method of production" and a ban on exclusively liquid feed for calves.

There is inevitably a European dimension to this whole issue. As a member of the European Economic Community, Britain is committed to "the freedom of movement of goods." This means that Britain cannot forbid the import from EEC countries of, for example, battery eggs, whatever its own internal legislation on the matter. The MPs' report says, though: "This does not mean that the UK Government and producers should hang back or drag their feet; on the contrary we think

The authorities should be ready to prosecute not only cases of wilful or persistent disregard of the law but also cases of neglect or carelessness in which exemplary consequences would have a useful deterrent effect.

that they should give a strong and sustained lead towards eliminating undesirable practices and achieving the highest attainable standards of welfare."

As it happens there is a golden opportunity for giving just such a lead right now. During the final months of this year Britain's Minister of Agriculture, Peter Walker, is also the chairman of the EEC Council of Agriculture Ministers. This gives him the authority to write the ministers' agenda. It is a rare chance to exert influence.

Statements in bold type are taken from the House of Commons Agriculture Committee's report on Animal Welfare in Poultry, Pig and Veal Calf Production.

Meanwhile in the US . . .

The US Department of Agriculture is spending \$380,000 on a 2-year study of farm animal care. The study is primed by the growing awareness that animal welfare and productivity are very closely linked. It is widely acknowledged that stress can lead to slower growth, loss of weight and greater proneness to disease.

Research will focus on intensively raised poultry, veal calves and pigs. One of the centers of research is the University of Minnesota where behavior of sows in and out of farrowing crates will be investigated.

AWI Quarterly, Fall, 1981

Symposium on Alternatives to Intensive Husbandry Systems, Universities Federation for Animal Welfare.

The Universities Federation for Animal Welfare has published the Proceedings of the Symposium it conducted last year on Alternatives to Intensive Husbandry Systems. The 104-page volume contains an excellent paper by Alex Stolba, Ph.D., at the School of Agriculture, Edinburgh University, "A Family System in Enriched Pens as a Novel Method of Pig Housing." Dr. Stolba's study was made up of three parts. "During the first stage of the study large white pigs were put into a genuinely rich, semi-natural enclosure and their behavioural actions studied in detail." In the second stage, they were put into a much smaller but still rich area. In the third, the "recognised clue features" of pig behavior were met in a covered straw-bedded open-front pen of 3 m x 9 m.

"A variety of features are included that were consistently found to be guiding the pigs' behaviour in the outdoor reference environment:

"1. A roofed and an open part of the pen to re-create a forest border habitat.

"2. The provision of the main feeding area away from the nest site, in the activity area.

"3. A nest site sheltered against wind but with open view out of the pen through the front gate.

"4. In the reference environment the nest is generally against two bushes which are permeable, and farrowing rails and pen walls provide these features.

"5. Space for a nest of 2 to 3 m in diameter.

"6. A site for defaecating in the morning, which is provided at a suitable distance at 4.5 to 11 m away from the nest.

"7. A corridor for defaecation during day time which resembles the wide lanes between bushes which the pigs preferred outside.

"8. Suitable materials for digging and wallowing, in this case peat or bark in the rooting area and a levering bar.

"9. A rack for gathering straw sheaves, and a post for comfort and marking behaviour, both in the activity area.

"10. Sufficient individual space while feeding, achieved here by [solid] head partitions between small feeding stalls.

"11. A possibility for escape behind the partition wall of the rooting area, to enable animals under social tension to keep apart."

Of "the pig family system," Dr. Stolba writes: "In the enriched pens [it] is based on 4 adult sows, always kept together in 4 pens freely connected through the defaecation corridor. They farrow in these pens and their offspring grow up there without artificial weaning and mixing." Under this system, the sows are never confined to stalls either while gestating or during far-

rowing, and it avoids the early weaning which is so hard on all the pigs.

"Free Range Egg Production", a paper presented by Martin Pitt of Levetts Farm, describes his successful method which provides nest boxes for the hens and an opportunity to go into outside runs. Feeding is automated in the aviary houses, the most recent of which has three tiers of slatted floors and some nest boxes 8 feet above floor level. Levetts Farm eggs sell for more than battery eggs. "Two things I am certain of," says Pitt. "The eggs I sell are better than most and the hens I keep are happier than most."

Veal calves were discussed in papers by Professor John Webster of the University of Bristol and Dr. Philip Paxman of Volac Ltd. Dr. Roger Ewbank, Director of UFAW, made the opening statement, followed by Ruth Harrison's discussion of "The Welfare Requirements of Husbandry Systems."

Problems with the British government's experimental aviary system were discussed by Dr. Mandy Hill of Gleadthorpe, while Dr. P.G.C. Dunn gave a paper, "Intensive Farming—The Grand Delusion," in which he criticized, from a veterinarian's viewpoint, the current trend. Under the heading "Energy intensive rather than labour intensive," he states: "The situation now prevails that although one stockperson can husband more calves in a large shed, a

vast army of technicians, factory workers and salesmen are employed by drug firms so that antibiotics may be administered to prevent the consequences of diseases (e.g. calf scour) that are induced by this system of husbandry. . . . Another result of the reduction in labour is the increase in the use of fossil fuel. . . . The labour saving objective of intensive farming means that housing must be designed with ease of cleaning as a high priority, and thus the comfort of the animal becomes a low priority. Hence the absence of bedding—wet and easily hosed-down accommodation is the modern trend. This type of housing predisposes to such conditions as environmental mastitis in cows and leg sores in stalled sows kept without straw. These problems are of course 'solved' by the veterinary profession supplying more drugs. It is my opinion that we are helping the system to 'limp along,' when withdrawing support might have a more useful, long-lasting impact." Under the headings "Increased herd and flock size," "Reduced species diversity," and "Misuse of drugs" he discusses further increased disease.

Other speakers dealt with economic aspects and additional alternative methods. The proceedings of this symposium are well worth reading. Copies may be obtained from UFAW, 8 Hamilton Close, South Mimms, Potters Bar, Hertfordshire, England for £3/65, or \$7.00.

AWI Quarterly, Fall, 1982

Piglet needle teeth are broken off and tails cut off in barren intensive confinement. Tails are removed to prevent tail-biting which occurs when pigs are forced to live in barren and crowded surroundings.



Stiching Lekker Dier

Language, science and the abuse of farm animals

The following is a shortened version of a talk given by Brian Klug in Urbana, Illinois, last March. The occasion was a symposium entitled *Controversies Over the Raising of Food-Animals in Close Confinement*, under the auspices of the *Organization for the Promotion of Animal Welfare*, University of Illinois. Brian Klug, who teaches in the *Department of Philosophy at De Paul University in Chicago*, contends that a recent widely disseminated report on the welfare of farm animals is "fundamentally misconceived and completely misses the point—deliberately."

Raising farm animals is a serious business. It is a source of food. It is a way of life for small farmers. It is big business for those industrial corporations and conglomerates that have substantial investments in American agriculture—and also for those companies which manufacture and market the kind of capital-intensive equipment that is used on the modern farm. It is the focus of research, development and training for agricultural engineers, animal scientists and vets. It is the subject of such trade publications as *Feedstuffs*, *Hog Farm Management* and *Broiler Industry*. Last and surely not least it is no laughing matter for the one billion poultry, 115 million cattle, 60 million pigs, 12 million sheep, not to mention unspecified numbers of rabbits, raised for food on American farms.

Increasingly, these animals have been raised in conditions of close confinement. This can take the form either of isolating individual animals from each other, or of crowding animals together, normally indoors. Close confinement systems are now a major feature of modern farms in America. Nearly all table eggs come from hens housed indoors in cages, each containing from 3 to 6 birds. Broiler chickens (chickens raised for their flesh rather than

their eggs) are characteristically grown in indoor floor systems with a space allowance of 0.7 to 0.8 square feet per bird. Most dairy cows are kept in confinement rather than grazed on pasture. Dairy calves are separated from their mothers 1 to 3 days following birth; they are housed in various types of structures, including individual pens. The shift to fewer and larger swine enterprises has been rapid, and there is a trend toward controlled environments in the raising of pigs.

My source for these facts is a report published in November 1981 by the Council for Agricultural Science and Technology (CAST). This 54-page document, prepared by 24 scientists, is entitled *Scientific Aspects of the Welfare of Food Animals*. The CAST Report was distributed to members of Congress, the US Department of Agriculture, the media and institutional members of CAST. The latter include such venerable bodies as the American Society of Animal Science, the American College of Veterinary Toxicologists, the American Society of Agricultural Engineers, the Institute of Food Technologists, and so on. Thus it is no will-o'-the-wisp. It is a substantial attempt to defend close confinement systems, and it is intended to be influential. However, I consider that it is fundamentally misconceived and completely misses the point—deliberately.

Over the last 30 years or so, there have been radical changes taking place at every level in American farming. You might say that the industrial revolution has at last hit the countryside. At any rate no one today would blush at the statement that producing food, like producing automobiles, is an industry. Food is a product. And the raw material, be it corn or livestock, is seen as simply a factor of production. In this sense alone, quite apart from the conditions in which the animals are kept, the modern farm is like a factory: it exists to transform input into output, raw material into product, with maximum efficiency.

I quote from the CAST Report: "The development of environmental controls and practices followed in modern swine-production operations has been guided largely by production and clinical criteria and economics". Note that language: it is



Cathy Liss

Too close for comfort.

industrial through and through. Instead of referring to pig-farming the report talks about "modern swine-production operations": in other words, a factory where swine meat is produced.

But does the reference to "clinical criteria" signify a departure from a purely industrial perspective? Not so. The efficiency with which a factory operates is a function of numerous factors, including the quality of the stock. In effect, clinical criteria are criteria of management and control in the quality of the stock—in this case, *livestock*.

Invisible hand or sleight of hand?

The authors of the CAST Report explain that it is the profit motive which has led to the adoption of the new technology of close confinement. However, they do not consider that the welfare of farm animals has been sacrificed on the altar of industry. For they affirm, as a central article of faith, that "the goal of maximum profitability pursued by animal producers (and others) leads automatically to improved welfare of both animals and humans". Even Adam Smith in his grave might raise an eyebrow at the idea of an 'invisible hand' that miraculously promotes the welfare of *all* living creatures—not just human creatures—via the motive of private gain. However, a careful reading of the report reveals that what we have here is not so much an *invisible* hand as a *sleight* of hand.

The trick works as follows. In the first place, the CAST Report explains that the goal of maximum profitability has led to the development of close confinement systems. These systems have been designed so that the animals should be in the sort of physical condition which results in efficient 'performance', thus promoting the profitability of the enterprise. In the language of the report, the design of modern "food-



Pigs bought at auction for fattening, they remain in this overcrowded pen till slaughter.

Cathy Liss

animal production operations” has been guided largely by “production and clinical criteria”.

In the second place, at the end of the section *Scientific Evaluation of Animal Welfare* we read: “The principal scientific basis available for understanding and decision-making regarding the welfare of domestic farm animals is the extensive body of data on the integrated responses of animals to their environment provided by traditional production and clinical criteria”.

So *that’s* how it comes about that the goal of maximum profitability automatically improves the welfare of farm animals! Profitability is furthered by confinement systems whose design is guided by “production and clinical criteria”. These same criteria are said to be the “principal scientific basis available” for evaluating farm animal welfare. So of course the results correlate. The argument is as circular as a slice of bologna.

Moreover this logic would enable us to draw the curious but convenient conclusion that the higher the profit, the better the welfare of the animals. But to give credit where it is due, the authors of the CAST Report do recognize one issue which, so to speak, slips through the fingers of the invisible hand (or sleight of hand) that we have been examining. They say: “The physical well-being of the animals in food-animal production operations is an essential element in economic profitability. The latter cannot be achieved without careful attention to the former. Nonetheless, there is normally some trade-off between the combination of conditions that leads to the *maximum* welfare of the indi-



Cathy Liss

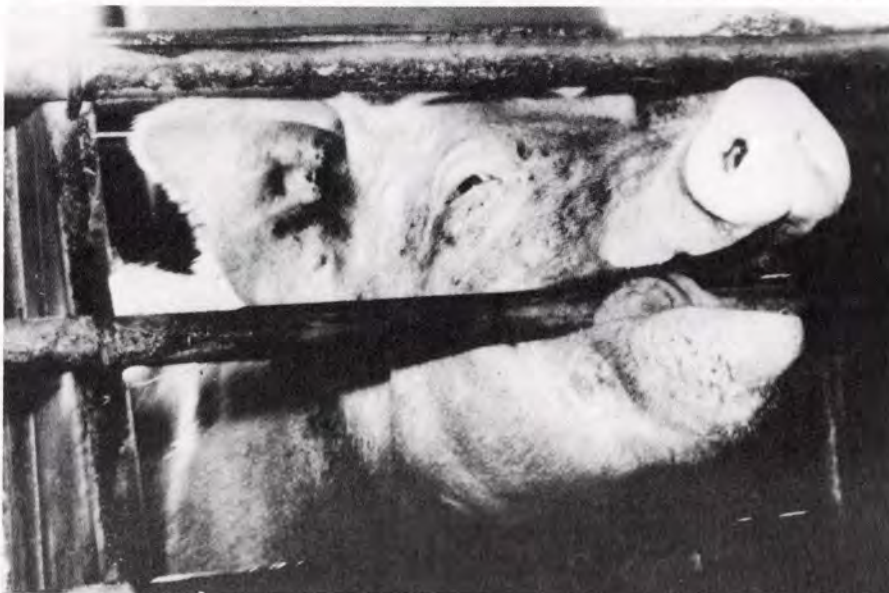
Overcrowding so severe pigs must climb over each other to reach water.

vidual animals (as indicated by their production as individuals) and the combination of conditions that leads to the *maximum* economic profitability of the overall operation involving many animals (toward which the producer directs his management decisions)”. (emphasis added)

In other words, what matters to the producer is overall profits—not the productivity of each animal taken separately. Notice that the text says specifically that the pursuit of maximum profit does not maximize the welfare of farm animals “as indicated by their production as individuals”. The suggestion here is that the more you get out of a farm animal the better off it is! Needless to say, those of us

who protest against the keeping of animals in close confinement are not urging producers to forsake the goal of maximizing overall profits in order to aim instead at squeezing as much as they can out of each animal individually.

In short, it is silly to equate productivity with welfare. For one thing, the productivity of an animal can be measured in many different ways, which might or might not yield similar values. For another thing, the vaunted production and clinical criteria can diverge. Even the CAST Report acknowledges that a productive animal is not necessarily a healthy animal. For example: “An increase in illumination or an increase in calcium or sodium in the diet may dramatically



Boxed in a narrow stall for months, this gestating sow bites the bars that confine her in a typical stereotyped action.

Schweizer Tierschutz

“TIME WAS. . . .”

From front page article *Wall Street Journal*, 18 December 1981.

State Center, Iowa.—Time was when picture-perfect farms dotted this rolling countryside. Spacious red barns opened onto breezy pastures. Chickens chased one another round barnyards, stirring up dust devils. And sows lolled in mud on hot summer days, their piglets close by.

Not anymore. Stark metal sheds are gradually replacing barns here and across rural America. Inside some of them, laying hens are packed wing to wing in wire cages, stacked like crates one above the other. In others, rows of sows chained at the neck lie on their side while newborn piglets clamber over them. Veal calves spend all their short lives in two-foot wide stalls, unable to turn around. And many former barnyard denizens never see daylight or walk on the ground.

increase egg production (reproductive performance), but this does not necessarily represent an improvement in the welfare of the hen that produces the eggs”. And again: “In the absence of appropriate management, high productivity may lead to production-related diseases . . . of high-yielding dairy cows and fast-growing pigs and broilers and, hence, may actually decrease the welfare of the animals affected by such diseases”. I suppose we should be thankful for these concessions to the obvious.

Furthermore, as Dawkins argues (*Animal Suffering: The Science of Animal Welfare*), “although physical health is an important component of any animal’s welfare . . . it is not sufficient by itself”. Even clinical criteria are an inadequate guide to an animal’s welfare. A physically healthy animal can experience what Dawkins calls “mental suffering”. Now it is just possible that the authors of the CAST Report are conscious of this dimension of animal welfare. On page 18 they concede that production and clinical criteria “do not necessarily reflect all aspects of animal welfare . . .” I find this intriguing. It seems to throw the barn doors wide open. But unfortunately the text does not expand on this thought, and we are left guessing as to what the authors have in mind.

The discussion on pain (curiously included in the section *Human Perceptions of Animal Welfare* rather than under *Scientific Evaluation of Animal Welfare*) concludes by quoting a veterinarian (who is also an ethologist) to the effect that “animals can suffer in other ways, possibly more intensely and for a longer time, from fear, anxiety, frustration, deprivation, and social stresses”. But in a five-page discussion on stress, later in the report, fear and anxiety and deprivation are not mentioned at all; frustration gets two mentions.

Complacency and evasiveness

Many observers point out that animals closely confined are often bored, frustrated, neurotic, obsessive, and so on. This is the kind of thing that leads people to say that such animals are under ‘undue stress’. And it seems to me that these are serious issues for anyone genuinely concerned about farm animal welfare. Yet when we examine the way in which the CAST Report handles the subject of stress, what we find is a combination of complacency and evasiveness.

First the complacency: “The overall effects of stress upon animal production are reflected in values obtained from the traditional production and clinical criteria”. Next the evasiveness. The authors say that until much more research is done, “the utility of ethology as a scientific basis for guiding animal production practices is limited. Much the same may be said of physiology”. And that is all the CAST Report has to say about the countless animals kept in close confinement whose behavior is obviously disturbed.

They must wait, and we must wait, until all this preliminary research in ethology and physiology has been done and published and verified and re-verified. And in the meantime? In the meantime we are to discount the evidence of our eyes.

So we end where we started: the CAST Report places its seal of approval on the conventional approach to farm animal welfare—which happens to dovetail so well with the pursuit of maximum profitability. This is hardly surprising, given the provenance of this report.

What does it mean to talk about the welfare or well-being of an animal? On page 19 we read: “Animal welfare is a broad concept that as yet cannot be measured objectively and expressed numerically. Further research is needed to develop appropriate measurements for the currently non-quantifiable aspects of welfare”. I find these sentences slightly mad. Would the authors say the same about *human* welfare? Do they dream of a day when a number can be assigned



Piglets suckling their crated mother. Despite use of these cruelly restrictive crates newborn pig deaths are about the same as 25 years ago.

Cathy Liss

to everything of value in our lives? What about love, fulfilment, happiness? Would they say that these too are 'broad concepts' that as yet cannot be measured objectively and expressed numerically?

It's the "as yet" that gets me—as if in time there is nothing that cannot, and will not, submit to the ruler and compass and the other instruments of calibration which are the stock-in-trade of science. But is it science to use, in one realm of knowledge, the terms and methods that pertain to another? To know and understand—as far as we can—the lives that are led by creatures other than ourselves is a very different matter from doing physics or even physiology. It is an abuse of human beings to treat them as if they were merely factors of production. It is no less an abuse to treat animals this way. It is an abuse of what they are.



Cathy Liss

Veal calves crated for life in their narrow stalls.

In order to grasp what is meant by 'having a life of one's own' you do not need to have a Ph.D. or a degree in animal science. Anyone who has watched a bird alight on the bough of a tree, sit there for a minute or two, preen itself, look around, and take to the wing for no apparent reason—no reason apparent to us—knows what it means for a bird to have its own life, to go its own way. Knows what it means, by contrast, for a chicken to be crammed in a small cage with three or four other hens, inside a building with no windows, kept there for the whole of her abbreviated life, unable even to stretch her wings.

By the same token, what sort of expertise is needed to judge whether the life of a sow, confined in a bare narrow stall, is impoverished? The facts here are evident to anyone

whose judgment has not been caloused by over-education or by vested interest. Quite simply, a bare narrow stall is not an environment which provides sufficient scope for an animal like a sow to live her life. That is the plain truth, for those who have eyes to see it.

However, the authors of the CAST Report seem to think that we are misled by the evidence of our eyes. In particular, they maintain that there is no scientific proof that pigs need to touch each other, except perhaps to keep warm. Here is how they put it: "Their requirement for physical contact, apart from the presumed temperature-regulatory function, has not been established". But has it been established that pigs do *not* need physical contact? Hitherto they have roamed and romped together. So why not give them the benefit of the

doubt?

This is not science

We are told again and again throughout the report that further research is called for, that additional information is needed. Yet there are significant exceptions. No doubts are expressed about continuing the practice of keeping hens in battery cages. Instead, the report maintains that cages protect the birds from the manifold hazards of life in a floor system. Similarly, no qualms are expressed about raising veal calves in individual stalls so narrow that they cannot turn around.

The CAST Report claims to be scientific. Genuine science is disinterested, detached, impartial. In the light of the criticisms made here, I ask you: Is the CAST Report science? Or is

it propaganda, parading as science so as to mislead and mystify us?

The value of research depends on our purpose. If it is our purpose to promote the welfare of farm animals, then we must know what we are doing. We will need, so far as possible, a proper understanding of what it means for a given kind of animal to pursue a life of its own. This calls for intelligent, sensitive and sympathetic observation; and it might require appropriate research.

In this connection I refer you to some of the work on pigs being done in England at the Institute of Animal Physiology at Babraham, Cambridge, and in Scotland at the Edinburgh School of Agriculture. The work at Babraham contains a timely warning against the kind of research which seeks to isolate discrete 'needs' and test for them under controlled conditions in the laboratory. I quote from a long article on current research in the British trade journal *Farmers Weekly* (March 13 1981): "The animal's inquisitive interest in its surroundings invariably overrides its precisely defined need for heat. Adult stock and temperature-sensitive younger pigs will happily root in soil and watch a tractor ploughing in the next paddock, when the wind is blowing and outside temperatures are as low as 5°C (40°F), which is way below their experimentally defined 'comfort zone'".

