Today's Animal Health

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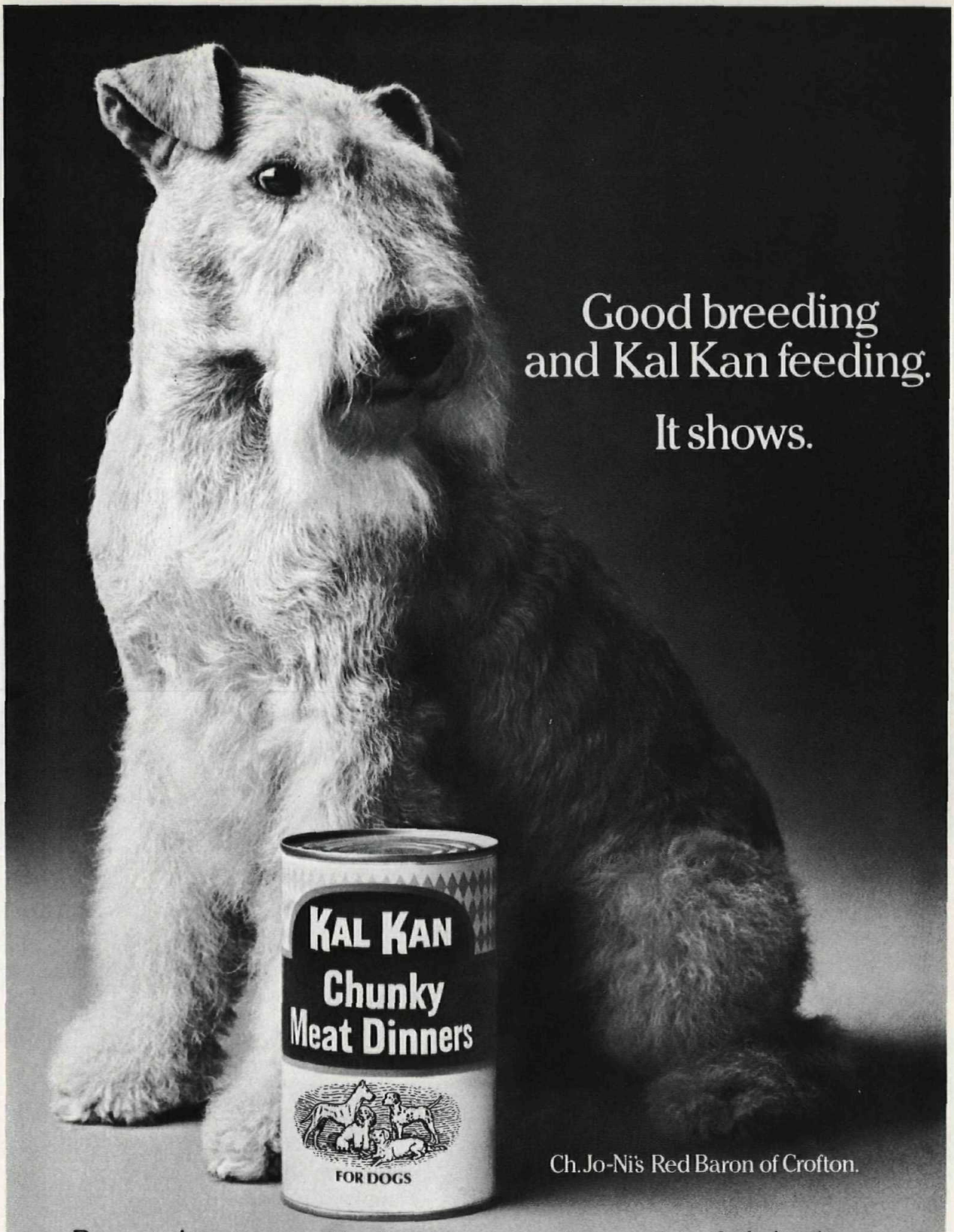
july/august 1979



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Today's Animal Health

Volume 10/Number 4 July/August 1979

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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

SNAKEBITE/*by C. P. Ryan, D.V.M.* 7

MARLIN PERKINS & WILD KINGDOM 8

FLEAS AND FLEA CONTROL/
by C. H. Tracy, D.V.M. 10

12,000 YEAR OLD DOMESTICATED DOG IDENTIFIED BY HEBREW UNIVERSITY SCIENTIST 13

TURTLES AND TORTOISES AS PETS/
by Ruth Crandall 14

ANIMAL BEHAVIOR — PART III/
by C. P. Ryan, D.V.M. 16

SPAYING YOUR DOG/
by R. S. Glassberg, D.V.M. 18

MORE ON PET THERAPY FOR THE MENTALLY ILL/*by Vicky L. Trussel* 22

PURPLE MEDICINE/*by Richard Dean Smith, M.D.* 24

DON'T FEED THE ANIMALS/*by Anita Coffelt* 27

BEASTLY DISEASES/*by Bruce Kaplan, D.V.M.* 29

INVESTIGATORS CONTINUE STUDY OF CANINE ALLERGIC DISEASE 30

DEPARTMENTS

DIALOGUE 4

ASK DR. SMITHCORS 5

FOR YOUNG PEOPLE 21

WORTH READING 31

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dialogue

I will be graduating from Delhi State University (Agricultural and Technical) N.Y. this May, from the Veterinary Science Program. I read your magazine while here and I would very much like receiving it for it is very informative and seems to cover a great variety of species.

Cindy Maternowsky
Virginia Beach, Virginia

I'm sorry to report that in the dozens of flyers I receive each month for subscriptions to new magazines, your magazine was not brought to my attention until I saw a copy at my veterinarian's office. Gathering from the information in the front that the April-May issue is still in volume 1, I would like to receive your back issues if they are still available. If not, please start my subscription with the earliest issue available. Please be commended for your fine magazine.

S. J. Holmes
Omaha, Nebraska 68114

I'm sure that most all animal lovers, same as myself, wanted Mother Cecilia's address but for one reason or other, didn't write in for it. So I'd like to say thanks to Luellen Malvern for writing in for us and thank you for giving it.

Ellen Mauck
Decatur, Illinois 62522

P.S. My pets send their love to you — for teaching us how to care for them.

The article, "Deadlock on the Ice" by Ted Crail incorrectly portrays the harp seal hunt in the North Atlantic as both inhumane in killing method and permanently decreasing the population. The Committee on Seals and Sealing and many other individual scientists and animal welfare organizations have repeatedly found the opposite. Veterinary pathologists, mammalogists, biologists, and others have made the harp seal more intensively studied than most other man-animal interactions.

What is clear is that many people object to this hunt simply because it is a brutish, loutish activity. There is no need to invoke other (false) arguments to oppose it; some animal "welfare" organizations, however, have found the seal hunt a sure money raiser, having the virtue of being an annual event of great photo appeal. A recent tax return by one such organization showed that over 80% of all its revenues went for fund-raising expenses! These include glossy color photographs of young seals. If the seal hunt ever ends, it will spell financial doom for many of the small animal welfare organizations.

So oppose the seal hunt if you will; but beware of some of the information handed out as fact. And then, turn your attention to Pribiloff seals in the United States, and the many other animal issues right here in our own back yard.

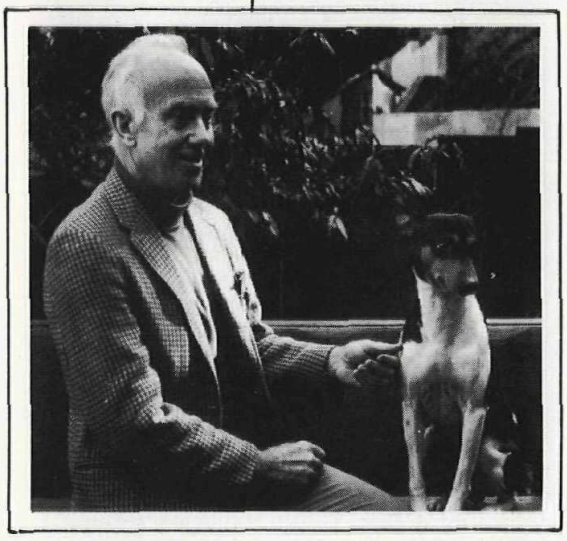
F. M. Loew, D.V.M., Ph.D.
Associate Professor
Chief, Laboratory Animal Medicine
Division of Comparative Medicine
The John Hopkins University
School of Medicine

ask Dr. Smithcors

J. F. Smithcors, DVM

Q **Is it possible to do surgery on a turtle? T.C., St. Louis, Missouri**

A Yes, and turtles have many of the same problems as other animals — it's just a bit more difficult to get at them. One of the simpler problems is that of repairing a broken shell. Small defects can be filled with epoxy resin or large areas with resin-impregnanted fiberglass mesh. The internal anatomy of the turtle is much like that of other animals, and surgery for many conditions can be performed if the problem can be diagnosed, **e.g.**, stones in the urinary bladder or eggs retained in the oviducts. For this a saw like one used by an orthopedic surgeon or veterinarian to remove a plaster cast is used to remove enough of the plastron (bottom shell) for access to the affected part, after which the shell is glued back in place.



Q **Our dog just died from "tick paralysis." What is it about certain tick bites that causes dogs to get paralyzed and die? S.G., Dapto, Australia**

A So-called tick paralysis is caused by a toxin in the saliva of adult female ticks of certain species. In North America the chief offender is the Rocky Mountain wood tick (*Dermacentor andersoni)* which also transmits Rocky Mountain spotted fever. The paralysis tick of Australia is *Ixodes holocyclus,* which also transmits Q fever. At the time female ticks produce eggs they accumulate a toxin in the salivary glands, and one tick may be enough to cause paralysis, the degree of which is proportional to the length of time the tick has been feeding on the dog. The paralysis usually begins in the hindlegs and gradually spreads to the entire body, with death being due to paralysis of the muscles of respiration 1-4 days after the first signs are noticed. Removal of the ticks usually results in recovery, if the heart and respiratory center have not been affected.

Q **A friend has a Shetland Sheepdog, which 2½-3 years ago developed solar dermatitis on his nose. The nose was tattooed, but the skin disorder came back. He is on medication and must stay out of any sunlight. I recommended she give him zinc, vitamin A and vitamin E since the medication has only stabilized the condition, but so far she has not begun this. Now I am wondering if my recommendation is sufficient, and I would appreciate any advice or comments you may have. T.L.S., Carbondale, Colarado**

A Your question raises several others, answers to which would be helpful. How long after the tattooing did the condition return? Is it confined to the nose? What medication is he on, and was it prescribed by a veterinarian? How long has he been on it and are you sure he has been getting it as prescribed? Has your friend in fact been able to keep him out of sunlight? (This is not easy to do over a long period.)

