Today's Animal Health

$1.25

september/october 1979

What's underneath that championship coat?

by Jane and Bob Forsyth

Professional dog handlers Jane and Bob Forsyth, known throughout the United States, share the most important secret of good grooming with you.

We had just arrived in Greenville, N.C., after a long drive from Chicago. We'd been on the circuit for a few weeks and a show was scheduled for the next day, so the dogs needed exercise and grooming. We took them, a few at a time, for a romp in a nearby field. The dogs were in good spirits and they enjoyed the exercise. Everything seemed fine.

It wasn't until closer surveillance that we noticed something was wrong with Brandy, a prize-winning boxer—and by no means an average animal. His coat was beginning to deteriorate. It lacked its former deep red color and was becoming sparse. We were especially puzzled because there were no other symptoms of illness. Brandy was cheerful and friendly as usual, still eating well and maintaining proper weight. His eyes were clear, his nose, cool and healthy. Brandy responded well to the exercise without tiring.

But experience had taught us that it's best to be alert to problems before they become real trouble. Not wanting to take any chances, we decided to take Brandy to a veterinarian. The vet smiled and told us that Brandy was in pretty good shape, but was apparently having some trouble assimilating the benefits from fats. (We were relieved, but began to realize that his on-the-road dry diet wasn't helping matters.)

The remedy was simple. The vet suggested adding two tablespoons of corn oil to his food for the immediate problem and increasing the meat in Brandy's diet to keep his coat healthy in the future. The prescription worked. We're happy to report that, after our champion began getting his fair share of fat from a meat diet, we had no recurring problems with his coat...and he enjoyed many more years of ribbon winning. In fact, even today, he's more handsome than ever.

Of course, Brandy had an unusual medical problem. But we learned something that day that has helped us throughout our dog handling career—that one of the best preventive measures against the rigors of the show circuit is a fortified high-protein meat diet that really gives a dog what he needs.

As you may know, your dog's coat is all protein. And meat is a super-rich source of protein and also contains needed fats: both essential for a good diet and a really healthy coat. But simply adding meat alone to your dog's diet may not meet his other needs. Your dog also needs the right proportion of vitamins and minerals. That's why, when we say "fortified," we don't mean table scraps or raw meat, but a high quality canned dog food that is fortified with a proper balance of vitamins and minerals.

One that we recommend is ALPO® Beef Chunks Dinner. It contains meat by-products and beef, fortified with soy and lots of vitamins and minerals for balanced nutrition. If you've been keeping your dog on an on-the-road dry diet, here's the way—according to many experts—to switch your dog to a balanced meat diet. Start mixing with a high-quality canned dog food like ALPO Beef Chunks Dinner. Give your dog time to adjust to his new diet by gradually mixing one part canned to three parts dry the first week. Then begin to increase the meat portion until your dog is getting all the meat and fat he needs.

Remember, the inside secret of a championship coat is good nutrition. Feeding your dog a fortified meat-based diet like ALPO Beef Chunks Dinner, even when you're on the road with him, is the simplest way of giving him the fat and high-quality protein he'll need to help keep his coat in top condition and maintain your dog as a top contender.

Our best-in-show to you and your best friend. ☐

Today's Animal Health

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COVER: *Illustration by NARCA courtesy of Animal Protection Institute of America*

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TODAY'S ANIMAL HEALTH is published to inform animal owners about responsible animal ownership and animal health. There are subscribers in all 50 of the United States and in 17 foreign countries. The magazine is used as a tool for client education by veterinarians and for educational purposes in classrooms and school libraries.

The ANIMAL HEALTH FOUNDATION supports research in animal health and pet population control. The Foundation also provides free veterinary care to pets belonging to elderly persons living entirely on social security benefits and those living on Aid to the Totally Disabled in the Southern California area. This program is made possible through the cooperation of local veterinarians. These activities are supported by donations from the public and can be maintained only through your continued financial support. Your contributions to the Foundation are tax deductible.

FEATURES

DEPARTMENTS

dialogue

Reply to letter of F. N. Loew

Dr. Loew makes a fair challenge when he suggests "turn your attention to Pribilof seals"--seals clubbed to death under the auspices of the United States by virtue of a decades-old agreement. If the Pribilof massacre is, to me, just slightly less appalling than the Canadian massacre, it's only because the age of the animals is different. In the Pribilofs, they kill off the bachelor seals who haven't been able to wrest mates from the Lotharios of the herd--and it's truly difficult to understand why the wages of celibacy should lead but to the grave.
The Canadian criteria are worse. Infant seals are the most sought--and this year the hunters hoped to wipe out fully 120,000 of 150,000 newborns, the babies often clubbed to death at age three weeks.

Nonetheless, I very much agree with Dr. Loew's point on the seals under U.S. control. The Pribilof massacre is likewise bloody and a shame. The Animal Protection Institute, the organization whose outlook is reflected in **Deadlock on the Ice**, agrees with that absolutely. It has called on the U.S. as well as Canada to mend its way. Advertisements have pointed to the Pribilof kill as well as the Canada kill.

As to Dr. Loew's argument that financial doom awaits animal rights organizations should the seal-clubbing actually end, I'm sure this strikes him as true but he is deeply misinformed. To hint that animal protectionists smack their lips over continued harvests of seals which they can bemoan with crocodile tears is like going back a hundred years or so to claim, "Boy, are those doctors going to be in a snit if we ever lick leprosy." Apologists for the seal-hunt love to portray the protectionists as profiteers and their motivation should be quite clear. Having been attacked at the level of conscience, they pretend it's the people who are interfering with the clubbing who should be having an attack of conscience.
Animal protectionists would go out of business if the Canadian government ended the clubbing? Try us! Please, please try us. Animal rights organizations don't face financial doom when the clubbing ends, they **are** in financial doom--most of them, most of the time. How could they be otherwise? They are non-profit organizations. Whatever dollars pour in are poured out just as rapidly in an effort to make the seal campaign, the whale campaign, the pet-neutering campaign and all the others actually come to something. Contributions that **don't** have to be spent on ending the seal-clubbing can be spent on something **besides** the seal-clubbing. Doctors aren't waiting for leprosy and black tongue to make a comeback; as far as animal rightists go, the seal-clubbing does not represent financial boon--it represents the folly of man. And the clubbing is so clearly wrong that it's amazing that Canada has been able to continue it this long in the face of so many pointing fingers.
Dr. Loew begins his critique with the assertion that it is incorrect to say the clubbing is inhumane and permanently decreases the population. He has been dosed with the sealing hierarchy's favorite official fictions. The fact that trained pathologists and biologists, carefully cultivated by the government, have labeled this hunt as conscientious and humane shows merely that it is all too simple to lead the credentialed expert to put a low value on the ordinary meaning of words. It is claimed that the clubbers end life with a single well-aimed blow; but films and the personal accounts of the hunters have shown that this is often not so. If the clubbing is humane, and if it is humane to remove the life of this sparkling creature as he first explores the world, then the word humane has no meaning and we need a new one. Since the harp seal population appears to have declined from some ten million in the 1940's to probably under 1 million today (the sealers prefer the figure of 1.5 and I happen to think under 800,000 is more likely), Dr. Loew's notion that population is stabilized puts a wonderful trust in the truth-from-on-high.

The Canadian hierarchy had an option here, you know. They could have said, when this centuries-old hunt was finally disclosed, in all its perversity, to the world public in the 1960's, "My God, this is terrible! You mean it's happened this way for centuries? Well, now we must stop it!" That the government took an exactly opposite tack shows what a sway has the world of commerce and merchant tradition in comparison with the sometimes opposing claims of compassion.

Ted Crail
Animal Protection Institute of America

We would like permission to quote some of the excellent articles from your magazine, "Today's Animal Health." We being the Good Shepherd Shelter. We have our own magazine at the Shelter called the "Shepherd's Crook" which we send out to over 4,000 people.

I am sending an issue of the "Shepherd's Crook" so you can see what it is like.

Greetings from Mother Cecilia Mary, O.S.B.

Sister Mary Julia, O.S.B.
Good Shepherd Shelter Foundation
Trans-Canada Highway
R.R. 1, Mill Bay
Vancouver Island, B.C. VOR 2PO

You are welcome to reprint articles from our magazine. *ed.*

This is in regard to a small paragraph and picture of a beagle, on the last page of "Today's Animal Health," Jan/Feb, 1979 issue, pg. 31.

I read it and am quite interested in learning more about the newly organized "Pet Rescue and Recovery Program" - formed by Dynamics, Inc. - the pet food manufacturer of Charlottesville, Va.

I will be moving to that area of Va. in a couple years, and would be interested in maybe helping out the program - as I am a Veterinary Technician (Certified Animal Tech) licensed in the State of Va.

Could you please send me any available information you may have on this company and its Pet Rescue

and Recovery Program - I would greatly appreciate anything you could send.

I will also write to Dynamics, Inc. directly - hoping my letter will get to the right people involved with the program - with what little info & knowledge of address and location I have from the article.

Thank you for your help! And thank you for your most informative magazine.

Cathleen Fauver

You can call Dynamics, Incorporated for more information at (804) 295-2186 ed.

I have enjoyed the magazine and found it full of things I did not know. I hope it will flourish and I thank you for myself and the Cat Fanciers' Federation.

Grace M. Clute
Corresponding Secretary
Cat Fanciers' Federation

As you are aware, harmful products in our water supply can prove to be detrimental to the well-being and performance of our animals, and anyone attached to the industry of raising well-born pets has aversion to anything of harm to the health of these prize possessions. I am writing with the express purpose of asking if you can direct me to only those owners, breeders and trainers who are responsive to the needs of their animals (I have a flowing artesian well - 650,000 gallons per average month - located in central Wis. and **in close proximity to railroad facilities**). The fresh water has been checked for purity and chemical content and found 'fit for human consumption.' Terms are negotiable for anyone interested in utilizing this product - my concern is that the water is not being used for a worthwhile purpose.

D. W. Kadolph
Rt. 2 - Box 263
Mitchell, Neb. 69357

Relative to Dr. W. R. Rose and his excellent series I would like to make a comment and an **inquiry**. (Nov/Dec issue)

All prescriptions should be boldly marked "For Animal Use Only" or "Not for Human Consumption."

Under Drug Standards. The (PDR) is published by Medical Economics, 680 Kinder Kamack Road, Oradill, New Jersey (07649). They **do** not publish the (VDR). I would like the name of the publisher and their address?

I use the 78/79 Veterinary Pharmaceuticals and Biologicals Complete Desk Reference published by the Harwal Publishing Co. in Media, Pennsylvania. I would also say that at $36.00 it does not satisfy me.

James G. Meyers, V.A., Ph.D.
Teaneck, N.J.

If you wish to get more information from Dr. Rose, you may write him c/o Louisburg College, Louisburg, North Carolina 27549. ed.

We really enjoy your magazine, Today's Animal Health!

Mrs. Robert J. Seibert
Quartz Hill, Calif.

I want to compliment you on your fine magazine. It certainly is well edited and I like your format.

I edited a dental magazine for the Eastman Kodak Company for 25 years and because of their quality demands, I'm sure I know a good thing when I see it. Keep up the good work.

A. Porter S. Sweet
Honeoye Falls, N.Y. 14472

Thank you for the interesting treatment of my article appearing in the March/April issue. I enjoyed being center and sideways, and the accuracy in reproducing **What Do You Do With Sick Tortoises?**

Best wishes, and thank you, again.

Doris A. Pichly
Sacramento, Calif.

Thanks for the nice article — we had lots of letters about it. ed.

In Texas we are having an epidemic of rabies. It affects cattle, and dogs which have been vaccinated and are in back yards, not exposed to dogs which run around the city. Could you please include an article on rabies in an issue and explain symptoms, treatment, prevention, etc. The sooner the article is out the more it will help us in dealing with this problem.

Dr. Nanuta Batorska, (Ph.D.)

Today's Animal Health published an extensive article on Rabies in the March/April 1977 issue. You have our permission to reprint this article if it would be of help to you. ed.

I received your Jan-Feb issue of Today's Animal Health. I found it very interesting and was wondering if you could send me the address of the Staff of Equine Research Publications. In the section, "Worth Reading," two books were mentioned: a) The Illustrated Veterinary Encyclopedia for Horsemen and b) Veterinary treatments and Medications for Horsemen.

I would like to order these but it gave no address. Could you help me?

Sandra O'Donnell
Owls Head, N.Y.

Equine Research Publications
P. O. Box 347
Grapevine, Texas 76051 ed.

I am writing to tell you I enjoyed reading the article on tortoises in the March-April issue of Today's Animal Health.

I would like **to know** since I own one, if you could send me the **addresses of the two tortoise societies you mentioned in the artlcle.**

I would like to join their organization, since I would like to know more information concerning their welfare and health. I do oil his shell with baby oil, but he is losing his crust on his legs. What am I doing wrong? He refuses all food but lettuce. I know he should eat different plants, **but what**, in winter? I would appreciate your concern in this matter.

Thank you,

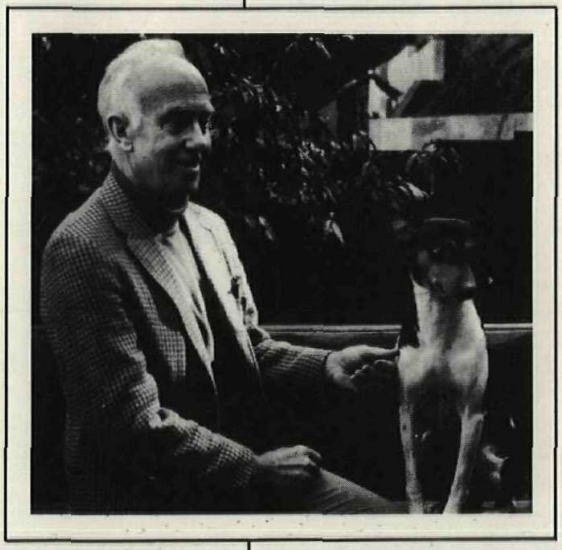
Betty York
Hastings, Nebr.

ask Dr. Smithcors

J. F. Smithcors, DVM

Q **Our cat is a great hunter. We have lots of avocado trees which attract rats, and our cat is constantly catching them and eating everything except for the tail. Is there any danger if she eats a rat that has been poisoned? C. McT., Fallbrook, CA.**

A Yes, there is danger to your cat if she eats a poisoned rat. A cat who enjoys the hunt might not bother with a dead or dying rat, but one that had recently ingested poison and was still active could be even more dangerous because more of the poison would still be in the form employed in the bait. That is, some poisons are metabolized to less active forms within the animal's body, but these transformations are complex and not especially relevant to your problem. Your cat's proclivity obviously benefits you by lessening the rat population, but there is some risk to her. If she has access only to your own trees and you use rat baits periodically, about the only suggestion I can make would be to keep her confined for several days after each baiting. Otherwise, you should keep your eyes open for signs of poisoning (depression, incoordination) and keep the antidote specified by the manufacturer on hand or have this information for your veterinarian, should it be needed. If you have been using rat baits for some time, the problem may be more theoretical than real.