The kind of research I am criticizing, and the language in which it is conducted, tends to have a subtly corrupting influence. We come to see an animal as a mere collection of 'behaviors' and 'functions'. If, when we describe animals, we constantly use phrases like 'oral activity' (rather than eating or grunting), 'olfactory communication' (rather than sniffing or smelling each other), or 'temperature-regulatory function' (rather than huddling together to keep warm), we are liable to lose the capacity for seeing animals as *animals*. Concomitantly, we will no longer be capable of understanding what it means to *abuse* an animal. It no longer looks like an abuse when animals are perceived as mere assemblages of moving parts. With this kind of jargon animals as *animals* recede from view: we are *blinded* with science.

So I conclude: The need for more research, such as it is, is not as basic as the need to recover the English language—whether of the American or British variety. This is the language from which we set out and to which, with all our scientific research, we must return. Otherwise we will not be able to recognize that the world in which we live contains people and animals with lives to lead—not mere 'behaviors' and 'functions' to be counted.

Brian Klug, *AWI Quarterly*, Summer, 1982

Europe's farm animals

At a meeting in Washington, DC on 20 January attended by livestock industry representatives and Congressional staff, Diane Halverson of the Animal Welfare Institute talked about her extensive European tour undertaken to observe at first hand some recent developments in the management of farm animals. It is to the credit of US farmers that narrow stalls for confining pregnant sows are not used on any very great scale in this country, in contrast to West Germany where such stalls are the norm. Fortunately, the most progressive scientific work on improved housing, underway at Edinburgh School of Agriculture, relates to sow management. Europe as a whole is seeing definite advances in many aspects of farm animal welfare and it is anticipated that these will serve as the basis of similar advances here.

European farmers, scientists and animal welfare organizations have been exploring farm animal behavior and welfare much longer than their counterparts in the United States. For this reason I travelled to Europe last summer, visiting universities and farms in seven countries, meeting a great many scientists and farmers along the way and, in Norway and Switzerland, discussing developments with government officials. My European tour was centered around the management of veal calves, laying hens and hogs—areas of primary concern to AWI.

Critics of animal welfare groups have portrayed us as calling for free-range rearing of livestock and poultry. We are certainly pleased to see well-managed free-range systems, but we are not insisting on an across-the-board switch to free-range production.

Our goal is to see that commercial methods of livestock and poultry rearing are physically compatible and behaviorally appropriate for the animal and economically viable for the farmer.

Veal calves

In the US, veal calves are generally transported from the home dairy farms to auction barns, beginning at about three days of age. They are mixed with calves from other farms at the auction then transported to veal farms to be housed in narrow crates for about four months. All calves are brought into the barn as a herd, and are removed for slaughter as a herd. Some of the usual pitfalls of these aspects of veal calf rearing have been circumvented on the Mar-

tin Pfister farm near Zurich, Switzerland. Mr. Pfister and his sons buy their calves from individual dairy farmers. Calves are brought into the veal barn in small groups at 10 to 14 days of age and are placed in the first of three group pens. Feeding is *ad lib* (i.e. calves feed at will) from a mechanical dispenser of milk replacer. Floors are straw-bedded. Each calf is moved as an individual through a series of three pens over a period of 100 days. As it reaches a specified weight in the first pen, it is moved on to the second and then, in due course, to the third. Milk concentrations vary from pen to pen. Each calf remains in the third pen until it reaches slaughter-weight. Usually just a few calves are slaughtered at any one time. This eliminates problems of variability in weight among calves slaughtered *en masse*. The Pfisters have been raising calves in this way for about 15 years. University of Zurich veterinarians who showed us this system confirmed that mortality on the farm is unusually low, under 2%.

Around two-thirds of Swiss veal farms rear calves in group pens, with 30-40 calves in each pen. Calves are brought in and moved out of the veal barn as a herd, and are fed *ad lib* from mechanical dispensers of milk replacer. I visited one such farm where 250 to 375 calves are raised each year; in line with the recommendations of Swiss veterinarians, the farmer does not bring them to the veal farm until they are at least 10 days old. By this age calves are better able to withstand the stresses involved in transport and mixing with other calves.

At the University of Bristol in England veterinarian Dr John Webster has been studying the health, behavior and performance of veal calves in various housing systems since 1979. AWI has helped with funding his research. He is developing a system of rearing veal calves that is appropriate for the animal and economically viable. At present, he is working



Diane Halverson

Swiss calves with freedom to self-groom and to lie comfortably are bedded on deep straw.

with a group of eight Friesian and two Holstein calves housed out of doors in a pen with a shelter of straw bales at one end. The floor is straw-bedded. Feeding of milk replacer is *ad lib* from nipple dispensers. A second group of eight Holstein and Hereford-Friesian calves is housed indoors in a straw-bedded, naturally ventilated pen. Again, the feeding of milk replacer is *ad lib*.

Dr Webster had not completed his research when I visited and had no formal report on his results. He did say he was encouraged by the progress of this study particularly by the performance of his Holstein bull calves. In an upcoming study, Webster will feed the calves from a computerized, automatic milk dispenser which will electronically recognize each calf as it comes to feed and can notify the farmer if any calf consumes less than its normal daily intake.

Laying hens

Public concern for the welfare of farm animals was recently demonstrated in Switzerland. In 1976 the Swiss public voted in favor of government regulation of the management of farm animals. Legislation was proposed and passed in both Houses of Parliament in March 1978. The legislation was published and within six months 50,000 signatures had to be collected as a prerequisite for a public vote on the legislation. 90,000 signatures were obtained and in December, 1978, a referendum was held. 80% of the voters voted for the Act. On 27 May 1981, regulations issued by the Swiss government on the keeping of farm animals took effect. The law has a 10-year phase-in period. A second law limiting the size of farm operations and providing protection to small farmers is being phased in over the same 10-year period.

According to a Swiss veterinary official the government had decided that the pressure of a law was necessary to stimulate changes in the way animals were reared. It appeared that without a

law, agricultural interests would always argue that change was not possible. Once the proposed legislation became law, the poultry industry presented designs the government had never seen before. It seemed that "necessity was the mother of invention."

The new Swiss law requires that laying hens be given perches and nesting boxes. One of the new designs presented by the poultry industry shortly after the law was enacted was the "Globovolg" type of house. It has 2 tiers of nest boxes running through the center of the building. Over the nest boxes is a platform about 16 feet wide, covered with a thin layer of litter to which hens fly or climb. Placement of the litter platform at this elevation, above the waterers and where

been designed and will be tested.

At the Royal Veterinary and Agricultural University in Copenhagen, a project is underway to design an alternative housing system for laying hens. Scientists are making comparative studies of behavior, health and productivity in battery cages and in two variations of a small pen. The pens have nest boxes, a wire mesh floor crossed with wood strips which serve as perches, and a small area of litter. Researchers are experimenting with a flock size of 75 birds in each of the small pens.

Many other alternative housing projects are underway in Europe, and commercial farms are successfully marketing non-battery eggs. One such farm is in Europe (see page 8 of Spring 1982

Globovolg house for laying hens. Birds line the edge of the elevated litter platform. Nest boxes are placed underneath the platform. In the foreground waterers hang above the wire mesh floor which is crossed with wood strips. Feeders are placed nearby.



Volg

the air is warmer, helps keep the litter dry. Wire mesh floors, crossed with wood perches, run the length of the building on both sides of the central rows of nest boxes. The automatic waterers and feeders are placed over the wire mesh. This particular building had 2000 hens. It has been given provisional approval by the Swiss government and there have been many requests to build similar houses. This system, like other building designs, must be tested by government scientists to determine whether or not it is appropriate for the animals. Its economic viability will also be evaluated. Other systems, including one in which birds are more densely stocked, have also

Quarterly). The system has been developed over the last 20 years—currently it has some 75,000 hens in three houses. Birds have nest boxes from which eggs are automatically collected, a litter area and perches

I also observed efforts of Danish and Swedish scientists to make adjustments to the battery cage. In Sweden, Dr Ragnar Tauson is working on improving cages in various ways, including reconstructing them to prevent or reduce foot damage, throat blisters and trapping or strangulation of birds. Battery cages can certainly be made less inhumane but no matter what the improvements, the system itself can never be adapted to the bird's natural functions.



Dr. Stolba closely observed the behavior patterns of domestic swine on this hillside of trees, gorse bushes, marshland and streams. He then designed a family-pen system recreating in a practical way, all the features most satisfying to boars, sows and piglets.

Diane Halverson

Swine

One of the most interesting research projects I visited was a swine study at the School of Agriculture in Edinburgh, Scotland, initiated by Dr. Alex Stolba, an ethologist from the University of Zurich, and Dr David Wood-Gush, a professor of animal behavior at the Edinburgh School of Agriculture.

Their goal was to develop improved swine housing by studying the behavior of a domestic breed of pigs, large whites, in a relatively unrestricted, semi-natural environment. Dr Stolba carefully observed swine here, determining which features of the environment were most important in satisfying behavioral patterns. He then constructed a series of smaller and less complex environments and observed the hogs' behavior in each, until arriving at the present housing design which incorporates many of the features that influence the pigs' behavior outdoors.

Stolba found that by providing an interesting or enriched environment for growing pigs, aggression between pigs was reduced. He compared behavior in the enriched pen to behavior in a straw-bedded pen and in a pen without straw. He found that when the pigs' environment was made more barren, their attention shifted from objects to other pigs—often aggressively so. Pigs in conventional, barren housing units soon

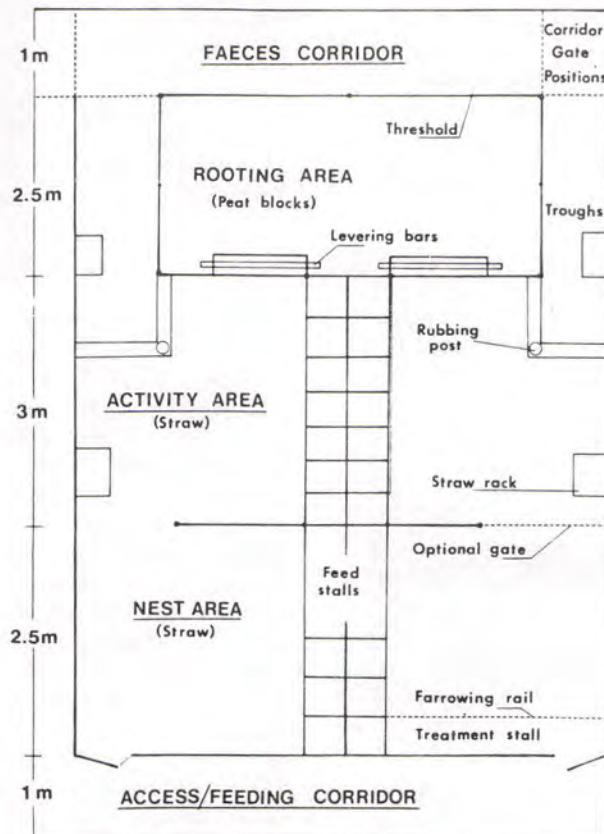
lose interest in rubber tires or chains placed in their pens to reduce aggression or boredom. However, the young hogs in Stolba's pens do not seem to tire of their more natural environment.

Dr Stolba was trying to determine the most important behavioral patterns of swine and to

construct a system to satisfy them. He found that by observing behavior carefully and taking behavior seriously, he could produce a system in which it is possible to achieve overall health and high performance. He has had repeated success with breeding during lactation and growth rates have exceeded those achieved in a conventional control system. Total space requirements are only fractionally more than in conventional systems.

The Ministry of Agriculture has been impressed by Stolba's research and has funded further testing of the system. Project workers have demonstrated success on a small scale over the short run and are confident that the system can succeed on a commercial scale over the long term. This approach to designing a system of managing swine is an unorthodox but logical one.

We hope it will inspire a similar approach to developing improved housing for other species.



The floor plan of two pens within a unit of four in the Pig Family Pen system. These pens are linked with the other pair by means of the feces corridor.

Preventive medicine

Another approach to evaluating and designing hog-housing has been taken by Dr Ingvar Ekesbo, a veterinarian and professor at the Swedish University of Agricultural Sciences. He has published a great deal of material on the relationship between environment and health in Swedish cattle and swine herds. As a young veterinarian, Ekesbo had been frustrated by the reliance on antibiotics which only treated symptoms of disease and did not remove the cause. He became very interested in research on preventive medicine and began to study the relationship between environment and health. Ekesbo does not define health as "production" but as physical and psychological well-being. To achieve this definition of health, Ekesbo believes that animal behavior must be given serious consideration. For example, Ekesbo stresses to farmers that a sow's preference for separate feeding, lying and dunging areas should be accommodated. Such an arrangement is in use on his brother's farm, where pregnant sows are confined only at feeding time and have small but distinct areas for lying and dunging. The Regional Agricultural Board has visited this farm in order to copy and spread the system.



Diane Halverson

Young pigs root in this area filled with peat. The iron-rich peat eliminates the need for iron injections that are routinely given to piglets in conventional systems. A levering bar is suspended near the back wall of the rooting area. Because piglets have these and other features with which to interact, aggressive interaction among pigs, such as tailbiting, are minimal, making tail docking unnecessary.



Diane Halverson

Excellent use of space in Stolba's enriched pen allows for a distinct dunging corridor placed away from lying and feeding areas. The corridor doubles as a runway for active piglets. To the right are rooting areas, filled with peat.



Diane Halverson

In Dr. Stolba's enriched pen hogs can lie comfortably in areas well-bedded with straw. Stolba observed that hogs in the outdoor environment tended to form sub-groups. The design of the enriched pen allows hogs to socialize and form similar groups.

A third approach to animal husbandry was presented by a Norwegian agricultural engineer, Dr Lasse Gravas. In an experiment underway during my visit, Dr Gravas was comparing the behavior, health and productivity of sows tied during pregnancy and lactation, with the same attributes of sows kept free-moving in pregnancy and lactation. Gravas is not motivated to evaluate behavior by a strong humane interest but he does believe that understanding behavior will lead to improving productivity. On the basis of his work to date, Gravas recommends to farmers that sows be kept free-moving, and estimates that about 50% of Norwegian farmers allow the sows to be free-moving a week or so after farrowing, if not during farrowing.

Dr Stolba, ethologist, Dr Ekesbo, a veterinarian and Dr Gravas, an agricultural engineer, represent three

distinct approaches to hog management. But all have concluded that understanding animal behavior is of immense importance in properly managing livestock. Thus armed, one can design a system which wards off the kind of health, production and welfare problems likely to arise when behavioral patterns are ignored.

Diane Halverson rounded off her presentation by quoting the resolution adopted last November by the US Animal Health Association: "Be it resolved that advances in farm animal welfare based on scientific studies and practical application in the United States and abroad be further encouraged by the U.S. Animal Health Association." She expressed the Institute's interest in working with members of the agricultural community to resolve public concerns for the welfare of farm animals. AWI Quarterly, Winter, 1982

Veal Calves



Bringing Home the Newborn
by Jean-Francois Millet
c. 1857-1861

Van Gogh said this painting was “so powerful as to make me tremble.”

Courtesy of The Art Institute of Chicago, Henry Field Memorial Collection. Oil on canvas 32" x 39-3/8"



photos by Britt Sjoerdama



A cow with her calf. They are rarely permitted to remain together in the modern world.

Ceramic sculpture, Royal Copenhagen, Denmark

Life in a veal factory

What's it like in a veal factory? *The Vealer*, organ of the "special-fed veal industry," gives some revealing glimpses. For example, the January-February 1982 issue advises, "Calves with bronchial pneumonia often have a headache so bad that they do not want to lower their head. In summer, calves bordering on heat stroke will not lower their heads, but will drink if you lift the bucket." This comes from a veterinarian employed by one of the big Dutch feed companies who manufacture the "milk replacer" the calves subsist on.

Lest the reader suppose that illness is rare in special-fed veal calves, a look at the March-April 1982 issue of *The Vealer* shows the routine medication given by veal farmers the magazine surveyed (see also page 37 for advertisement from the December 1985 issue of *The Vealer*):

Bender: We feed calves according to bag schedule the first week. We also use a preventive medication program. We usually vaccinate calves the first week. We watch calves real close and try to prevent problems before they occur. We also implant with Ralgro. [a growth promotant with estrogen-like action.]*

Beitzel: Day 1 we give a round of Veal Lac Paste and put calves on Neo Ter powder in mixer or Chloratet depending on condition of calves, we might use Nitrofurazone for 3 days in mixer. We also Ralgro calves at 2-3 weeks.

Yoder: 3 feedings of Nitrofurazone, then 3 weeks of Neo Ter Soluble powder in the mixer. 2nd day we give I.B.R.-P1 3 Vaccine also 1st days we gave 2cc BO-SE. 4th days 2cc P.B.#2. We also use a lot of vitamins in milk. This has worked good for us and we have been using this on recommendation after we had a bad group with I.B.R. I also use Ralgro plus Agri-Serum in the milk.



Dex Harrison

Calves immobilized in crates for life.

*For more detailed information on growth promotants see pages 255-266 and 297-302 of *Modern Meat* by Orville Schell (Random House, New York, 1984).

The Vealer is frank about the strained relations between veal factories and veterinarians. In an article by George W. Crossmen III, we read:

Besides waiting too long to call veterinarians for a really sick calf, vets do not look favorable (sic) on relations with veal growers because they have long defied accepted agricultural methods. The feeding of long hay to livestock, in order to maintain a proper digestive system has been considered a sound practice for years. As long as the veal industry feeds only milk formula, which can obviously cause metabolic upsets down the road, it is understandable that veterinarians are not attuned to veal health. At the same time, veal growers have to maintain the realization that when they purchase auction calves they are playing with fire and they can't expect a vet to save every calf treated only a few hours from death.

The same article refers to "disease accumulated at the auction" and "cases of shipping fever which are inevitable after trucking, especially at such a young susceptible age."

Besides their confinement to stalls so narrow that they cannot stretch their legs out when they lie down, veal calves are frequently chained. In the November-December 1981 issue, *The Vealer* shows a calf with the following

caption: "The sporty new stainless steel neck chain insures that the calf will not be chewing on oxidized iron links that might turn the meat red."

Even *The Vealer* (September-October 1981) recognized that chaining has its drawbacks. In a box (page 33) it emphasizes: "NECK CHAINS AND STRAPS SHOULD NOT BE TORTURE. CHECK YOUR CALVES!"

It has long been known that there is no rational reason for depriving calves of a normal amount of iron. Studies at Brigham Young University by Dr. Robert Gardner,

Professor of Animal Science, have shown over ten years ago that a taste panel was unable to differentiate between normal veal and so-called "white" veal. "The public demands a calf that is white which is borderline anemic," according to Richard G. Warner, Professor of Animal Nutrition at Cornell University. "Since iron is needed by man, red meat is better than pale, but the veal companies feel no pressure to change." (*New York* magazine, November 5, 1979).

AWI Quarterly, Spring, 1982

Dutch poll on farm animal welfare

From the Netherlands comes news of a recent opinion poll showing that 93% of the Dutch people consider respect for life in general to be the most important reason for considering the welfare of livestock and poultry. The poll shows that 96% object to the Dutch Minister of Agriculture's proposal to approve crates measuring only 27½ inches by 65½ inches to confine a veal calf for the whole of its few months of life.

It is a curious fact that in the United States, Dutch companies have been the chief promoters of iron-deficient diets to make the meat pallid for the trendy "white veal" trade. "Provimi" sells commercial milk replacer to farmers who buy calves at auction that are only a few days old. Most of them end up in crates and have to learn to take their artificial nourishment from a bucket twice a day.

When consumers in the United

States complained, Provimi experimented with keeping calves in straw bedded pens with continuous access to artificial teats, a far more natural and pleasant arrangement for the calves when proper ventilation is provided. However, with temperatures thirty degrees below zero and inadequate arrangements for ventilation the trial was not a success.

AWI Quarterly, Spring, 1983

Why does a crated calf need so much medicine?

Under a grant from the U.S. Department of Agriculture's Agricultural Research Service, four systems for raising veal calves were examined at Texas Agricultural and Mechanical University. Following are extracts from the summary of the University's preliminary draft, published in *The Vealer* April, 1984.

Note that calves isolated in narrow stalls or individual pens required *five times* the amount of medication as the hutch and yard calves! Many became lame, and the stress caused by long-term chronic close confinement caused measurable physiological changes.

These findings should speed change from solitary confinement to straw yards by all who raise veal calves. Consumers should ask butchers how the veal calves were housed and insist upon straw-yard veal.

Extract from Texas A and M

"Dr. Ted Friend and associates at Texas A&M University conducted a series of trials

using Holstein bull calves raised in each of three treatments: (1) narrow stalls, (2) individual pens, (3) individual calf hutches with yards. The physiological data obtained at six weeks indicate that a state of chronic stress was induced in stall and pen calves.

"Switching the hutch calves with the stall calves caused a reversal of adrenal function and T3 concentration within 9 days. This supports the hypothesis that the observed changes in physiology were a direct result of housing methods. There was no difference in gain, as expected, since all calves were fed the same amount of milk replacer. The stall and pen calves required approximately five times the amount of medication as the hutch and yard calves. The stall and pen calves showed a significant increase in rate and amount of movement (running, jumping, etc.) when removed from the stalls and pens for open field tests.

"Stall calves stumbled and fell more frequently than calves from other treatments. The greater incidence of highly active

behavior in stall and pen calves, despite a higher incidence of lameness, attests to the strength of motivation induced by intensified drives.

"Stall and pen calves also engaged in more social play (head butting, running together, etc.) than calves from the less confining treatments. Hutch-and-yard calves commenced grazing sooner, suggesting the frustrating of one drive may influence the display of other behaviors.