There is no cure for solar dermatitis (so-called Collie nose) and the best that can be hoped for is satisfactory control of the condition. Because it varies so, there is no one method of treatment. Tattooing is most beneficial in mild cases treated early, but usually several treatments 1-2 months apart are needed. Periodic followup treatment may be required (which raises another question regarding the original tattooing). Aside from reducing exposure to sunlight and, possibly, use of certain "sunscreening" drugs (which must be injected frequently), various corticosteroids can be given to control the itching. In some cases, injection into the lesion is the preferred method. Whether your recommendation would be helpful would be hard to say. The best advice I could give would be for your friend to have a veterinarian examine the dog.

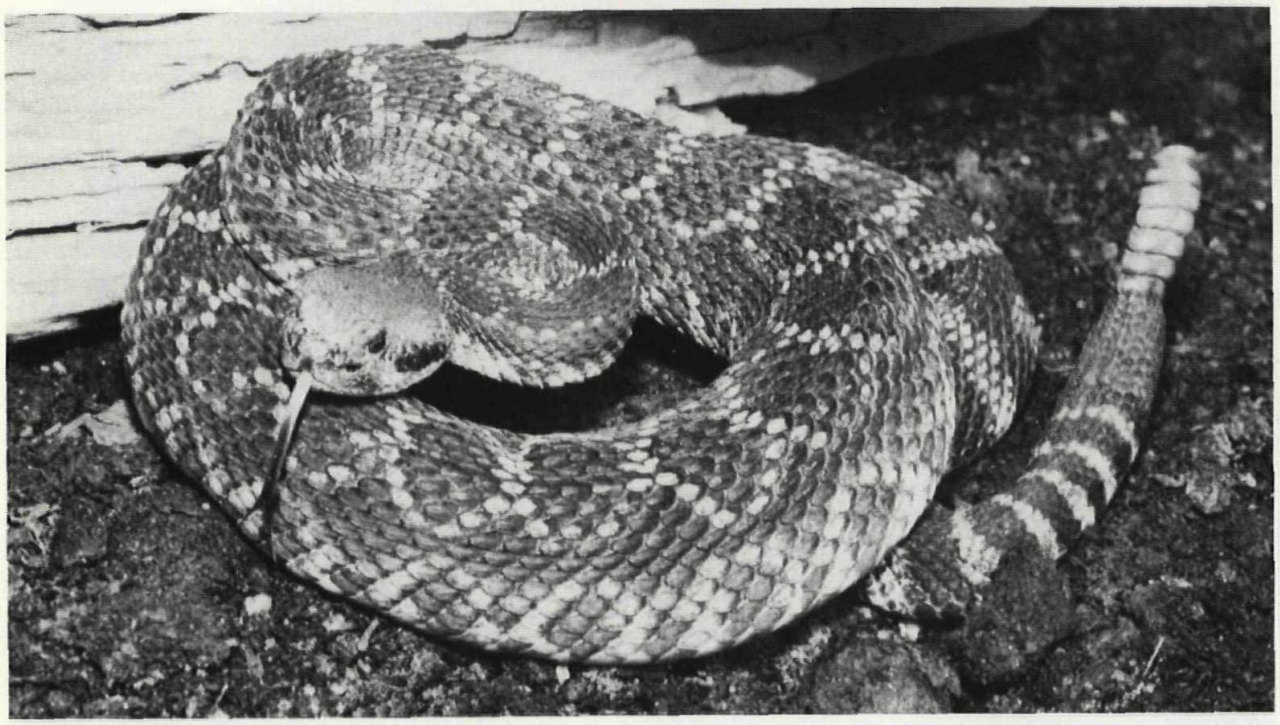
Q **How long after exposure to mosquitoes carrying heartworms will it take before the heartworms will show up on a blood test? M.C., Thomasville, Georgia**

A About 7-8 months. When an uninfected mosquito takes blood from a dog with heartworm disease, it acquires a few heartworm larvae circulating in the dog's blood. These larvae are called microfilariae (= "tiny threads") which are about ¼ mm long. They enter the mosquito's stomach, pass into its body tissues and migrate to the head region, where they develop into the infective stage. This requires about 2 weeks, at which time they are about 1 mm long. When an infected mosquito bites a dog, it injects microfilariae into the dog's subcutaneous tissue and muscle, where they live for 85-120 days before they penetrate small veins and pass to the heart. After reaching the heart it

continued on page 12

SNAKEBITE

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



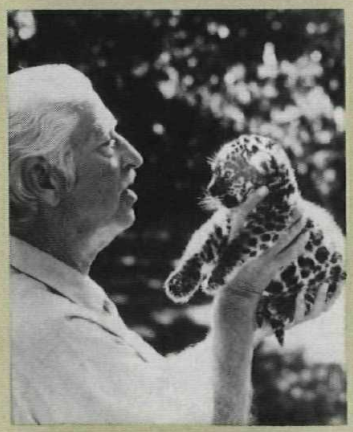
The majority of snakebite cases occur in warm summer weather as snakes are more active and people and pets are outdoors more. Pets, being of an inquisitive nature, many times have no fear of snakes and view the snake as another new playmate with diasterous results. Although a bite from a poisonous snake seldom causes death, all bites are serious and the venom can cause extensive destruction of tissue, sometimes requiring skin grafts or even amputation. It is thought that dogs are probably bitten 10 times more frequently than humans. The severity of a snakebite is directly proportional to the amount of venom introduced and the size of the victim. Evidence of poisoning generally appears within minutes after the snakebite has occurred.

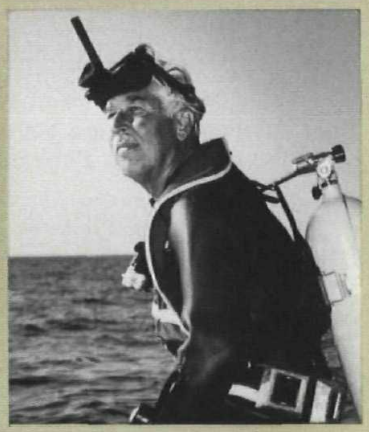
Animals bitten by poisonous snakes develop pain and a severe swelling at the site of the bite with one or both fang marks usually visible. Cats, dogs and horses are bitten most often on the nose and about the head. Nose and head bites are the most serious because of the tremendous swelling which rapidly follows a bite. Swelling around the head may put pressure on the nostrils or windpipe causing the victim great difficulty in breathing. Occasionally animals may be bitten by insects or stung by bees and develop a sudden swelling at the bite site and this can be confused with snakebite. In the majority of these cases the pet has never left the yard. A bee sting is an allergic type of reaction that is transitory and subsides in a few hours.

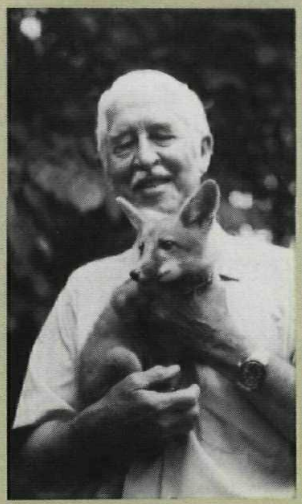
WHAT TO DO FOR SNAKEBITE

1. Identify the snake if possible but don't become another snakebite victim. Better to leave the offending snake alone than to be bitten.
2. Bitten animals may become excited and run about. Such animals should be calmed and reassured by their owners and if necessary immobilized. In order to transmit calmness to your pet you must remain calm yourself.
3. Ice packs can be applied to the bite area to prevent the spread of venom. If the pet has been bitten on a limb a tourniquet could be applied loosely to impede the spread of venom but not tight enough to cut off circulation of the blood to the limb. If a finger can be inserted easily under the tourniquet it is not too tight. The limb can also be immobilized.
4. Following the rendering of the emergency care contact your veterinarian. Antivenom injections, antibiotics and other supportive therapy can be given at the animal hospital.
5. Think ahead. It is recommended that pet owners use caution to prevent their pets from exploring areas known, or suspected of being inhabited by snakes. In people the incidence of snakebite is most common in adult males and next highest in children because of their carelessness and curiosity.

MARLIN PERKINS & WILD KINGDOM







Early in 1962, renowned naturalist Marlin Perkins encountered V. J. Skutt, chairman of the board and chief executive officer of Mutual of Omaha.

The discussion quite naturally centered on wildlife and television; Mutual had sponsored ZOO PARADE, a program hosted by Perkins and aired until 1957.

Mr. Skutt had long been interested in a new program, one showing animals throughout the world in their native habitats and stressing the importance of conservation and preservation.

Mr. Perkins too had often considered a new television series based on what he termed the wild kingdom. Both men agreed that a well-researched and realistic presentation would find an enthusiastic audience.

Don Meier of Don Meier Productions, Inc., former producer-director of ZOO PARADE, was receptive to the new program idea and was engaged to oversee the creation and production of the series.

NBC was contacted and, assured of Mutual's sponsorship, agreed to premiere the program on January 6, 1963. The program was named "MUTUAL OF OMAHA'S WILD KINGDOM."

Wild Kingdom is now television's top-rated half hour syndicated program, and the new season will be launched in September. The program will be seen in 224 television stations coast to coast.

Two episodes will show the world's largest concentration of Golden Eagles and Prairie Falcons, in the Snake River Valley in southwestern Idaho, and will be part of a new two-part series in which Marlin Perkins participates in research by the Bureau of Land Management.

From eagles and falcons along Idaho's Snake River, the new season programs feature Marlin Perkins in a two-part visit to Lapland — the first Wild Kingdom visit there. Marlin joins four Lapland families to drive 4,000 reindeer (the base of the Lapland economy) from the southern part of the territory to the shores of the Barents Sea, on the northern tip of Scandinavia. Here it is shown how Laplanders raise, herd and use reindeer for their livelihood.

In blending education with entertainment, Wild Kingdom goes to the Canadian Rockies in winter time for a story of a day in the life of a Canada lynx.

New shows about sea animals include "Wild Shores of Patagonia" and "The Saltwater Crocodiles of Australia." In spectacular footage, huge killer whales thrust themselves onto the shores of Argentina's Patagonia to seek young elephant seals in just inches of water.

For action with saltwater crocodiles, Marlin Perkins joins Dr. Harvey Messel to capture crocodiles up to fourteen feet in length. Airplanes are used to locate these animals.

Other bird shows study the life of the ostrich-like rhea, the possible jeopardy of the dusky Canada goose in Alaska and the lives of the sea birds on the Leeward Island of the Hawaiian Archipelago.

Monkeys and elephants are not left out of Wild Kingdom's new series. Marlin Perkins travels to Tanzania to observe research on the chimpanzee, the most intelligent member of the ape family.