Q **I am trying to raise two baby opossums left motherless in a road accident and will either release them in the wild or keep them as pets. Neither I nor our local veterinarians has been able to find much information on their care, immunizations required, treatment for parasitism, etc., and would appreciate any help you may be able to offer. G.M., Cambridge, MD.**

A Opossums are omnivorous (will eat almost anything) and can be maintained on cat food, chopped fruit and bread. For variety, raw hamburger, hard-boiled eggs, milk, orange juice, fresh corn and other vegetables, dog biscuits or canned dog food can be offered. A tree branch in their cage will help keep them occupied, and careful sanitation is the best method of preventing disease. If they become quarrelsome it may be necessary to separate them to prevent injury.

Little is known about their diseases, but this should not be a problem if they are kept away from other animals. They are susceptible to rabies, leptospirosis and (rarely) pneumonitis (same cause as in cats) but vaccination would probably not be indicated unless they were likely to be exposed to these diseases. Ringworm has been reported, for which the treatment is as in cats or dogs. Salmonellosis and streptococcosis have occurred and are treated with antibiotics. The most likely problem is internal parasitism, for which mebendazole (Telmin) given orally at 2.5mg/100 grams body weight is effective, but again it seems unlikely that animals raised under these conditions would become infected. If your house has low humidity, the skin of the tail may become swollen and cracked. Vaseline can be applied, and the problem will disappear if humidity is 50% or higher.

A disadvantage of keeping an opossum as a pet is that they live only about three years (maximum five years) and adults may bite. When your two babies seem able to fend for themselves, it might be better to release them in the wild. In any event, good luck.

Q **We have a good Beagle bitch, but every time she gets pregnant she aborts the puppies. What could be the cause of this? L.E.C., Macon, GA**

A This sounds suspiciously like brucellosis, caused by a bacterium **Brucella canis**, which is related to the organism **Brucella abortus** causing abortion in cattle and undulant fever in persons. This form of abortion has become prevalent in bitches, especially Beagles, during the last decade or so, and a few human infections with **Brucella canis** have been reported due to association with infected pets. The disease in persons causes intermittent fever but not the serious complications which occur in infections due to brucellosis of cattle or goat origin. **Brucella canis** infection can be diagnosed by a blood test available through your veterinarian. Intensive antibiotic therapy has been successful in some cases, but the best advice may be to dispose of any infected dog, including

Continued on page 21

TOWARD A UNIVERSAL DECLARATION OF ANIMAL RIGHTS

Reprinted from Animalia

Animals might soon have a United Nations charter similar to one outlining the rights of man. On 22 January 1977 delegates of animal protection associations from many countries met in Paris to prepare a Universal Declaration of the Rights of Animals. Driving force behind the new deal for the animals kingdom is Belgian professor Georges Heuse, Director-General of the World Foundation for the Quality of Life, the first meeting of which introduced the topic of the universal rights of animals. Prof. Heuse's draft of the Universal Declaration is a combination of animals' rights and man's duties towards animals, not unlike an earlier pronouncement made by Prof. S. Hofstra, former WFPA President. A second meeting took place in Geneva in April. Further meetings are scheduled to take place in London, New York and Brussels prior to submission of the Declaration for adoption by the UNESCO.

WFPA gladly followed the invitation of Prof. Heuse to the meetings in Paris and Geneva. In an address given at the Paris meeting, WFPA President Dr. Schouwenburg declared that "more and more man is taking an interest in his environment, obviously more for materialistic reasons of survival than out of sheer moral or ethical sentiments." He continued to state that "It is man's moral duty to proclaim the rights of animals . . . Already it has been admitted that animals subjected to man can be *object* of law, but today we are asking ourselves whether animals could not equally well be *subject* of law . . . WFPA and ISPA heartily welcome the present initiative of launching a global project towards a universal declaration of the rights of animals."

Prof. Heuse in his opening speech reviewed briefly the history of the struggle for the rights of all living creatures, whatever their species and then elaborated on the manner by which the proposed Universal Declaration would also strengthen that of the human rights in the following way:

"This new trend towards the recognition of animals' rights should be supported by extraordinary actions on the part of national and international organizations such as WFPA, ISPA, the Council of Europe, the International Association against Painful Experiments on Animals, and many others. It is clear that the time is ripe to promulgate a Universal Declaration of the Rights of Animals agreed to by all.

In order to bring about a general recognition of the rights of animals, we should give up, and cause others to give up, certain unscientific or dogmatic attitudes, including our anthropotheic and anthropocentric prejudices.

Western anthropotheism, as we have seen, is inegalitarian. It holds that since man is the sole being created in the image and likeness of God, he has all rights over Nature and Nature has no rights of its own.

The anthropocentric concept according to which man is the centre of the universe and the "good of mankind is the final cause of everything else" (J.J. de Lalande, 1732-1807), is likewise hostile to any recognition of non-human rights.

Relatively speaking, the anthropomorphic attitude would seem to be the least harmful and sometimes may even be beneficial. While it led the Middle Ages to hale animals into court, it also aroused feelings of pity in those who sought to protect them. An anthropomorphic approach which takes animal pain and sensitivity into account corresponds to psycho-physiological reality. Popular anthropomorphism is often based on objective fact and encourgages respect for animals. It may occasionally lend itself to story-telling and fables, but it generally promotes the cause of animals' rights, though in some cases it admittedly becomes detestable, as for instance when it claims that circus animals enjoy making human beings laugh.

In order to gain acceptance for the rights of animals we must adopt a level-headed attitude towards hunting, experiments on animals, zoological gardens, etc. Extremist views and impassioned appeals can only harm our cause. We should advance slowly and surely, being especially careful to avoid violent language or action. We must control our feelings, even though our hearts are bleeding.

We shall have to accept the fact that the inegalitarianisms which for hundreds of thousands of years have governed the relations between man and animals cannot be wiped out in a single generation. We have to work for future generations, while at the same time doing everything in our power to put an end to the most intolerable situations. Here there are priorities to be established and the Protection Societies are determining them with great care.

In our view the most urgent task is to organize a counter-martyrdom effort to spare animals suffering of all kinds inflicted on them for all sorts of reasons.

The science of animal pains should become the top priority of biological research and its therapeutic applications.

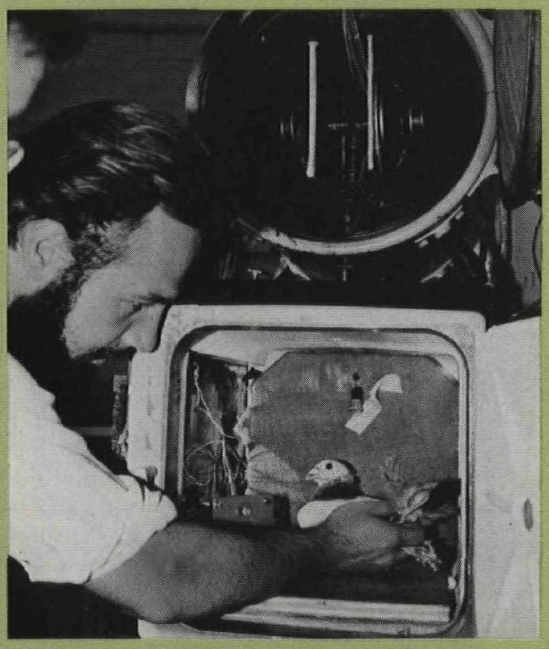
Animals raised for slaughter should be put to death mercifully.

There is also a need for comparative psycho-physiological research on pleasure and pain in animals, especially those which are deprived of their freedom, such as animals in menageries and zoological parks, and circus animals. I am convinced that felines as well as gorillas and orangutans in circuses are the most unhappy, but I cannot prove it although we have all the necessary means — especially telemetric devices — to measure the physical and mental distress of animals kept in cages or cells.

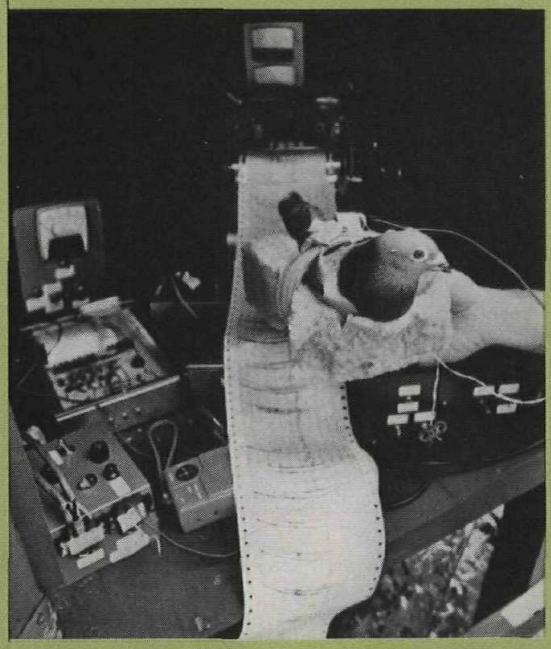
The second priority is one that concerns the future, namely education whereby a new biological order may be established in the twenty-first century, founded on a respect for the rights of all living creatures.

THE MYSTERIOUS GENIUS OF HOMING PIGEONS

by Connie Komarek Bart, Science Writer in Cornell University's News Bureau



Grad student Doug Quine tests a pigeon's ability to detect low frequency infrasound down to three cycles per minute.



A battery of instruments measures the pigeon's response to various stimuli.

Drop off one of Cornell University's homing pigeons 600 miles from its loft on a cloudy day, and it will fly straight home in less than 10 hours. Even if it is wearing frosted lenses that blur all visual landmarks, the bird can still return to within a few feet of home from as far away as 100 miles.

"There's no navigation system that good aboard the 747's or the Air Force jets," says Melvin Kreithen, one of the principal scientists in the world's largest bird orientation research program, based at Cornell University. "We still don't know how the birds do it, but they obviously aren't spending too much time figuring out the way home."

Under the direction of William Keeton, professor of neurobiology and behavior at Cornell, the investigations have ruled out some potential navigation systems, confirmed the bird's ability to use others, and suggested that environmental cues completely beyond the reach of human senses may play a part in homing. Experiments to determine just what the birds are and are not using are complicated, however, by the pigeons' uncanny ability to switch to alternate cues when the researchers block out one cue.

In many lower animals, such ability does not exist; instead, a single stimulus can be shown to control orientation. The grayling butterfly, for example, temporarily blinds would-be predators by flying straight toward the sun, which it locates by adjusting its body position until light falls with equal intensity on both its eyes. If a researcher removes or covers one of the grayling's eyes, the butterfly will fly in circles, unable to equalize the light. And if the butterfly is placed between two bright artificial "suns", it will select a course half way between them.

Similarly, males of several moth species, including silkworms and gypsy moths, can locate a potential mate a mile or more away by detecting just a few hundred molecules of a chemical sex attractant emitted by the female. If a piece of cloth soaked in the sex-attractant pheromone and a receptive female in an airtight glass cage are placed side by side, the males will ignore the sight of the female and attempt to mate with the chemically treated cloth.

Homing pigeons, by contrast, are not so easily confused. The birds have been released in unfamiliar territory in sunny and cloudy weather; they have been transported on turntables; their vision has been blurred with gelatinous contact lenses; their olfactory nerves have been removed—but in most cases they still come home.

Animals as different as silkworms, salmon and dogs use smell in navigation, and Floriano Papi of the University of Pisa, Italy, recently proposed that pigeons also might be able to smell their way home. Researchers

at Cornell and elsewhere are still trying, with only partial success, to duplicate Papi's experimental results. "The pigeons behave differently in Italy than they do here, and we're not sure what's going on," Kreithen said. Perhaps the odor of spagetti sauce is more distinctive than that of Big Mac, but since the olfactory region of the pigeon's brain is not highly developed and since pigeons with their olfactory nerves removed are still capable of flying straight home, most researchers now believe that smell may be a back-up system rather than a primary navigational aid.

The use of landmarks in navigation is also common in cats, dogs and horses, which can find their way home from several miles away by noting features as subtle as a slight pitch in the landscape, and in invertebrates such as the digger wasp, which cannot find its nest after a foraging trip if dominant landmarks of the nest site are moved as little as a foot away.

But pigeons routinely return from places much more distant to which they have never before been. To confirm that they were not using landmarks, Keeton outfitted his birds with frosted contact lenses and released the birds almost 100 miles from home. The birds returned without difficulty, flying high overhead. Unable to see the loft building, they fluttered down into the parking lot and waited for researchers to carry them the last few feet home. Apparently the home loft is the only landmark required by the pigeons, and it becomes important only when the birds are within a few hundred yards of home.

A suggestion that the birds use inertial navigation—somehow recording all changes in angles and accelerations on their way to a release site and simply reversing them on the way home—was disproved by carrying the birds to release sites on turntables and in rotating drums. The birds' ability to choose the right route home was not affected.

Many birds that migrate at night get their compass bearings from the night sky. This ability was proved by Stephen T. Emlen, Cornell professor of animal behavior, who demonstrated that indigo buntings physically ready for fall migration would orient their movements in accordance with the southern sky in a planetarium, even if the stars were no longer in the geographic south.

Star navigation is not an option for homing pigeons—they do not fly at night—but pigeon racing enthusiasts and scientists have known for some time that birds use another celestial cue—the sun—to find their way.

Experiments by Keeton and others have determined that the birds use the sun as a compass—they compare the position of the sun at the release site with the time indicated by their own internal clocks to determine north, south, east and west. When Keeton made his birds' internal clocks run fast or slow by manipulating light and dark in the home loft, he found that the birds took off on bearings that were 15 degrees in error for every hour their internal clocks had been shifted. The error equaled the distance the sun should have moved if the birds' clocks had been set to real time.

Keeton also demonstrated that homing pigeons can be trained to return to the home loft even on completely overcast days. Moreover, once the birds had been trained to fly home on cloudy days, tampering with their internal clocks did not confuse them the way it did when the sun was visible. Apparently other cues are used as compasses when the sun is not available.