"Results from these studies indicate calves require some degree of exercise to prevent lameness and chronic stress. Relationships were indicated between increasing degree of constraint, increasing stress and decreased disease resistance. The results indicate that long-term chronic close confinement can have adverse effects on the overall production of calves by inducing physiological changes associated with stress. The results also indicate that calves have a drive for social interaction and exploration as well as for locomotion."

AWI Quarterly, Fall, 1984

John F. Beary, M.D., Associate Dean of Medicine at Georgetown University states: "Two things about the white veal issue strike me. First, it is disgusting to subject calves to cruel farming practices merely to produce anemic meat to satisfy epicures. Secondly, it is irresponsible to be routinely administering antibiotics to veal calves. This causes the emergence of resistant strains of bacteria which threaten human health. In the case of gentamicin, one of our most valuable antibiotics is undermined and may not work when it is badly needed for serious infections in man or animal. In the case of nitrofurazone, a known carcinogen is being placed in the food supply." (see page 35 and opposite).

Lakeland's Veal Holiday Bonus Special

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|---|----------------------------------|
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| Vetisulid Inj. 250ml \$ 17.95 - 12/ 17.39 | Vetisulid Boluses 100's \$ 35.75 |

Inducing anemia for profit

Shortly after birth most dairy calves are abruptly separated from their mothers, the heifers to be raised on the farm to eventually replace older dairy cows culled from the herd. Though some bull calves are raised on the home dairy farm (to be eventually marketed as "dairy beef"), a larger number of the bull calves are sold to buyers. Some buyers are meatpackers who will slaughter the calves immediately, and some will raise the calves as dairy beef. But many will raise the calves under intensive conditions until marketing them for pale veal at 320-350 pounds in weight at 13-16 weeks of age.

The diet of veal calves is far different from the normal diet of dairy or beef calves: it consists of only two feedings daily of liquid milk-replacer for 13-16 weeks and is iron deficient to create the pale flesh that has been promoted by veal calf feed manufacturers, veal calf "growers" and some chefs. In *Raising Veal Calves* the Cooperative Extension Service of the University of Massachusetts describes the deprivation of food and bedding imposed on veal calves which is said



Cathy Liss

to result in a carcass of white rather than pink veal:

The anemic condition resulting from milk-only feeding gives the desired lack of pigmentation to muscle tissues in the carcass. Milk is deficient in iron and thus a food source that will give the desired end product. Other feeds must be avoided, as they do contain iron. Trace mineral salt, hay, bedding are excellent sources of iron and must be avoided. Grains should also be avoided in the feeding program. Physiologically, this type of nutrition program results in marked stresses to the animals, especially as they approach 10 weeks of age.... The calf does have stores of iron in the body at birth, primarily in the form of extra hemoglobin in the blood, with lesser added amounts stored in liver, spleen, and bone marrow. This added storage iron can carry the calf pretty well through 8 to 10 weeks. However, by this time the calf is anemic, and with a longer growing period, there is decreased energy utilization, decreased resistance to disease, decreased growth rate, and eventually death....

Commenting on this type of diet, Dr. R.G. Kauffman, Department of Meat and Animal Sciences at the University of Wisconsin, Madison says:

....it is clear that calves should be supplemented with iron to prevent anemia and to maximize growth and healthfulness. Admittedly, many consumers and chefs believe there must be an advantage to white veal but it appears to be a figment of their imagination.

An exploration of the health of calves raised for white veal and the calf marketing situation in Wisconsin has been made by University of Wisconsin students. In their report, entitled "Prime-Fed Veal Production, Marketing and Distribution," the authors present information suggesting that the severe deprivation of food and bedding described earlier is often less important in rearing a calf they will be able to sell for maximum profit than the whim of the packer who determines the price the grower receives.

The authors describe the early life of calves and the veal



Cathy Liss

Hard slats without straw to lie on. Note that calf cannot even stretch out its legs when lying down.



Cathy Liss

growers' heavy dependence on drugs to sustain them:

Once in the veal barns after a very large initial investment, the calves begin the feeding period.... This is where the feed companies come into the picture. The calves require a special feed so they will grow quickly in a semi-anemic condition so their muscle tissues will remain white or pink as a new born calf's muscle is...Controlling and combatting the constant presence of bacterial and viral infectious diseases is another major problem the growers face. Considering that each animal originated from a different farm, [was] then sent through a central marketing point, and put in confinement together [with other calves], the chances for disease transmission are large. The calves' semi-anemic condition may also add to [their] susceptibility to infection. The grower is equipped with a large arsenal of various antibiotics that would appear to be greater than that found in a veterinarian's office.... This represents another major expense.

Many growers fear increased government regulations on drug residues in the tissues that occur because of their use on the farm and that which the feed companies add to the starter feed. If in the future they would not be able to liberally use these varieties of drugs, they would no longer be able to grow veal calves....

In the mid-1970's the British veal industry began to react to public pressure to give up crate confinement of calves in England and began

to replace its crates with pens in which calves are housed as groups and fed *ad libitum* from nipple dispensers of milk replacer. This had long been the method by which most calves in Switzerland were reared for white veal. Efforts are being made to introduce similar loose-housing systems into the United States: The British-based Quantock company has set up a branch in Wisconsin to introduce the loose-housing method in America's Midwest, and Forster



The veal crate is so narrow that this calf cannot even sleep normally with his head tucked into his side.

Gail A. Eisnitz

Technik, a German firm with a branch in this country, has introduced loose-housing in the New Jersey area. However, the overwhelming majority of calves reared for white veal continue to be raised in crates and whether kept in crates or in loose-housing, continue to be fed an iron-deficient diet, without access to appropriate roughage such as grass, hay or oats.



Cathy Liss

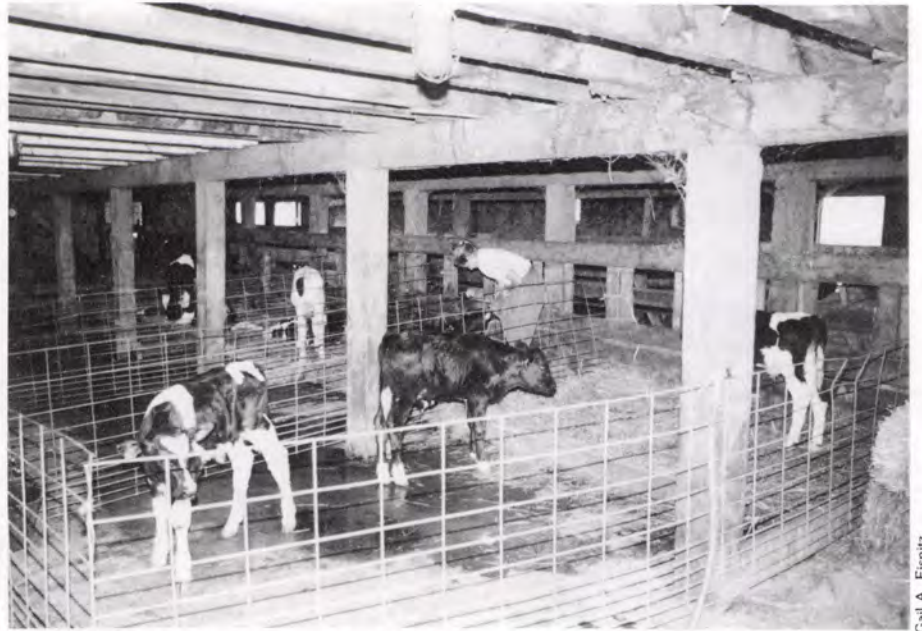
"The health of the veal calf can best be described as anemic, weak, and susceptible to disease. . . ."—Raising Veal Calves, Co-operative Extension Service, University of Massachusetts.

At the University of Bristol in England, Professor John Webster and several students have explored the viability of alternatives to the crate for the last seven years. Results of this scientific study have just been published. *Improved Husbandry Systems for Veal Calves* is available from the Department of Animal Husbandry, University of Bristol School of Veterinary Science, Langford, Bristol, BS187DU, England. Proper nutrition of the calf, opportunity for normal calf behavior, and good health were the criteria for evaluating the crate and alternatives to it. When the feeding of group-reared calves was controlled and monitored by a computerized feeder dispensing milk replacer, and the calves given solid food, the incidence of disease was significantly lower than in any other system.

There were no deaths and there was no need for "culling" among the group-housed, computer fed calves given solids. This work was experimental and therefore small scale, but it holds promise for the millions of veal calves imprisoned every year in wooden crates here and abroad (See page 41).

In order to free the dairy bull calves reared for white veal from crates and an iron-deficient drug-laced diet, Summerfield Farms, based in Virginia, has developed a growing restaurant market for a gourmet pink veal that comes from calves reared either out of doors on grass or indoors in roomy strawbedded pens, and fed both whole milk and hay. Summerfield raises calves which it obtains directly from dairy farms rather than from auction barns and also locates dairy farmers interested in rearing their own bull calves for marketing by Summerfield.

Another progressive effort to replace the factory rearing of veal calves has been organized by the Food Animal Concerns Trust (FACT), based in Chicago. FACT locates family farmers interested in raising dairy bull calves according to a rearing system it has developed, licenses them to use a FACT-owned trademark ("Rambling



Gail A. Eisanitz

Summerfield veal calves in straw-bedded pens.

Rose Veal") and then helps them promote their products to consumers. The calves are purchased directly from dairy farms, then raised outdoors in groups of up to eight with room for exercise. FACT explains that the calves can suckle from bottles of milk replacer whenever they want to and "are fed plenty of iron for normal, healthy growth. They are not deprived of solid food or warm bedding...[the] calves neither require nor receive

medicated feeds." The Summerfield and FACT methods of raising dairy bull calves to obtain a meat product - pink veal - that can replace white veal represents a vast improvement over those systems which depend on the crating or abnormal feeding of the veal calf, and will hopefully replace such systems on a larger scale. (See pages 81-82 for stores and restaurants where this veal is available.) Diane Halverson, 1987



Food Animal Concerns Trust

An improved method of rearing veal calves developed by FACT.

University of Bristol "Access" System for Group Housing of Calves

Professor John Webster and students investigated several systems for rearing veal calves. Here are excerpts from their report (1986).

Boxes and buckets

The conventional system of confining veal calves in individual wooden crates and feeding them twice daily from buckets on a liquid diet of milk replacer has received much criticism on welfare grounds. The most obvious insult to the welfare of the calf is to confine it in a box where, in the latter stages of growth, it cannot turn round, groom itself properly, adopt a normal sleeping position, or even stand up and lie down without difficulty.

A more searching examination of a typical conventional, commercial veal unit reveals abuses to each of the five freedoms.

1. The calves are deprived of dry feed. This completely distorts the normal development of the rumen and encourages the development of hair balls which may lead to chronic indigestion.

2. Intake of dietary iron is severely restricted to ensure "white" meat.

3. Wooden crates with slatted floors are uncomfortable and severely restrict behaviour.

4. Young calves are seldom cold in veal units but well-grown calves frequently experience acute heat stress.

5. The incidence of infectious disease is high and often kept under control only by liberal and repeated administration of antibiotics.

6. Deprived of solid food to eat and ruminate upon, veal calves in crates engage in various purposeless oral activities, such as crate licking, tongue rolling or, if they get the chance, sucking each other's mouths and tongues. In many commercial units this is considered unhygienic and calves are denied any direct physical contact whatsoever. In others they are muzzled so that they can do nothing with their mouths other than suck milk out of a bucket.

7. In many units veal calves are kept in darkened enclosed units out of sight and sounds of farm activity.

Computer-controlled feeding in yards – the "Access" system

A further potential cause of indigestion and enteritis in veal calves is the quantity of milk replacer that they drink from buckets twice daily, and the manner in which they drink it. A calf at pasture with its mother takes about 6-7 good milk feeds per day and drinks at a rate limited by flow through the teat. The main benefit of sucking milk slowly through a

teat rather than drinking it rapidly from a bucket is that it all goes into the abomasum where proper digestion of milk can take place. There are obvious attractions to a system that provides calves with access to milk replacer via a teat in amounts that can be controlled and at rates and intervals that closely correspond to the natural state.

In recent years several companies have produced computer-controlled feeders for livestock. The animal wears a tuned coil round its neck. When it enters a feeding station it is recognised by an electric sensor and identified by a computer which is programmed to dispense food in amounts and at intervals determined by the operator. The animal may enter the feeding station at any time and will receive food until it has consumed its ration for the predetermined period (e.g. 6 hours). In association with Simon Duff Engineering, Chard, we have adapted the Cattle Code Ltd. system for controlled feeding of dairy cows out-of-parlour to serve as a feeding station for calves. For ease of description we call this the "Access" system. In the first instance it was designed only to dispense controlled amounts of milk replacer but latterly both milk replacer and digestible dry food.

All our calves reared in yards were generously bedded down with barley straw which provided them with a source of unmilled fibre. Moreover, they always had

access to fresh water.

The computer-controlled feeding system, "Access" was a conspicuous success. Other than a few cases of foul in the foot, the calves experienced no health problems of any severity.

The percentage incidence of deaths, culls (animals removed and weaned because they failed to thrive) and treatments for disease are shown in Table 7.

In ideal circumstances the "Access" system yields a gross profit margin comparable to that of veal calves confined in boxes and fed milk only (£37 v £34 per head).

When one takes into account the losses incurred through death and disease the picture changes radically. The two conventional options, boxes or the "Quantock" system were, in our experience, both associated with losses approximately equivalent to £30 per calf due to deaths, culls, calves that failed to meet quality standards and costs of veterinary products. Doubtless some commercial producers can do better than this but it is not easy for reasons that have been discussed earlier. The "Access" system was by far the healthiest, almost certainly because it approximated most closely to the normal behaviour and physiological development of the young calf. Considered in terms of gross profit margin alone, this system can therefore compete without any assistance from legislation.

Table 7
The incidence of disease and calf losses in different rearing systems

| | Rearing system | | | Computer-controlled feeding ("Access") |
|-----------------------------|----------------|---------------------|---|--|
| | Boxed calves | Bucket-fed in yards | Unrestricted milk in yards ("Quantock") | |
| Total calves at start | 68 | 24 | 82 | 63 |
| Percentage incidence | | | | |
| Deaths and culls | 9.0 | 21 | 11 | nil |
| Enteritis | 36 | 34 | 35 | 8.0 |
| Respiratory disease | 9.0 | 12 | 18 | 3.2 |
| Digestive disorders | 19 | 16 | 4.0 | nil |
| Other disorders | 1.5 | 8.5 | 3.6 | 13 |
| Other disease and losses | 75 | 92 | 71 | 24 |

Calves were kept in one of four systems:

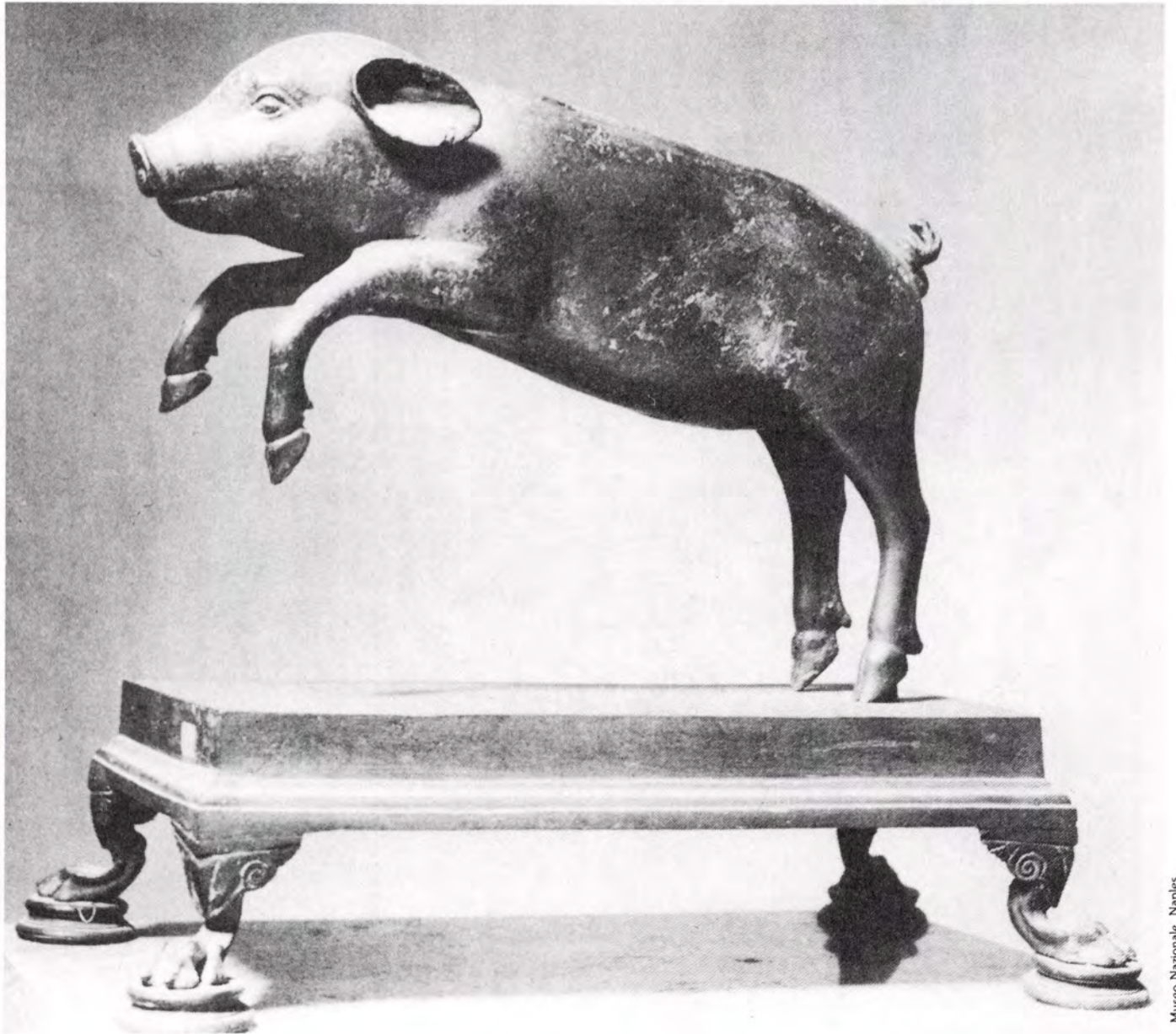
1. *Boxed calves: housed individually in narrow crates, given milk replacer by bucket twice daily or milk replacer plus solids.*

2. *Bucket fed in yards: housed in groups in yards, given milk replacer from buckets twice daily.*

3. *"Quantock": housed in groups in yards, given unrestricted access to milk replacer dispensed from artificial teats.*

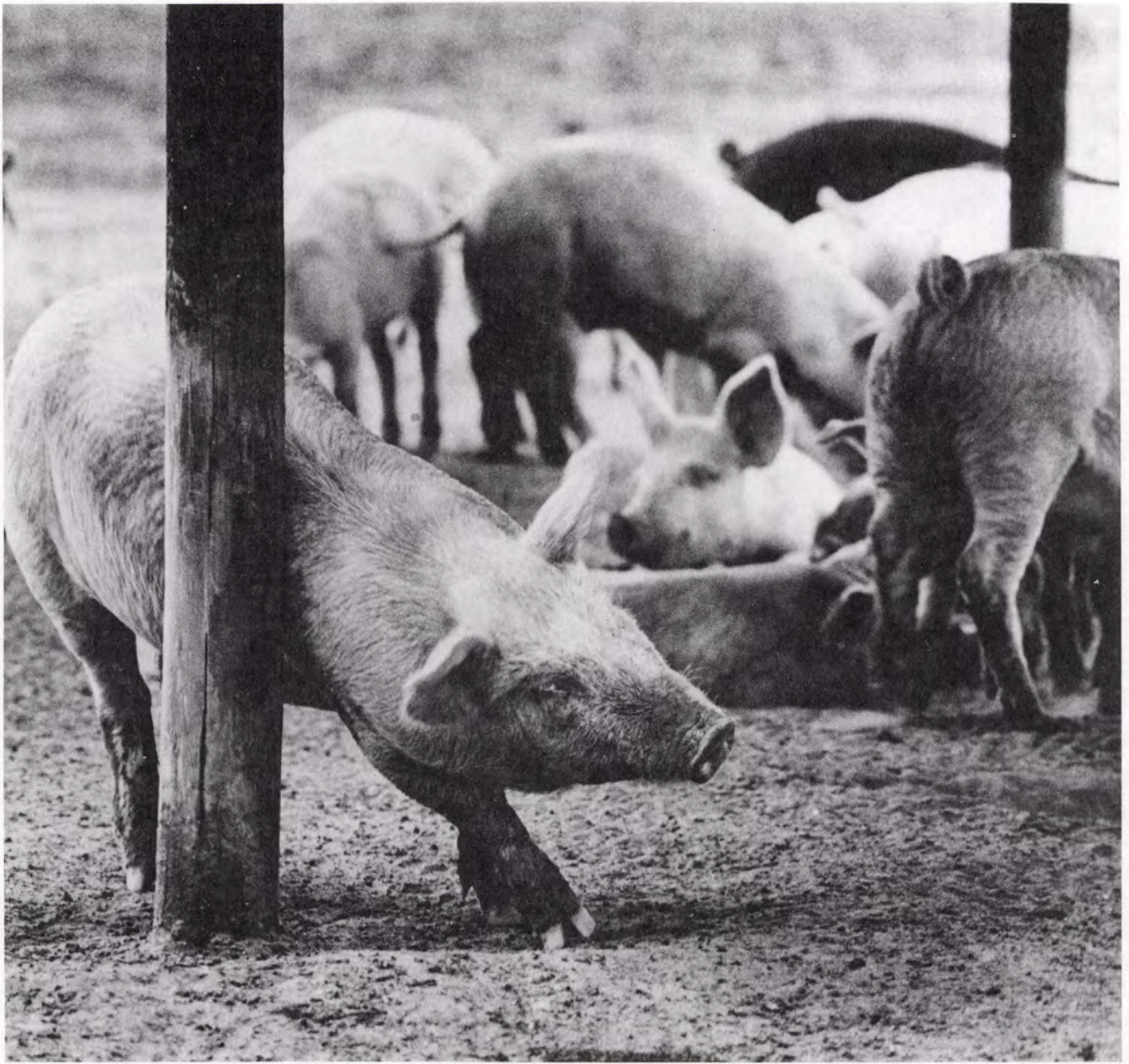
4. *"Access": housed in groups in yards, given computer-controlled access to milk replacer with or without dry food.*

Hogs



A first century bronze piglet uncovered at Herculaneum expresses its high spirits.