Wild Kingdom will also replay the highly acclaimed bicentennial program "America's Wildlife Heritage." This special program traces man's relationship with North American wildlife from the first American settlement on the east through the great plains and near-west environs to the far west coast.

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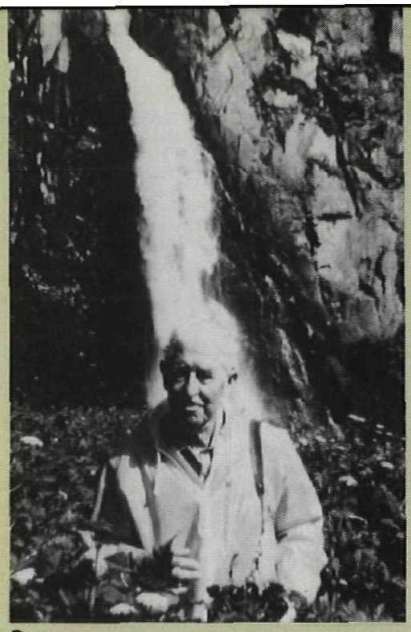

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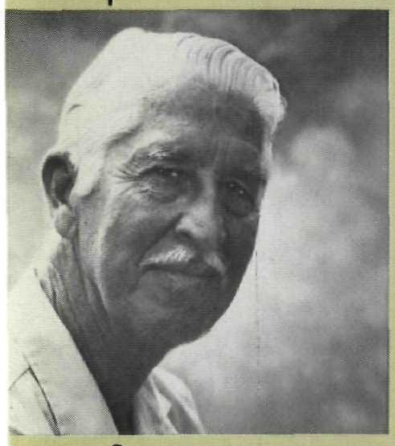

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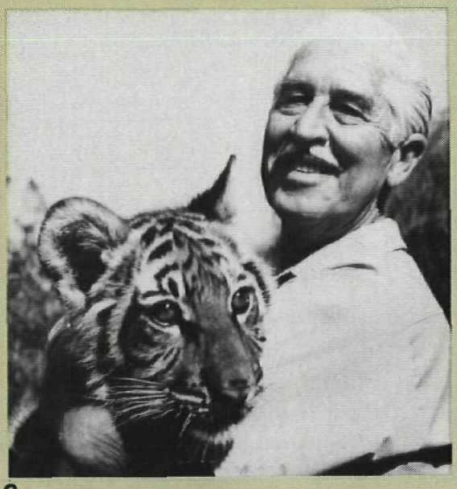

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1

"TO ROPE A SHARK"

On location near the Bahamas Marlin Perkins prepares to dive beneath the surface of tropical blue waters "To Rope a Shark".

2

"RETURN OF THE SALMON"

Summer in Alaska and the salmon are running! Marlin Perkins takes you North to Alaska for a remarkable view of the yearly "Return of the Salmon."

3

"M'BOGO SAFARI"

Marlin Perkins relaxes during a break in the filming of "M'Bogo Safari." Excitement and danger follow during the search for the African Buffalo - M'Bogo.

4

"NIGHT DIVES"

Marlin Perkins on a dangerous night dive "Exploring the Great Barrier Reef."

5

"BENEATH KILIMANJARO"

Marlin Perkins and a job well done! This adventure takes you to one of the world's great landmarks. See "Beneath Kilimanjaro."

6

"TIGERS OF SARISKA"

Marlin Perkins meets a tigress not quite so docile in "Tigers of Sariska."

7

"IN SEARCH OF A GIANT ARMADILLO"

Host Marlin Perkins plays tug of war "In Search of a Giant Armadillo." Off-camera horseplay during the filming of this episode.

8

"VOYAGE TO THE GREAT BARRIER REEF"

Marlin Perkins and friend enjoy a little frolic and fun after a hearty "Voyage to the Great Barrier Reef."

By C. H. Tracy, D.V.M. Professional & Technical Services Burroughs Wellcome Co.

FLEAS AND FLEA CONTROL

Did you realize that if your dog or cat has fleas that the chances are very good that he or she also has *tapeworms*? Did you know that given the correct conditions flea eggs and larvae can survive inside a *vacated* house for up to *20 months* awaiting the arrival of a new family with their pet?

These are just two of the considerations that make the understanding of fleas and flea control important for all dog or cat owners. Even if your pet has never had fleas, the potential for acquiring them is always present.

Fleas are very small (1/16 to 3/16" long), brownish-red insects which are flattened (from side-to-side) and live most of their adult life on, and feed from, the skin of dogs, cats, pigs, people, rodents, rabbits and birds. The most common flea found on the dog or cat is *Ctenocephalides felis*, while *C. canis* is occasionally found. It should be remembered, however, that although dogs and cats are the favorite "targets," fleas are not host specific and, when hungry enough, will attack any source of blood including man. Since their main source of food is blood, they are known as bloodsucking, external parasites (parasites which live on the outside of the animal's body).

Understanding the life cycle of the flea allows comprehension of the potential severity of both animal and premise infestations caused by this insect.

The adult female flea normally leaves the dog or cat to lay her eggs in carpeting, bedding, cracks or crevices in the floors, or, if outside, in organic matter such as damp soil, grass or other vegetation. Eggs that are laid on the hair or skin of the host animal (pet) fall off in a short period of time in order to undergo further development in a more ideal environment.

The female flea lays only 3 to 18 eggs at one time, but may lay several hundred over her average one year life span. Temperatures between 65° and 80° F. and high humidity (70 percent and above) are most ideal for increased egg-laying by fleas.

The eggs, which are ovoid, white and glistening, incubate for 2 to 12 days after which they hatch into larvae. The larva is an active, white "wormlike" stage of the flea's life cycle which has chewing mouthparts. The larva feeds on fecal casts from adult fleas and thus may develop a reddish tinge.

Larvae grow and molt twice over a period of 9 to 200 days (almost 7 months). They then molt a third time producing a white larva which spins a loose greyish cocoon, inside which it pupates for 1 week to one year. The adult flea then breaks out of the cocoon and looks for a host on which to feed, thus completing the life cycle.

As one can see, the entire life cycle of the flea (eggs laid to adult) can range from 18 days to 20 months depending on conditions. This explains why we can see a varying delay between the demise of a pet and the onset of flea attacks against the people in a household. Also, for this same reason, a house remaining vacant for over a year may still be infested to the extent that new pets introduced after this period may, themselves, become flea ridden.

Figure 1 shows the life cycle of *Ctenocephalides felis:*

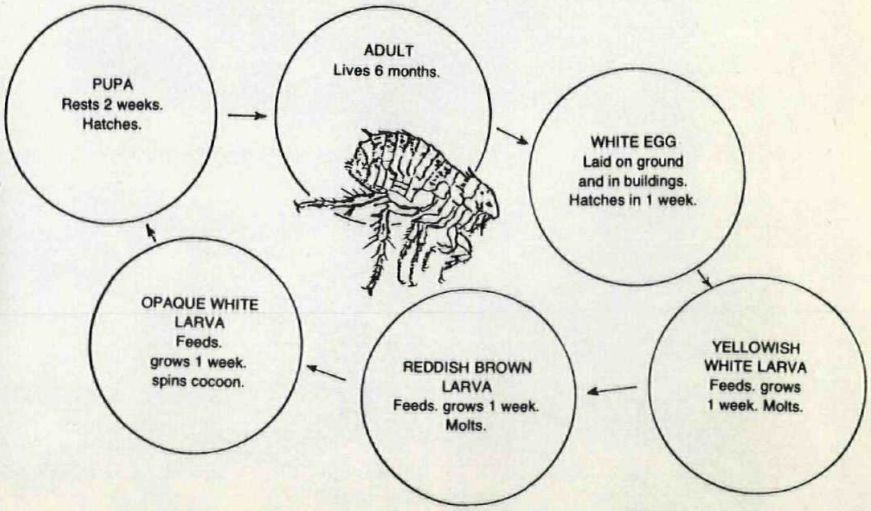


Figure 1 reprinted with permission from Small Animal Dermatology, *(Second Edition) by George H. Muller, DVM and Robert W. Kirk, DVM. W. B. Saunders Co., Philadelphia, 1976.*

Fig. 1

Fleas are capable of causing the following problems to the pet, their owners and/or other people and animals:

1. Infestations
2. Tapeworm Infection
3. Flea Allergy Dermatitis

Infestations

Flea infestations in and around a household can create both a terrible nuisance and expense for the owner as well as causing severe irritations (or worse) to the pet.

The constant daytime and nighttime scratching by the dog or cat, the periodic fleabites on the owners themselves, the continuing "battle" to control the infestations by dipping, spraying, powdering and treating the premises all create an ongoing nuisance. The expenses incurred for probable veterinary services, for purchasing the insecticides and for possible professional extermination (fumigation) of the household can add up quickly.

The pet, of course, suffers the worst consequence from flea infestation, for, as we have mentioned, the dog or cat is the preferred host for flea attacks. It is the pet who constantly suffers fleabites, who must do the

continual scratching, who is treated by the veterinarian if necessary and who is constantly deluged with insecticides in the form of flea collars, powders, sprays, dips, etc.

It is the pet who also may become infected with tapeworms and may be susceptible to Flea Allergy Dermatitis.

Tapeworm Infection

The fleas which infest dogs and cats also serve as the intermediate host for the "flea tapeworm" *Dipylidium caninum*, which also infects both dogs and cats. To understand how this occurs, one need only understand the life cycle of this tapeworm.

The adult tapeworm lives in the small intestine of a dog or cat and produces hundreds of segments, called proglottids, which give the tapeworm a segmented appearance and allow it to reach up to two feet in length

Each proglottid is filled with many "egg packets" which, themselves, may contain 10-20 individual tapeworm eggs. Therefore, one proglottid may contain from 100 to 500 eggs. One proglottid at a time separates from the tapeworm and passes out of the dog or cat through the anus. Often times the proglottid will stick to the hair around the anal opening and will look like a "grain of rice." It will, however, eventually drop into the carpet or ground where, with time, the individual eggs will become exposed after disintegration of the proglottid and packet "coverings" or cuticles.

Tapeworm eggs are microscopic in size and, thus, can be easily ingested (eaten) by the tiny flea larvae which, as we previously discussed, are growing and molting in the same environment (in carpets, on the ground, etc.).

As the flea larva molts through the pupa stage and into the adult, the *Dipylidium* egg within the flea's body develops to an infective stage.

When the dog or cat eats the flea while grooming and "nipping" the irritating insect, the body of the flea is digested away in the stomach and intestinal tract exposing the infective egg of the tapeworm. The head (scolex) of the tapeworm breaks out of the egg, attaches to the wall of the small intestine and begins to grow proglottids thus completing the life cycle.