A hypothesis that migrating and homing birds might use the earth's magnetic field in navigation had fallen into and out of favor over the years because much of the early evidence was conflicting. Recently, however, Stephen Emlen and Natalie Demong of Cornell, working with a team from West Germany, demonstrated that migrating birds do use magnetic fields to finalize the appropriate direction for migration in spring and fall. They found that caged indigo buntings in physical condition for migration would orient their movements to the dominant magnetic field—either the earth's or one of equal strength generated in laboratory experiments.

Recent tests indicate that the same is true for homing pigeons. Keeton and Charles Wallcott of the State University of New York at Stony Brook have found that if they attach tiny magnets to homing pigeons on sunny days, the birds' ability to home is not seriously affected. But if the magnets are attached when the sky is completely overcast, the birds fly around randomly and cannot orient toward home. Their finding suggests that the magnetic field may be a back-up compass for use on cloudy days, but no one has yet detected an organ in birds for sensing magnetic fields.

Kreithen is now conducting a series of laboratory experiments to test whether homing pigeons can be conditioned to respond to changes in magnetic fields and other environmental cues that are beyond the reach of human senses. The technique involves placing a pigeon outfitted with electrodes that monitor its heart rate in a test chamber and presenting a stimulus—such as a change in magnetic field—followed by a very mild electric shock. If the bird can sense the stimulus, its heart rate will increase before the shock is administered. To date Kreithen has been unable to make the experimental birds respond to induced changes in the magnetic field, but he has discovered a variety of other stimuli the birds can sense.

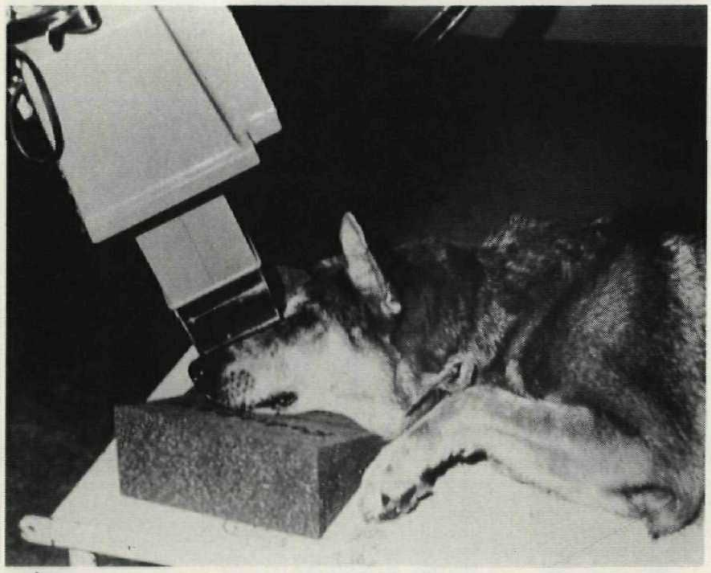
One such cue is the light polarized by particles in the earth's upper atmosphere. Since the plane of polarized light is related in a fixed way to the position of the sun and the position of the observer, detecting the plane of light polarized by even a small patch of blue sky enables some animals to locate the sun even on partly overcast days.

The compound eyes of bees and most other invertebrates can detect polarized light, and salamanders have been shown to sense it through a "third eye" located under the skull. But no third eye has been found in pigeons, and early work seemed to indicate that pigeon eyes were not able to detect polarized light. Kreithen found, however, that the problem was in the experimental design, not in the birds' sensing ability. Birds, unlike humans, can focus on near and far objects at the same time by using different parts of the retina of the eye. Previous experiments had tested pigeons for polarized light sensitivity only in the region used for near-focusing. Kreithen discovered that the part of the retina used for long-distance vision—the part that would look at the sky—was sensitive to polarized light; the near-focusing region was not.

Additional conditioning experiments have shown that pigeons can see ultraviolet light—a capability widespread in the insect world but completely absent in humans. (Our only response to ultraviolet light is the sunburn we get on cloudy days.) *Continued on page 23*

COMMON TUMORS OF THE DOG

By Elizabeth M. Hodgkins, D.V.M.
Resident, Oncology Services
University of California, Davis



Radiation therapy may cure or control some types of tumors which are diagnosed at an early stage. This dog is receiving therapy for a nasal tumor.

Tumors are known to occur in all animal species with which mankind is familiar, including his historical friend and companion, the dog. As in man, tumors occur more frequently in the dog with advancing age, that is, 5 years or older in most breeds. Some types of cancer seem to be hereditary or genetically related, thus certain breeds will have a greater than average incidence of certain types of tumors. Other factors, such as chemicals, radiation, diet and viruses are known to have the potential to cause cancer in the dog, as they do in man. However, most experts feel it is a combination of environmental **and** hereditary factors present in any individual which finally leads to cancer in the animal.

A tumor is a disorderly, uncontrolled growth of cells which may be benign or malignant in nature (see definitions at end of article). This chaotic growth may involve any cell type in the body. As a result, tumors may occur anywhere and may have many different appearances depending on the type of tissue from which they develop. We will discuss here a few of the more common types of tumor found in the dog so that the animal owner, trainer or handler may become familiar with the signs, symptoms and available treatment for these diseases.

Skin Tumors:

By far the most common site for tumors in the dog is the skin. It is thought that because the body surface is exposed to the external environment, its tissues are particularly susceptible to irritant factors such as sunlight, ionizing radiation and environmental chemicals. These agents initiate the changes within the cell which allow it to be transformed into a tumor cell by other, as yet unknown, factors.

Fortunately, tumors of the skin are more frequently benign than malignant. Six breeds of dogs—Boxers, Scottish Terriers, Kerry Blue Terriers, Norwegian Elkhounds, and Weimaraners—have increased chance of developing skin tumors. Since they are usually readily noticed by owners, most tumors of the body surface are detected and treated early. However, long coated, shaggy-haired dogs may hide significant swellings or other abnormalities under their coats. It is therefore imperative that owners of such dogs frequently handle the entire animal to insure early discovery of tumorous growths.

It is important to remember that the appearance of tumors can be quite variable and it will always be necessary for any suspicious growth, sore or rash to be examined by a veterinarian to determine its exact nature. Oftentimes, even such an expert will need to take a sample (biopsy) from the area to be examined microscopically by a pathologist. Only after a precise diagnosis is made can appropriate therapy be selected. Naturally, tumors of the skin which are deemed to be cancerous will require immediate attention, usually including surgical removal. In some cases, surgery may be followed by other forms of treatment such as irradiation with x-ray to the original site of the tumor, administration of anti-cancer drugs or the injection of various substances designed to stimulate the body's own defenses against tumor cells. All of these additional therapeutics are designed to kill any tumor which may remain in the animal after even the most thorough of surgical excisions. Benign skin tumors may or may not require surgical removal depending on the discomfort or inconvenience they may be causing the animal or his owner. No post surgical treatment would be necessary, however, since benign tumors do not invade deeper tissues or spread to other parts of the body.

Tumors occur frequently on the face, especially on the muzzle and eyelids of the dog. Wartlike growths, which are really small benign tumors derived from skin glands, may become very numerous on the head of the aged dog and in most cases require no attention. However, if they bleed, are repeatedly torn when the animal scratches at them, or begin to grow rapidly, they should be removed immediately and analyzed by a pathologist. Small black growths around the eyelid margins are usually benign, derived from glands in the eyelids, or of low malignancy derived from pigment containing cells.

In either case, they should be removed if they interfere with vision, rub against the eyeball itself, grow rapidly or ulcerate and bleed.

Another type of benign tumor which is common on the head, neck and legs of young dogs is the "histiocytoma", a reddish, button-like, often hairless growth composed of cells which serve as scavengers within the body. These tumors will often disappear in a few months with no treatment but they must be differentiated from other more dangerous types and may, therefore, need to be removed for miscroscopic examination.

A more malignant type of skin tumor, the "mast cell tumor", may also occur on the head, but will also be

Extremely enlarged lymph nodes, as seen in this dog, are typical of lymphosarcoma. The life of this animal may be prolonged with chemotherapy.

seen on the body and legs as well. It is most common on the hip region and rear legs of the older Boxer, Boston Terrier, English Bulldog and English Bull Terrier, but has been seen in every location and in all other breeds as well. Although usually beginning as a single swelling, this type of tumor, composed of cells which contain very irritating substances, will often metastasize to nearby skin and cause a "colony" of similar growths which may appear reddened and bruised. Later in the disease, they may even spread internally, causing serious and even fatal involvement of other organs. This tumor can usually be diagnosed if a small amount of fluid is withdrawn from the swelling with a hypodermic needle. When the cells in the fluid are examined under a microscope by your veterinarian, he will see the typical "mast cells". Treatment should then be prompt and will include surgical removal, if only a few tumors are present, followed by x-ray treatment to the site of the removed growths. If the disease has spread too extensively for surgery, chemical therapy may be used to prolong the animal's life, but cure in advanced cases is unlikely.

Some cancers of the head, and particularly the lips, nose and ears will appear not as a swelling but rather as an ever enlarging ulceration or sore which may periodically scab over, then break open and bleed. Such behavior is typical of a "squamous cell carcinoma" which is usually seen in white animals or in white areas of multicolored animals. Sunlight or unpigmented skin is known to initiate precancerous changes in skin cells and owners should be suspicious of any non-healing wound or sore, particularly when it occurs on white areas of their dog. Surgery and/or x-ray (radiation) therapy can be used to treat, and often cure, early cancer of this type.

As one might expect, the body of the dog is also a frequent site for skin tumors of many types. Cysts and dermal tumors arising from hair follicles and skin glands are common and usually harmless but cannot always be easily differentiated from other more malignant kinds. Your veterinarian will decide if excision is necessary for a positive diagnosis in these cases. Squamous cell carcinomas, previously discussed as occurring on the head, are not infrequent on the lower belly (abdomen) of the dog, particularly those dogs that commonly sun themselves while lying on their backs. This cancer will often begin as a reddened rash which will progress in time to a more extensive, oozing, crusting sore which will not heal. Large tumors of this type are difficult to treat by any method although topical creams containing anti-cancer drugs have been used with limited success. Other types of carcinomas may also occur on the body and may arise from sweat glands or other specialized skin structures. Their appearance would be similar to that of squamous cell carcinoma. All carcinomas on the body are highly malignant and will spread to other parts of the body if left untreated or if detected and treated too late.

As previously discussed, the "mast cell tumor" also occurs on the body, particularly the hindquarters of the dog. Although they may in some instances grow slowly and harmlessly for a period of many months, these tumors have great potential for serious disease and should be treated vigorously by surgical removal.

In older male dogs, the region around the anus is a favorite location for the development of a benign tumor called the "perianal adenoma". Although it is usually slow growing, this tumor may ulcerate or occlude the anus causing difficulty in passing stool. For these reasons it may be necessary for such growths to be surgically removed. Castration is also recommended at the time of surgery since the "perianal adenoma" depends on male hormone produced by the testicles for growth and is less likely to recur if little hormone is present in the body. The malignant counterpart to this tumor, the "perianal adenocarcinoma", is much less common but must be considered when rapid growth, or early ulceration and bleeding are noticed. This tumor would also be treated by surgical removal but additional therapy such as radiation or anti-cancer drugs would be necessary. All tumors removed should be sent to a pathologist for diagnosis. Both benign and malignant types of this tumor are rare in the bitch.

Skin tumors on the legs may be of any of the previously mentioned types and as before, will usually be benign. However, mast cell tumors occur especially frequently on the hind legs, and tumors of the nail bed, where nail joins skin on the toes, are usually either "melanomas" derived from pigment cells or "squamous cell carcinomas". Both are highly malignant in this location and will require surgery, usually amputation of the affected toe. Sometimes radiation therapy or chemotherapy may be necessary as well. Another tumor of the legs is the "hemangiopericytoma" which arises from cells which lie in the tissues under the skin. These

COMMON TUMORS OF THE DOG

This dog has an extensive bone tumor of the lower jaw which has involved so much normal tissue that therapy is impossible.

tumors do not spread to distant parts of the body but may engulf tendons and nerves so extensively that surgical removal is very difficult. They will very often recur even after radical surgery and occasionally amputation of the affected limb is the only effective treatment.

True warts, or "papillomas" occur rarely on the insides of the back legs in the dog. They will usually shrink and disappear in a matter of weeks but may be of concern until other possible types of tumor can be ruled out.

One type of skin tumor is venereal in nature, that is, it is transmissible from dog to dog when such animals breed. A virus may be involved in the initiation of this tumor, which is aptly named "transmissible venereal tumor" (or TVT). Usual sites for tumor growth are the vulva and vagina of the bitch, or the penis and prepuce of the dog. Owners may first notice small reddened "pimple-like" growths which will later develop into larger fungus-like, or smooth, rounded masses. Fortunately this tumor spreads to other areas only rarely and can usually be effectively treated with drug therapy.

Many other types of tumors may arise from the fat, muscles, vessels and other tissues which lie just beneath the skin. They will be detected as swellings which seem to be pushing up, rather than directly involving the skin overlying them. Although such tumors may be benign, especially if they grow very slowly, many are very malignant. Therefore, it is important that your veterinarian be aware of their presence so that he may decide the best way to proceed in diagnosing and treating any malignancies he may find.

Tumors of the Mammary Glands:

Mammary glands or breast tumors are the most common type of tumor in the bitch. They are more likely to occur as the animal grows older, especially after the age of 6 years. No particular breed is known to be particularly predisposed, and they are very rare in the male. It has been recently proved that early neutering of the bitch, especially before the first heat, drastically decreases the likelihood of breast tumors in the neutered animal. However, spaying after 2½ years of age seems not to have the same protective effect. Estrogens given for prolonged periods do not appear to initiate tumor development but progesterones, such as those contained in some contraceptive drugs, can promote changes in the mammary gland which may lead to benign tumor formation.