Museo Nazionale, Naples



Al Clayton (The Hog Book)

Unlike its unfortunate counterpart in a hog factory, this pig has freedom to move and a convenient rubbing post.

Life in a hog factory

What's it like in a hog factory? Ought we call them hog factories given the sensitivities of some promoters of ever-more-intensive livestock raising to a term which some consider derogatory? Let's take a look at the February, 1982 issue of *Hog Farm Management* in an attempt to get it straight from the industry's mouth.

First, as to the word "factory," on page 58, Dr Dave Bache, listed as "ag economist, Purdue University," talks about records: "Daily we record sows bred, sows farrowed, and pigs born. Greatest emphasis is on sows bred; we must breed 34 per week to keep our factory full." With 8½ pages of *Hog Farm Management* devoted to his economic advice, it would seem his phraseology is accepted.

Bache's casual referral to gestation crates, an area so small that the sow can't even turn around in it, though she is forced to remain there for the four months of her gestation, also makes plain that this too, unfortunately, is accepted. He refers to a producer who writes a 3" x 5" card for each sow. "This card moves with her through the building complex until her next litter is weaned. Her card hangs above her gestation crate and is fastened to a wire line by a spring clothes pin." (page 62)

Sows in gestation crates are subject to fits of "bar biting" in which they attack the imprisoning bars in front of them. Photographs of sows biting the bars even appear sometimes in *Hog Farm Management* where they are apparently accepted as part of "factory" life. This stereotyped behavior, like the frequently documented side-to-side rocking of chimpanzees in cramped cages, is the sickly outlet which intelligent animals are forced into by extreme confinement.

Those who hawk their wares in *Hog Farm Management* are aware of the stress placed on the animals. To quote a full-page ad by the pharmaceutical firm, Hoffman-LaRoche, "STRESSES from confinement or adverse environmental conditions may increase vitamin needs in swine."

Among those "adverse environmental conditions" in a hog factory are varying levels of air pollution from the sort that rots heating units and has driven the magazine's editor to another form of employment, right up to immediately lethal levels of hydrogen sulfide that kill hogs and hog farmers alike. A few quotes from the February issue show what's involved. "Maintenance Tips for Gas Heaters" (p. 14) gets to the point in its first paragraph: "Heating units installed in confinement hog buildings are subject to

an extremely undesirable atmosphere for this type of equipment. The air inside a hog house is quite corrosive and also quite dusty . . . During the coldest part of the winter when the heat is needed the most, the ventilation rates are also lowest. This results in less air exchange and a greater accumulation of dust."

Nor can they leave when the hydrogen sulfide levels peak. "Manure Gas A Clear & Present Danger" (page 39) begins with these words: "Denny Roesler knew something wasn't quite right. The ventilated pit gases from his nursery unit carried a foul, offensive odor . . . not like hog manure at all. And from inside he could hear the



A hog factory. Pregnant sows are confined for months to crates so small they are unable even to turn around. It has been estimated that "70-90% of workers in swine confinement structures experience acute respiratory symptoms. 55% experience chronic bronchitis and at least 14 workers have died suddenly from acute respiratory distress and systemic toxicosis." (Feedstuffs, December 31, 1984).

How does that corrosion and dust affect mammalian lungs? Here's a quote from John Byrnes, "a six-year veteran of *Hog Farm Management*," who is shifting to a different job because, as he put it, "I don't smoke, but I picked up a smoker's hack. The hack stayed with me as long as I was near hog buildings. It is ironic that after writing about hog respiratory problems I ended up with one of my own." A pity the hogs have no choice about moving out of the dusty, corrosive air.

screams of pigs in trouble . . . "When I looked in, I didn't like what I saw." What he saw were dead and dying baby pigs at the far end of the nursery . . . "In about a minute or two I was feeling myself starting to faint." This was the second time 45 pigs died on this farm from the poison gas, and the article states, "Others have lost a great deal more."

"According to University of Nebraska Associate Professor of Livestock Housing, Dr Gerald Bodman,

hydrogen sulfide levels of 2 to 5 ppm are common in hog confinement units . . . Inhaling air with 20 ppm for more than 20 minutes is considered dangerous for humans. At this level, pigs exposed continuously to the air will develop fear of light, loss of appetite and nervousness. Continuous exposure to higher levels will cause vomiting and diarrhea. Levels of 800 ppm or above may produce unconsciousness and death in pigs and humans." The article notes that incidents similar to Roesler's "are being reported with alarming frequency."

On page 44 a statement entitled "Toxic gases: an occupational hazard" says: "Livestock production practices during the past 10 years in the US have been evolving toward an industrial approach. The livestock confinement systems approach has been the major technology behind this trend. Liquid manure storage is a common component of confinement systems for swine, beef, dairy and veal operations." Reference is made to an article in the *Journal of Occupational Medicine* that reports results of investigation of six incidents of exposure to hydrogen sulfide from liquid manure that resulted in eight deaths and three illnesses. "The trend indicates future increased human exposure to liquid manure storage." Obviously, this trend will affect huge numbers of pigs trapped in their cramped stalls.

Is this extreme total confinement so beneficial from the standpoint of economics that it is worth running such extraordinary risks? Not according to a carefully documented study from the University of Missouri-Columbia College of Agriculture, Agricultural Experiment Station. In a paper entitled "An Economic Evaluation of Total Confinement, Partial Confinement, and Pasture Swine Production Systems," by James B. Kliebenstein and James R. Sleper, Research Bulletin 1034, February, 1980, the following statements appear: "During relatively low input costs-output prices the pasture system provided the highest return above all costs per sow."

Each year thousands of family farmers are forced off the land by a form of competition which deprives the animals involved of their most basic enjoyments. Indeed, the deprivations are so severe in the case of the



Kept without bedding and unable to turn around, this pregnant sow bites the bars of her narrow stall.

H.H. Sambraus

sows as to cause grotesquely abnormal behavior. It is time for family farmers and consumers to join with humanitarians to prevent still further industrialization of livestock raising. Animals are not machines, and those who want to treat them as if they were must be prevented from expanding their ill-founded schemes.

A recent survey by *Hog Farm Management* indicated that 25% of its readers plan new construction this year. Given the above trends, it is all too likely that most of this construction will be hog factories. The analysis by the scientists at the University of Missouri-Columbia seems to have fallen on deaf ears.

Commenting on a number of tables, the paper states: "For example, using 16 pigs weaned per sow per year and \$.44 per pound market hogs, the partial confinement and pasture system provided the highest profit. Alternatively, fewer pigs per sow per year were needed to break-even with these two systems." Following further statistics, the article notes: "The pasture system requires the lowest level of feed efficiency to break even." And later: "The pasture system provided the highest income above variable costs per sow for the feeder pig production phase for all swine prices and

feed cost levels studied." It also provided "the highest return above all costs per sow for all swine price and feed cost levels involved."

Again referring to statistics, the paper notes: ". . . the total confinement line had the greatest degree of slope (steepness), thus the highest risk. To compensate for this risk, total confinement provided the highest per man returns during high price levels. On the other hand, the pasture system provided more stable returns, thus a lesser amount of risk." Following a further table, the authors state: "Break-even feed efficiency for the pasture system was higher than for the other two systems." And again, "Return above all costs was highest for the pasture system. . ."

The conclusion must be then that large-scale swine producers are gamblers at heart and hope to make profits by volume. The paper states: "Fixed costs for some swine production systems are high, and to recoup these costs the system needs to be utilized continuously." Apparently this leads to the excessive pressure on the animals and the dangerous conditions for workers in the hog factories which were noted above.

Ill-conceived tax benefits also tend to encourage the construction of these

factories. For example, a total confinement building can be wholly deducted as "equipment," but if a farmer uses an existing building for his swine and provides humanely for them, he will not be able to deduct as "equipment" the improvements he makes in the building. Big city investors, who never even see the pigs or the hog factories, can, if they are in a high enough tax bracket, make profits denied to the family farmer. Readers who are interested in further details on these financial matters can obtain information from the Center for Rural Affairs, Walthill, Nebraska, 68067.

AWI Quarterly, Spring, 1982

Modern pig-rearing methods compared

An investigation into the effects of modern pig-rearing methods on the well-being and health of pigs—submitted to the World Federation for the Protection of Animals by B. Sommer, H.H. Sambraus and H. Krausslich, veterinarians at Munich University. Their report has been summarized.

The principal aim of modern rearing systems is to house animals in a labor-saving manner and to make intensive farming profitable. Pigs are usually kept in solitary confinement and without bedding. Narrow box stalls or tight tethering severely limit movement and prevent them from turning round; runs and pasture are denied them. By strictly economic criteria—number in litter, size, productivity—these modern rearing systems may compare well enough with previous methods. But do they prove well-being? An investigation of this issue has been undertaken and completed.

Mourning

The behavior of sows intensively reared in solitary confinement (box stalls without bedding) was compared with that of sows reared in groups. In solitary pigs, 'natural' movements (burrowing, chewing, biting) were carried out either without a substitute object or on unsuitable objects. Rubbing the bridge of the nose, 'empty' chewing and bar-biting were frequent and extreme in box-stall rearing. These substitute activities diminished as the system became more natural.

'Mourning' describes the expression and posture of sows *sitting* for long periods in box stalls—head hanging low or supported on a bar, eyes tight shut. In groups, sows

sit for only a few minutes; it is merely a transitory position while getting up. For solitary pigs, sitting is the clumsy and lengthy transition from standing to lying; mourning can last for hours.

The various activities preparatory to lying down—scraping, burrowing and the like—are more frequent and more drawn-out in pigs kept in solitary confinement. Biting the bars, empty chewing etc. are expressions of an increased level of excitement caused by the suppression of instinctive drives. There is no proper outlet for their natural behavioral needs.



A mourning sow unable to turn around.

H.H. Sambraus

Young sows are usually reared in groups and placed in solitary confinement at around 10 months old. To test the effect of confinement on younger animals, 16 sows aged 5-6 months were placed in stalls and farrowed about seven weeks later. Only two of the 16 escaped injury or infertility or difficulties during the act of birth. It follows that solitary confinement usually begins at an age which is barely tolerable for the animals.

AWI Quarterly, Spring, 1981

Straw's the only flooring without flaws

The Prairie Swine Center in Saskatoon, Canada, has been researching the pros and cons of different flooring systems for pigs. It would seem there are far more cons than pros. At the Center some 1200 sows, newly weaned pigs and piglets (with their tails docked to prevent tail-biting) spend their confined lives lying, standing, walking and, quite frequently, slipping and falling on one or other of five kinds of floor. Meanwhile staff look on and take notes.

A report says: "Within the first few days of a piglet's life, the first thing one notices is hair rubbed off the knees. Gradually the knees become ulcerated. . . . We have seen knee abrasions on all five kinds of flooring in the farrowing room." In severe cases this can lead to septic arthritis. Then there are certain types of flooring which cause recurring problems of "torn toe nails and dewclaws, toes extensively swollen, soles reddened, and cuts and cracks on feet."

Sometimes the vulva becomes very swollen—so much so in extreme cases that the piglet can no longer urinate. For the newly born the slats at the back of the pen are a grave hazard; wobbly legs are easily



Cathy Liss



Cathy Liss

Piglets are constantly getting their feet caught in the cracks of these concrete floors.

Hog raising can be hazardous

Be warned: raising hogs can damage your health. In a farewell editorial the managing editor of *Hog Farm Management* explained why he was changing jobs. *AWI Quarterly* readers with a particularly tenacious memory will recall the reason (see Spring 1982 issue). He said: "I don't smoke but picked up a smoker's hack. The hack stayed with me as long as I was near hog buildings."

Now if a journalist can be made ill by just occasional visits to these unwholesome places where pit gases combine with dust from animal feeds, hair, dander and dried feces, what are the prospects for a farm worker breathing this foul air day after day? The short answer is: not good. The Institute of Agricultural Medicine interviewed 11 such people. All had respiratory problems: chest tightness, coughing, wheezing, stuffy nose and so on.

Women, who form a large portion of the hog-farrowing work force, are particularly at risk. The safe carbon monoxide level for human beings has been set at 55 milligrams per cubic meter of air. Research has shown that a trebling or quadrupling of this level — as happens too often in hog confinement units with their fossil-fuel heating systems — can cause pregnant sows to abort.

When testing the conditions in 13 hog units with waste pits, the Institute of Agricultural Medicine also found that safe levels for ammonia were exceeded in 12 of them and for carbon dioxide in 10.

But how about the animals cooped up in these buildings all their lives? Respiratory problems leading to retarded growth are a notorious feature of hog units. This is hardly surprising. Air so contaminated that it is hazardous to men and women — who are at least free to come and go — can hardly be healthy for beasts who enjoy no such freedom.

AWI Quarterly, Fall, 1983

"On the more bony prominences—shoulders and sometimes hips—ulcers may result."

Prairie Swine Center
Saskatoon, Canada



Cathy Liss

trapped, "resulting in either crushing by the sow or a serious leg problem."

On sows the report says: "Often they cut their teats on the floor just before farrowing with resulting loss of piglets if there are not enough healthy teats left to suckle. If teats are cut or the udder becomes scratched, harmful bacteria can enter through this opening causing acute to chronic mastitis."

Abrasive floors, it is clear, bring serious problems. But cure the abrasiveness and you then have the problem of slipperiness. Piglets may be crushed by sows falling, and the sows will, after a while, not attempt to eat or drink standing. Fractures from falls occasionally occur.

Sows nursing their piglets are compelled to spend long periods lying down. On the

more bony prominences—shoulders and sometimes hips—ulcers may result.

One of the Center's findings is that sows enjoy showering from their water drinkers. Unintentionally this finding has also nicely demonstrated the sow's intelligence. "On a floor that gets extremely slippery when wet, they usually will not play with the water drinker but will only drink when necessary."

The Center says they have proved that raised flooring is far superior to concrete flooring. And doubtless they are right. But unnatural floorings of whatever kind will continue to cause sickness, painful injury and needless deaths. The solution to the problem of what to put between pigs and the ground is surely terribly simple — natural straw.

AWI Quarterly, Spring, 1983



The following pages further describe the intensive confinement of hogs that occurs on many U.S. and European hog farms. The University of Edinburgh research which led to the design of a hog housing system that is both appropriate for hogs and viable for farmers is presented as a practical alternative. These articles help draw the contrast between the life hogs prefer and the life they are forced to endure on factory farms.

Tax Code Favors “City Slickers” Over Family Farmers and Their Animals

Until the current farm economic crisis many farmers concentrated on producing *more* of everything—more hogs, more milk, more cattle, etc. in order to make a living at farming. Recently farmers have been plagued with low market prices caused partially by overproduction, a sharp decline in the value of land many farmers held as collateral against operating loans, and the high cost of needed farm supplies. As a result, many farmers have begun concentrating on *reducing their costs of production* in order to make a living at farming rather than on producing ever larger quantities in factory systems. This could mean a resistance to expensive intensive confinement practices for those small and medium size hog farmers who survive this economic crisis and continue to raise hogs. However, investment in intensive confinement has continued on large-scale farms less threatened by the crisis, where higher numbers of animals are adversely affected. This is because federal tax policy has, for years, enabled gigantic producers, many with a base of massive financial support in non-agricultural businesses, to make huge profits through tax shelters when they invested in the buildings and installations of total confinement farming including cramped crates, stalls, flatdeck pens and slatted flooring. (These tax incentives have been available for confinement rearing of other species also.)

Construction of “single-purpose” buildings such as this one, with concrete floored stalls severely confining pregnant sows, has been stimulated by the accelerated depreciation provisions of the federal tax code.



Cathy Liss

USDA Report Predicting End of Old-Fashioned Pig Farming Spurs Debate

A report just released by the U.S. Department of Agriculture, “Another Revolution in U. S. Farming?” predicts the demise of the small farm hog producer. The report says that by the year 2000, three quarters of the hog industry will consist of factory farms, each raising over 2,000 hogs per year. Already, there are 15 to 20 companies producing from 50,000 to 250,000 hogs annually.

According to the Center for Rural Affairs, the report further claims that factory farms are a more efficient way of raising pigs, implying that the nation would be better off with a hog industry resembling today’s poultry industry.

Small farm pig producers reject the implication. They claim that the authors of the report resorted to some questionable economic logic to show small farms less efficient merely to rationalize the continued proliferation of pig factory farms. The flaw in the report’s logic, the farmers say, is that it includes the purchase of a new barn as part of a small farm producer’s expense.

While the report recognizes the importance of Federal tax subsidies, pollution control regulations, availability of credit, and Federal research programs in promoting the growth of factory farming, the small farm producers say, the authors fail to realize that the trend toward factory operations might be interrupted by a reversal of these same Federal policies.

According to the farmers, USDA and agricultural college hog production research could be reoriented to help the small producers improve efficiency and profits; tax subsidies to hog factories could be eliminated. The farmers feel justified in seeking further support in light of the fact that the USDA report itself states that hog factories have generally delivered no better litter size or feed conversion rates than the traditional small-scale producers *and have actually resulted in higher death losses due to the crowded, high stress confinement environment.* (Emphasis added.)

AWI Quarterly, Spring, 1981

Photographs Taken in Hog Factories



Cathy Lis

Isolated from each other, the pregnant sows and gilts restrained in these stalls are unable to turn around. Gestation stalls such as these are generally used on very large hog farms to restrain hundreds or thousands of sows for all but a few days of their pregnancy, which last 114 days, in order to save space and facilitate individual feeding and "inspection."

These boars, used for breeding, are locked into stalls when they are not actually "servicing" a female.



Diane Halverson

Though driven by hormones to build a farrowing nest, this sow, restrained in a farrowing crate, was unable to do so because she had neither straw nor space to turn around. Confined to a crate just big enough to hold her, she will be unable to remove herself from the piglets until they are prematurely weaned at three to four weeks of age.



Young pigs, raised for slaughter, are separated from the sows at 3-4 weeks of age in intensive systems, though the natural weaning age is roughly 12 weeks. At this early age they are often placed in environmentally controlled (windowless, artificially ventilated and heated) buildings furnished with "flat deck" cages. These unbedded cages house piglets from weaning until they weigh about 40 pounds at around eight weeks of age, and within them piglets are often kept under dim light. This artificial lowlight reportedly reduces what the Pork Industry Handbook refers to as "vices"—"ear and navel sucking, flank nuzzling, tailbiting..." Says the Handbook: "Lowlight levels subdue the activity of the pigs." Bright lights are recommended only "for feeding and inspecting the pigs twice daily." These "vices" which the industry responds to by imposing semi-darkness are initially precipitated by the premature weaning and the barren, crowded conditions the industry has elected to use.

In the absence of the varied elements of a natural environment with which they would normally root, lever and play, young hogs often bite the tails of penmates. On factory farms, the pigs' tails are clipped off with shears or a tooth nipper at about a week of age in order to minimize the cannibalism prevalent in barren conditions of intensive confinement.



Cathy Liss



At about 40 pounds the young hogs are removed from the flatdeck cage and reared in a "growing-finishing" building for about four months, until they each weigh 220-230 pounds at six to seven months of age and are sold for slaughter. Problems of barren and crowded conditions continue and may intensify. Intensive confinement buildings are very expensive to construct and operate and thus the maximum number of animals are reared in them to offset the enormous costs. This can lead to severe overcrowding, as shown in the photo here.

Diane Halverson

16,000 Pregnant Sows Imprisoned in \$50,000,000 Bass Brothers Factory Farm

The *Farm Journal* October 1984, reported on the growth of this country's second largest hog producer, National Farms, which had 16,000 sows held in extreme confinement and intentions to produce 350,000 pigs per year, or as the article says, "nearly a pig a minute". A photo of a seemingly endless stream of hogs imprisoned in individual stalls roughly two feet wide and six feet long accompanies this report on the operation:

Capital and finance should not prove a stumbling block in the development of the operation. National Farms sold their Nebraska land before prices started to fall, and now lease the land back from Prudential Insurance. The sale of the land brought a huge infusion of cash into an already strong company.

Perhaps the biggest 'problem' in the financial area for National Farms is one of image: being perceived as too big, too wealthy.

That's furthered by the fact that National Farms is owned by Bass Brothers Enterprises of Fort Worth, Texas. Bass Brothers is not traded publicly, but if it were, industry estimates are that it would be one of the largest of the Fortune 500 companies. The Bass family owns the second-largest private oil empire in the U.S. In addition, they have real estate, hotels and extensive stock market holdings.

The kind of financial power they wield was evident in their recent purchase of 9.9% of Texaco, Inc., the nation's third largest oil company. When Texaco later bought back its stock, industry sources say the Bass operation was left with a \$400-million profit.



Cathy Liss

The corporate sow frothing at the mouth. Deprived of all opportunity to relieve months of boredom in gestation crates a narrow two feet in width, these intelligent animals indulge in stereotypical movements.

Unless efforts are made to halt the trend, the rearing of hogs may go the way that the president of National Farms predicted in an interview with the *Farm Journal*.

We've picked a trend, a leading edge, of what we believe is a transition from individual farmer production to the large, commercial production of hogs.

My feeling is the hog industry has passed a threshold. They have solved enough of the problems of confinement production that the hog industry will inevitably take the same path as the production of chickens.