Without development in the body of the flea larva and adult, the *Dipylidium* egg could never become infective, thus the flea acts as an intermediate host.

Consequently, in order to treat *successfully* a dog or cat for "flea tapeworm" infections, one must also control the flea infestations. Otherwise, the dog or cat will become reinfected after each tapeworm treatment.

Although extremely rare in occurrence, people may become infected with the *Dipylidium caninum* tapeworm following accidental ingestion of fleas.

Flea Allergy Dermatitis

Flea Allergy Dermatitis is a specific disease of certain dogs or cats that are sensitive, or react, to the saliva of fleas.

This hypersensitivity reaction occurs when a dog or cat who has become sensitized to flea saliva (an allergen) is challenged by new fleabites.

Flea Allergy Dermatitis manifests itself as both immediate and delayed reactions. Immediate reactions are caused at the time of probing of a flea in the skin. Delayed reactions occur later when areas of intense itching and swollen, inflamed skin flare up several days after fleabites occur. The areas on the pet most often affected are those which comprise the fleas' favorite "feeding grounds": the base of the tail, the lower back and upper pelvic regions and inside the rear legs.

More often than not, the self-inflicted trauma or intense scratching of the involved areas creates loss of hair and secondary bacterial infections of the skin known as acute moist dermatitis or "hot spots." After a prolonged period without treatment, the skin of the affected regions become hairless, thickened, gray and folded.

Veterinary treatment of Flea Allergy Dermatitis involves flea control on the animal as well as in the premises, corticosteroids to reduce "itching" and inflammation, antibiotics to control the bacterial infection, and in chronic (long term) cases with excess scaling, anti-seborrheic shampoos to cleanse the skin surfaces and open plugged hair follicles.

Flea Control

To reduce the incidence or problems caused by fleas one must, of course, instigate proper flea control.

There are two areas of concern in flea control — the pet and the premises.

Control of fleas on the pet requires one (or several) of the following insecticidal forms:

Flea "dips" are emulsifiable concentrates which disperse evenly throughout a given quantity of water. (Usually one or two ounces of concentrated insecticide is added to one gallon of water.) The pet is sponged with the finished "dip" and allowed to air-dry. This method of flea control on the pet is usually the most effective due to providing good penetration of the dip down to the skin over the entire surface of the body. "Dips" usually provide the best residual activity or "long-lasting protection" against reinfestation.

It should be noted, here, that residual activity of an insecticide does not mean "repellant" activity. There is no "invisible vapor" which prevents fleas from getting on the pet and feeding for a short period of time. It may take one hour or longer before the flea dies after ingesting the insecticide on the skin of the dog or cat. Residual activity means that the insecticide on the skin is still capable of killing the flea after ingestion. Therefore, if the premise infestation is severe enough, one may observe fleas back on their pet within a few days of treatment. However, if the insecticide has good residual activity, those fleas observed will be killed.

Flea sprays are effective if one sprays the entire surface area of the skin of the pet and assures that the spray contacts the skin and not just the outside of the hair. Several sprays may also be used for premise control.

Flea powders should also be "worked" down to the skin and care should be taken to cover as much surface area as possible. Although the residual activity of powders is usually not as "long lasting" as dips or sprays, this form of insecticide can also be used for premise control.

Flea baths, which contain soap, allow both a thorough cleaning and insecticidal activity at the same time. However, in my opinion, this form of flea control on pets is not as effective as those previously mentioned, nor does it provide as good a residual control. (The soap contained in the flea bath acts to reduce the insecticidal activity.)

Flea collars are probably the most utilized form of flea control on dogs and cats. (They are also the most marketed form of control, which goes hand-in-hand with being the most used!) Collars containing insecticides can serve as an effective adjunct to controlling fleas on pets and the activity of the collars may last up to 4 months, or longer.

One should realize, however, that the active ingredient (insecticide) in flea collars is not necessarily distributed evenly over the entire surface area of the pet. Consequently, efficacy against fleas resident near the rear-end of the dog (as well as in other areas) is somewhat impaired.

Regardless of the form or method of controlling fleas on the pet, one should *always read the labels carefully before use*. There are many different types of active ingredients contained in these various form of control. Important instructions concerning dilution rates, amounts to use, interval between treatments, precautions, contraindications, etc. can only be noted if one reads the label carefully before use.

Premise control of fleas is just as important (if not more so) than is the control of fleas on the pet. As we have mentioned, it is the severity of premise infestation which determines the degree of infestation and reinfestation on the pet. The residual activity, or apparent residual activity of an insecticide, is directly related to the degree or severity of premise infestation.

The best means of controlling fleas in the premises, shy of professional extermination, is by the use of pressurized indoor foggers and outside sprays.

Foggers contain a variety of active ingredients which provide both rapid kill and residual activity against fleas living inside the house. Depending on the size of the pressurized container, from 5,000 to 10,000 cubic feet of room space can be treated with one "fogging" over a 2 to 3 hour period. Directions must be followed concerning vacating the house during use, objects to cover, etc. Where flea infestations are severe fogging should be considered at monthly intervals.

Periodic vacuuming, especially in indoor areas where the pet sleeps or rests, will help remove the flea eggs and larvae.

Outdoor flea sprays should be used every week or two in areas where the pet spends any appreciable time.

One should remember to read *all* label directions of any form of insecticide before use. This is for the protection of the individual as well as the pet.

Control and/or elimination of fleas can best be accomplished with the professional guidance of a veterinarian and by treating *both* the pet and premises. By controlling flea populations, one also avoids the many problems associated with their infestations.

ask Dr. Smithcors

continued from page 5

takes 2-4 months for them to mature into adult worms, the females of which produce the microfilariae detected by testing the dog's blood. At one time it was believed that the short mosquito season in northern areas prevented the establishment of heartworm disease, and the long period before microfilariae can be detected (although unknown at the time) would have favored this belief. During the past 2 decades, however, heartworm disease has become prevalent throughout most of the United States.

12,000 YEAR OLD DOMESTICATED DOG IDENTIFIED BY HEBREW UNIVERSITY SCIENTIST

Jerusalem, January 11, 1979: What is believed to be the skeleton of one of the world's oldest domesticated dogs has been identified by a Hebrew University scientist.

Found in a human grave excavated in Israel by a French archaeological mission in 1976, the dog's remains were identified by Simon Davis, a doctoral student in zoology at the Hebrew University. The discovery, sure to shed new light on human life at the beginning of civilization, was described by Mr. Davis in the December 1978 issue of **Nature**.

Digging in the Huleh Basin site of Ein Mallaha in northern Israel, French archaeologist Francois Valla found a tomb containing human and animal skeletons dating back 12,000 years. The main finds were identified in the Hebrew University zoology department as the complete skeleton of a three to five month old puppy as well as the jawbone of an adult wolf or dog. These and similar finds in the Hayonim Cave in the western Galilee also dating to 12,000 years ago support the hypothesis that man had already domesticated the dog at that time.

As dogs are believed to be the first animals to have been domesticated, the finding is likely to reveal some of the nature of the relationship at the time between human beings and man's best friend.

Prof. Eitan Tchernov, Hebrew University biologist under whose guidance Simon Davis is doing his doctorate, said in a recent interview that the Mallaha dog is one of the oldest domestic dogs, and thus one of the oldest domesticated animals, ever to have been found.

"If the domestication of the dog took place 12,000 years ago, which we believe, this was 2-3,000 years earlier than the domestication of any other animal," Prof. Tchernov says. "The idea of domesticating animals thus was known to man, but it is a great mystery why he did not use this idea to include other animals like "meat and milk" animals in order to obtain a better supply of food."

In reply to the question of why the dog for several thousand years remained the sole domesticated animal, Prof. Tchernov theorizes two reasons. One was of a ritual nature, as it apparently was important for man to have his dog buried with him in the same grave. The other reason was probably that man domesticated the dog in order to become a better hunter. If the dog appeared to be a friend and associate in man's hunting and helped him secure a better food supply — why should he bother about further domestications?

According to Prof. Tchernov, it was only much later that man started to exploit wild animals for domestic purposes. He gives the sequence of domesticating animals, following the dog, roughly in this order: goats and sheep; cattle; wild boars (later pigs); horses and asses.

Prof. Tchernov believes that the Jordan Valley may have been the first site of man's exploitation and cultural control of animals. This was a prelude to wide-range domestication and subsequently of the economic and cultural revolution some 9000 years ago.