Most mammary tumors in the bitch are found in the glands which lie between the hind legs, and very often more than one tumor will be present when the problem is first discovered. 50-60% of all mammary tumors are benign but cannot usually be positively identified as benign by appearance alone. Malignant mammary tumors can be very aggressive and spread readily to adjacent areas as well as distant parts. For this reason, and because benign and malignant tumors may look somewhat alike, complete surgical removal of every mass is highly recommended. All tumors removed must be sent to a pathologist for positive diagnosis. If the tumor is benign and all mammary tissue was not removed at the time of surgery, other benign tumors can be expected to occur later in the same animal. If all glands were removed, no additional tumors are expected. If the tumor was malignant and all glands were not removed, chances are good the same malignancy will occur again in the remaining mammary glands. In addition, spread to other parts of the body is possible, even probable, with some highly malignant types. If all mammary glands are removed, recurrence in other glands is, of course prevented, but metastases, or reappearance of the tumor in other areas of the body is still possible. For this reason, surgery to remove malignant tumors should be followed by anti-cancer drug therapy to kill tumor cells on the inside of the body and/or radiation to the surgical incision to destroy any malignant cells which still exist there. However, once significantly numerous tumors are present elsewhere in the body, little can be done to reverse the process. Your veterinarian can conduct certain types of tests to try to determine if an animal has detectable tumor growth internally.

As with any other tumor the best treatment of mammary cancer begins with early detection. Owners and handlers should routinely run their fingers over each mammary gland, feeling carefully for any abnormal "lumps" within the glandular tissue itself. All such lumps should be brought to the attention of a veterinarian immediately.

Oral Tumors:

Tumors of the canine mouth, or oral cavity, occur frequently enough to be of considerable concern to owners and veterinarians alike, especially since they are hidden from view and thus elude early detection by owners. Indeed it is often not so much the discovery of the tumor itself, but a mechanical, secondary effect of

the tumor such as gagging, coughing, excessive swallowing or salivation or inability to eat which first alerts the owner to the problem. By the time these signs appear, most oral tumors are large and difficult to remove surgically. Since this type of tumor is very often malignant in the dog, masses which have been growing undetected for long periods are likely to have spread to other organs by the time the signs previously mentioned cause an owner to become alarmed. The obvious solution to this problem is of course, for owners to accustom their dogs to frequent, brief but thorough examinations of the mouth and throat. Once an individual is familiar with the structure of his particular animal's oral cavity, any abnormalities will be obvious soon after they occur, when the tumor is more easily treatable.

Treatment for oral tumors will nearly always include surgical removal of as much of the growth as possible. If the tumor is malignant, surgery will be followed by radiation or chemotherapy (anti-cancer drugs) depending on the type of tumor. Some veterinarians may choose to use a special technique for freezing the tumor right inside the mouth. Whichever method is used to kill the main tumor mass, a piece of tissue should always be sent to a pathologist for a precise diagnosis.

Bone Tumors:

Tumors arising from bone in the dog are highly malignant in the overwhelming majority of cases. They are most common in the long bones of the front and rear legs of large and giant breed dogs. Great Danes, St. Bernards and Irish Wolfhounds seem particularly predisposed, although the Golden Retriever, Irish Setter and German Shepherd Dog also have a high incidence. These tumors may occur in dogs as young as 2-3 years of age but usually affect animals of middle age or older (7 years or more). The first signs seen with bone tumors include lameness of one leg with or without a swelling on that same leg. Owners often assume lameness to be due to injury of some type and will, therefore, wait days to weeks before becoming concerned about an unremitting limp in their animal. Admittedly, most lamenesses **are** the result of non-cancerous processes but no gait disturbance of any duration (2 days or more) in any large or giant breed dog should be ignored. Using an x-ray of such an animal's affected limb, it is possible for a veterinarian to detect, even before an obvious swelling exists, the presence of a bone tumor. Because of their high malignancy, early diagnosis is of utmost importance in this type of tumor.

Although there are three main types and numerous miscellaneous bone tumors, all require rather radical treatment if the animal is to be saved or have its life prolonged. We know these tumors to be very painful and to send out small colonies of cancer cells to the rest of the body early in the course of the disease. Most veterinary cancer specialists therefore recommend amputation of the affected leg soon after diagnosis and, depending on the type of tumor present, it is very often necessary to treat the animal with anti-cancer drugs for a period of several months as well. These drugs are generally well tolerated by the animal; in most cases no adverse side effects are seen. Unfortunately, even with a combination of surgery and chemotherapy, most dogs will not survive beyond a year after diagnosis. This is due at least in part, to the fact that most bone tumors are not diagnosed until the tumor is large and has already metastasized widely. It is, therefore, exceedingly important that owners of large breed dogs be extremely suspicious of abnormal swellings and lameness in these animals and bring such problems to the prompt attention of their veterinarian.

Lymphosarcoma:

Lymphosarcoma, or malignant lymphoma, is a cancer which affects one of the several types of white cells, the lymphocyte. When this type of cell begins to divide and grow in an uncontrolled fashion, abnormal accumulations of these cells can be found in the bone marrow, blood, spleen, liver, lungs, intestines, kidneys and lymph nodes (those structures often referred to as "lymph glands" which are present under the jaw, along the neck, and under the arms and rear legs, among other places). When these organs become full of cancerous cells, their normal functions are disrupted and the animal becomes ill. Signs which may be seen in the dog with lymphosarcoma include enlargement of several or many lymph nodes near the surface of the body, loss of appetite, depression, weight loss, vomiting, diarrhea, coughing, difficult or labored breathing or increased thirst and volume of urine. With the exception off the lymph node enlargement, these signs are very non-specific and will, in most cases, not be indicative of lymphosarcoma. However, if prolonged, these symptoms signal serious disease and your veterinarian can best distinguish lymphosarcoma from other problems using his physical exam, blood tests and x-rays to arrive at a diagnosis.

If lymphosarcoma is present, your veterinarian will discuss with you the anti-cancer drug therapy now being used to treat this disease. Depending on the extent and severity of disease in your dog, this chemotherapy may be highly effective or only moderately effective in relieving your dog's symptoms and extending his useful, disease-free life. Some dogs can be put into remission (absence of all symptoms) for many months or even a few years. Others relapse (regain symptoms) and die in just a few weeks or months. Most dogs fall somewhere in between these extremes and can lead active happy lives for 8-12 months after therapy is started. The drugs are costly and some must be given intravenously, but they are generally well tolerated by the animals and cause few, if any undesirable side effects.

A rare form of lymphosarcoma is one which affects only the skin in its early phases. Swellings and sores, which can be distinguished from other skin tumors already discussed only by professional examination and biopsy, will be seen over part or all of the animal's body. This form of the disease is difficult to treat and may progress despite all therapy.

Tumors of the Nasal Cavity:

Although tumors of the respiratory system, that is the nose, windpipe and lungs, are relatively uncommon in the dog, cancer which arises in the nasal cavity is of some importance. This cavity or space lies immediately in back of the nostrils and is lined by cells which produce mucous and a watery substance which keeps the animal's nose wet. Tumors which occur in this cavity are usually malignant and may not be detected until they are fairly large and are causing the dog to sneeze or have

COMMON TUMORS OF THE DOG

difficulty breathing. Another important sign of nasal cancer is a thick, white or blood tinged discharge from one or both nostrils.

X-ray pictures of the nose and analysis of the nasal discharge for cancer cells are both necessary for positive diagnosis. Once a tumor is found, surgery to remove all tissue in the cavity is required and should in most cases be followed with radiation therapy if the tumor is highly malignant. This is a very difficult type of cancer to treat by any means and will almost always recur in the same location, often proving fatal after recurrence. Here again, early detection and diagnosis is very important and no unusual nasal discharge should ever be ignored.

Summary:

Obviously, all the possible tumors of the dog could not be discussed here in any depth and I have, therefore, omitted all types which are unusual or unlikely to be observed by the animal owner or handler. Tumors may and do occur in all organs and, since many are insidious in their origin and growth, the general cancer warning signs must be familiar to all who work with and care for dogs. These signs are listed at the end of this discussion. It must be remembered that many types of cancer **can** be cured by early diagnosis and prompt treatment. Such treatment may include surgery, anti-cancer drugs, x-ray therapy (radiotherapy) or immunotherapy (stimulation of the body's own defense system).

Owner, animal and veterinarian form an important triangle of defense against the cancer problem. It is the responsibility of the dog owner to observe his animal and promptly detect all significant abnormalities, especially in the older animal. It is important that the dog owner consult his veterinarian in all cases of unusual swelling, ulceration, lameness or other signs of prolonged ill-health. The veterinarian is obligated to carefully examine the entire animal and take all necessary steps to define the extent and cause of the problems present in that animal. It is also the responsibility of the veterinarian to be familiar with common tumor types, their diagnosis and treatment as well as preventative measures, if such are known. When owner and professional work together for the common goal of improved animal health, disease of every kind can be more effectively battled and eventually, defeated.

Common Signs of Cancer:

Abnormal swellings
Chronic bleeding or discharge
Pigment change
Prolonged lameness
Bad odors
Persistent sores
Difficulty eating and swallowing
Weight loss
Fatigue

Definitions:

Benign tumor - slow growing, localized mass of cells which does not invade deeper tissues or spread to other distant areas of the body.

Cancer - a malignant tumor.

Chemotherapy - the administration of various drugs known to inhibit and/or kill tumor cells throughout the body.

Immunotherapy - the administration of certain drugs or "vaccines" which serve to stimulate the body's own natural anti-tumor defense system. Still investigational in most cases.

Malignant tumor - rapidly expanding mass of cells which have the capability to invade nearby tissues and subsequently spread to other, more distant areas of the body. This invasion of vital structures may cause disruption of normal function and ultimately, death.

Metastasize - behavior characteristic of malignant cells whereby some separate themselves from the main tumor mass and travel via vessels to other parts of the host body to establish new and destructive tumor colonies. These new growths are "metastases".

Radiotherapy - application of x-irradiation to a body area for the purpose of destroying tumor cells which are generally more sensitive to such radiation than normal cells.

Tumor - a disorderly, uncontrolled growth of cells which accumulate into a discrete mass or collection, unique from all others in the host. May be benign or malignant in nature.

DOGS HELP THE DEAF TO HEAR

Reprinted from Parade Magazine

by Michael W. Fedo

St. Paul, Minn.

A 15-month-old boy here woke from his afternoon nap and somehow lodged his head between the spokes of the crib rail. Since he had wakened nearly 30 minutes earlier than expected, his agonized cries would have gone unheeded for at least that long, because his mother is deaf. But thanks to Puff, her mix-breed dog, the mother was alerted to the baby's plight and rescued him.

It was no accident that Puff led her to the child. The dog was specifically trained to act as its owner's "ears" in a project begun by the Minnesota Humane Society several years ago and now under the auspices of the American Humane Association (AHA). Puff is one of America's first hearing dogs, and right now there are fewer than three dozen of them. But the AHA, which picked up the pilot project from Minnesota, anticipates that someday hearing dogs will be available to all who need and request one.

Though much effort and money is directed toward handicapped Americans, our 2 million deaf tend to receive minimal attention. Fortunately, the hearing dog program has the potential to be as meaningful to the deaf as the Seeing Eye dogs are to the blind—at a fraction of the cost.

Training is not as extensive for hearing dogs as it is for Seeing Eye dogs, and virtually any dog, regardless of size or breed, can qualify. "We've found that mix breeds will work out well," said Ruth Deschene, executive director of the Minnesota Humane Society and initiator of the project.

Trained to respond

The hearing dogs are trained to respond to all sounds the hearing person would react to—such as a car horn, a doorbell, smoke detector, siren, alarm clock, a crying child, boiling water.

The program began in 1973, when Mrs. Elva Janke, an elderly deaf woman in Minneapolis, wrote to a local action news program that she had lost a dog she had trained to respond to sounds. She was now too old to train another animal but wondered if the news staff knew of a center where dogs were trained to serve the deaf.

The staff turned the letter over to Mrs. Deschene. Then, after a broadcast and a plea for community help, a modest effort was launched and the hearing dog concept was underway. For two years, trainers with no previous experience with hearing dogs worked with the Minnesota Humane Society to define a program. Six dogs were trained, of which five were placed with deaf persons in St. Paul, and one in Lexington, Ky.

The first animal trained was Jody, a small black dog from the St. Paul animal shelter. And Jody's first meeting with Mrs. Janke was a poignant one. Mrs. Janke, her son and husband were seated in the training facility as Jody was brought in with its trainer. Immediately, the dog walked over to Mrs. Janke and put its head in her lap.

A sensitivity

Mrs. Deschene reports that this seems to be a common occurrence when dogs are first introduced to deaf masters. "Maybe it's in the training," she says, "but the dogs develop a sensitivity toward the person around them who cannot hear."

Hearing dogs are now being trained in 20 weeks at AHA headquarters in Denver, Colo. They are first trained in general obedience, then in learning to obey hand signals from the deaf. The next phase is called auditory or sound-awareness training, which teaches the dogs to react to specified sounds.

According to Robert White, director of the AHA program and a specialist in deaf education, "The first priority is to train dogs to respond to alarm clocks and smoke alarms."

The usual response of the animal is to nudge its master, run to the source of the sound, then back to its master.

The training program also involves the National Association for the Deaf, and it is expected that in two or three years, 10 regional shelters around the country will be training hearing dogs to be provided free to deaf persons.

One special advantage of the hearing dog is that it opens up new vistas of play for deaf children who have been handicapped in developing the social skills and awareness that accompany playing and interacting with other children.

Hearing dogs can notify youngsters if someone or something is behind them, or warn the daydreaming child that a speeding auto is approaching, thus allaying the fears of parents while enabling their children to enjoy the full range of play activities.

Parents relax

The hearing dogs will also free parents of other worries. Prior to acquiring Sparky, the parents of Todd and Philip had to take the 13-year-old deaf twins everywhere or provide a sitter, even when performing routine grocery shopping. They feared that if a fire broke out, or some other emergency arose, the boys would not find out in time. But with Sparky, the parents can relax, secure in the knowledge that the dog will alert their sons to any sound demanding attention.

One of the first deaf persons in Minnesota to receive a dog was Donne L. Colton, a marketing supervisor with a large Minneapolis corporation. He reported that the dog helped in many ways while he was at work. It notified him when someone was at his door and when the phone rang. Colton, who can speak, could answer the phone and tell the caller to phone back when his secretary was in to take the message. He also reported that the animal acted as a guard dog in the home.

Warren Northwood of the AHA says that the program is now training 40 dogs to be placed with deaf mutes and is also developing a training manual.

"The people in Minnesota did an excellent job in bringing this concept to national attention," Northwood said. "It's our job now to make this a national outreach and, in a way, to provide dogs who will be ears to millions of hearing-impaired people."