National Farms, with 16,000 sows, stands second in a line-up of the ten largest hog factories in the U.S. It follows Tyson Foods, which held

35,000 sows and was producing 600,000 hogs per year in 1984. Facilities like these have been constructed and expanded largely because federal tax laws and government support programs have promoted this type of investment, particularly on the part of already wealthy enterprises. In a 1981 report the Center for Rural Affairs wrote: "Conventional wisdom" has concluded that this industrialization of hog farming "is the inevitable result of free enterprise economy. By this thinking the marketplace is simply weeding out the smaller and presumed inefficient hog farmers in favor of the allegedly more efficient 'hog factories'. This is a half-truth at best. The other half is that the undermining of family farm hog production is promoted by an intertwined web of taxpayer supported programs and government tax giveaways...Free enterprise had little to do with the development of today's gigantic hog factories.

Government programs did. Tax-supported agricultural research paved the way for hog factories by developing the drugs and medication practices without which the confinement of large numbers of hogs would be impossible. Tax-supported land grant research, often leveraged by small, strategically designed hog industry grants, continues to work on hog factory technology and the biological and genetic redesign of the hog. The federal Small Business Administration has used the full faith and credit of the federal government to guarantee millions of dollars for over a hundred hog factories including many controlled by investors whose principal business is something other than farming."

The Center for Rural Affairs referred to tax laws as the "most powerful and obscure of the policies" contributing to this industrialization. Wrote the Center: "A high-income investor in a corporate hog factory using a combination of tax credits and deductions can recover one-half of his initial personal investment in the facility in the first year.

Over the life of the facility, depending on circumstances, the investor can recover up to 80 to 100% of that investment in the form of reduced taxes....These tax giveaways to hog factory investors are not rewards for being more efficient or more deserving or because hog production suffers from lack of capital. None of these is true. The hog factory investor receives most of the giveaways for one reason: he is wealthy."

The hog factories' apparent "efficiency" is not, wrote the Center, because their managers "are more resourceful (they are not) or because they wean more pigs per litter (they do not)." Hog factory investors appear more efficient because they have received government tax subsidies. (The more capital-intensive the facility, the greater the tax benefits.) In short, they have had "an artificial competitive advantage" with which to "slowly drive the equally productive family hog farmer out of business." Moderate sized farmers who have not wanted or could not afford capital-intensive facilities not only received less tax

benefits than their corporate competitors, they have also had to endure the low market prices created by tax-induced overproduction.

The 1986 federal tax reform package reduced or eliminated a few of the important incentives for building hog and other livestock factories. The investment tax credit was removed, for instance. Unfortunately, other tax incentives remain and factories already in place continue to operate. These and future factories will be able to exploit the remaining tax breaks. Notable among these is a tax shelter which allows corporate giants such as Tyson Foods and Perdue Farms to define themselves as "family farms", making them eligible to use an advantageous method of accounting originally designed by Congress to protect farms of small or moderate size. According to *The Washington Post*, August 8, 1986, "Tyson Foods, the nation's largest poultry producer with more than \$1 billion of sales last year" used this tax break "to defer \$26 million, more than three-fourths of its 1985 tax bill."

"A WITCH'S BREW..."

From the *Des Moines Register* 18 September 1984

"An agricultural revolution that brought hog farming out of the mud and into modern indoor confinement units has created a factory-like environment with a factory's dust problem. But this is no ordinary dust. It's packed with a witch's brew of ingredients—fecal matter, poisonous gases, animal dander, toxic bacteria and more."

In 1984 the *Des Moines Register* published a series of articles reporting deaths, illness and injuries in what has become America's most dangerous occupation, agriculture. Author Tom Knudson discussed serious health problems suffered by workers in hog confinement buildings where an "irritating, smog-like mixture of dust and gas...plagues farmers with bronchitis-like symptoms" or where "toxic gases such as hydrogen sulfide and ammonia boil out of giant manure pits, usually as the pits are being emptied, over-

whelming and killing farmers outright."

In a paper appearing in 1984 in the *American Journal of Industrial Medicine*, scientists from the University of Iowa investigating these health hazards, led by Dr. Kelly Donham, stated: "We have recognized an emerging respiratory hazard (the livestock confinement environment) that may prove to be an important factor in agricultural respiratory diseases [Donham et al, 1977, 1981, 1982]. Confinement rearing of swine has grown tremen-

dously during the past decade. We estimate that nationwide a half million people are exposed to the swine confinement work atmosphere, and an additional half million are exposed in poultry, beef, veal, and dairy confinement [Donham et al, 1977]." The scientists' previous surveys indicated swine confinement workers experience a high prevalence (67-92%) of adverse respiratory symptoms. "Workers most frequently complain of bronchitic symptoms. They also complain of symptoms consistent with asthma, hypersen-



Cathy Liss

The hog factory is unhealthy for both people and animals. "Farming's changed. It's gotten more modern. And more hazardous. A lot more hazardous, as far as I'm concerned."—William Donaldson, farmer, in the *Des Moines Register*.

sitivity pneumonitis, airways obstruction, and acute respiratory distress. Based on the severity and frequency of adverse symptoms reported, we hypothesized that workers in the confinement environment may suffer irreversible lung impairment after several years of exposure."

Knudson cited Donham's testimony before Congress, in which the scientist pointed out that federal farm policies generate serious new health problems by "encouraging the development of an industrial-type agriculture." "Certainly," Donham told the *Des Moines Register*, "the USDA, through its research, helped develop swine confinement. Well, a lot of health problems have emerged from that." Donham added that there should be federal support to study these problems, but "there are no comprehensive programs to deal with these issues...no federal agencies that look after the health problems in agriculture."

The horror of some of these health hazards is exemplified in the case studies Donham offered in a paper for the *Journal of Occupational Medicine*, February 1982. Two of them are presented here:

"Case 4.—In November, 1979, a 23-year-old farmer and his 18-year-old brother were attempting for the first time to empty the manure pit

under their new swine confinement building. They inserted a high-volume liquid manure pump into the pit from an outside port and activated the pump in the recirculating mode to suspend the solids. The farmer opened the door of the building and noticed that half the animals in the building were lying on their sides in obvious respiratory distress. He ran into the building to investigate and soon became 'very dizzy, unable to breathe, nauseous, and nearly blacked out.' His brother, who was outside, noted his trouble and ran in to assist. He immediately became 'very dizzy, sick, and almost passed out.' He was able to reach his brother and helped him out without collapsing. The farmer did not see a physician but was too ill to work for three days. For over two months he was 'short of breath and was just not feeling well.' His brother recovered more rapidly.

"Of the approximately 400 swine in the building, 200 collapsed during the episode and 60 of these died. The ventilation fans on the walls of the building had been in operation during the episode but the pit ventilation had been inoperative.

"Approximately two weeks later, an environmental investigation showed ambient gas levels within the building to be: H₂S, 3 ppm; NH₃, 3

ppm; CO₂, 10,000 ppm; CO not detected. Because of the fear of killing additional pigs in the building, no attempt was made to agitate the pit to see if the gas levels would increase.

"Case 5.—In April, 1980, an Iowa swine farmer was emptying the manure storage tank under his new confinement building for the first time. He inserted the high-volume pump into the pit, loaded the manure wagon, and then put the pump into the recirculating mode to agitate the slurry while he went to the field to spread the first load. After returning, he noticed a peculiar odor and looked in the building to see all the swine lying on their sides. He rushed into the building to turn on the ventilation fan, as only one fan had been in operation during the pumping. He noticed a 'peculiar odor' when entering the building, and, after a few seconds, had 'a very hard time getting his breath.' He became 'light-headed,' stumbled through the door, and collapsed outside, where he lay unconscious for several minutes. He regained consciousness and made his way to the house where his wife took him to the hospital. The only abnormal symptom or clinical sign at that time was tachycardia. Blood gas values and the chest roentgenogram were within normal limits. All the swine (24 sows and 200 piglets) died in the end of the building where the manure was being agitated.

"Environmental air samples within the building taken three days later showed ambient levels of NH₃ and CO₂ at 50 ppm and 2,000 ppm, respectively, H₂S and CH₄ were not detected. Agitation of the pit was not done for fear of killing pigs in the other end of the building."

In an interview with the *Des Moines Register*, farmer William Donaldson, who was hospitalized with "farmers lung disease after scooping out the bottom of a dusty silo", recalled "my chest would just start hurting, especially when I'd go in a hog confinement building....You know I was born and raised on a farm and it was never this dangerous. Farming's changed. It's gotten more modern. And more hazardous. A lot more hazardous, as far as I'm concerned."

Diane Halverson, 1987

Improved alternative methods

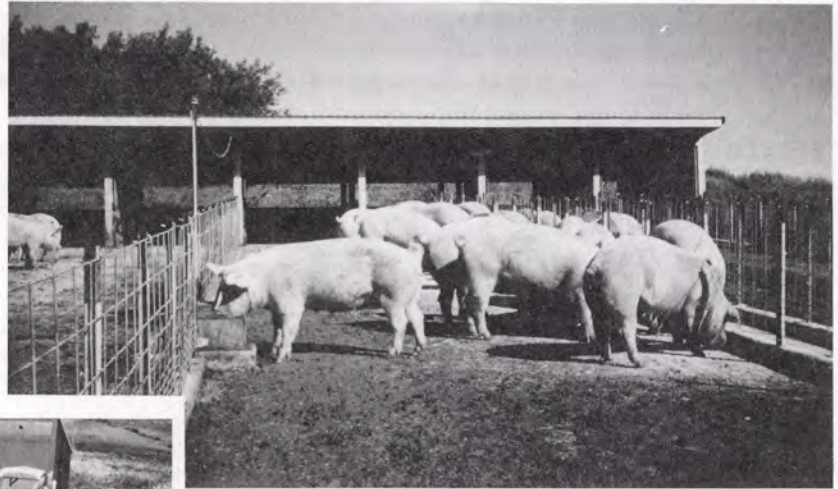
Far better than the extremes of total confinement are *well-managed* extensive systems in which hogs are kept on pasture or in a woodlot with shelter from the weather. This type of rearing is used by some farmers for keeping nursing sows and litters, pregnant sows and hogs being reared for slaughter.

Other systems, such as the

semi-intensive ones illustrated in the photos below, also represent an improvement over total confinement. Unlike intensive housing they provide bedding which hogs can root in and use to build comfortable nests. They also may use natural daylight and give the animals an opportunity to socialize. Compared to intensive systems they

provide more space to move in. Such systems are preferred by some farmers; being less capital- and energy-intensive than total confinement, they are often more economical to use over the long-term, as demonstrated in studies at the Universities of Tennessee and Missouri. (Highlights of the Tennessee study are on pages 56-57).

These pregnant sows have space and a bedded, sheltered area to rest in on this Minnesota farm.



Diane Halverson



An outdoor shelter and pen for a sow and piglets.



Cathy Liss



Diane Halverson

One of several alternatives to the extremely restrictive farrowing crate shown at left is this Swedish pen which gives sows room to move, a protected corner for piglets and a separate dinging alley. The alley can be closed off from the pen and alley gates swung open for easy cleaning.



Diane Halverson



Diane Halverson

Pigs can root and lie comfortably in straw on these farms, one in Maryland and the other in Minnesota.

Mortalities Increase in Confinement

A summary of records from 50 Midwest hog herds* shows that far fewer mortalities occurred among hogs kept in barns opening onto outside lots than among those kept in more confined conditions.

An article in the August 1986 issue of *Successful Farming* magazine, citing data acquired by Iowa swine consultant Gene Barrick, reported a 7.1% mortality rate in the total confinement barns in his program, compared to 3.2%-3.8% in buildings with one wall partially opened to the outdoors (some with protective curtains and some

without) and a low of 1.4% in barns allowing access to outdoor lots. According to *Successful Farming*, Barrick "feels the poor performance** in confinement is due to crowding and stress from disease and inadequate ventilation. In his experience, although all the pigs in one farm might be exposed to the same disease organisms, the confined pigs seem to show more effect."

A swine veterinarian in Indiana, Dr. Larry Rueff, confirmed Barrick's findings, telling *Successful Farming*: "I've seen the same thing to some degree. There's been talk for awhile

that pigs in open housing have less stress. Pigs can only get away from each other so much in confinement. From 50 pounds on up, pigs can do very well in open conditions. If you put a pig in an open barn, you don't worry about ventilation. He can handle hot and cold weather. His ventilation is lots of fresh air."

*gathered during the period of rearing from 70-230 pounds

**refers to daily weight gain, efficiency of feed use and mortality

Total Confinement Less Efficient

The results of a lengthy and unique piece of research into rival methods of pig-raising have just been published. They make most gratifying reading. For they go far to confirming what animal welfarists have long contended—that confinement is not just a rotten way of treating animals, it is an inefficient way of making money.

Conducted by the University of Tennessee at its Ames Plantation research center near Grand Junction, and spanning an 8-year period, 1976-83, the research compared, side by side, three farrow-to-finish pork systems—pasture, partial confinement and total confinement. As the accompanying table makes plain, various production and financial criteria were used to assess the

merits and demerits of each.

From the standpoint of capital investment the pasture system (farrow through finish in open fields) naturally emerges a clear-cut winner: around \$30,000 as against \$59,000 for partial confinement (farrow in solid-floor pens, finish outside) and a whopping \$112,000 for total confinement.

On energy costs, too, pasture is way ahead: 36 cents per hog as against \$1.44 for partial confinement and \$3.18 for total confinement.

Pasture also comes out best on a number of other counts: post-weaning losses (6% as against 9% for the other two), freedom from disease (no incidence of TGE unlike

the other two) and year-by-year consistency of sow and pig performance.

Going to the other extreme, the total confinement system wins comfortably on the score of feed efficiency. Confinement finishing out-performed pasture finishing by 40 pounds of feed per 100 pounds of gain. On the other hand, the pasture system is marginally faster in bringing pigs to a weight of 230 pounds.

One rude surprise for confinement fanciers is that a breeding and gestation unit installed during the research period failed to improve conception rates; the confinement system here remained adrift of the other systems.

Other drawbacks

The research shows that total confinement suffers from other grave drawbacks too. The belief that such systems are laborsaving turns out to be more myth than fact. By the end of this 8-year period all three systems required about 35 man hours per sow per year. The reason for this, in the words of project director Ed Lidvall, is "When confinement equipment is new it all works great. But in a few years it starts needing

repairs. That eats up more labor than people realize."*

This finding may help to explain another. The total confinement system required a higher market price for its pigs in order to break even.

Overall it was the mid-cost partial confinement system that came out top. Although experiencing more than its share of plain bad luck, it nevertheless returned easily the highest net profit per sow.

Lidvall admits climate may favor pasture systems in southern states.

However, he contends they do have plenty of cold, damp weather. And the pockets of pasture operations that still prosper in northern states prove low-cost facilities work in cold weather.

And for those wedded to total confinement? This objective and nicely controlled piece of research will give them little comfort. Perhaps, though, it will make them think again.

**Successful Farming*, November, 1984

AWI Quarterly, Fall, 1985

Figures for the University of Tennessee comparison of three hog rearing systems*:

System I

Pasture: a low investment system - all hogs were kept loose on pasture with portable housing provided. Pigs were weaned at eight weeks and remained on the home pasture until marketing. Sows were moved to other pastures.

System II

Partial Confinement: a moderate investment system - used pasture for breeding and keeping of pregnant sows and hogs being reared for marketing; used a farrowing house with pens (as opposed to crates) for lactating sows and their litters. Pigs were weaned at seven weeks, then moved outside until marketing.

System III

Total Confinement: a total confinement system for all hogs - used farrowing crates for lactating sows and their litters. Pigs were weaned at five weeks and remained in confinement until marketing.

| Production | System I Pasture | System II Partial Confinement | System III Total Confinement |
|------------------------------------|-----------------------------|--|---|
| Avg. number of sows | 29.4 | 63.6 | 106.5 |
| Conception rate | 82% | 81% | 78% |
| Litters/sow/year | 1.64 | 1.71 | 1.76 |
| Farrowed alive/litter | 10.2 | 10.0 | 9.8 |
| Weaned/litter | 7.7 | 7.7 | 7.7 |
| % weaned of born alive | 76% | 77% | 78% |
| Pigs weaned/sow/year | 12.7 | 13.2 | 13.6 |
| Days to 230 lbs. | 206 | 213 | 210 |
| Daily gain, finishing (lbs.) | 1.39 | 1.31 | 1.46 |
| Total lbs. feed/lb. pork | 4.14 | 4.25 | 3.84 |
| Financial | | | |
| Total fixed expenses | \$3,606 | \$4,781 | \$19,960 |
| Total variable expenses | \$26,418 | \$54,624 | \$92,893 |
| Return/sow above variable expenses | \$258 | \$236 | \$316 |
| Return/sow above all expenses | \$125 | \$163 | \$135 |

*Figures published in *Successful Farming*, November, 1984

The Pig Family Pen

With scientific ingenuity, Professor David Wood-Gush from the University of Edinburgh, Scotland in 1978 initiated research to study the behavior of domestic hogs in a near-natural environment of mixed woodland and grassland, with bogs, gorse bushes and a stream. Careful observation by Dr. Alex Stolba and Dr. Ruth Hutton revealed their behavior to be identical to that of wild hogs. A few details of domestic hog behavior are described and illustrated below.

This gilt, about to give birth to piglets for the first time, is carrying sheaves of grass she has cut with which to build a farrowing nest. Like other pregnant gilts and sows, she will walk about a mile in the one and a half hours prior to farrowing just to gather nest materials.



photos by Alex Stolba



This sow, nursing her newborn piglets, has built a nest against an uprooted tree. She will isolate herself and the piglets from her usual companions and defend the nest against intruders, human or otherwise, for several days.

At the border between woodland and open grassland, this sow gently rubs her face against a tree, marking territory with her facial glands.



A young female following her mother imitates marking behavior.

In the evening sows prepare the communal nest where they will spend the night. One is bringing in a branch to help renew a previous nest site. Only sows that know each other very well, and their piglets, will share the nest. Individuals recently introduced to the herd will not be permitted to join the nest for several months.



After studying domestic hog behavior in a near-natural environment, Dr. Stolba painstakingly designed a unique system for hog rearing. It enables hogs to perform many of the behaviors observed outdoors, but requires only as much building space as a semi-intensive system (See *Quarterly* articles on pages 30 and 61-65). —Diane Halverson, 1987

What do pigs want? Ask them!

"If you want to know what a pig wants, ask a pig" runs the headline of a long article in the March 13 issue of the British journal, *Farmers Weekly*. The article describes the work of the Agricultural Research Council's Institute of Animal Physiology at Cambridge.

The Institute has devised experiments (based on the techniques of operant conditioning) to get pigs to "state" their preferences. For instance, do pigs prefer light to darkness and, if so, all the time or just some of the time? The slightly surprising answer is that pigs kept alone like to have the light on 72% of the time. Whether pigs in groups are equally "switched on" to light is now being studied.

What is the point of all this? Research worker Dr. Douglas Ingram says: "We know that hormonal activity affects growth rate and general performance, so there may be some opportunity to influence the pig's commercial performance if we can determine preferences."

From this it is clear that the Institute holds to the view that animal welfare and sound man-

agement are one and the same thing. Dr. Bob Baldwin puts it this way: "Our experiments are designed to allow pigs to tell us what they want. There are obvious links between social rank, aggression and outbreaks of ear and tail biting. The more we can learn about the pig's basic behavior, the greater will be our chances of avoiding sporadic outbreaks of bullying and cannibalism under intensive conditions."

Dinner's late—never mind

Pigs are remarkably adaptable. When "dinner time" was shifted from 2:30 p.m. to 9:30 p.m.—a 7-hour difference—they very quickly adjusted. By the second day they were happily sleeping through to the later hour.

This adaptability may make life easier for the stockman—and pigs certainly do thrive in very different systems—but this is not to say that they will learn to love all environments equally. Far from it.

Pigs are intelligent and inquisitive. Boredom could be one reason for poor (unprofitable) performance. Perhaps they should be encouraged to "work" for their food, water and even light. Perhaps, too, their environment should be more varied and stimulating than it normally is in commercial units. Says Dr. Elizabeth Walser: "Pigs are extremely interested in any loose fit-

tings in the pen and will continually explore and play with them. There is certainly no harm in deliberately adding simple and inexpensive loose components like chains, to try to create added interest." Providing logs and small pieces of timber enables pigs to engage in their natural rooting and shovelling behavior. Pigs also like to eat straw and use it as bedding and nesting material.

Meanwhile in Edinburgh . . .

Parallel research is going on at the Edinburgh School of Agriculture. Pig behavior there is being studied at its roots. Stage one of the project began when six groups of adult pigs were turned loose to breed freely. Their outdoor home is a rich environment. A steep sloping site, it includes pine woodland, gorse bushes, springs, two streams and boggy marshland with rushes at the bottom of the hill.

Nearly all nests are sheltered on at least one side (the wind in Edinburgh can be biting cold) and often have an open view facing south. **Fully enclosed nests are rare. A view seems to be important—as confirmed by a preference for hilltops from which approaching intruders can easily be spotted.**

AWI Quarterly, Summer, 1981



Klaus Vestergaard

Scientists at the Edinburgh School of Agriculture observed that hogs preferred to rest on a high spot with an open view.

Wild Pigs Point the Way

Hog farmers keen to improve the welfare of their animals without sacrificing income will wish to study the findings of a 3-year project at the East of Scotland College of Agriculture, Penicuik, near Edinburgh. The project is to evaluate behavior in relation to the pigs' environment. It is now nearing completion and the data that has emerged bears directly on welfare.

Last September the British magazine *Pig Farming* reported on results to date. The article that follows is based on this report.

"By allowing domesticated pigs to live as their wild ancestors used to, we have been able to compare their behavior patterns with those known to occur in wild pig populations," says project director Professor Wood-Gush. "It is remarkable that we have found very little difference between the two types."