TURTLES & TORTOISE AS PETS

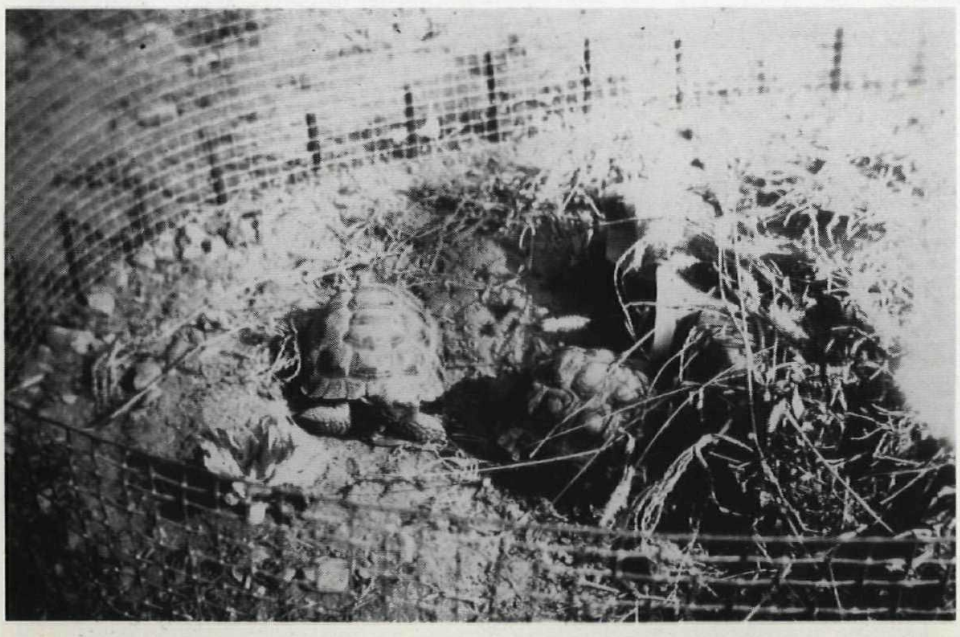
By Ruth Crandall

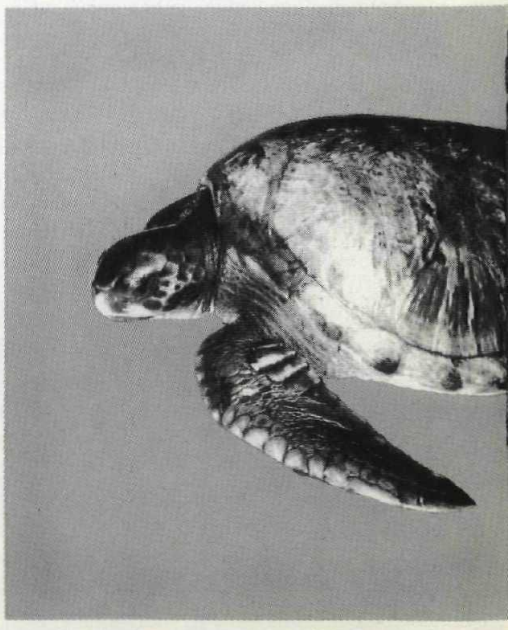
According to common terminology in the United States, a turtle lives in or near water, and a tortoise is strictly terrestrial; both are reptiles with bony shells, or chelonians. Turtles' adaptations to an aquatic environment include webbed feet and a flattened and streamlined carapace, or upper shell. Tortoises have stumpy, elephant-like feet without webbing between the toes, and their carapaces are high and domed. The creatures' care in captivity varies according to their natural habitat, although certain factors are constant for both turtles and tortoises. Active turtles and tortoises require day-time temperatures ranging from 75-90° F.; the water in turtle tanks or ponds should be kept at about 72-80° F. during the day. Temperatures may fall to the 60's at night without harming the animals. Reptiles get their body heat from their environment, for they cannot regulate their own body temperatures. At temperatures below the optimum range, the animals become sluggish and do not eat well. Temperatures above the optimum range can result in the animals' death from overheating.

Both turtles and tortoises require several hours every day of natural, unfiltered sunlight or light from an artificial source like a Gro-Lux or Vita-Lite, which have spectra similar to natural sunlight. Some zoos use a vitamin D sunlamp as a sunshine substitute for their chelonians kept indoors; a vitamin D sunlamp may be used for periods not to exceed three hours per day. When exposing reptiles to sunshine or its substitute, it is essential that shade be provided so that the creatures may move out of the light at will. If sunshine or its substitute is lacking, the animals may suffer from symptoms of illness which include soft shells and swollen eyelids.

In order to provide the right kind of care for a turtle or tortoise, the owner should become familiar with the features of his pet's natural habitat. A desert tortoise requires a dry, warm climate, while a water turtle needs a large tank of water or an outdoor pond or pool with a basking ramp or floats so that the animal can climb out of the water. Box turtles need moist piles of leaves in their pens for hiding and sleeping in. European tortoises do well under garden conditions, with a mixture of dry and moist areas.

Captive chelonians need a wide variety of food and should not be limited to commercial turtle foods or to lettuce. Foods widely accepted by aquatic species include strips of lean meat, whole smelt, live gold fish or guppies, snails, tadpoles, pieces of heart and other organ meats, meal worms, banana, peaches, pears, canned dog food, berries, water plants and cheese. In many species, the food must be eaten under water or the turtle cannot swallow. A calcium block should be provided.





Foods relished by terrestrial and semi-terrestrial species include fresh fruits and vegetables, dry cat or dog food that has been moistened in water, cottage cheese, flowers, edible weeds, dandelion greens, snails, grass and dry cereals. Drinking water should be provided.

Turtles and tortoises must not have access to poisonous plants, to snails that have been poisoned, or to snail bait. Insecticides should not be used in or around the reptiles' quarters.

Both turtles and tortoises may have powdered or liquid vitamins and powdered steamed bone meal for pets added to their food.

Painting a chelonian's shell may interfere with the animal's growth, and holes should not be drilled on the outer edges of the carapace.

A healthy chelonian which is sufficiently fat can be allowed to hibernate at outdoor winter temperatures in temperate climates. Land species may hibernate in a cold dry place like an unheated garage, with a pile of leaves or crumpled newspaper to burrow into. Water turtles kept outdoors can hibernate in the mud or among the rocks on the bottom of their pool or pond. Turtles kept indoors in a tank or aquarium are usually kept warm and active all winter.

Many illnesses can affect captive turtles and tortoises. Infections of the mouth, shell, skin and respiratory systems are common. Turtles and tortoises may suffer from swollen eyes and soft shells, skin lacerations, broken shells and a myriad of other ailments. Owners should become familiar with healthy chelonians' appearances and check their animals frequently for any change from the normal. A veterinarian should be consulted when sickness or injury is noted.

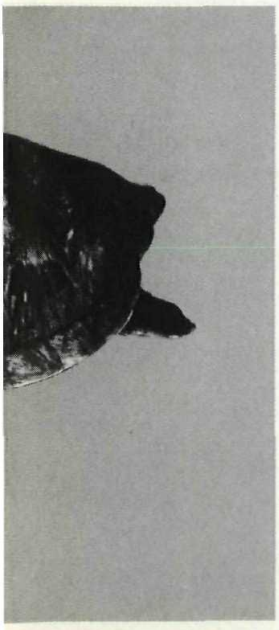
Salmonella infections in humans have been traced to some water turtles. Salmonellosis symptoms include abrupt abdominal pain, diarrhea, fever, nausea and vomiting. Deaths are uncommon but do occasionally occur. Turtle fanciers point out that salmonella can be transmitted to humans by other animals, as well as through many foods and other sources. People who keep turtles, or any animals, should wash their hands thoroughly after handling the animals or cleaning their quarters. Turtle tanks should not be emptied into the kitchen sink.

Many laws exist regarding turtles and tortoises. Anyone owning a turtle or tortoise or contemplating acquiring one may ascertain the legal status of the animal in question by contacting his state Department of Fish and Game and the United States Fish and Wildlife Service in Washington, D.C.

Federal law prohibits the sale of turtles measuring less than four inches in length, in an effort to eliminate turtle-caused salmonella. Federal law also prohibits the importing of certain turtles because the species are rare or in danger of extinction.

Some examples of state laws include the following: it is illegal to own snapping turtles in California, where it is also illegal to buy or sell desert tortoises. A permit must be obtained to keep a desert tortoise in California. State laws protect the Texas tortoise and the Gopher tortoise of the southeastern states. Sea turtles are protected in Florida. Diamondback Terrapins are protected in Delaware, New Jersey, Maryland, South Carolina, Louisiana, and Texas.

Chelonians are appealing pets because they are not noisy, do not require training and do not shed hair. They can be housed in a relatively small area. Turtles and tortoises give their keepers a sense of being in touch with nature, for if kept outdoors, the animals' behavior is governed by the seasons. In winter, hibernation occurs. Spring means the awakening of the reptiles, hungry and thirsty. In late spring or early summer, eggs are laid. Summer heat causes the creatures to be ever more active and to have large appetites. In late summer, the eggs hatch, after being incubated by the sun warming the earth. In the fall, the animals slow down, eating and moving about less. If sufficient fat has built up during the summer eating, the turtle or tortoise is ready for another winter hibernation. Observation of this cyclical behavior is fascinating, and a person who is serious about his tortoises or turtles can learn a great deal.



ANIMAL BEHAVIOR

PART III CHEMICAL LANGUAGE

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

Animals have a wide variety of communication methods. Their messages may be easily understood by us, such as a snarling dog with bristling hair, or so subtle that we never realize that communication is taking place. Man tends to live in a more visually-oriented world than many animals, who live in a world that is more oriented towards smell. The olfactory portion of the brain is much larger in a domestic animals, such as the cat and the dog, which allows them to analyze a wider spectrum of odors than we can. In addition, they have a better odor detection system than we do. Not only does the dog have a larger nose than ours, he also, like the cat and most mammals, has a functional accessory odor detection system called the vomeronasal organ. This organ is located in the upper portion of the mouth in the area of the nose. The vomeronasal organ is receiving more and more attention by scientists as we become more aware of how important chemical messengers are in the animal world. A bloodhound can track an individual through miles of terrain by just using the nose to detect the person's own specific individual odor.

HIDDEN MESSAGES

A large number of specific odors in animals cannot be detected by our own sense of smell, but they are readily detected by the animal they are intended for. Since we can't smell many of the different chemical messengers animals use, we often don't realize that communication is taking place. It might be viewed as a chemical language, since there is an agreement among individuals about the meaning of the signals or chemical messengers. These odorous chemicals are called pheromones. Chemical signals have several advantages, since they can be transmitted through total darkness and around obstacles, as anyone with a female dog in estrus, or season, can tell you. In our present energy crisis, they can also be viewed as possessing great energetic efficiency; a little bit goes a long way.

Many of the ways animals communicate and much of their chemical language is still hidden to us. Recent studies in rats have shown that a maternal or motherly pheromone is emitted by lactating females. The odor is released by the mother around fourteen days after birth of her young, at a time exactly coincidental with the age at which the young first become responsive to the chemical signal. The mother rat ceases to release the chemical about thirteen days later, which is the time when the young are weaned, and also is the age at which the young are no longer attracted to it.

ANIMAL PERFUMES

Many odorous chemicals called pheromones are used by animals to communicate with each other. By smell, animals can recognize their fellows, offspring, food and the opposite sex. People often notice that each species of animal has its own characteristic odor, and some odors, such as the strong smell of the billy goat, are easily detected by us. We are taught to wash ourselves daily to eliminate our own body odors. People tend to think of animal odors as odd or unnatural, grotesque or unrefined, but since ancient times we have enhanced our own bodies with odors and developed a vast number of perfumes.

Perfumes are substances or preparations which emit an agreeable odor. When we talk of fragrance we think of flower odors, and when we talk of aroma we think of spice odors. The Romans made extensive use of perfumes, and bathing in perfumed waters was considered a sensuous rite. The most widely used animal product in preparation of perfumes is castoreum, or castor, which is obtained from the scent-bearing follicles located near the genitals of both male and female Canadian beavers. Musk, another odorous animal chemical, was discovered by the Chinese, and the Chinese used musk liberally on their robes. Musk comes from the scent glands of the male musk deer and is also used widely in the manufacture of perfumes.

Pheromone-producing glands can be highly developed and located at various sites in domestic animals. Cats and dogs have scent glands called anal sacs located by the rectum; cats have odor-producing cells located on their cheeks; male goats have odor-producing cells located by their horns. Probably the best known animal scent glands are those of the skunk, which are located on either side of the rectum. When frightened, the skunk assumes a spraying position, aiming and using its chemical warfare equipment quite effectively.