BELEAGUERED WHALES

You can help stop pirate whalers

By Ted Crail, Animal Protection Institute of America

Pirates still sail the seas as they did of old but they have a different idea of plunder. Now they are pirate whalers, violating all the international agreements on the taking of whales. Their plunder finds a ready market. The real owners of these pirate ships are concealed through dummy corporations and, despite the burning anger of leaders in the worldwide campaign to bring whaling to a halt, nothing much has been done by the international bureaucracies, who manage the fate of the whales, to stop these pirates in their tracks.

It isn't easy to hide a whale. With satellite observations systems set up that can read the headlines on a Moscow newspaper from a perch in space, it's clear enough that the newest form of piracy wouldn't have a chance to evade the navies of the world. Modern pirates can exist only because there is a willingness among nations to **let** them exist.

Hundreds of thousands of Americans are currently signing the whaling petitions circulated by the Animal Protection Institute of America, addressed to the citizens of Russia and Japan and written partly in the Russian and Japanese languages. The near-unanimity of American opinion on the need to get **all** nations out of the whaling business is manifest. Even the majority of our legislators seem to have it clearly in mind that the great whales must be saved. President Carter is at last calling for a moratorium on whale-killing. But bureaucrats—the bureaucrats of all countries—are the stumbling blocks.

The international gamesmen in whose hands the real destiny of the whales is entrusted are playing a cold and calculating hand. They think about international commerce. They think about national advantage. They do not think about saving whales. The whale and most of the other marine mammals are, to them, pawns of strategic value—they will save or not save depending on some view they have of the complex international political situation, the struggle between East and West, the tightening and loosening relationships between nations like Japan and the U.S., Russia and China.

Whaling ships cost millions of dollars. Outfitting and supplying such a ship is an operation of such proportions that the activities of the whalers inevitably surface. Animal rights observers have been able to trace the movements of the ships and even determine beforehand when new vessels of the fleet are being readied for action. No matter—the governments of concerned nations have sat on their hands as though this sudden recruitment of new bands of pirates is something for whales to think about, not humans.

A notorious ship of the pirate fleet is called the **Sierra**. In a little over ten years, the **Sierra** has become one of the new black legends of the sea. Craig Van Note, vice president of the **Monitor** consortium, a

coalition of groups which fights for beleaguered whales, recently pointed out, "The **Sierra** has sailed the Atlantic Ocean since 1967, killing every whale it could find in waters totally off-limits to IWC whalers. Captained by a Norwegian and supervised by four Japanese, this whaling ship has flown the flags of Bahamas, Somalia and now Cyprus....We now learn that the **Sierra's** owners have bought three more ships to join the pirate whaling. Two of them are former South African catcher boats. They have had stern slipways added in a Durban shipyard and are now being readied for sea. A third ship, the former Japanese stern trailer **Yashima Maru**, went into Cape Town for a quick refitting last month. It recently sailed as the **Cape Fisher**, reportedly for the Canary Islands, home port of the **Sierra**. This outlaw whaling is a classic example of the ruthless exploitation that has marked the whaling industry. If it is allowed to continue, the few remaining coastal whale populations will be exterminated."

Can we save these fantastic creatures, the largest inhabitants of earth? Can we keep them from the extinction which is threatening?

Belton Mouras, president of the Animal Protection Institute, says, "I think the whales are going to be saved but I think it's going to be a near thing. I think the scope of pirate whaling will swing upward as Russia and Japan and a few other nations have their whaling operations scaled down or ended—at the official level. So we really have two jobs in front of us now: taking final steps against officially-sanctioned whaling and devising immediate steps against the pirates, identifying their owners and holding them up before the public for what they are—international scavengers with hearts as full of lead as the anchors on their ships."

Tens of thousands of persons are currently persuading citizens in America to sign their names in a People-to-People message for citizens of Japan and Russia. Those who are signing often say, "What makes you think that people in Russia will have anything to say about what their government does?" And there is no certain answer for that—but the determination to carry the whale fight to the ranks of the Russian people themselves may offer an opportunity to find out. On the subject of marine mammals, Russia is not implacable to humane appeals. In the 1960's, having decided to ban the killing of porpoises, Russia sent an emissary around the world to tell other nations that they should have a similar ban. As the world's principal porpoise killer the U.S. could have listened—but didn't.

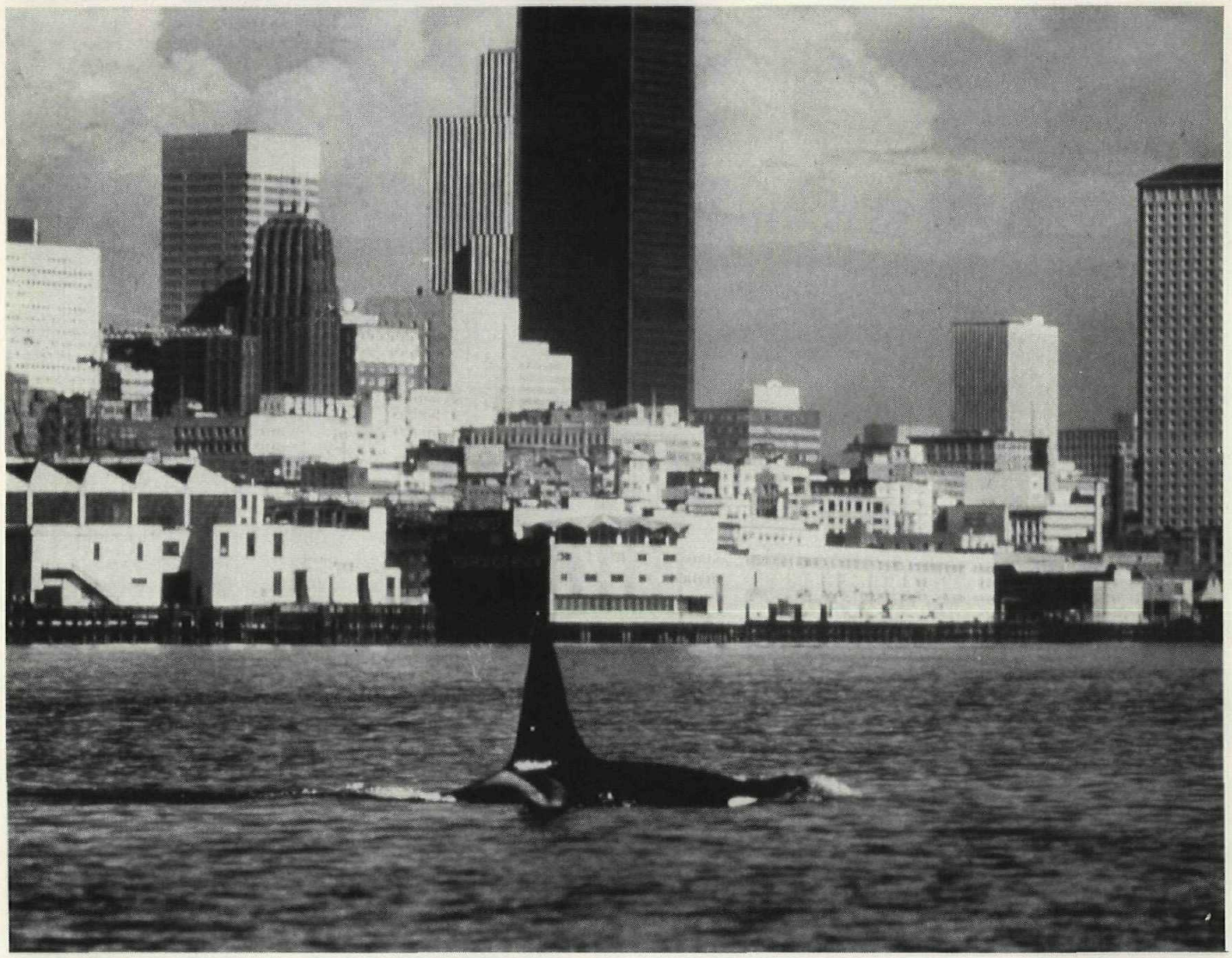
Will Russia listen better to us than we listened to them?

"I just don't know," says Mouras. "But we're not going to drop a million protests on the head of the Russian ambassador and hope he writes us a nice letter to say that our words have been duly noted. We're going to proceed to Russia itself, stopping in Japan along the way, and we're going to find out if the leaders there will allow them to discuss this issue or not. It's not political—or shouldn't be. The whales are not a threat to te balance of power in the Kremlin. And the animal protectionists are not a political force—the movement is international and there is no serious person in animal rights who 'lays off' on an issue simply because it's his own country which is the principal malefactor. We wouldn't go to Russia saying, 'We're angels, you're devils.' We would simply say over there what we have always maintained back here—somebody cares, maybe **you** care. Persuading the people who stand at the top of the government to take account of that caring is always the most grinding problem."

The nature of the whaling crisis is generally misunderstood, even by many of those who have been fighting for whale survival. Because the 19th Century Yankee whalers cut such a swath in the world, many seem to believe that it was this riproaring band of New England seafarers who brought the great whales to their present condition some sixty to eighty years ago. Those Yankee sailing men, the greatest whalers the world had ever seen, did set the stage for what happened but it was in the Twentieth Century that the greater devastation occurred. Some of the whales **were** extinct, or teetering at the brink, by the dawn of the Twentieth Century, but the slaughter was still on an upward curve. And one day, in the 1960's, Senator Hubert Humphrey rose on the floor of the U.S. Senate to tell his colleagues that whether they knew it or not, more whales were being killed, in that very decade, than in all ages of man back to the beginning of time. Yankee sailors stoked the fire but modern technicians took the massacre to its historic peak within our own lifetimes.

Says Mouras, "The great blue whale, greater than the greatest dinosaurs that ever walked, a mammal the size of twenty elephants, went unscathed through the centuries until the closing chapters of the Victorian

BELEAGUERED WHALES



period. But the ships had now grown big enough, and their explosive harpoons had been sufficiently perfected, to accomplish the kill. Once they started after the great blue, they forgot nearly every whale in the ocean—until they had hunted off the blue so perilously that he became hard to find.

"The killing spree that reduced the great blue whales, in less than a generation or two, from hundreds of thousands of specimens to a possible 600 was an eclipse so sudden there is almost nothing to compare with it in the whole evolutionary scheme. The taking of whales lost all relation to what Man needed for survival and comfort. What was the great purpose of the massive whale-killing during the first few decades of the Twentieth Century? In America, the biggest single use became feeding the whale meat to the minks on the mink farms."

By 1930, with the fate of the great blue whale obviously sealed unless the fleets desisted, attempts to save this titan of the sea at last were starting. Many nations fell into line. It's an irony of the whale wars that as one nation has a stroke of conscience and agrees not to kill some beleaguered creature, another nation may decide that the decline in competition is just what it needs to make a killing off the whales. Peru took that stance on the great blues when nearly every other nation had backed off. And so, in the 1960's, stirring himself out of the reclusiveness that came to dominate most of his later life, Charles Lindbergh, "Lucky Lindy" who had once been the nation's greatest hero, became part of the mission to Peru to talk them into a protectionist attitude.

He succeeded and it's possible that what Lindbergh did for the blue whales will, in the long run, prove of greater importance to mankind at large than what he did at the controls of the **Spirit of St. Louis.**

Even among declared animal protectionists, there are few who believe that the aboriginal hunt—a struggle by natives for the food they need—is even remotely related to the great commercial massacres. Because nearly everyone will side with the Eskimos' attempt to preserve a way of life against the incursions of the white man, it has taken a long time for the public to gain even a hint of the fact that the aboriginal hunt, as it is pictured, was largely gone almost 70 or 80 years ago. The Eskimos who, in recent years, have killed the bowhead whale are not "practicing the art of their forefathers." Their forefathers did have considerable art in the taking of whales and practiced it—as the Plains Indians of the Americas practiced the killing of buffalo—with discretion. But the intrusion of the commercial whalers violently altered the Eskimo practice. The "old ways" were shattered and forgotten; but the later Eskimos did not have the million-dollar ships and the sophisticated electronics that would let them hunt whales the white man's way.

Abandoning his rituals, emulating the white man but not truly able to copy him, the Eskimo stumbled further and further from the original ceremonies of the hunt. "Traditionally," reported Millie Payne of the American Cetacean Society (and she meant the new tradition, picked up from the Yankees), "native whalers moved in close to the whale and, from a darting gun mounted in the bow of their boat, fired a bomb-tipped harpoon to which a float and line was attached. Once the harpoon was thus implanted, additional bombs were fired at the whale from a shoulder gun. Now many hunters had given up implanting the harpoon, which requires great skill and entails some danger. Instead, they simply fire bombs from considerable distances with a shoulder gun. The inaccuracy of such weapons accounts in large part for the high number of bowheads wounded and lost.

"This technique is not only wasteful but inhumane. The small bombs used can inflict non-lethal but excruciating wounds. Moreover, without the hindrance of a float and line, many wounded whales escape pursuit and cannot be put out of their misery. The U.S. National Marine Fisheries Service has made no effort to stop this cruelty."

There is profound irony in what the whale wars have done to the Eskimo. He has learned too much and not enough since those days when the first Yankee sailors chased the bowhead by night, following its trail through dark seas by the phosphorescent glowing of the marine organisms which lit its pathway as it traveled. Caught between the primitive skills of his ancestors and the merchantman skill of the Yankees, the modern Eskimo is a victim, like the bowhead, of a changing technology. Now the Yankees are gone; the entire American whaling fleet is in retirement; and the only "whaling tradition" left in Alaska is a jumbled mess of sloppy killing.

In the early 1970's, there were an estimated 400 bowheads—and the killing continued, measured out but still allowed. Government statisticians seem to think that today there are 2,000 bowheads. Perhaps there are. A tiny number against what once existed. The totally protected blues and the partially protected bowheads owe their lease on life only to this: **they almost didn't make it.** Until they were virtually gone, the world couldn't become frightened enough to grant them reprieve.

Fin whales, humpbacks, the comparatively tiny Minke's whale (30-foot long), the sperm whales and a few others are still the target of a global chase—the U.S. no longer participates but several nations do—which continues, and will continue, until world public opinion has mounted so high that even the fisheries services of the various governments must finally pay heed.

"The weight of millions of people around the globe is beginning to change the odds for whales," says Mouras, "but there are factors that are still monumentally out of kilter. I think when the person out in the street hears that there is an International Whaling Commission, he feels somehow reassured. How could he know that the IWC has operated, for the most part, as a protection society for whalers rather than a protection society for the whales?

"One of the great and enduring problems is that the principal agency set up to look out for the whales was basically committed to the idea that whales are a crop to be harvested. It's as though the United Nations had been established with the basic notion that people grow on trees and a percentage of them should be plucked down every year like peaches. The whales, in their own way, are as remarkable as man. I deny that they are not thinking creatures—or any less conscious than Man himself. The whale's magnificence extends to his brain.