But what about differences between pigs in "the wild" (a large semi-natural enclosure in the College known as Pig Park) and pigs in cramped intensive rearing units? One crucial difference here relates to the sow's behavior after giving birth. In the wild the sow "talks" to her pigs to assemble them at one side of her nest. If she wishes to lie down she moves about one meter away, taking great pains not to lie on the piglets. Some overlaying does still occur but maternal care sees to it that piglets are rarely crushed.

Another difference is that the frequency of suckling is about half that seen in more intensive systems. (In bad weather the piglets burrow into the nest wall rather than going to the udder to keep warm.) This means that the sows come on heat earlier than in intensive systems where constant suckling retards oestrus.

In the wild the sows lactate up to 90 days after farrowing; weaning then occurs in a mutual process between sow and piglets. "The bonds of kinship remain within the group, even after the sow produces her next litter," says Dr. Alex Stolba, a research fellow from Zurich and responsible for the day-to-day running of the project.

Findings from the Pig Park have been used to construct within the College grounds an "enriched environment" pen beneath a south-facing roof. There are four separate but inter-linked pens for several sows and their young. The design has taken into account the various behavior patterns seen in the wild, especially the dis-

tances between feeding (in the Park aggression during feeding is eliminated by the pigs spacing themselves out), nesting and dunging areas.

Sows in the wild choose a nesting site that is sheltered by bushes on at least two sides. Branches to give extra protection are built into the nest which is usually 2-3 meters in diameter. During this period and when having their pigs the sows also tend to stay apart from the rest of the group. "The same thing happens in the new pen layout," says Alex Stolba. "Few contacts take place between the sow and her litter and the rest of the group for up to 10 days."

Once the 10 days are up, though, the sow begins to encourage her piglets to mingle with other pigs in the group. This socializing is seen as an important part of the pigs' behavioral development.

In the pen solid walls around the nesting area mimic outdoor nesting conditions with rubbing posts for scratching. Deep straw in the nesting area helps to cushion a piglet if it does get lain on by the sow. Special levering bars enable the penned sows to mimic

such "wild" activities as chewing bark and pulling branches towards the nest.

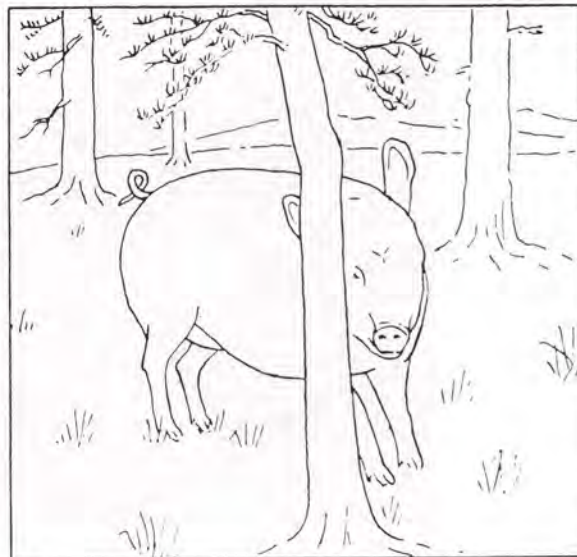
Says Dr. Stolba: "Very few frustrations appear to build up when pigs are kept in this way. One can easily walk through the pen without upsetting the group, even when a boar is present or the piglets are small." And overall space requirements in this "enriched" system are no greater than the space needs of an intensive system.

Investigations continue but the project directors believe that the study may help overcome many of the welfare worries of intensive rearing. "The system definitely meets the needs of animal welfare," asserts Dr. Stolba. Also it has been shown to measure up in terms of production—a potential from each sow of 9.5 pigs reared to baconweight (the fastest in around 144 days) and more than 2.3 litters a year.

Pig welfare code

At the request of the Agricultural Minister the UK's Farm Animal Welfare Council has drawn up a draft code for the humane rearing of pigs. Main points are:

- A ban on weaning before three weeks old except in the case of sickly or exhausted piglets.
- The provision of a bedded area (with adequate space for dunging and exercise) and a ban on cage rearing which causes injuries to the feet and legs and triggers behavioral abnormalities.
- Improved piglet protection in farrowing pens, with an escape area at least 30 cm deep where a suitable temperature is maintained for piglet comfort and well-being.



Pig Park near Edinburgh. A pig marking a tree. The movements in marking differ from rubbing and involve the glands used in individual recognition. (Drawn from a photograph by kind permission of Dr. A. Stolba. Reprint from Elements of Ethology by Dr. David Wood-Gush.)

AWI Quarterly, Spring, 1982

An enriched system that enriches
the lives of both people and animals

Rooting for pigs in Mexico

We have received a most encouraging account of an experimental pig-raising project in Mexico. It comes from the project director, Bernd Neugebauer, who for the last seven years has been working as a consultant to GTZ, the German aid program. His special concerns include intensive small-holder farming and small-scale animal production.

Based on the method developed by Alex Stolba in Edinburgh (see winter 1982/83 *Quarterly*) but adapted to a tropical climate and a peasant economy, Neugebauer's system could profitably be applied by rural communities in many parts of the third world.

The system is ethological in concept: that is to say it is built around the *natural* behavior and needs of the pig. In scale it lies between the subsistence farming of the peasant with his handful of free-running free-foraging pigs and the very large units modeled on the intensive operations of Europe and America.

Neugebauer points out that these opposite extremes are alike in one unfortunate respect: for both "scavenging pigs and concrete boxes" disease is a constant hazard. That intensive systems run up against this problem is of course well known and amply documented. But why should free-running pigs be vulnerable?

In a true agrarian society they would be healthy enough. But experience in Bolivia has shown that disease spreads when village communities lose ground—and much else besides—to commercial traffic and urban sprawl. For the pigs must then be tied up or fenced in. This is happening increasingly and the vets now needed by these communities to counter the spread of disease are for the most part no longer there: they have been lured away to the bright lights and brighter prospects of the teeming cities.

While "concrete boxes" can only exacerbate the disease problem, they are nonetheless springing up all over the place—so tempting are the tax advantages of intensive operations (in Mexico units of up to 5000 pigs are tax free) and so meagre the profits of subsistence pig-keeping. But of course even with the no-tax bait, considerable capital is required to set up intensively. And capital is what few peasant farmers possess. So how can they be helped?

The tried-and-tested solution proffered by Neugebauer is a family pen made of local materials which may initially house no more than four

sows—a number well within the means of a small group of pig producers combining together. In Yucatan where Neugebauer operated for an experimental year, the pen consisted of a timber frame with a thatched palm roof and woven hurdle-like walls (see drawing). Water was "on tap" from an elevated water tank while food came primarily from local plants and trees—and not only food, the piglets teathed on the wood so that no udder damage occurred even during the 12 weeks of suckling.

Throughout the year the pigs were being closely observed with a view to improving the system where necessary. For example, the concrete floor laid to facilitate cleaning proved superfluous: pen hygiene was not a problem because the pigs themselves kept the nesting and feeding areas clean, defecating only in the corridors.

It was found that fattening and breeding pigs do not need separating, that the pen required no more space than do conventional pens and that essentials include good drainage, straw for the nests (a problem in Yucatan where the straw is always burnt in the fields), a roof over the rooting area and fresh-cut sods

within the areas as food for newborn piglets.

There was one other important finding—or rather a corroboration of a finding by Alex Stolba. The pen sometimes held as many as 45 animals despite pigs being sold young to keep numbers within bounds. The reason for this happy build-up was that the system appears to accelerate the sows' fertility cycle: litters averaged nearly 2.5 per year, were born spontaneously and without complications although a few piglets were crushed to death by the mother sow. This average is very high by conventional standards and is particularly impressive bearing in mind the young age of two of the sows and the limited availability of the boar.

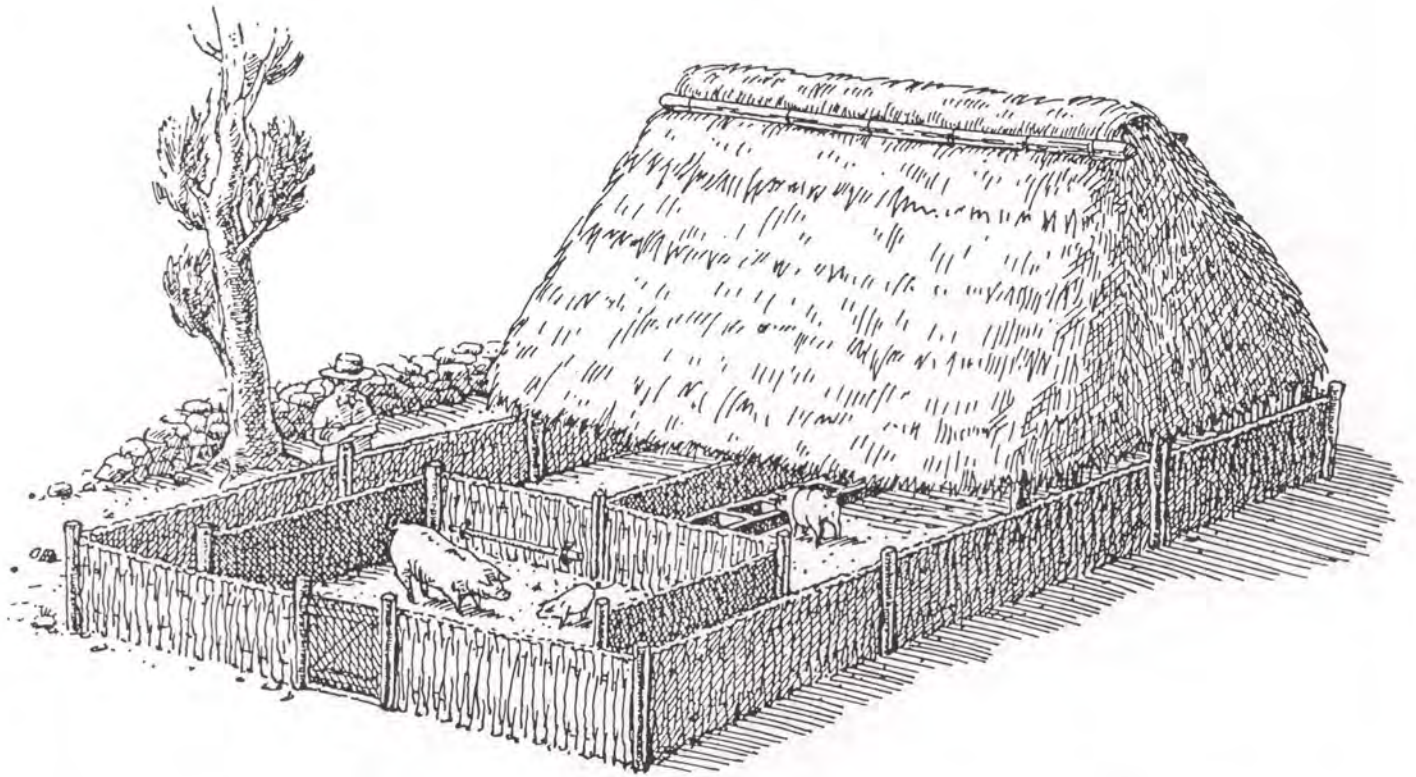
On the all-important issues of cost, the peasant farmers themselves can readily construct the pen while the system compares very favorably with conventional systems on the score of labor—though this is perhaps not a prime consideration in countries where labor is cheap and plentiful.

Sadly this project in Yucatan has been discontinued for the time being because Neugebauer's contract there has terminated. But during its year of operation it abundantly demonstrated its potential as a system which, with regional variations, could enrich peasant societies of the third world without disruption to their way of life and without hurt to the animals concerned.

Development of this kind that is in tune with people's basic needs and in harmony with the workings of nature is true "ecodevelopment". Our world could do with a great deal more of it.



The Pig Family Pen at the Tizimin Experimental Station (see opposite).



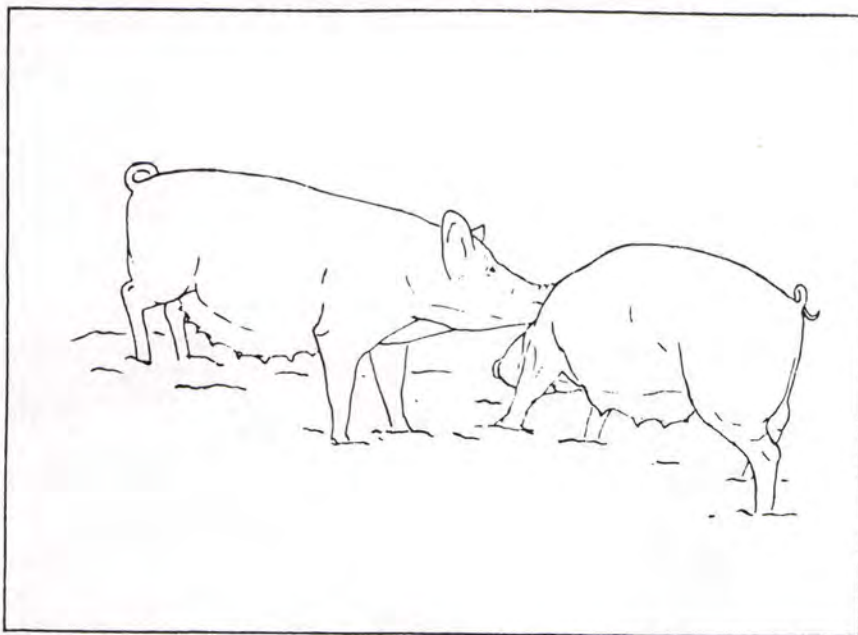
The Pig Family Pen with a modified roof built of locally available materials in Mexico under the German aid program. Due to the success of this unit, the Mexican government constructed and is now evaluating a Pig Family Pen at its Tizimin Experimental Station in the State of Yucatan.

Dr. Wood-Gush's university lecture tour

The internationally renowned ethologist from the Edinburgh School of Agriculture, Professor David Wood-Gush, has just completed an intensive month-long lecture tour of nine U.S. universities and two U.S. Department of Agriculture research centers under the auspices of the Animal Welfare Institute. Dr. Wood-Gush, known especially for his extensive research on poultry behavior, spoke on farm animal welfare and presented the results of his study of domestic swine. He emphasized that, "Humane housing systems should take the animals' behavior into account," and stated, "Most of our domestic animals still retain much of the behavior of their ancestral species, and when housing and management systems do not take this into account, problems can arise, particularly in cases in which there is poor or indifferent stockmanship. It is possible to design systems to fit the animals' behavior, but first it is necessary to study their behavior under conditions that resemble those of their putative ancestors, both physically and socially." Such studies with large white swine carried out with Dr. Alex Stolba, a Swiss ethologist, involved the close observation of the hogs on an Edinburgh hillside which included forests, marsh, grassy pastures, gorse bushes and a stream. These observations were used to develop a novel housing system for hogs that enables the animals to carry out many activities observed outdoors but in a modest amount of space. In fact, the space requirements of the "Pig Family Pen" are equivalent to those of semi-confinement systems.

Great interest was shown in this work by agricultural engineers, animal scientists and veterinarians who scheduled lectures by Wood-Gush at their institutions. His first stop was Fort Worth, Texas where he spoke to the animal welfare committee of the U.S. Animal Health Association. He then went on to give university-sponsored lectures at Texas A & M University, the Universities of Minnesota and Illinois, Purdue University, Cornell University at Ithaca, West Virginia State University, Pennsylvania State University and Virginia Polytechnic Institute and State University. Dr. Wood-Gush also lectured at USDA's Meat Animal Research Center in Clay Center, Nebraska and its Beltsville Agricultural Research Center in Maryland. (This lecture was jointly organized by the University of Maryland.)

Under a grant from the British Ministry of Agriculture the "Pig Family Pen," has been thoroughly researched from a scientific standpoint. A new three-year grant will permit detailed economic assessment. The productivity and excellent physical health of the hogs managed in this unique housing system provides powerful evidence that managing



Pig Park near Edinburgh. One sow grooms another which she knows extremely well. This is a sign of deep acquaintanceship. (Drawn from a photograph by kind permission of Dr. A. Stolba. Reprint from Elements of Ethology by Dr. David Wood-Gush.)

animals in behaviorally appropriate conditions will benefit farmers. Estrus is synchronized among the four sows kept in each unit, simplifying management for the farmer, and it is exhibited while the sows are nursing their piglets, resulting in a biological

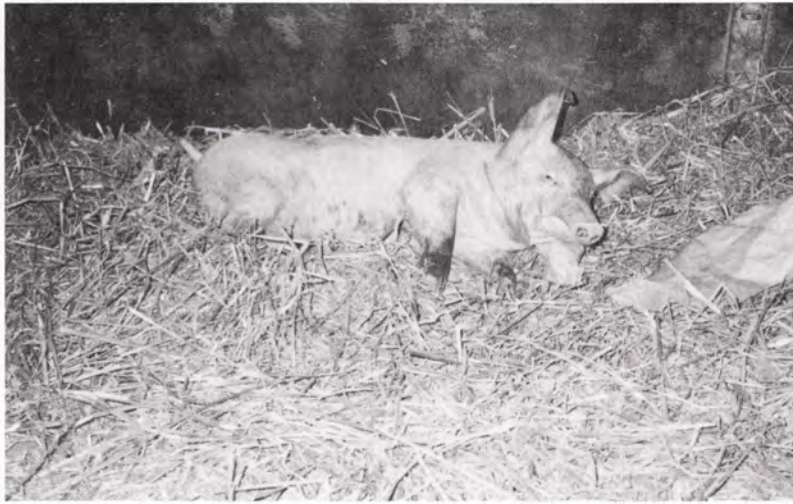
optimum of 2.5 litters per year from each sow. The average number of hogs sold from each litter is 8.5, an acceptable figure but one Dr. Wood-Gush expects to increase.

AWI Quarterly, Fall, 1984



Alex Stolba

A view of a sow with her many piglets in The Pig Family Pen. Note their curled tails. In factory farms piglet tails are cut off to prevent tailbiting caused by crowded, barren conditions. No such mutilations are carried out on the contented pigs in this humane system because they are not needed.

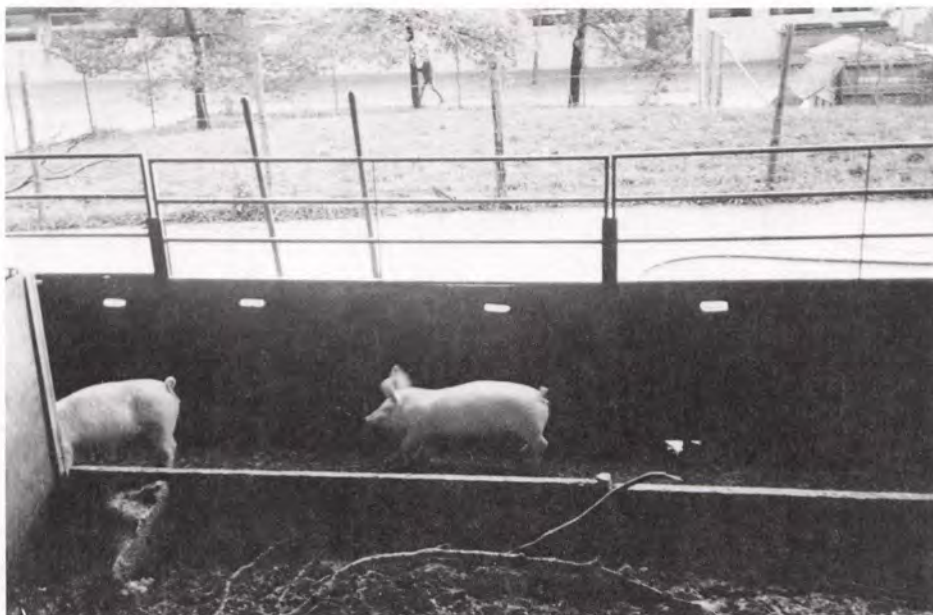


photos by Diane Halverson

Piglets enjoy fresh straw and play with a new paper bag in the Family Pen.



Scientists observed that in a natural environment, "bonds of kinship" remain between a sow and her offspring, even after the birth of subsequent litters. Here the alpha sow of this Family Pen unit rests against the wall. One of her adult daughters lies next to her while piglets from a younger generation are close at hand.



Photographs of the Family Pen at the University of Zurich, Switzerland-1986.

Dashing down the dunging corridor in the Family Pen.

Laying Hens



Hen
by Pablo Picasso
1936

Courtesy of The Museum of Modern Art, New York. The Louis Stern Collection, aquatint sheet, 14-3/8" x 10-7/8"



photos by Dave Clegg©Chicken's Lib

A hen after months of confinement in a battery cage.



The same hen after being removed from the cage and returned to a more natural environment.

Life in an egg factory

What's it like in an egg factory? When the hens are put into the battery cages in which they are destined to spend the rest of their lives, they are well-feathered, good-looking birds; but by the end of their single year of life, many feathers have been reduced to mere quills because the birds are so closely packed in the small cages that frustrated cage mates peck each other or actually stand on each other for lack of space so that their backs may become entirely bare—and this despite the fact that they have been “debeaked,” that is, the upper mandible has been burnt off. Sometimes the aberrant behavior fostered by the extreme overcrowding progresses to actual cannibalism. At the end of their ordeal, the surviving hens are sold for canned chicken soup.

The industry frequently asserts that the birds would not produce large numbers of eggs if they were suffering. They assert that egg production has risen as a result of the battery system. Again, however, we should turn to scientific studies to test the accuracy of these assertions.