APHRODISIACS COMMON

Aphrodisiacs, or chemicals which arouse the sexual instinct, are common throughout the animal world, and a large number of aphrodisiacs consist of odors. Sexually receptive females emit odors which are highly attractive to sexually active males of the same species. Male dogs are attracted by the urine odor of a sexually receptive female, and a ram is attracted from a considerable distance to receptive females in a flock of sheep by pheromones. Recently, scientists have been able to identify and duplicate a specific sex pheromone in female dogs in estrus. Estrus, when used in reproductive language, refers to the recurrent, restricted period of sexual receptivity in female mammals, marked by intense sexual urge. The scientist's synthetic chemical messenger will arouse male dogs sexually to the point that they will attempt to mount spayed female dogs.

BILLY GOAT ODOR POTENT

The presence of a vigorous, active buck goat, or at least the odor of such an animal, has a direct effect on the onset of estrus in the doe. When there is no buck on the premise, taking an old coat or burlap bag to a place where it will be in contact with a sexually active buck for a few days and then placing it where the doe can smell it will result in estrus signs in most does within one week. This is one good way to synchronize estrus in a small herd to be bred artificially. When given a choice, the doe will usually prefer the attention of the more odorous male who has not had his scent glands removed. A mature, vigorous, odorous buck in the presence of female goats is one of the best stimuli for the beginning of sexual activity in the females.

The permeating odor which is emitted by the male goat is produced by small yellow patches of musk-producing cells located by the horns. The odor is

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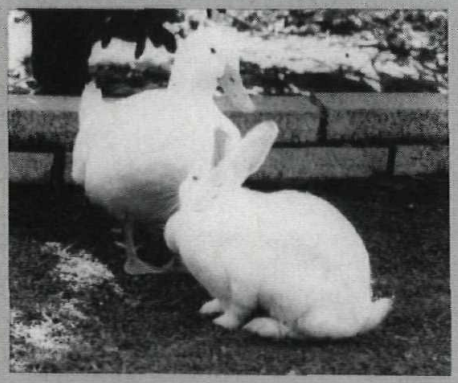

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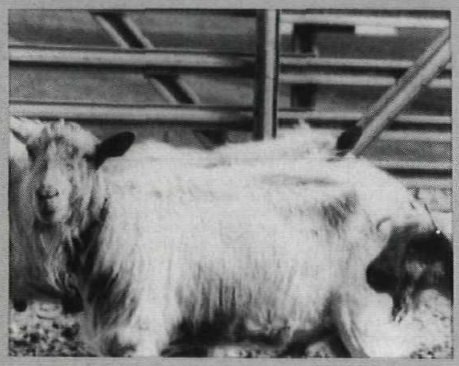

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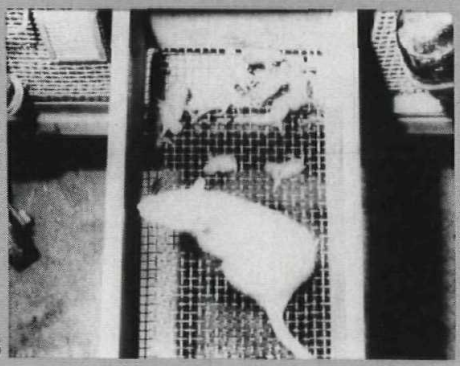

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1. DUCK AND RABBIT These two animals appear to be discussing an issue. The duck appears hard nosed while the rabbit just wriggles its nose and is all ears.

2. CAT BY TREE This cat is checking the chemical signature left by a roaming stray. Scent marking in cats can result with urine spraying, rubbing the cheek glands on objects and tree scratching. Tree scratching not only leaves a visual mark but also leaves scent from glands on the cat's paws.

3. YOUNG PIG The sense of smell is highly developed in pigs and the pig's characteristic odor is produced by various secretions. Pigs have carpal glands on the front legs that produce pheromones used in communication.

4. MALE GOAT Although this male goat isn't particularly handsome and charming to us - he is to female goats. Just the odor alone from a billygoat is sexually exciting to female goats.

5. MOTHER AND YOUNG One way a mother recognizes her young is by their particular odor. Mother rats also can emit an odor which may aid the young in finding their mother.

6. DOG IN CORNFIELD This dog is tracking game with his nose. When down wind the dog sniffs the air for olfactory cues. Once the odor is picked up the dog locks in on it. Well-trained hunting dogs will move in the direction in which the odor is strongest.

7. GOOSE The nostrils of this inquisitive barnyard goose are incorporated in its bill. The ancient Egyptians, Romans, and Greeks kept captive geese as sentries that would raise the alarm when disturbed.

8. SHAGGY SHEEP This shaggy sheep has scent glands below his eyes which are not found on his friend the goat. Lanolin is the name given to wool wax which is made from the greasy coating found on sheep's wool. What part lanolin plays in the chemical language of sheep is unknown.

SPAYING YOUR DOG

By R. S. Glassberg, D.V.M.

Photographs compliments of North American School of Animal Science

WHAT IS A SPAY OPERATION?

The spay operation is major surgery, and as such is handled by veterinarians under sterile conditions — much as a major human surgery. The technical name for a spay operation is an ovariohysterectomy, or the surgical removal of the reproductive organs — the uterus, ovaries and fallopian tubes.

REASONS FOR SPAYING YOUR PET

- **It is the most effective means of preventing estrus (heat) and pregnancy in the female.**
- It eliminates the attraction of unwanted male dogs.
- **It eliminates the possibility of infection of the reproductive tract that could occur as your pet gets older.**
- It eliminates the chance of injury should misbreeding occur.
- It eliminates the physical confinement of your pet during her estrus.
- **If done before the first estrus, it virtually eliminates the chance of breast tumors. If done later it significantly reduces the chance of breast tumors.**

MYTHS & MISCONCEPTIONS ABOUT SPAYING

- Anesthetic risk

  Whenever a general anesthetic is administered to a person or animal there is a certain "anesthetic risk." With modern day anesthetic techniques, this risk is minimal.

- Pets should have one litter before being spayed

  This is an "old wives tale" with no scientific basis. In fact, animals spayed before the first estrus have almost no chance of developing breast tumors.

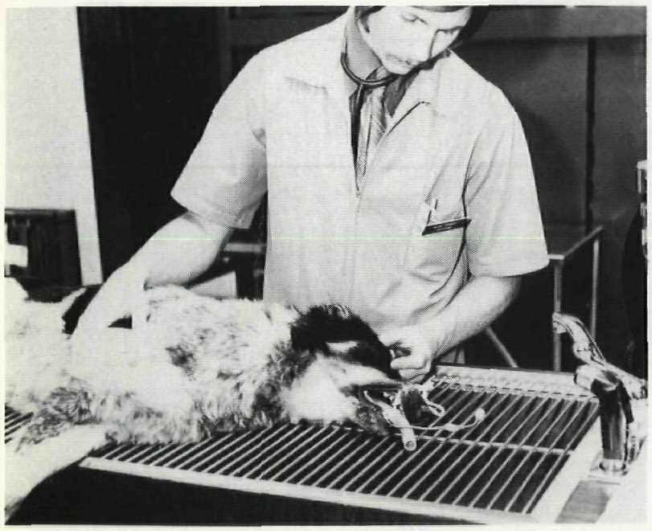
- It's not "natural" to neuter pets, or it's not "fair" to take away their sex life. Spayed dogs get fat.

  Actually, neutered pets are more loving and content than those who are not. As for obesity, adequate exercise and attention to correct diet will solve this problem.

1 *The technician is testing the blink reflex to determine the depth of anesthesia. The patient will be prepared for surgery in this area by shaving the surgical area, vacuuming the hair and scrubbing the skin. The tube you can see protruding from the mouth goes into the windpipe to maintain an open airway and facilitate the administration of anesthetic gas and oxygen.*

2 *The patient has been "prepped" and moved to surgery. You can see the endotracheal tube is now attached to the anesthesia machine which is delivering a mixture of anesthetic gas and oxygen to the dog's lungs.*

3 *This is a surgery pack which contains sterile instruments and sterile drapes to cover the patient during surgery.*



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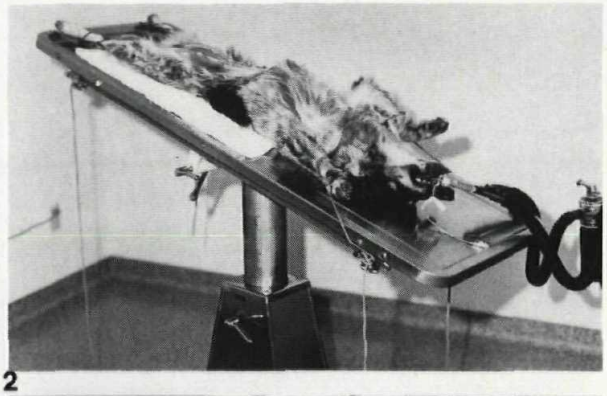

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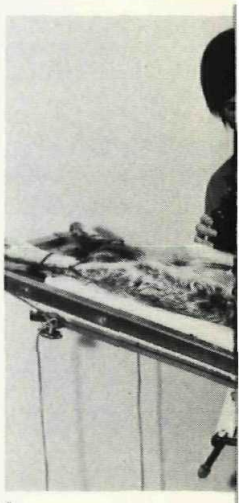

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WHAT IS THE BEST TIME TO SPAY YOUR PET?

Before maturity. Larger breeds of dogs reach sexual maturity at 8 to 12 months of age. A spay before maturity is usually done about the seventh month but can be done earlier. Smaller breeds, developing faster, reach sexual maturity at 6 to 8 months of age and can usually be spayed at the fifth month. A small percentage of dogs spayed before their first heat may develop a hormone imbalance later in life. This can result in poor bladder control. If this occurs, your veterinarian can put your pet on a small replacement dose of hormones and this will control the problem.

Perhaps the most important reason to spay before the first heat is to prevent the occurrence of breast tumors later in life.

SPAYING AFTER MATURITY

Dogs spayed after the first estrus may have less tendency to gain weight later in life. Also there is reported to be less chance of a hormone imbalance occurring. Remember, though, that proper diet, exercise and periodic examinations by your veterinarian are important and can alleviate or prevent these problems.

THE SURGICAL PROCEDURE

Your veterinarian will probably ask you to fast your pet for at least 12 hours before her scheduled surgery. The reason for this is that some dogs vomit when waking up from the anesthetic. Should this occur before the dog has a good swallowing reflex, it can result in the stomach contents getting in the wind pipe which can result in pneumonia. If you think your pet may have eaten something, be sure to tell your veterinarian. He may want to reschedule the surgery or use a pre-anesthetic drug which will cause the dog to vomit **before** she is anesthetized.

When your dog is brought in for surgery, she will be given a complete physical examination. In some cases your veterinarian may want to do this exam a day or two before the scheduled surgery so that blood tests can be done and results obtained before the day of surgery.