"If whales didn't reason, then they would turn on those kids in the little boats, who come to protect them, and they would dash them away when harpoons start flying from the Russian ships.

Whales **think**. I believe the evidence is overwhelming. They do not think like Man. They are not as self-protective as Man. They certainly are not as avaricious as Man. Their devastation is a shame before mankind. When we look back from the vantage of sixty years from now, I think we will find that most of the political struggles, which accounted for the headlines on our newspapers, were of generally small account; and what was happening to the whales was of much greater account. Imagine the astonishment when our grandsons read what the barbaric folk of the late Twentieth Century were allowing. Men like Aristotle Onassis, whose fortune was partly derived from the whale wars, had the protection of governments even when the people themselves became alarmed at the fate of the whales. A new class of pirates rose up with little opposition from the officials in a position to stop it.

"Now all this has happened already. But I still believe that whaling is coming to an end if only because the barbarism became so obvious to so many people. Russia and Japan will have to revise their ways—their own people will force them as the people of other countries have forced theirs. I believe the pirate whalers, who have been operating so far in safety, had better go back and study what happened to the other pirates of history. In the long run, they were strung high."

FELINE RESPIRATORY DISEASES

By Susan M. Cotter, D.V.M.

Upper Respiratory Diseases

Chronic rhinitis in the cat is most often secondary to upper respiratory viruses, but other causes must be considered. Cryptococcosis can begin insidiously, with signs of chronic rhinitis progressing to granulomatous lesions destroying turbinates and even nasal bones causing deformity of the nasal cavity. Organisms may be found on direct smear of nasal exudate stained with India ink or new methylene blue. Cryptococcus is not contagious from cats to man. The drug Flucytocine may be successful in treatment if the disease is not too far advanced.

Nasal tumors are most commonly lymphomas, or adenocarcinomas. Tumors may destroy turbinates, deviate the septum and distort the nasal cavity due to bone destruction. Nasopharyngeal polyps emanating from the eustachian tubes may cause stertorous breathing or reverse sneeze syndrome. They are usually easily removed by pulling the soft palate forward and grasping the mass. The mass is then twisted as it is slowly pulled from above the soft palate. Their presence usually indicates that otitis media is present and must be treated concurrently.

The two most common viral entities are feline rhinotracheitis and calicivirus infections. Aerosol transmission occurs over short distances, probably not greater than six to eight feet. An asymptomatic carrier state exists for each virus. Rhinotracheitis affects primarily the conjunctiva and upper respiratory tract, often causing keratitis and sometimes oral ulcers.

Abortions or neonatal deaths have been reported in catteries with an outbreak of feline rhinotracheitis. Virus can be cultured from eyes, nose or throat for 2-3 weeks after infection but the disease is most contagious in the first week. The incubation period is 5-7 days. Feline caliciviruses affect the oral mucosa and lungs primarily. Oral ulcers and ulceration of the nasal septum are common. The incubation period is about three days. Treatment of the respiratory viral diseases is supportive; no treatment is needed if the signs are mild; antibiotics and fluids are indicated in severe cases. Vaporization may help, IUDR ophthalmic ointment may help in Herpes keratitis. Cats with severe protracted clinical signs of respiratory viral infection should be checked for feline leukemia viruses.

LOWER RESPIRATORY DISEASES

Second to the viral respiratory diseases the most common primary lung disease in the cat appears to be allergic bronchitis or feline asthma. Asthmatic cats usually have a history of wheezing or coughing sometimes attributed by the owners to a hairball. In reality, hairballs are not likely to cause coughing or wheezing. These signs may precede an acute onset of dyspnea, but dyspnea may occur without earlier signs. Characteristically, the cat is alert and febrile and does not appear ill except for dyspnea which is primarily expiratory. Radiographically one sees a decreased density of the lungs due to alveolar emphysema. Fecal examination, and in some cases, bronchial washings are indicated to confirm the diagnosis.

Treatment of asthma includes oxygen and prednisone.Antibiotics may be indicated if a secondary bacterial bronchitis is suspected. Recurrent attacks may occur. In most cases the allergen cannot be identified. Most cats can be managed with only intermittent therapy with corticosteroids or bronchodilators, but a few cats require continuous therapy.

Primary bacterial pneumonia does occur in the cat, but it is not common. Diffuse, patchy, alveolar densities are the characteristic findings. Dependent lesions suggest an aspiration pneumonia, mineral oil being the most frequently aspirated material when it is administered as therapy for hairballs. Bacterial pneumonia may produce a radiographic appearance indistinguishable from that of toxoplasmosis or other granulomatous disorder such as FIP, which may occasionally affect the lungs. The lungs are not likely to be the primary target for FIP virus; however, evidence of other organ involvement should be sought, such as anterior uveitis, meningitis, pleural, peritoneal or pericardial effusions or renal lesions.

With toxoplasmosis or bacterial pneumonia, the clinical presentation may be identical with a sudden onset of dyspnea and fever. White blood counts are variable in each disease, varying from elukopenia to leukocytosis. Leukopenia is a more worrisome finding, occurring in overwhelming infections or in cats with underlying infection with feline leukemia virus. When one is uncertain as to the cause, a good broad spectrum bacteriocidal antibiotic can be used in conjunction with pyrimethamine or possibly trimethoprim.

Diffuse lung tumors may sometimes mimic pneumonia radiographically. The tumors which are most likely to have a diffuse distribution, sometimes with lymphangitic spread, are bronchoalveolar cell carcinoma or mammary adenocarcinoma. Clinically, cats with pneumonia are more likely to show signs of dyspnea, malaise and fever than are cats with a tumor of comparable degree of

severity radiographically.

Pulmonary aspergillosis occurs rarely in cats. When it does appear, it is usually in a cat that has another primary debilitating disease, is immunosuppressed, or has received prior antibiotic therapy. The outlook for recovery in these cats is very poor.

Extrapulmonary respiratory disease can be secondary to pleural masses and effusions or to heart disease. Mediastinal lymphoma usually presents with a history of dyspnea, which the owner may describe as rapidly progressive. Less frequent findings are a palpable mass at the thoracic inlet or Horner's syndrome from compression of the sympathetic nerve in that area.

Pyothorax can be recognized by finding large members of neutrophils in the pleural fluid. Treatment includes draining the fluid and obtaining a culture. Drains can be placed in the chest so that fluid can be removed once or twice daily and the chest flushed. Systemic antibiotics must be given as well.

Feline infectious peritonitis can occur in the thoracic cavity. The fluid is similar to that found in the abdominal form. Heart enlargement not associated with effusion has been observed in cats with chronic anemia and with hyperthyroidism. Both of these are high-output types of cardiac stress with resulting cardiac hypertrophy.

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ask Dr. Smithcors

Continued from page 6

males. Other diseases may result in sporadic abortions, but about the only other cause for recurring abortion in a bitch is a deficiency in progesterone production, for which progesterone therapy can be given during early pregnancy.

Q **Our veterinarian gave us some medicine called DMSO. He warned us to wear rubber gloves when we applied it because he says it is absorbed through the skin. Could is cause any serious damage if we got it on our skin?**

A It is unlikely that DMSO (dimethyl sulfoxide, Domoso) would have any serious effect if you got some on your skin (after all, it's used to treat animals) but when so absorbed it causes an odorous breath and unpleasant taste in the mouth. In a few persons it may cause drowsiness, skin irritation and mild dermatitis. In any event, It won't do you any good, so it's best to follow directions scrupulously--as with any drug.

Q **My 3½-year-old Sheltie was well trained by the kennel owner who gave her to me eight months ago, and she has been a loving, obedient pet. However, Ginger has one serious fault; she goes berserk whenever the phone rings and actually attacks me until I lift the receiver, even though she has never bitten under any other conditions. She does not seem to hear my commands when she is in this state, thus making reprimand useless. She also does this to a lesser degree with the doorbell and a ship's chime, but makes no response to a fire whistle, fire engine bells, or smoke alarm. When a phone rings on TV, whe merely raises her head, and when I say it isn't ours goes back to sleep. At present I have friends ring two times, I continue what I am doing and make no move toward the phone. When it stops ringing, I place her in another room and await their second call. As a senior citizen who may not always be able to cope with this unnerving situation, I would appreciate any suggestions regarding how Ginger's actions can be reversed.--M.M., Stone Harbor, NJ.**

A First, let me commend you for having found a way to make the best of a bad situation, and for believing there might be a means for stopping this one undesirable behavior. Ginger is fortunate in having someone to return the love she normally demonstrates. This appears to be an example of fear-induced aggression triggered by a very specific stimulus (the phone or doorbell) with her response being so swift that fearfulness may not be shown. There are more involved ways for correcting such behavior, but I will suggest a very simple one for you to try first.

It appears that Ginger is hypersensitive to sounds within a narrow frequency, and it would avail little to attempt determining why her unreasoning response should be to attack you rather than the source of the discomfort. One approach would be to eliminate the stimulus altogether, but it would be impractical for you to do without a phone or doorbell, and the alternative is to try modifying the sound to a frequency that does not disturb her. Take a fluffy towel and fold it to 6-8 thicknesses and press the base of the phone down firmly on it. This will muffle the sound enough so she may only take notice of it without attacking. Keep a tidbit near the phone and, if she does not attack, praise her as you hand her the tidbit and answer the phone. Then on alternate rings praise her, but omit the tidbit. Repeat the sequence with successively fewer folds of towel under the phone, and over a period of several days you may be able to do without any muffling.

If the bell of your doorbell is exposed, you should be able to fasten some muffling material over it with tape, removing successive layers as with the phone. An alternative would be to install a buzzer or bell with a different frequency. If the phone "trick" fails, you might ask the phone company about having a bell with a totally different frequency installed, or a piece of tape on the bell may be adequate. You are also to be commended for not punishing Ginger when she exhibits this bizarre behavior, over which she appears to have no control, but it should be possible to counter-condition her so she does not respond in this most undesirable manner.

WHY PEOPLE OWN PETS

Pet Owner Psychology and the Delinquent Owner

By Bruce Max Feldmann, D.V.M.
Director, University of California (Berkeley) Pet Clinic
Lecturer in Natural Resources, U.C.B.
Advisor on Veterinary Medicine and Pet Population,
Animal Protection Institute of America

Society has a pet **owner** problem, not a pet animal problem. A pet who contributes to the problem is but an innocent victim of its owner. Such owners exercise inadequate control and supervision of their pets. These pets cause social, ecologic, and public health problems. Prominent among them are biting and threatening people, harboring human diseases, causing road accidents, creating nuisances and pollution, damaging property, destroying livestock and wildlife, and requiring large public and private expenditures for pet control and euthanasia. However, the real cause of these problems is the pet owner. And if the problems are to be solved, it is the regulation of these pet owners rather than of their pets **per se** to which society must turn attention. Understanding the impact of pet ownership on society-at-large and the problems thus created, and devising appropriate solutions, must begin with an appreciation of pet owner psychology and the owner-pet relationship. This relationship is essential to the lives of many people and is more emotional than rational.

Throughout history and throughout the world people have adopted pets. Dogs were adopted about 10,000 years ago as the first pet species. They originally served humans as co-hunters, as protectors of fields and granaries, and as a source of meat. Today the human-pet relationship includes many psychosocial elements such as sentimentality, pathos, cruelty, neurosis, or psychosis.

Allowing pet owners to love and feel loved may be the greatest contribution made by pets to mental health and emotional well-being. Owner-pet love has almost no risks for the owner, compared to human love with its many risks for both parties. Pets permit almost total freedom to relate without the need to inhibit impulses. For example, anger may more easily be expressed to one's pet than to another person; our folk humor illustrates this phenomenon well with the image of the man who expresses no anger in response to some incident with his wife or employer but who later unfairly "kicks the dog" in order to discharge the anger. Pets often exhibit what appears to their owners to be sympathetic or empathetic behavior in response either to direct expression of owner feelings or to nonverbal cues such as the owner's posture, gait, and feeling tone. One negative aspect of owner-pet love is the pampering or smothering love that so often leads to pet animal neurosis; in such cases, pet sanity is sacrificed to owner sanity. Another common example of owner-pet love is the obese pet overfed by an owner who uses food and feeding as a major expression of love. Another example is the obese pet of the overweight owner who sees his/her pet as a companion in eating or a substitute mouth for the owner's own. Indeed, overweight pet owners are more likely to have obese pets.

Contemporary society — with its declining importance of nuclear families, high geographic mobility, and rapid, often bewildering changes — causes or at least augments feelings of isolation. A pet is a vital companion for many so afflicted (e.g., alienated youths, neglected old people). A pet is a faithful, intimate, noncompetitive, and nonjudgmental friend. Our culture recognizes this relationship in the traditional and well-known expressions: "A boy and his dog" and "A dog is man's best friend."

Pets provide comfort and security not only against loneliness, but against physical dangers such as intruders, burglars, darkness, and fear.

Some pet owners play with or walk with their pet to provide themselves with needed physical activity that does not otherwise occur in our busy, motorized, yet often physically sedentary, society. And playing with a pet helps remove inhibitions and release joyousness.

Pets serve as working partners to increase mobility and ease the work load. Examples are cow dogs, sheep dogs, police and customs dogs, protection (guard, sentry, attack) dogs, guide dogs, and "mousers" and "ratters."

Many dogs are owned primarily for use in sports such as racing, hunting, and pit fighting.

A pet can be a cornerstone in the healthy emotional

development and socialization of a child. Pets can also play an important therapeutic role in helping resolve the problems of emotionally disturbed children; pets can influence such children in the same directions as normal children are influenced.

Observing a pet's behavior may nurture assertiveness, independence, exploration, and self-confidence in a child. By being the object of training and/or a spontaneous playmate, a pet can stimulate creativity and spontaneity in a child. By being an active and physical playmate, a pet may facilitate release of pent-up energy and tension and increase perceptivity to nonverbal communication in a child. A physically active child is less likely to be a tense, restless child. A child who is experiencing the direct and physical attention of a pet can acquire an appreciation of relating directly and physically.

A pet may nurture compassionate, humane instincts and help teach responsibility and humane values. Caring responsibly for his/her pet and experiencing the pleasures of owning a happy, healthy pet may help a child sense the benefits of acting responsibly. Pet behavior has limits which must be set for (not by) the pet; observing and helping to set such limits may enable a child to intuitively appreciate and more readily accept the principle of limits on the child's own behavior.