For example, the University of California's Division of Agricultural Sciences conducted experiments which show that crowding chickens in cages reduces profits. “It is

Beak trimming should be forbidden by Regulation except under veterinary supervision as a last resort when it is clear that more suffering would be caused if it were not done. From the 1981 Report of the House of Commons Agriculture Committee.

difficult,” they state, “for most poultrymen to visualize 3,000 hens making more money than 4,000. Many firmly believe that chickens must be crowded to improve labor efficiency and reduce costs per layer for housing and equipment. The point they do not recognize is that higher bird density leads to cannibalism and other social stresses that depress the rate of laying.” These authorities state, “It is a well accepted principle that as the number of chickens in a given cage is increased, the mortality rate also increases and egg production decreases.”

Why then, the uninitiated reader may ask, would a poultryman crowd his chickens to the very limit? Because he is gambling, like his counterpart in the hog factory, that he can get larger returns from the increased volume of production no matter how severely his hens are stressed.

In Leaflet 2652, the University of Chicago shows a photograph of a debeaked hen, a strange looking creature whose lower beak juts out twice as far as her upper one. This is intended to reduce cannibalism. A study by J. Peterson reported in *The Laying Hen and Its Environment* (1980) showed that in cages housing six hens, the frequency of cannibalism is approximately double that of cages holding three or four.

Battery cages with more and more hens forced into them have swept this and other countries. However, it is not universal. For example, P. Rannou, winner of a prize from the French organization *Oeuvre d'Assistance pour les Betes d'Abattoirs*, reports that this system, the result of 25 years of research, is highly successful. The hens are able to roost, to go into nest boxes, to scratch in litter



Cathy Liss

One hen lies crushed under another hen forced to find space outside of the cage.

with daylight the full length of their buildings, and to forage for grain in the straw. The collection of the eggs is automatic, and the eggs are very clean because of the special nest boxes. As may be seen in the photograph, the hens' feathers are in excellent condition, and they are not debeaked. Mr. Rannou offers to furnish to an American firm wishing to follow this fully tested example, a complete study on this totally automated raising of uncaged hens which combines minimum use of energy with maximum efficiency and security. (See pages 76-77.)

AWI Quarterly, Spring, 1982

Poultry farmers give evidence

Intensive livestock farming with the focus on animal welfare has been the subject of a Parliamentary enquiry in Britain. Consumers, producers, welfare bodies—in recent months all have given evidence to a *Commons Select Committee* and those on the committee have visited a variety of farms practising a variety of systems. Their report, embodying recommendations to Parliament, will be published in July.

On 5 March it was the turn of the British Poultry Federation to give evidence and an AWI representative attended the hearing. Spokesmen for the federation agreed there was no hard evidence to support the oft-repeated claim that the battery system is the most economic. While defending the system as giving “adequate welfare” they also agreed, under pressure from the committee, that a system giving birds more freedom of movement would be more humane and, if economically sound, would be acceptable to poultry farmers. (Economic considerations include the fear of being swamped by cheap imported eggs from France and Holland.)

A welfare code lays down guidelines but is not mandatory. Again the federation agreed that practices which are in all cases needless and abhorrent—eg de-winging, de-beaking, castration without anaesthesia—should be made illegal. Beak trimming, though, as opposed to de-beaking, was defended as a sometimes necessary form of “multilateral disarmament;” in caged poultry the pecking order may take a vicious form. The code requires that birds have room to stretch—which in cages they do not. It was rather lamely said that battery birds show no signs of wishing to indulge themselves in this way but that if they felt like it they could always stretch one wing at a time.

The chairman of the British Egg Association was one of the federation’s spokesmen. The committee had visited his farm—64,000 birds, five to a cage. They commended him for his efficiency but expressed doubts as to whether just one employee could look after the welfare of such a huge number of birds. They were told that in a highly automated system this was not difficult. Whether they accepted this assurance we shall know when their report is published.

AWI Quarterly, Spring, 1981



Hens in laying batteries.

Verein gegen tierquersische Massentierhaltung e.V.

Swiss eggs-pertise

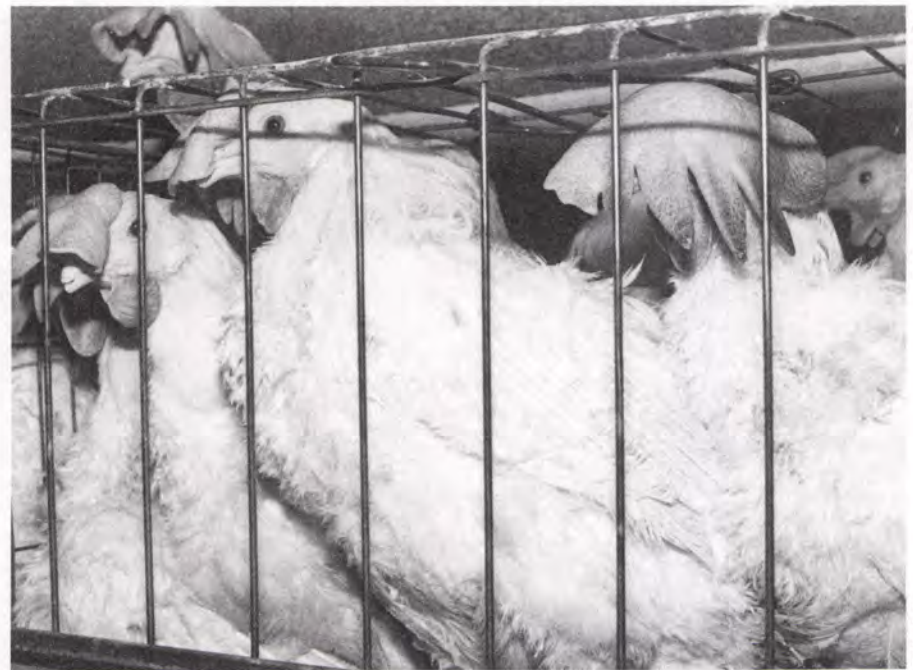
The Swiss housewife shopping for eggs has a choice: battery cage or deep litter. Deep-litter eggs are “humane” eggs and carry the trademark of the *Schweizer Tierschutzverband*, the Swiss Animal Protection League. But the price is a little higher and how can Madame (or the shopkeeper) be sure she is really getting what she is paying for?

Science has come up with the answer. An egg laid by a battery hen rolls on wire

netting to the floor. In the process the delicate membrane enveloping the egg is scarred. Invisible to the naked eye the ring-like marks show up clearly under ultra-violet inspection.

On the other hand deep-litter eggs, gently laid into a nest, reveal nothing. But that nothing is something which a lot of Swiss people are very willing to pay for.

AWI Quarterly, Spring, 1982



This battery cage makes normal standing and stretching impossible.

Cathy Liss

Prospects for battery hens here and abroad

AMERICA: It's sunny side up for beak trimmers

Beak trimming is supposed to reduce pecking injury in hens. And perhaps it does. But the humane and proper cure for excessive aggression is to remove the cause of it — namely, the disgraceful battery-cage system. Birds have a natural pecking order and in crowded conditions this can turn vicious.

Hens do not like battery cages. But the makers of beak trimmers certainly do. No cages, no business. One of the companies concerned is *Lyon Electric Company, Inc.* It markets a range of beak-slicing devices (there is even one for ducks) and has



Example of de-beaking.

Œuvre d'Assistance aux Bêtes d'Abattoirs

issued "A general guide to beak trimming" for the edification of poultry farmers. This contains lots of sage advice—e.g., "avoid burning the tongue. . . . keep the notched area of the blade forward of the nostrils. . . . the costliest error is the use of excessive or prolonged heat especially when doing severe beak trimming."

Severe beak trimming—what exactly is meant by that? The answer comes in the following statement: "Beak trimming of birds over 12 weeks old is generally accomplished by removing two-thirds to three-quarters of the upper beak up to one-eighth of an inch from the nostril. The lower beak is cut one-eighth of an inch longer."

Now that is not so much beak trimming as de-beaking. And de-beaking is widely condemned as abhorrent and unnecessary in all circumstances. Curiously all *Lyon Electric's* beak trimmers carry the trademark Debeaker.



Close-up of battery hens

Cathy Liss

FRANCE: Where happy clucking rules the roost

The 75,000 hens on Pierre Rannou's farm in Quimper, France, were the stars of a half-hour program on French national television last fall. The handsome red fowl in their well appointed hen house clucked happily, popped into their comfortable plastic nests when they felt like laying an egg, perched on their roosting boards, scratched in the sandy litter where grain is sprinkled for added interest or spread their wings—all perquisites denied their unfortunate sisters in battery cages.

France II gave an uncompromising view of a huge battery-egg production plant. The hens' feathers were grotesquely worn off, exposing naked necks. The camera focused on their trimmed beaks, then took shots from underneath the cages showing toes sticking through the mesh, feet vainly trying to find comfortable footing. The sound track picked up the birds' distressed cackling.

The commentator twice referred to the batteries as "concentration camps", and the appellation seems apt as the camera reviewed long lines of anxious fowl pecking



Rannou's hens are neither caged nor de-beaked.

Christine Stevens

and jostling for scarce space in their cramped cages. They provided a grim contrast to the glossily feathered, calm and stately flocks of Rannou hens who allowed their owner to walk among them without the slightest disturbance. Indeed they were happy to perch on his shoulder or hand when he crouched down among them.

A few of these hens were taken outside on the grass where, with no hesitation, they walked about and foraged. When battery hens were placed on the grass they froze and could not put one foot in front of the other for a long time. Their reactions were pitifully abnormal—again in complete contrast with the Rannou hens.

Pierre Rannou is not without his problems, however, owing to over-regulation by France as a member of the European Economic Community which prevents him from telling consumers how the hens are kept.* There is strong demand for his superior eggs despite the fact that they command a higher price than battery eggs.

GERMANY: Vets slam Council of Europe for chickening out

The *German Veterinary Society* has written to the federal Minister of Food and Agriculture to express its deep disappointment at the Council of Europe's timidity in proposing that battery cages be retained. The Society bases its rejection of the battery-cage system on the results of research projects conducted in various institutes of the Federal Research Institution for Agriculture.

While accepting that an immediate ban on battery cages is impractical (though insisting that they be tolerated for at most a further five years), the Society urges that the minimum cage space for each bird be increased from the present 460 cm² to between 600 and 1000 cm² depending on the bird's weight.

In this connection the Society points out that poultry farmers are currently violating European regulations on the welfare of farm animals. The regulations, in line with scientific findings, demand that an animal's natural movements should not be restricted in such a way as to cause needless suffering or injury.

AWI Quarterly, Spring, 1983

*This prohibition was finally withdrawn in 1986. Egg cartons may now be labelled in four categories defining differing degrees of freedom, space and access to sunlight and litter.



Cathy Liss

Overall view of the egg factory with an escaped hen.

HEN BATTERY CAGES: THE BEGINNING OF THE END?

by Ruth Harrison

In a former Information Report we told you of the provision in the German Animal Protection Act of 1972 that: "Any person who is keeping an animal or who is looking after it . . . shall provide accommodation which takes account of its natural behavior."

This clause, it is explained in the accompanying text, starts "from the principle that the well-being of an animal by and large is based on the normal vital functions developing and proceeding undisturbed in a manner which is typical for the species and does justice to the animal's behavior" . . . "Influences of any kind which lead to *sustained impairment* [emphasis added] of the well-being of the animal" are part of the definition of pain and suffering in the text.

These far-reaching and welcome definitions have now resulted in a

court ruling which could have equally far-reaching results.

Earlier this year a test case was taken against a poultry farmer in Darmstadt, West Germany, who keeps 60,000 hens in 4-bird battery cages, each measuring 40x43x34/44 cms. The Lower Court dismissed the case on the basis that the farmer could not reasonably have known that the cages were against the law. The Public Prosecutor appealed to the High Court in Frankfurt, who upheld the opinion of the Lower Court that there was no case against that particular farmer for the same reason as the Lower Court's findings. The High Court, however, declared that the present small cages lead to "continuous cruelty" in that the bird's inherent behavior, such as wing flapping, scratching, stretching, and preening, is prevented. The Court warned that after the publicity accruing from the case, no further defense could be made on grounds of ignorance.

The German Agricultural Minister, Herr Josef Ertl, has now taken the problem to his colleagues

in Brussels to find a solution at EEC (European Economic Community) level. The Commission has been asked: (a) to produce a draft directive by 1980 aimed at the eventual banning of present commercial battery cages, and (b) to prepare a full report on possible alternative systems upon which concrete proposals can be made, by September 1981.

Full-scale trials on alternative systems of egg production have been underway in Germany for some time, and it is hoped that these will yield the information required.

The High Court decision in Frankfurt has given an added incentive to other countries to increase their research into alternatives. It has also made them more aware that other systems of extreme confinement may receive similar treatment.

Nothing will change overnight, but change is certainly on the way!

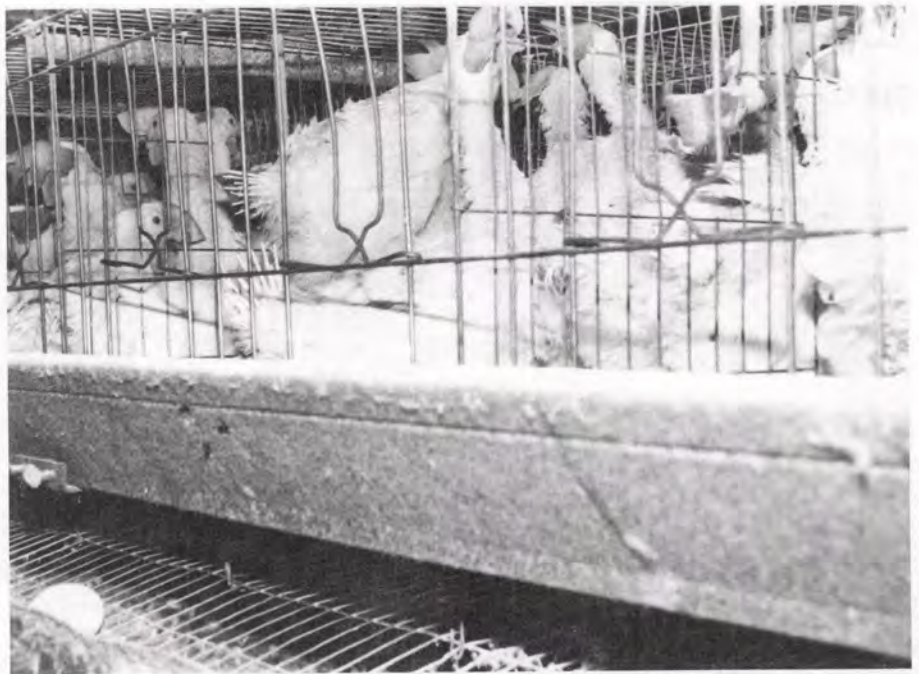
AWI Quarterly, Fall, 1979



Normal hen feather



Battery hen feather after confinement



Only quills are left in the tails of these battery hens. The feathers have been rubbed off against the cage wires or pecked off by cage mates. Note hens standing on top of one another for lack of space on the cage floor.

Cathy Liss

Germans battle over hen battery cages

Is West Germany, or at any rate the State of Hesse within the Federal Republic, set to emulate Switzerland and outlaw battery cages for hens? If the Social Affairs Minister for Hesse, Armin Clauss, has his way, the answer is Yes.

A battle, which has so far lasted for all of eight years, is still going on to decide this issue in Hesse. Twice, first in 1979 and then again in 1985, a district court has rejected the charge of cruelty brought against some of the country's largest battery egg producers.

On the first occasion this decision was overturned by the High Court in Frankfurt. The German government then took the matter to the European Commission and sat back to await the verdict. They are still waiting.

Meantime, while the waiting game continued, Hesse's egg producers were permitted to carry on as if the High Court ruling had gone their way. But in 1984 Herr Clauss decided that failing agreement at European or federal level, the Frankfurt ruling must be upheld. He ordered the wind-up of all battery farming in the State.

Also that year a charge of cruelty was again filed by activists. In 1985 the case came up in the same district court as before—and again it was dismissed. Herr Clauss, though, says he will not be swayed by this verdict. Backed by the earlier ruling of Frankfurt's supreme court of appeal, he intends to press ahead with phasing out battery cages in Hesse.

AWI Quarterly, Spring, 1986



Battery hen's deformed foot.

Cathy Liss

Inhumane practices in the egg industry need reform



Diane Halverson

A dying hen, ignored or unnoticed by the manager during morning rounds has been left in the cage, and is stood on by other hens trying to maneuver in this tiny space.

The poultry "industry" has claimed for years that it takes good care of its egg-laying hens, arguing that if it did otherwise the hens would not produce so many eggs. The industry asserts that the *profits* it seeks depend upon having hens that are content and well attended to. But a September 1984 report from the University of California at Riverside shows neither animal welfare nor an accurate assessment of economics direct poultry management. Instead, poultry producers operate against their own economic best interests as well as the birds' welfare. The University report says:

Poultrymen have probably lost more money because of the improper selection of stocking densities than any other form of mismanagement. This is especially true during the past *ten years* when the industry has been so widely plagued with over-production.

Even though dozens of carefully well-controlled tests (farm and university) have shown that crowding doesn't pay, poultrymen still insist on crowding their equipment beyond economic limits. Expansion by adding extra birds to existing facilities appears to make sense from an investment standpoint, but performance is *always* sacrificed—often times to the point of lower total profits for the firm.

It's difficult for poultrymen to believe the performance losses represented by increasing stocking densities but the average per bird loss in

production in 40 tests from adding one additional bird was 16 eggs. In addition, mortality was increased by 5.3%.

When laying hens are deprived of all but small movements in a battery cage, bone brittleness can result. The condition is known as cage layer osteoporosis. The hens may suffer broken breast bones, clavicles and wings when they are pulled from their cages at the end of their term on the egg farm, packed into crates for transport to the slaughterhouse, then pulled out of the crates, shackled and hung for slaughter. Bone breakage or other injuries to the hen at slaughter time are of little economic concern to the owner of laying hens, since they have been reared for egg production, not for meat, and the value of the "spent hen" carcass is small. However, this is a moral problem in that these injuries constitute cruelty to animals, and are one more reason why laying hens must be housed in quarters that are biologically sound. Scientific studies* show that when hens that have been confined in cages are put in deep litter pens for two



Cathy Liss

Row upon row of animal machines.

weeks they acquire stronger bones and the breaking of wing bones before and during slaughtering is completely prevented.

Diane Halverson, 1987

*Meyer, W.A. and M.L. Sunde: Bone breakage as affected by type of housing or an exercise machine for layers. *Poult. Sci.* 1974, 53, 878-885.



Elizabeth Cory

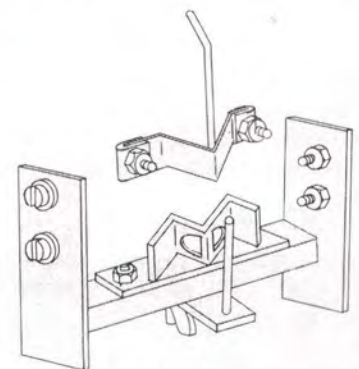
Each of these hens has been debeaked as a chick, a procedure in which a substantial part of the upper beak is removed with the hot blade of a debeaking machine. Debeaking is performed to reduce the severity of injuries from the misdirected or excessive pecking that occurs in cage housing. But the hens suffer from the injuries nonetheless. In the Rannou system of loose housing hens need not be debeaked.



Cathy Liss

Photo of a debeaker (above). Sketches and text from a debeaker catalog (below).

TT ATTACHMENT — FOR CONVERSION OF SUPER DEBEAKER® TO SUPER TT DEBEAKER®.



TT ATTACHMENT: This attachment will convert your Super DEBEAKER® into a TT DEBEAKER®. TT method of debeaking offers a different approach as the bird is held sideways at a 90° angle from the unit and both beaks are cut and cauterized simultaneously with an inward slant as shown in drawing. Recommended for birds 3 to 6 weeks of age. TT Attachment. Catalog No. 940-24



Michael Fox

Birds reared for egg laying or for meat are debeaked in such haste that the painful mutilation is sometimes made even worse, as in the case of this laying hen whose upper beak was completely burned off.



Day old Beak Heat Treating (searing) is probably the most common method of debeaking broilers. In this method the top curved surface of the upper beak is touched to a hot blade. Result of this is shown in upper sketch. After bird has learned to eat and drink the tip drops off, presenting no problem. Properly done this method usually suffices until market time.

In addition to flat blades (BT, IRXN, IRXW) curved blades to sear a notch in upper beak can be used (DL, DLX, LD, plus DL2 and MN-2 for debeaking 2 birds at once). See lower sketch.

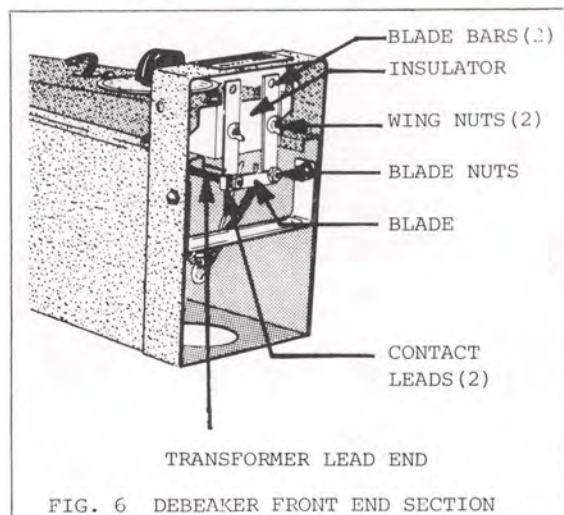


FIG. 6 DEBEAKER FRONT END SECTION

A visit to 15,000 contented hens

by Christine Stevens

As we drew up to the Ferme St. André, the ancestral home of Pierre and Suzanne Rannou near the Breton town of Quimper, northern France, two huge vans were parked outside to receive the cases of eggs produced in massive quantity by the Rannou hens, handsome Rhode Island Reds.