Most veterinarians will then give your dog what is called a pre-anesthetic. This may be a tranquilizer, a narcotic and/or a drug to reduce salivation and prevent slowing of the heart rate. After the pre-anesthetic has had a chance to take effect, the doctor will administer a general anesthetic. This can be done by injecting an ultra-short acting anesthetic intravenously or by using a face mask to administer a gaseous anesthetic and oxygen mixture. After the dog is asleep, an endotracheal tube is placed in the wind pipe and attached to the anesthesia machine. The machine will deliver the oxygen/anesthetic mixture of gases to the lungs. This type of anesthesia is very safe compared to the anesthetics in use 15 or 20 years ago in veterinary medicine.

After your dog is anesthetized, your veterinarian will monitor her depth of sleep very closely. Many veterinarians use the same sophisticated electrocardiographic monitoring scopes and heart rate meters used in human hospitals to assist in the monitoring of anesthetized patients. Adequate monitoring of the patient can be done by carefully checking reflexes, heart rate and respiration rate at frequent intervals.

The next step is called "surgical prep." The doctor's assistant will shave the surgical area and all hair will be

4 *Immediately prior to surgery the technician applies a powerful disinfecting solution.*

5 *The surgeon and assistant surgeon are placing the sterile drapes in position around the surgical site. Notice that they are both attired in sterile surgical gowns, gloves, caps and masks. These precautions are essential since an ovariohysterectomy is a major surgery.*

6 *Here the four small drapes are held in position by towel clamps. A larger sterile drape will be placed over these drapes and over the entire patient.*

7 *The skin and abdominal wall have been incized and the surgeon is exposing the uterus in preparation for its removal.*

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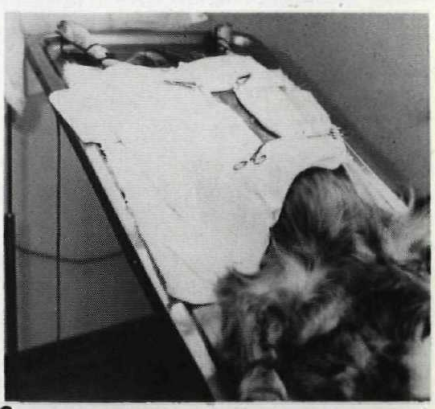

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SPAYING YOUR DOG

vacuumed up. Next, using sterile sponges, the surgical site will be scrubbed and rinsed at least three times and a disinfecting solution applied.

At this point the patient will be moved to the surgery room and placed on the surgery table. Most veterinarians do the spay operation through the ventral midline (belly); so for illustration, we'll assume that's how it's being done. Actually it can also be done through a flank incision (on the side).

Next the surgeon "scrubs in." This involves first putting on a surgical cap and mask. (Some veterinarians who have beards actually use a "hood.") The surgeon uses a sterile scrub brush and surgical soap to scrub his hands and forearms. The surgeon then puts on a sterile surgical gown and sterile surgery gloves.

Next the dog is "draped" with sterile surgery drapes. These are either cloth or disposable paper drapes. These drapes prevent contamination of the surgeon's hands or instruments during the surgical procedure. After the patient is draped the operation begins.

An incision is made just below the navel. The size of the incision will vary depending on the size of the dog, the condition of the dog and her internal organs and the surgeon's preference. The incision heals from side to side, not end to end, so the size of the incision has no bearing on the length of time it will take to heal.

The incision will go through the skin first. At this point there may be some severed blood vessels which will be clamped off with small instruments called hemostats (hemostats stop bleeding). They will then be ligated (tied off) with a dissolvable suture material or cauterized (this is a process in which an electrical current is used to seal the end of the severed blood vessel).

Next the surgeon will dissect his way down to the muscle wall of the abdomen. In the exact midline area, where the muscles from the right and left side meet, is a line of white connective tissue called the *linea alba*. By making his incision into the abdomen through this area, the veterinarian minimizes bleeding.

Next, the veterinarian finds the uterus (or womb) by using an instrument that looks like a blunt hook with a long handle — this is called a "spay hook." After finding one "horn" of the uterus the veterinarian will use one finger to break down the ligament holding the ovary in place.

With this accomplished, he will be able to elevate the ovary on that side to the outside of the body. He will then place three special types of forceps across the blood vessels leading to the ovary. After a few moments he will remove the forcep furthest from the ovary and tie the vessels off using suture material or special surgical clamps. He will then cut between the two remaining forceps. Before releasing the forceps next to the tied off blood vessels he will check to make sure the vessels are securely tied . . . only then will he release the forceps.

The same procedure is used for the other ovarian vessels and a similar 3 forceps technique is used at the other end of the uterus where it joins the cervix.

With the uterus and ovaries completely removed, the surgeon will then suture the abdominal wall back together using very strong suture material. Next he will sew the subcutaneous tissue (that tissue between the muscles and the skin) together and finally the skin.

The dog is then taken from the table and returned to a recovery area to awaken from the anesthesia. The endotracheal tube is removed when the dog is able to swallow. Monitoring of reflexes, heart rate and respiration rate continues until the patient is awake.

Some veterinarians keep ovariohysterectomy patients in the hospital for 2 or 3 days. Other veterinarians send patients home as soon as 8 hours after surgery.

Your veterinarian may use sutures in the skin which need to be removed one or two weeks after the surgery. There may be a slight scar for a month or two but this will gradually disappear.

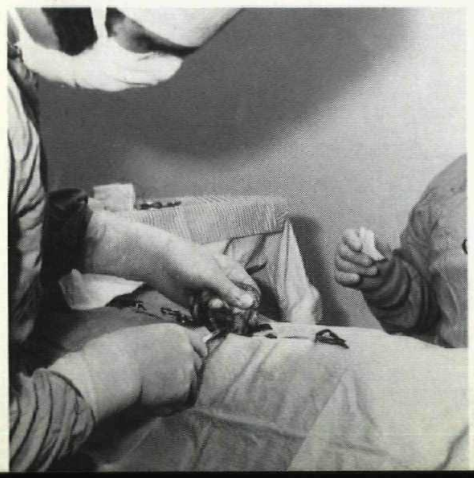
The majority of dogs recover from this operation in a few days and are eating normally and exhibiting the usual amount of energy in a short time.

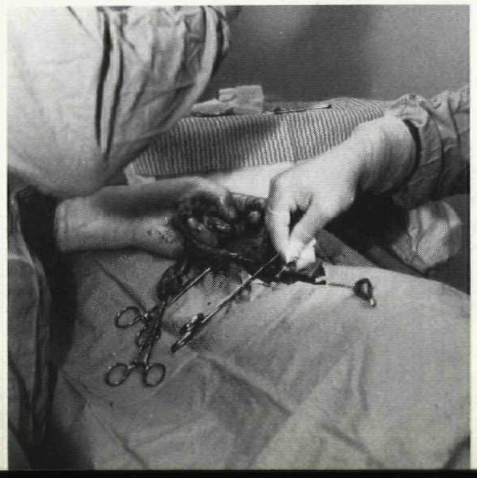
Occasionally a dog will recover more slowly, and your veterinarian may want to do laboratory blood tests on this patient to check the functioning of her organs.

8 *The surgeon has exposed one horn of the uterus and one ovary. He is preparing to clamp off the blood supply to the ovary so that he can ligate the vessels.*

9 *Both ovarian blood supplies have been ligated and severed. The surgeon is preparing to ligate the stump of the uterus at the cervix which has been champed off with a hemostat.*

10 *Having removed the ovaries and uterus the surgeon has sutured the abdominal wall together with a row of interrupted sutures, he then closed the area between the abdominal muscles and the skin (sub cutaneous area) with another row of sutures. Finally he has closed the skin with a third layer of interrupted sutures. The patient will now be taken to the recovery room where she will wake up approximately 15 minutes after the surgery.*





for young people

THE WISCONSIN WAR EAGLE

By Dr. A. Porter S. Sweet

Chief Sky, of the Chippewa tribe in Wisconsin, raised an eaglet which, when full grown, he traded to a farmer for a bushel of corn. The new owner kept the bird tethered in his barnyard until the outbreak of the Civil War. Then, when the 8th Wisconsin Regiment was raised in nearby Eau Claire, he presented the bird to Company C as a mascot.

The men were so well pleased, they not only named him "Abe" for their commander-in-chief but also built him an elaborate portable perch. A bar was fastened atop a strong staff and beneath it they attached a United States Shield. Abe was tethered to his perch and around his neck they hung a red, white and blue ribbon with a rosette breast high. When they marched south to war, their colonel designated a soldier as "eagle-carrier."

They often wondered how the eagle, like themselves, would behave in his first battle. So they left him in the rear. Abe showed no fear. Neither the whistle of Minie balls nor the powder smoke, noise and confusion bothered him. Instead he spread his great wings and screamed defiance.

In the next battle, their war-eagle was stationed with the regimental battle flags. He waited quietly, as did the men, for the bugle to sound the attack. Then, as they advanced, he flapped his long wings and his screams became the regiment's war-cry. This earned him a front line position in battle after battle, and his screams rallied the men as no officer could. The war-eagle's fame spread. When Gen. Grant reviewed the Division, he made a special stop to honor the bird.

Of course the Confederates learned of the Wisconsin war-bird and, before long, their officers wanted Abe killed or captured. Things went badly for the 8th Wisconsin. Officers were killed, retreats became common and then — a bullet cut Abe's thong. Rising on his broad wings he flew screaming toward the Confederate lines. His comrades were in despair, a rout seemed inevitable. Then a shout went up. Dimly seen through the battle-smoke, the big bird was returning. He settled contentedly on his accustomed perch. He was home. Not until then did he scream long and loud. The men cheered, regrouped, charged and won the attack.

When the war reached Jackson, Mississippi, Abe led the troops into the city. The same at Vicksburg. Abe and the 8th Wisconsin took part in 25 battles. When they went home, he appeared at many fairs and benefits for wounded soldiers and their families. Their great Bald Eagle, wearing his red, white and blue ribbons and perched on his roost, was an enormous attraction. P. T. Barnum offered $20,000 for him but he wasn't for sale. His home was at the State House in Madison, Wisconsin, but he was seldom there because of his travels.

Old Abe lived until 1881, when a fire broke out in the State House. It was soon extinguished but the heavy smoke had blown around his perch and harmed his lungs. A few days later he died. Some wanted to bury Abe in a Soldier's Cemetery. Instead, he was mounted and placed on exhibit in the State House. Nearby the story of his life was posted to inspire future generations.

MORE ON PET THERAPY FOR THE MENTALLY ILL

LIMA STATE HOSPITAL

People Helping Animals — Animals Helping People

By Vicky L. Trussel

Reprinted Courtesy The American Humane Magazine

A maximum-security hospital for the criminally insane —a fortress surrounded by barren walls and intimidating fences — seems an unlikely place for human beings to discover love and compassion. But thanks to animals, patients at the Lima (Ohio) State Hospital are relating to other human beings — often for the first time in their lives.