A pet, by his clear and direct responses, may help teach a child that being loved and giving love go hand-in-hand and that abuse or neglect results in avoidance and rejection by the object of mistreatment. Interaction with the family pet is usually shared by members of a family; a child observing these interactions may begin to appreciate that one's love is not diminished, that nothing is lost, when the object of one's love (e.g., the family pet) is loved by (and loves) others too.

A pet contributes substantially to his owner's enjoyment of life. For the owner the relationship is primarily a complex psychological state of mind with deep sociocultural implications. There may be an instinctual element as well. (The instinctual element is perhaps related to the same kind of instinct which causes a human baby to respond to moving, noise-making objects with faces.) The major role that a pet plays in his owner's life is a therapeutic one; pets help millions of people cope with life in our complex, contemporary society. Pets are unique "therapists." They are unselfish; they give much and ask little in return. They love and forgive unconditionally and neither deprive, frustrate, nor obtrude. They are ego-boosting and offset feelings of inadequacy. By their nature pets encourage active participation in life rather than passive observation. Pets augment stability, robustness, reliability, and survival in their owners' lives. Many of the needs which pet owners satisfy through their pets are needs which nonpet owners satisfy internally or via interaction with other people.

The deeply emotional nature of the owner-pet relationship and our relative ignorance of pet owner psychology limit the effectiveness of educational efforts to change delinquent owner behavior. Therefore, the immediate relief of pet owner-created problems must emphasize **enforceable** and **enforced** licensing and leash ordinances. The long-range solution lies in voluntary compliance by all pet owners. In order to obtain this compliance, we must refine pet owner education through a better understanding of pet owner psychology and why people own pets. *Reprinted Courtesy of Gaines Progress*

THE MYSTERIOUS GENIUS OF HOMING PIGEONS

Continued from page 9

"Because human vision and pigeon vision seemed so similar—great sensitivity to blue-green, less to reds and purples—no one thought pigeons would have a second peak of sensitivity in the ultraviolet region where humans are completely blind," Kreithen said.

Ultraviolet light opens a whole new visual world to pigeons. Flowers like the marsh marigolds that appear completely yellow to the human eye actually contain "nectar guides," radiating lines visible in the ultraviolet, that direct bees to the pollen and nectar. Certain moths have wing spots invisible to the human eye that attract mates by pulsating at ultraviolet wavelengths. Whether ultraviolet light provides pigeons with similar visual cues has not yet been determined, but one possibility is that since ultraviolet light also polarizes, it could be used by the birds as an alternative compass on cloudy days.

Birds are known to be incredible weather watchers, often setting off on migration just ahead of major weather fronts. Kreithen tested his pigeons to determine if they could sense changes in barometric pressures such as those that accompany major fronts. He found that the pigeons could detect changes in air pressure as subtle as those between the floor and ceiling of a room. The ability of Kreithen's instruments to measure differences gave out before the limits of the birds' ability were reached.

Kreithen and doctoral student Douglas Quine are now testing pigeons to determine if they might use infrasound as a navigational aid. Infrasound is very low frequency sound generated by the oceans, major thunderstorms, and winds as they blow over major landforms such as the Rocky Mountains. Infrasounds travel thousands of miles from their sources. Lab experiments have shown that the birds can hear infrasound in the same frequency range as sounds generated by the oceans and mountain ranges.

"There's no question that pigeons can hear infrasounds as low as three cycles per minutes," Kreithen says. "The question is can they distinguish between the noise of the oceans and mountains—things they might use to navigate—and infrasound generated by local turbulence. And if they can, do they use it?"

The laboratory and field experiments on bird orientation conducted at Cornell and elsewhere have provided a wealth of knowledge on what the birds can and cannot sense, but the pieces still do not add up to an explanation of how birds home.

The stimuli that pigeons are thought to use—the sun, magnetism, polarized and perhaps ultraviolet light—provide them only with simple compasses. And a compass, even a reliable one with backup systems, cannot by itself provide a homing pigeon with sufficient information to calculate its displacement from home.

The missing "map" with which pigeons might be able to integrate their compass information may be hidden in some exotic sense that allows the birds to perceive a world far from human grasp.

Kreithen believes that 20 years from now, researchers trying to solve the mystery of how pigeons find their way will still be working to break down the "human chauvinism" that assumes the world is as we sense it.

ANIMAL BEHAVIOR

SOUNDS AND MESSAGES

C. P. Ryan, D.V.M.

PART IV

Sound is used in communication between animals to impart social status and intentions and to aid in group activities. The term "voice" refers to sounds made through the mouth.

Most domestic animals are capable of hearing sounds that are inaudible to us. Cats and dogs have the ability to hear sounds of above 20 cycles per second "KHz", which is in the ultrasonic range. The high-pitched commercial dog whistle seems silent to us, but is easily detected by the dog. How much these sounds are used by animals to communicate with each other and gain information about the environment is largely unknown. Recent studies indicate that rodents use vocalizations in the ultrasonic range during communication between mothers and offspring. The concept of hearing abilities different from man's raises many questions in the field of animal communication.

Vocalization, which is so vital in human communication, also plays an important role in animal communication. An unusual way in which vocalization plays a vital but generally unrecognized role is in the synchronization of the hatching of chicken eggs. This coordination is achieved by sound signals exchanged by the chicks while they are still in the eggs. The vocalizations become loudest and most persistent just prior to hatching. The eggs in a clutch are layed over a period of days, and if the eggs are incubated separately the hatching times are spread over several days, but when they are kept together, hatching is simultaneous.

Acoustical signals play a major role in chickens and in all domestic animals in maintaining a close bond between mothers and their newborn, which is essential for feeding and protection of the young.

When a mother sheep is separated from her lambs, she will "baa" until they return, and the baby lambs will do the same. Mother sheep will answer the call of any hungry lamb, including those not their own. They will however reject alien lambs if they attempt to suckle. When adult sheep are separated from the flock, they will "baa" repeatedly and attempt to return to the flock.

Separation of cattle, horses, sheep, pigs and goats from their usual herd or penmates leads to distress, and often repeated loud vocalizations are heard from the individual who is separated. The herd often also responds to the distressed individual and returns the cries. Each species of domestic animal has a wide variety of particular sounds or words that are understood by other animals of the same species—calves bawl; lambs bleat; puppies yelp or whine.

CATS

Cats have a variety of different voice patterns, and one researcher distinguished sixteen different patterns. Purring will often begin as soon as you start petting your cat, and even small kittens may purr while nursing. The cat's "meow" is associated with care soliciting. A hungry cat may "meow" to his owner until fed. Other voice patterns, such as the warning hiss and growl, are used in territorial fighting. A mother cat has a warning growl which will send her kittens scurrying for cover and safety.

Also, some researchers have made voice recordings of kittens in a litter and can tell the kittens apart by their own individual characteristic "meow".

The howls and screeches of cats during courtship have been heard by many of us during the middle of the night. Normally it is the tom cat who searches for and courts the female. The sex pheromones, or chemical messengers, given off by the estrus female act as an aphrodisiac to male cats, and the odors can travel considerable distances with the aid of the wind. "Caterwauling" refers to the reciprocal cries cats emit during the mating season. The term "caterwauling" is also used by man to refer to the behavior of people when they are quarrelling and screaming at each other like cats.

DOGS

With dogs, man has created a wide variety of breeds, ranging from the tiny Chihuahua to the large Great Dane, with over one hundred breeds recognized by the American Kennel Club. Many of the vocalizations seen in the wild *Canidae* have been lessened or are absent in the domestic dog. The Basenji is known as the barkless dog, but he still vocalizes with whines and loud cries characteristic of the breed. Chow Chows seldom whine, bark or howl. A few of the calls common in wild *Canidae*, such as the prolonged howl of loneliness, are also used by domestic dogs. The howl, much to the distress of someone trying to sleep, will evoke responses from other dogs at considerable distances and can result in lengthy communications between dogs who have no other contact other than the howl.

HORSES

One of the loudest sounds emitted by the horse is the neigh, which is a distress call. It is often used to communicate with other horses or when a horse is upset

about events that it can hear but not see, such as what is happening on the other side of the barn. The neigh is often emitted by a mare when she is separated from her foal. When two horses meet for the first time, they may give the familiar whinny with a lipcurl similar to that of courtship. The crying or squealing sound produced by a horse varies in volume and is usually heard during aggressive encounters such as fighting, or in an instance of aggressive sexual rejection.

CHICKENS

On the farm, the early morning crow of the rooster is heard at a considerable distance. Individual roosters can be recognized by their characteristic crow or voice pattern. Over ten different calls of the chicken have been distinguished, each with its own significance. The rooster's crow can be used as a territorial call, a warning call or a sexual call. The domestic rooster has different

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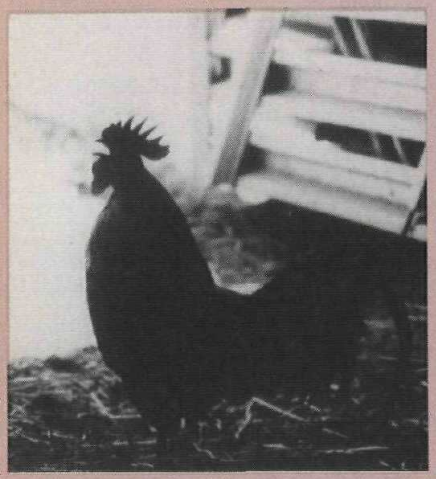

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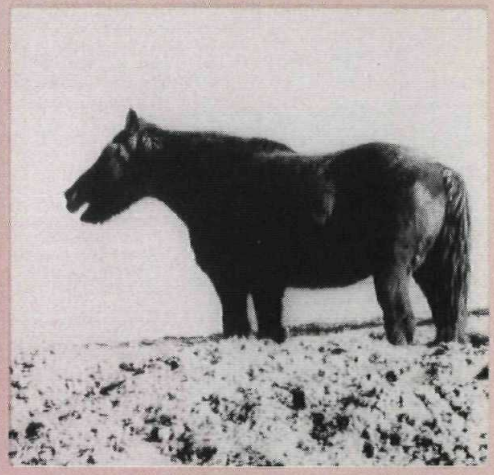

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1. Rooster crowing
Crowing is a behavior developed from hormonal stimulation primarily as a sexual call. Young roosters first crowing attempts are awkward and bear little resemblance to the boisterous crow that we are familiar with.

2. Hereford and calf
Security to a younster means having mother by your side. The young take cues from adults how to react in various situations.

3. Horse
Horses can be quite vocal and high-ptiched squeals often accompany sudden threatening gestures such as rearing on the hind feet.

4. Calves lying together
Young cattle resting together after feeding and playing. Cattle may take time for play, especially calves. Play activities include: vocalizing, snorting, head-shaking, as well as prancing, kicking and pawing.

5. Sheep and lambs
This pen is a noisy place with mothers and young "baaing" repeatedly. When a ewe first begins to nurse, she uses both hearing and vision to locate her lamb and uses olfaction to confirm her choice. As the lamb matures, voice plays more of a role in recognition.

ANIMAL BEHAVIOR

danger calls; one indicates danger approaching from the air, such as a chicken hawk; the other warns of danger approaching on the ground, such as a dog. Much of the chicken's vocalizations are innate and require no auditory experience for development. Chickens who are deaf at hatching still develop normal vocalizations.

The cackle, or sharp, shrill, broken sound of a hen or goose after laying, is another familiar barnyard noise. The hen's noisy chatter proclaims to the whole barnyard that she has layed another egg. Cackling also refers to human chatter that is carried on in a silly, noisy way.

OTHER SOUNDS (NONVOCAL)

The voice box, or larynx, is not the only tool an animal can use to let you know his or her feelings. Horses snort by blowing air suddenly through their noses. Snorts can occur in conflict situations, such as during riding when the horse is required to make a shift in activity pattern. Brief sudden snorts can express anxiety, such as when a horse investigates a suspicious object.

In sheep the distress call is a snort accompanied by stamping of one foot.

Pigeons may let you know how long their flight will be by the clapping of their wings. Pigeons clap their wings loudly, with the duration of the signal indicating approximately how long the bird intends to fly. For short flights, no signal at all is given. A long journey is indicated by a prolonged bout of wing clapping just before take-off.

There are probably many other non-vocal sounds which are used daily by domestic animals that we have not yet recognized. Ethology, or the study of animal behavior, is always seeking new approaches and trying to recruit students with open minds.

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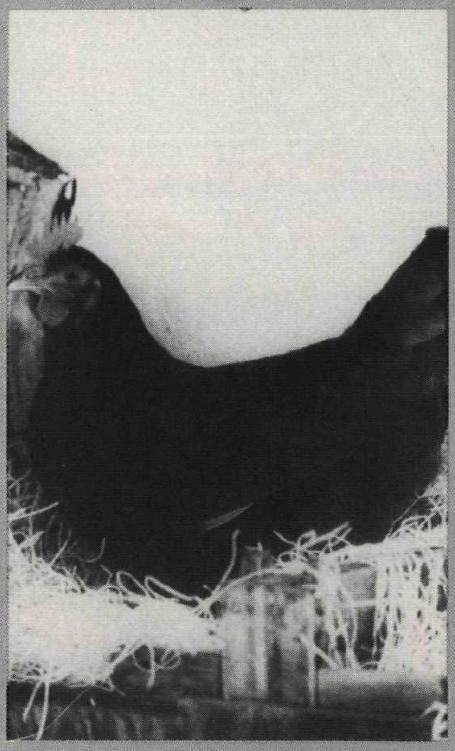

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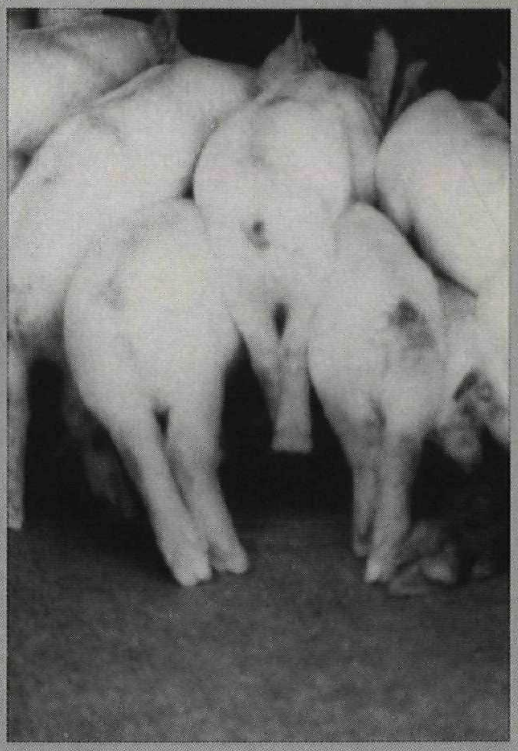

6. Wild cat listening
When hunting, cats often listen intently. The cone shape of the ear acts as a very effective sound collecting device.