M. Rannou led us up steps to the door of the huge hen house and rapped politely before opening it. The rapping informs the hens that people are coming in, and they were perfectly calm as we entered. The hysteria of battery hens was completely absent. Yet there were 15,000 busy birds, living there together. Many were occupying the nest boxes fitted with specially designed plastic nests whose shape and even color were selected by inventor Rannou to please the hens. "You must think of what *they* prefer, not what you prefer," says Rannou. And he seems to have done a splendid job of ascertaining the preferences of hens.

Calm and friendly, they allow the visitor to stroke their backs without fear; they peck curiously at shoes, a ring, then move off to eat, drink, or pull apart a bale of straw set there for their occupation. These hens are not mutilated in any way. There is no need for the cruel debeaking operation because they do not defeather or cannibalize one another as battery hens do. They live very close to one another, but their "behavioral needs", what comes naturally to hens, have been met so they have no need to "take it out" on another hen.

The photographs show the arrangement of the hen house whose design has been developed over a quarter century by Rannou, a man ever on the alert to make improvements.

There are two long platforms that run the entire length of the house. These are covered with sand (for dust bathing and scratching) mixed with kernels of grain and straw (for the pleasure of food-finding) and they serve another important purpose as an overhanging roof above the nest boxes. It has been shown that hens prefer to retire to a quiet and secluded place to lay their eggs. The nest boxes are arranged back to back so they face the three wide corridors with metal-mesh floors strong enough for a person to walk on to tend the flock. The dropping pit is below, running the full length of the building. Long food and water containers stand on the mesh floor providing ample sustenance for all.



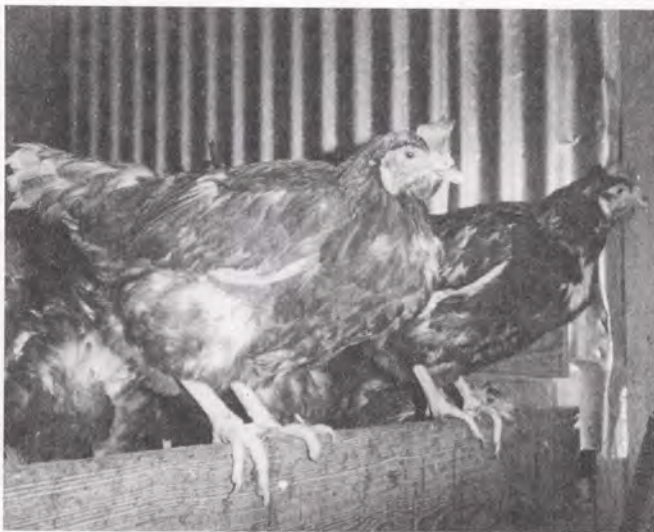
Christine Stevens

Madame Rannou with moving belt of eggs.

The hens can and do fly from floor to platform. They enjoy sun and fresh air because the sides of the house are open, covered only with chicken wire. On dark days additional lighting comes on automatically.

Egg collection is automatic too, and a massive stream of eggs can be seen rolling past Mme. Rannou who is checking to make sure no cracked eggs go into packing boxes. A second quality check is made with strong illumination.

The Rannou eggs command a higher price than battery eggs because



Christine Stevens

Hens can perch and fly.



Christine Stevens

Hens in the sand litter.

they taste better and are more wholesome since routine medication is not used by Rannou as it is in battery houses.

Three times as many hens could be kept in this space were they confined to battery cages, but the Rannous are not willing to treat hens in such a callous way, no matter what pressures are exerted on them.

France is the only country that follows an EEC ruling to the letter, insisting that the egg cartons cannot be labelled to indicate the conditions under which the eggs are produced. Rannou has been taken to court and even threatened with imprisonment for having put such information (now removed) on his cartons. Even so, he has a loyal and admiring clientele—but it would be bigger if he were allowed to tell the truth about his eggs. A German firm wanted to buy his entire production if the cartons were clearly marked to show they were not battery eggs.

France II, the nation's second television channel, showed a documentary on the Rannou production contrasted with a battery hen system. It was aired three times in France and once in Belgium.

The battery egg producers are in trouble because of overproduction. But instead of following Rannou's good example, they have taken to the streets to protest at the low prices their eggs bring, and dumped millions of eggs onto roads. Worse still, they threw out truck-loads of the hens themselves on a busy street where they were painfully crushed. No further proof is needed of the total lack of compassion of these French factory farmers.

These are the men who three times demanded that Rannou contribute to the dumping of eggs. On his third refusal, they threatened to burn his buildings.

There is one building on the Ferme St. André that would be hard to destroy by fire: a beautiful stone chapel. The farm has been in the family for 300 years. It should serve as a model for humane, effective, profitable farming the world over, combining the newest automation with traditional values, foremost among them respect for the creatures who provide us with food.

AWI Quarterly, Fall, 1983



Laying eggs in the nest boxes.

Christine Stevens



Exterior view of Rannou's buildings.

Pierre Rannou



Hens can roost, scratch in litter, lay eggs in nests and enjoy natural sunlight in this modern French building.

Sources of Food from Humanely Raised Animals

It has been said that every dollar spent on food is a vote for a certain type of agriculture. Following is a list of shops and restaurants where products from humanely reared animals are available. We hope that you will cast a vote against factory farming and for humane agriculture by purchasing these products and telling store or restaurant owners why you have done so. We ask that you send in the names and addresses of additional places where similar products are available so that we may distribute a frequently expanded list.



Sculpture by Richard Cowdy

Food Animal Concerns Trust

The Food Animal Concerns Trust (FACT), based in Chicago, provides marketing assistance to farms that meet its standards for humane and drug-free rearing of veal calves and laying hens. (See page 40 for description of FACT's calf-rearing method.) The brand name for this veal is "Rambling Rose Veal." The eggs are marketed under the name "Nest Eggs" and all cartons are so labelled. Stores, meat markets and restaurants where these items are available are listed below. (Supplies of veal are limited, so consumers are advised to call first to confirm availability.) FACT can be contacted at P.O. Box 14599, Chicago, Illinois 60614; telephone: (312) 525-4952.

NEST EGGS

Stores

Illinois

Chicago:

Food Works, 1002 West Diversey
(312) 348-7801

Hyde Park Co-op, 1526 East 55th Street
(312) 667-1444

Mr. G Finer Foods, 1226 East 53rd Street and
2911 South Vernon
(312) 363-2175 and (312) 842-9711

The Market Place, 521 West Diversey
(312) 348-5721

Stop & Shop, 1313 North Ritchie Court,
260 East Chestnut and 233 East Wacker
(312) 853-2150, (312) 853-2155 and (312) 853-2160

Zambrana's - The Food Emporium,
2346 North Clark Street
(312) 935-0200

Chicago Suburbs:

Blase's Grocery, 316 Lake Street, Oak Park
(312) 386-0340

Country Market & Deli, 39 South Washington
Street, Hinsdale
(312) 887-8220

Don's Finest Foods, 850 North Western Avenue,
Lake Forest
(312) 243-2700

The Green Earth, 2545 Prairie Avenue, Evanston
(312) 864-8949

McChesney & Miller, 460 Crescent Boulevard,
Glen Ellyn
(312) 469-0015

Sunset Foods, 1901 Cherry Lane, Northbrook
(312) 272-7700

Thompson's Fine Foods, 901 West Touhy, Park Ridge
(312) 825-2174

Walt's Supermarket, 303 North President, Wheaton
(312) 653-0630

Winnetka Village Market, 606 Greenbay
Road, Winnetka
(312) 446-6707



Robert Gesell

New Jersey

Kings Super Markets - 15 locations in the New
Jersey suburbs of New York City:

1874 Bloomfield Avenue, West Caldwell
(201) 575-1335

300 South Avenue, Garwood
(201) 789-1160

255 South Livingston Avenue, Livingston
(201) 994-9280

159 Maplewood Avenue, Maplewood
(201) 762-9799

300 Pompton Avenue, Verona
(201) 293-1107

650 Valley Road, Upper Montclair
(201) 744-9610

778 Morris Turnpike, Short Hills
(201) 467-2311

112 North Maple Avenue, Ridgewood
(201) 441-1141

630 Main Street, Hackensack
(201) 342-8948

70 Union Avenue, Cresskill
(201) 894-1202

381 Washington Avenue, Hillsdale
(201) 664-7880

784 Springfield Avenue, Summit
(201) 273-1500

100 Morristown Road, Bernardsville
(201) 221-0246

393 Main Street, Chatham
(201) 635-1280

191 South Street, Morristown
(201) 993-1020

call (201) 575-3320 for King's Super Market information

New York

D'Agostino Supermarkets - 18 locations in New York City:

| | |
|---|--|
| 1233 Lexington Avenue (212) 570-6803 | 341 Third Avenue (212) 686-0619 |
| 315 West 23rd Street (212) 989-5113 | 755 Amsterdam Avenue (212) 864-9930 |
| 532 East 20th Street (212) 777-9658 | 1074 Lexington Avenue (212) 650-1875 |
| 528 Third Avenue (212) 684-3133 | 2131 Broadway (212) 874-8823 |
| 1394 Second Avenue (212) 650-1994 | 633 Columbus Avenue (212) 874-8610 |
| 1507 York Avenue (212) 650-9381 | 790 Greenwich Street (212) 741-9080 |
| 64 University Place (212) 674-7101 | 565 West 235th Street (212) 549-9869 |
| 1031 First Avenue (212) 355-8988 | 353 West 57th Street (212) 581-8716 |
| 1652 First Avenue (212) 722-9280 | 156 Henry Street, Brooklyn (718) 852-7293 |

2 locations in Westchester County:

- Routes 121 and 35, Cross River
(914) 763-8544
- Route 6 and Lee Boulevard, Jefferson Valley
(914) 245-1262

- Balducci's, 424 Sixth Avenue
(212) 673-2600
- Dean & DeLuca, 121 Prince Street in Soho
(212) 431-1691
- Grace's Market Place, 1237 Third Avenue
(212) 737-0600
- Jefferson Market, 455 Sixth Avenue (at 10th Street)
(212) 675-2277
- Nevada Meat Market, 2012 Broadway (at 68th Street)
(212) 362-0443
- Ottomanelli Bros., 1549 York Avenue (at 82nd Street)
(212) 772-7900
- Petak's, 1244 Madison Avenue
(212) 722-7711

RAMBLING ROSE VEAL

Stores

Illinois

- Chicago:
 - Food Works, 1002 West Diversey
(312) 348-7801
 - Mr G Finer Foods, 1226 East 53rd Street
(312) 363-2175



Robert Gesell

Massachusetts

- Bread and Circus - 3 locations
 - 115 Prospect Street, Cambridge
(617) 492-0070
 - 278 Washington Street, Wellesley
(617) 235-7263
 - Mountain Farms Mall, Hadley
(413) 586-9932
- Star Market, 699 Mt. Auburn, Cambridge
(617) 354-8268

Restaurants

New York

- Zanghi, 50 Forest Avenue, Glencove
(516) 759-0900
 - The Chanterelle*, 89 Grand Street, New York City
(212) 966-6960
- *The Chanterelle also uses Nest Eggs

Excerpt from New York's Daily News, April 24, 1985

The FACTs behind that new veal by Suzanne Hamlin

The Rambling Rose veal, the brand name of the product, is almost like a new meat. Unlike the pale, soft veal we know, the Rambling Rose veal is darker, meatier and firmer and there is a reason for this—the calves have been raised in humane conditions without antibiotics or other drugs. The nonprofit organization FACT, which has sponsored the veal, contends that the calves used to produce ordinary, white veal are purposely raised in an inhumane environment. . . . "We've had a great response from customers," says David Waltuck, the chef and owner of Chanterelle, the intimate, *nouvelle cuisine* restaurant on Grand St., where the veal has been an option of the \$50 fixed price dinner for the past several weeks. "We've done it both as a roasted loin and as a rack of veal and I'm amazed at the difference," says Waltuck.

Summerfield Farms Veal

Summerfield Farms raises drug-free, group-housed calves for pink veal and also markets such meat for farmers who raise calves the Summerfield way. (See page 40 for a description of Summerfield Farm's calf rearing method). Households can purchase meat directly from Summerfield, which can be contacted at SR4, Box 195A, Brightwood, Virginia 22715; telephone 703-948-3100. Summerfield will deliver orders to customers in the Washington, D.C. area. Several of the restaurants where this veal is available are listed below. These restaurants often change their menus daily, weekly or seasonally. Please call ahead to confirm availability.

Excerpt from *The New York Times*, November 1, 1986

DE GUSTIBUS

by Marian Burros

White veal was the standard by which Americans judged veal until a few years ago. But anyone willing to admit that the emperor had no clothes would acknowledge that such veal is virtually tasteless. The appeal of veal piccata made with white veal escapes me.

Along came James Nicholl, who raises calves in Virginia under humane conditions. . . so that they do not become anemic. Thus, they do not have white flesh. Instead they have buttery pink meat with a sublime flavor.

No Fancy Sauces

Whenever a few Summerfield Farm veal chops come my way, I broil them quickly under high heat and serve them absolutely plain. No need for fancy sauces. The veal is the only item on the list that is not available in specialty markets. It must be ordered by mail from Summerfield Farm, Star Route 4, Box 195A, Brightwood, Va. 22715; telephone 703-948-3100.

Restaurants

California

Chez Panisse, 1517 Shattuck Avenue, Berkeley
(415) 948-5556

Spago, 8795 Sunset Boulevard, West Hollywood
(213) 652-4032

Colorado

Rattlesnake Club, 901 Larimer, Denver
(303) 825-4319

Illinois

Gordon's, 500 North Clark Street, Chicago
(312) 467-9780

New York

New York City:

Arcadia, 21 East 62nd Street
(212) 223-2900

Arizona 206, 206 East 60th Street
(212) 838-0440

Aurora Grill, 60 East 49th Street
(212) 692-9292



A Greek bronze of a cow found at Herculaneum

Bibliothèque Nationale, Paris

Natural Beef Farms

Natural Beef Farms of Chantilly, Virginia, markets and distributes eggs and meat from animals reared in humane and drug-free systems. Eggs, poultry, pork, veal, lamb and beef are available to households, grocery stores, restaurants and butcher shops. Natural Beef Farms can be contacted at (703) 631-0881. Periodic deliveries are made to several locations, listed below.

Every three weeks to six delivery areas in Washington, D.C. and suburbs.

Once a month to south and west Baltimore, Glen Burnie, Severna Park, Annapolis and Love Point, Maryland.

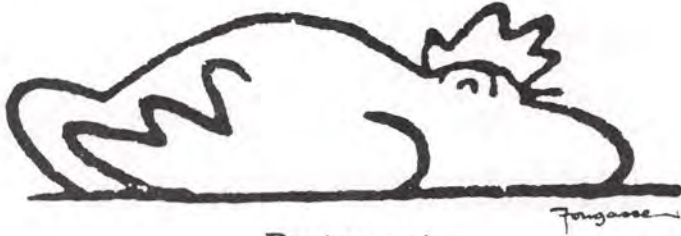
Every three weeks to Williamsburg, Newport News and Richmond, Virginia.



Beatrice Potter, © 1930 by Frederick Warne, Ltd.

Farvue Farm

Farvue Farm in South Salem, New York keeps laying hens on litter floors with access to nest boxes and perches. Below is a list of stores where eggs from these hens are sold in cartons marked Farvue Farms and the restaurants and bakery using these eggs. The Farvue Farm manager can be contacted at (914) 232-4901.



Restaurants

New York

Korner Kitchen, intersection of Route 121 and Route 35, Cross Rivers
(914) 763-8345

Bakery

Connecticut

Taste of Paris, 20 Prospect Street, Ridgefield
(203) 438-5761

Stores

Connecticut

Brunetti's, 78 Main Street, Ridgefield
(203) 438-3006

New York

5th Division Market, intersection of Route 121 and Route 35, Cross Rivers
(914) 763-3580

Katonah Natural Foods, 77 Bedford Road, Katonah
(914) 232-7574

Salem Market, intersection of Spring Street and Main Street, South Salem
(914) 763-8902

Greenmarket

In New York City, eggs from hens that are *not* kept in small cages, can be purchased directly from farmers. The manager of each Greenmarket can tell you how each farmer keeps the hens. For more information about this program, named "Greenmarket", call (212) 477-3220.

1987 Greenmarket Schedule

Manhattan

Southbridge Towers Sat June 13-Dec. 19
(Beekman & Pearl Sts.)

City Hall Fri Apr. 10-Nov. 20
(Municipal Building South)

| | | |
|---|---------------|------------------------------------|
| World Trade Center (Church Street) | Tues & Thurs | June 2-Dec. 22 Year Round |
| Federal Plaza (Lafayette & Worth Sts.) | Fri | Apr. 10-Nov. 20 |
| Independence Plaza (Greenwich & Harrison) | Wed & Sat | June 10-Nov. 25 June 13-Dec. 19 |
| Mercer Street (Soho) | Wed & Sat | July 29-Nov. 25 July 25-Nov. 21 |
| Tompkins Square (9th Street & Avenue A) | Sat | July 18-Nov. 21 |
| St. Mark's Church (10th St. & 2nd Avenue) | Tues | May 26-Nov. 24 |
| West Village | Sat | June 6-Nov. 21 Year Round |
| Union Square (17th St. & Broadway) | Wed, Fri, Sat | Year Round |
| West 77th Street | Sun | Year Round |
| East 87th Street | Sat | June 6-Nov. 21 |
| 102nd Street (Amsterdam Avenue) | Fri | June 19-Dec. 18 |
| 125th Street | Thurs | July 23-Nov. 19 |
| 137th Street (Adam Clayton Powell Blvd.) | Tues | July 21-Oct. 27 |
| 151st Street (between Broadway & Amsterdam) | Tues | July 21-Nov. 24 |
| 171st Street (Broadway) | Thurs | June 11-Dec. 17 |
| Brooklyn | | |
| Cadman Plaza West (Montague Street) | Tues & Sat | June 9-Dec. 22 Year Round |
| Columbus Plaza | Tues | June 27-Nov. 24 |
| Flatbush Avenue | Wed | July 15-Nov. 25 |

In addition to the above sources, please check your local food co-operative which may carry eggs from local farmers who keep small, non-caged flocks of hens. Health food stores also often carry eggs from uncaged hens.



... naturally clean animals ...

FREE RANGE CHICKEN

Poultry labelled "free range" is available at many health food stores, food cooperatives and farmers markets. Some restaurants are also making this product available to their customers. For this list, free-range means the birds have indoor shelter with access to a grassy outdoor lot during the day.

FARMS AND DISTRIBUTORS

D'Artagnan

399 St. Paul Avenue
Jersey City, New Jersey 07306
(201) 792-0478 or (800) - DARTAGNAN

Flying Foods

43-43 39th Street
Long Island City, New York 11101
(718) 706-0820

(Flying Foods services restaurants and gourmet shops. The firm also handles mail orders and has a warehouse open to the public on Fridays and Saturdays from 10 a.m. to 3 p.m. when the public can buy free-range chicken at wholesale prices.)

Natural Beef Farms (see page 82)

Paul Keyser (sells to restaurants only)

Warwick, New York 10990
(914) 986-6918

Pine Ridge Farms

Subiaco, Arkansas 72865
(501) 934-4543

Rocky the Range Chicken

Lakeville Growers
Petaluma, California
(707) 763-1904

RESTAURANTS

Los Angeles:

Spago, 8795 Sunset Boulevard, West Hollywood
(214) 652-4032

385 North, 385 North La Cienega
(213) 657-3850

New York City:

An American Place, 969 Lexington Avenue
(212) 517-7660

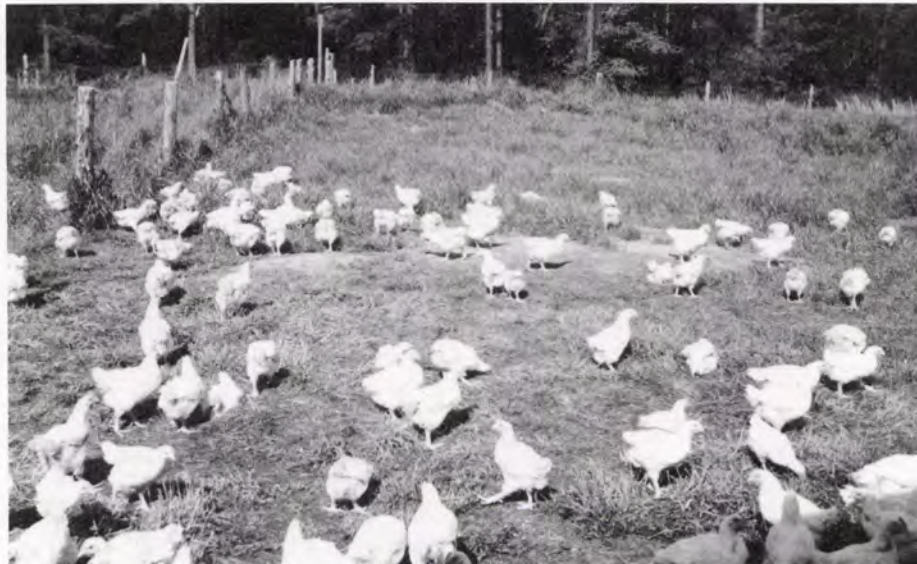
The Carlyle Hotel, 35 East 76th Street
(212) 744-1600

The Casual Quilted Giraffe, 550 Madison Avenue
(212) 593-1221

Lutece, 249 East 50th Street
(212) 752-2225

Odeon, 145 West Broadway
(212) 233-0507

Sam's Cafe, 1406 3rd Avenue
(212) 988-5300



Pine Ridge Farms

Free-ranging chickens on
Pine Ridge Farms at Subiaco, Arkansas



Sculpture by Richard Cowdy



Sculpture by Richard Cowdy



ANIMAL WELFARE INSTITUTE

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