7. Chicken on nest
Hen incubating eggs. Clicking sounds made by chicks a few days before hatching aid in coordination of hatching time of the clutch. Maturing chicks also develop an "egg tooth" on the tip of the beak to help in their escape from their limestone prisons.

8. Piglets
During feeding, piglets jostle for position and once they find the teats, the sow gives rhythmic grunts. Vigorous sucking by piglets is often indicated by the contraction of the tail upwards.

OBESITY

Is Pleasingly Plump Healthy?

"Fat is no more a health barometer than a dog's nose, and a 'pleasingly plump' pet could be suffering from malnutrition," say authorities at the American Animal Hospital Association (AAHA).

Obese or overweight pets have one thing in common with overweight humans--an improper diet. In recent months the association has focused attention on fat cats and pudgy budgies.

"We have received some comments concerning malnutrition in pets, so we conducted a survey. Frankly, we thought we would find that it was the exotic or uncommon pets that are suffering from malnutrition," said Dr. Warren G. Walker, a former president of the American Animal Hospital Association.

"We were somewhat amazed to find that 90 percent of the veterinarians felt we should focus malnutrition warnings on dogs, 87 percent on cats and 35 percent on birds. Very few mentioned other pets," Dr. Walker explained.

In another survey, when responding to the question, "What do you feel your clients should know about cats?", over 80 percent of the veterinarians said diet was among the most important considerations.

It is sometimes difficult for the average pet owner to determine if a pet is overweight or malnourished, and an overweight pet may be suffering from malnutrition.

There seems to be a trend to overweight pets. Pets are being placed on diets. Some pet food suppliers are now aggressively marketing special foods.

Some of the problems of pet weight control are similar to human problems. "It's a complex area, and each case requires individual attention; however, here are a few general rules which were supplied by Dr. Walker.

- Weigh your pet. Get on a scale and note your weight. Then hold the pet and get on the scale again. Subtract the difference to get the weight of your pet. It may not be accurate, but it will be a guide.
- Ask your veterinarian if your pet is about average in weight. He can usually spot a weight problem without using a scale!
- Watch out for high calorie treats. Caution your children not to feed high sugar content foods which provide excess calories.
- Ask your veterinarian for specific diet advice for your pet. "And then be sure to follow the advice," our spokesman emphasized. Fat can be uncomfortable, and it does shorten the life span of man and animals.

"Cats are about the only creatures we know of who can actually suffer pain from a disease known as steatitis, which is caused by an improper diet of too much red meat tuna," Dr. Walker explained.

"If birds eat only seed, you will probably develop a fat bird suffering from malnutrition. A good, well-balanced diet and a moderate exercise program is the best answer for birds and animals, as well as man."

"Most pets will respond to a prescribed reducing diet with some weight loss in a month or two. If your pet doesn't lose weight within three months, consult your veterinarian," Dr. Walker recommended.

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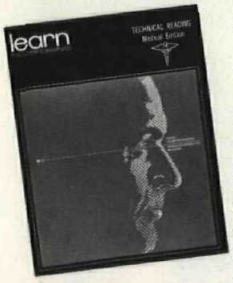

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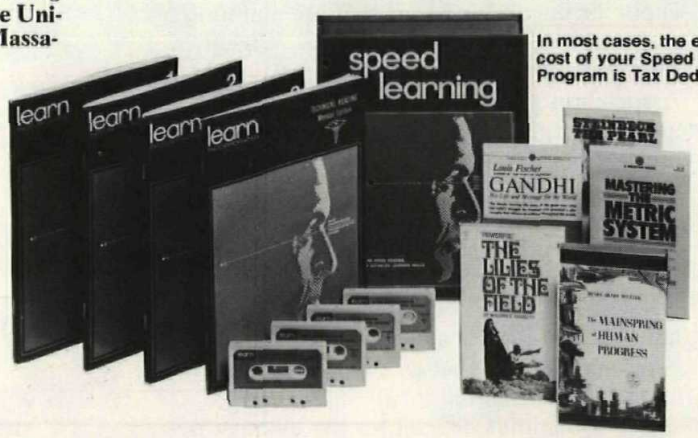

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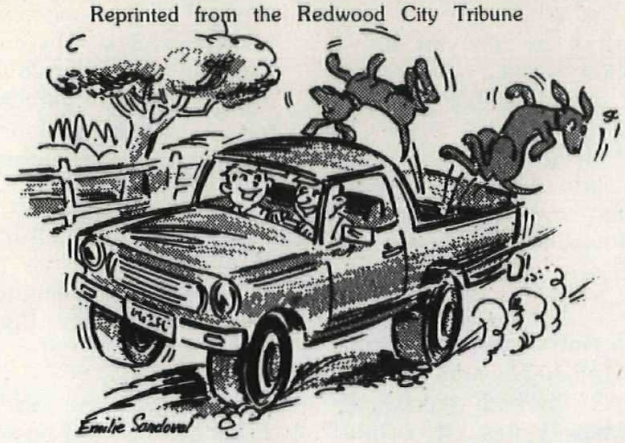
DEATH ON THE HIGHWAY

Pickup Trucks & Dogs

Reprinted from the Redwood City Tribune



You see them every day: pickup trucks whipping down the highway with one or two dogs standing in the open truck bed. Sometimes the dog is chained to the back of the cab, a precaution the owner has taken to keep the animal from jumping or falling from the moving vehicle.

That's good? No way, says the Peninsula Humane Society.

An abrupt stop, a sharp curve or an unnoticed bump in the road could send the pet hurtling out of the truck to death or injury. It's even worse if the animal is chained or tied. That allows no chance for escape—the dog probably would be strangled.

Another thing to remember is that the floors of most pickups are slick and a pet can be badly bruised by sliding all over the truck bed while it is in motion.

Even if the dog survives these dangers, the wind, dust and foreign objects blowing around could injure sensitive eyes, ears and nose.

A recent survey of Bay area veterinarians showed an increased number of dogs killed or injured severely as a result of riding in open pickup trucks. The Humane Society also has received many injured animals rescued by good Samaritans who saw them fall from pickup trucks without the drivers even being aware of their loss.

Besides being injured themselves, animals thrown out of moving vehicles can cause a traffic hazard.

If you love your dog, says the Humane Society, keep him in the passenger cab—or leave him at home.

worth reading

The Complete Kitten & Cat Book
By: Norman H. Johnson, D.V.M. with Saul Galin
New York: Harper & Row
1979: $12.95

An encyclopedic guide for the cat owner - or the prospective cat owner. All aspects from choosing your pet to caring for your pet through kittenhood to maturity and old age are covered. There is even a chapter on traveling with your pet. The author also has described most accepted breeds and has included a survey of thirty-seven of the wild cats of the world. There are fourteen pages of black and white plates in the center of the book. Practical and worthwhile.

A Veterinary Guide for Animal Owners
By: C. E. Spaulding, D.V.M.
Emmaus, PA: Rodale Press, Inc.
1976: $9.95

This is a practical book covering cattle, goats, sheep, horses, pigs, poultry, rabbits, dogs and cats. This excellent book bridges the gap between the animal owner and the veterinarian. There are chapters on general care, management, health problems and advice on the selection of a veterinarian and when you should call him or attempt to treat the animal yourself. Good explicit diagrams, illustrations of tools and methods of dosage and treatment combine to make a good primer for the husbandman - experienced or inexperienced.

Handbook of Ethogical Methods
By: Philip H. Lehner
New York: Garland Press
1979: $24.50

A very technical thorough book to be used by the professional scientist and researcher. It is the first handbook describing ethogical methods and would certainly be invaluable in the classroom or for the serious student of this subject. Though it is technical for the casual reader, this reviewer found it fascinating reading, especially the chapters on observation and description of the behavior of individual animals.

The Complete Dog Book
Official Publication of the American Kennel Club
New York: Howell Book House
1979: $10.95

The Golden Anniversary Edition of the bible of all dog owners, this is a beautiful book with both color and black and white plates. It is *the* authority on pure-bred dogs in America. The qualifications and appearance of all breeds accepted for registration by the AKC are described in detail and there are chapters on buying, training, showing and caring for your dog. Invaluable and a lovely addition to your library.

The Wonderful World of Disney Animals
By: William R. Koehler
New York: Howell Book House
1979: $10.95

The author was the chief animal trainer for Walt Disney Studios for twenty-one years. He has written a book everyone in the family will enjoy. Profusely illustrated, the book details the stories of fourteen of Disney's classics, including "The Incredible Journey", "Big Red", "Swiss Family Robinson" and many more. Very, very interesting and certainly revealing the humanity and kindness of Mr. Disney. A fine gift for every animal lover.

A Practical Guide to Small-Scale Goatkeeping
By: Billie Luisi
Emmaus, PA: Rodale Press
1979: $8.95

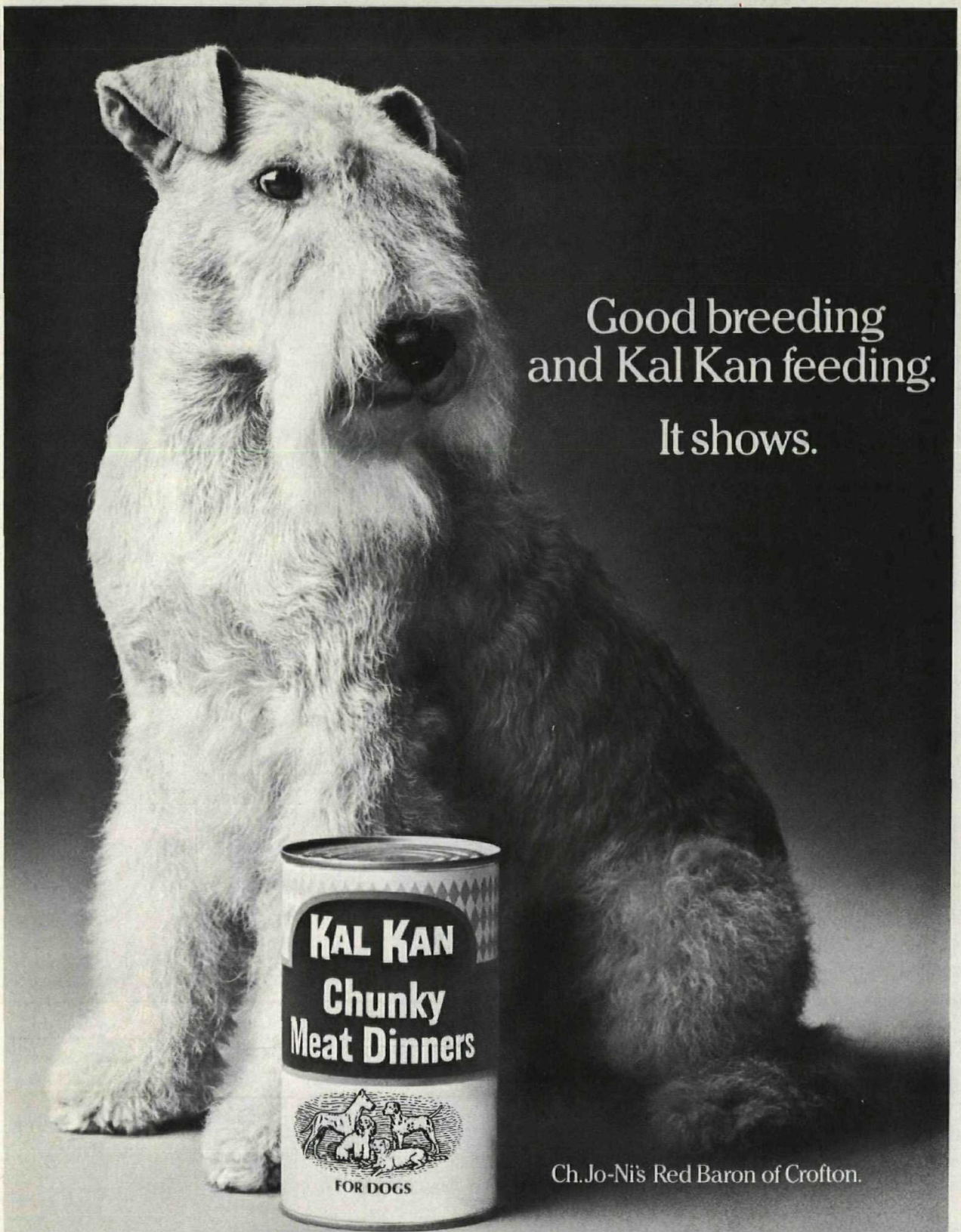
Another fine practical how-to book from Rodale Press, this one tells the novice how to be a successful "goat-keeper". Costs, labor requirements, proper housing, pasturage and the necessary equipment are outlined in a well-organized informative text. The author has even included recipes for your goat cheeses and yogurts. Her enthusiasm and love for her goats is infectious and as an added bonus, she is a good writer!

The Behavior and Ecology of Wolves
Edited by: Erich Klinghammer
New York: Garland Press
1978: $27.50

Another in the Garland series in Ethology, this book is a compilation of papers given at a Symposium on the Behavior and Ecology of Wolves at an annual meeting of the Animal Behavior Society. The book is ideally suited for browsing—some of the papers being more technical than others—but all of them very interesting. The book is in five parts, Wolves in the Wild, Analysis of Behavior, Translocation and Reintroduction, Wolves in Captivity and a short section on the Red Wolf. With the current interest in wolves and the many books written attempting to clear up centuries-old misconceptions concerning these animals, this ranks as an important contribution to the subject.

Equine Genetics and Selection Procedures
By: Research Staff of Equine Research Publications
Dallas, Tex.: Equine Research Publications
1978: $29.95

We have reviewed several of the other books from this fine publisher. This is an exceptionally well-organized, well-written book for the serious horse-breeder. Illustrated in color and with numerous line drawings, the book covers a complicated field. The origin and development of the horse, important selection characteristics (with a full discussion of all types of racing and what is required in terms of conformation, etc.), the application of genetics to selection (with detailed discussion of inherited abnormalities) and cytogenetics and probability are subjects thoroughly exploited. There is a fine appendix with extra information.



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