Those dramatic results are the outcome of a pet therapy program. Animals serve as catalysts to get patients talking with other persons.

The program was started almost four years ago by psychiatric social worker, David Lee, using only one aquarium and an injured sparrow. Members of the hospital's social work department placed an aquarium in their central office as an experiment. Its purpose was to provide a relaxed atmosphere for patients and visitors. Besides providing that comfortable setting, tending the aquarium created a project that brought the entire department closer together, says Lee.

While the aquarium experiment was in progress, Lee found an injured sparrow and brought it into one of the wards. The patients adopted it and the results were remarkable. Once despondent patients began catching insects for the bird and started caring for it. They began working as a group and relating openly to Lee.

Based on those results, Lee proposed a pet therapy program, which began officially Feb. 27, 1975. Since that time the program has produced outstanding results, particularly in treatment of patients suffering from depression or suicidal tendencies.

One patient spent four months in the hospital without saying a word. The staff introduced him to Gilbert, a female cockatiel. For three weeks the two were inseparable. The bird was kept in a cage by the patient's bed at night and sat perched on his shoulder during the day. The patient began asking the bird questions, ending his muteness and providing an oppportunity for therapy. Within two months the patient began interacting with other individuals.

A severely depressed patient got involved helping two newborn guinea pigs. The mother rejected her offspring and the patient took over, feeding them by bottle every two hours. Normally, that patient would never have considered such dedication, says Lee. As one patient explains, the importance of a pet is having "something that depends on my care."

Another patient, who had become suicidal while serving time for armed robbery, credits his pet bird with teaching him to have feelings. "I had never felt compassion," he says. He entered the hospital an uncooperative and antisocial person. Now a student of ornithology (the study of birds), he is an outspoken proponent of pet therapy. Soon to be paroled, he hopes to encourage other institutions to adopt pet therapy programs.

Residents at Lima are convicted psychopaths, persons declared insane during court proceedings and persons who develop mental problems while serving sentences. Because of their often violent tendencies, Lima is the most secure facility in Ohio. Strict regulations apply even in the pet therapy program. Stringent regulations are enforced regarding humane treatment and care of animals.

But, while regulations sometimes are necessary, humane treatment is mainly the result of the interest and devotion of patients. "Animals are the prime focus of patients. And they receive better care in most instances than they would in private homes," Lee explains. Patients are interested in learning all they can about needs of their pets, says Lee, and through the assistance of a local pet dealer, they can ask questions, get supplies and receive help with delicate grooming chores like beak and wing trimming.

Devotion to the pets was apparent in two instances: One patient, in an attempt to avoid taking his

CORSON STUDIES SPUR PET THERAPY DEVELOPMENT

Pet-facilitated psychotherapy has been used sporadically for a number of years. Only recently, however, has the concept received much attention in documented research and practical application.

During 1967, Samuel A. Corson, professor of psychiatry and biophysics at Ohio State University, began the first formal research into pet therapy. While studying the effects of stress on human beings and animals at a psychiatric hospital, Corson became interested in patient responses to animals. Once despondent and withdrawn children showed interest and older patients began to help care for animals.

A new research project was initiated in which Corson studied 50 patients' responses to animals. He found that — while not a cure — pets allowed patients to experience love without threat, permitted them to touch without fear of rejection and eventually served as a bridge between the patient and other persons.

While Corson sees his research as only a beginning, he believes pet-facilitated psychotherapy "might make it possible to get people off drugs and out of hospitals."

Corson published his research results during 1975. That same year David Lee, psychiatric social worker at the Lima (Ohio) State Hospital, began a pet therapy program that vividly supports the value of using animals in psychological treatment.

Through the work of Corson and Lee, pet-facilitated psychotherapy is gaining recognition. Three state mental hospitals in Ohio have softened their pet regulations to accommodate transfers from Lima State Hospital. And a number of humane societies are working to establish programs at their state institutions. Problems do exist, however. Not the least of which are training personnel to work with animals and patients and establishing procedures to ensure humane treatment of the pets. Humane societies are playing a vital role in those efforts.

—V.L.T.

medication, threw it into a 15-gallon aquarium. Several other patients discovered the medication and spent an entire afternoon changing the water, rinsing gravel and totally resetting the aquarium. They saved all the fish and demonstrated to each other they could act quickly and take responsibility, Lee emphasizes.

In another instance, patients actually risked personal injury to save two cockatiels and an aquarium. A patient became acutely psychotic and violent, turning over every piece of furniture in the room — a pool table, desks, cabinets and chairs. He ripped the phone from the wall and injured several patients and employees before being subdued. The only items untouched were the bird cage and aquarium, which other patients had surrounded.

Those lessons in responsibility and concern for animals help mental patients adjust to society, says Richard L. Burns, president of the Lathan Foundation, which last year filmed a 30-minute television program about the hospital.

"Pet therapy has shown these (patients) are not hopeless (cases). In the majority of cases, hospital personnel can reach patients, can help them learn to communicate and become responsible citizens,"says Burns.

Another therapy project at the hospital also has proven successful—a tropical greenhouse. The greenhouse is another instance in which the life or death of living things depends on the patients, Lee explains. Among the numerous plants grown there are 30 lemon and lime trees and a banana tree. Patients have applied for a commercial nursery license so the greenhouse can become totally self-supporting.

The pet therapy program, on the other hand, is a budgeted program. It costs the state $600 a year. That figure has remained the same despite expansion. When the program was started, it involved two cockatiels, three parakeets and three aquariums. It now includes more than 160 individual pets — from macaws to gerbils. Fifteen of the 22 wards participate and 90 of the 400 patients are involved actively. Costs are kept at a minimum through a barter system arranged with a local pet store. Patients exchange their pets' offspring for supplies and food.

To participate, patients must demonstrate they can accept responsibility. As Lee points out, a single abuse incident could ruin the entire program. To prove readiness for a pet, patients must work in the greenhouse, ward gardens or help with ward-owned pets.

Some patients aren't allowed to have pets. One pet-free ward is provided for patients with allergies. Still other restrictions apply to wards housing psychopaths and sex offenders.

Lee is considering introducing larger animals, but a number of technicalities must be worked out. Cats and dogs would require outdoor exercise. Tighter restrictions would be necessary. One cat currently does live in the greenhouse, cared for by the patients.

The pet therapy program at Lima State Hospital has achieved remarkable results. Instances of giving and sharing among patients have become numerous. Summarizing, Lee points out pets:

- Provide a common interest and starting point to get patients talking to therapists.
- Give patients something to relate to when other persons are not around.
- Foster responsibility in patients.
- Improve the general atmosphere of hospital living.
- Provide an opportunity for patients to feel needed because something is dependent on them.
- Serve to lessen patient anxiety.
- Give residents a chance to express love without fear of rejection.

Pets, indeed, have found a home and are meeting a need at Lima State Hospital.

PURPLE MEDICINE

By Richard Dean Smith, M.D.

Purple Medicine was powerful stuff! Its dark stain cannot be imitated, disguised or ignored and was the mainstay in the treatment of animals, now largely replaced by newer drugs. Its mighty presence is gone but not forgotten. My father was a veterinarian in a small Kansas town and I went with him on visits to farmers while he tended their animals. Among the treatments used, none had the strength or persuasion of the dark violet medicine.

Purple Medicine arrived on the Doodlebug, a one car, passenger-mail locomotive on a spur of the Union Pacific Railroad. We drove to the station in a Model A Ford that served as office and latter-day horse and buggy for Doc, my father, who much preferred the horse and buggy. Along with a retinue of scraggly, yapping dogs and shoeless, chattering children, we awaited the arrival of the Doodlebug, catching fireflies and swatting mosquitoes in the balmy Kansas summer evening.

The railroad station was the gathering place for those with a frustrated desire to travel, and the curious to see the power of the diesel machine. The telegraph clicked and clattered inside, while outside the children were carefully placing pennies on the rails to be flattened and crossed pins that would become scissors under the weight of the wheels. By listening with an ear to the track, we could hear the approach of the Doodlebug, before it rounded the bluff and blinded us with its light. Mothers took their children's hands and all were warned to stand back. The station attendant and conductor, swinging their lanterns in a testament to human communication, brought her to a halt at the station. All was a-flurry now as she wouldn't be here long!

The conductor, with silver buttons on his black vest, swung to the ground and assisted the passengers. The main attraction was the mail door which opened last, and out came the mail bags and a few packages. Then came a very important-looking box, carefully handled and marked "Express." This was handed to Doc after signing a crisp, official paper. Again, the conductor swung his lantern, all doors closed, the diesel ceased to idle, and the Doodlebug was on its way to Alida, Milford and the great world beyond, leaving the night to the fireflies and crickets.

The box with Purple Medicine spent the night in a corner of the barn with the paraphernalia of the horse and cow doctor. It was my duty to transfer this essential liquid into small brown bottles. Nothing in the county was like Purple Medicine. A dense alcoholic mixture, it flowed in a particularly heavy way, and as it pooled, it developed a silvery-green satin patina over the opaque purple that shimmered and swirled. The tantalizing dance of the reflections made a kaleidoscope of images and drifting forms over the purple background. A slight spill, and the purple stain on my fingers persisted for weeks, resistant to the strongest soap and most vigorous scrubbing. Only time could outlast Purple Medicine!

Doc dispensed the medicine with a solemn dignity, giving detailed instructions for its use. Leg cuts and sores of horses were given a generous coating of purple. Horn wounds and eye infections in cattle, a dog's mange or cut paw, a cat scratched by a rival suitor or infected insect and tick bites and eczema of pets brought out the brown bottle. Even pigs' external maladies could be treated as Purple Medicine defied the mud-hole. An occasional canary or white rabbit was treated with a dose of the purple liquid.

The bottle was accepted by rough, fissured hands accustomed to hard work and few pleasures. We left the holder of the regal elixir and then Purple Medicine gathered its magnificent aura.

Saturday was shopping day, and the entire populace of the countryside came to town. The abrasions and scrapes of hard-working hands were generously dabbed with purple. Mosquito bites and chiggers felt the fury of its therapeutic sting. Furuncles and warts showed the liberal applications of the dark violet horse medicine. Hives and rashes were heavily covered and the resulting sting was accompanied by grimacing, shouts and dancing about as the medicine went to work.

Boils expelled their vile contents through a dense coating, leaving the purple to attest the cure. Toes that itched and peeled got relief from the contents of the brown bottle. Strawberries on knees and elbows of the kids were coated with purple and proudly displayed. Oven burns of the farm women retrieving cornbread and cherry pie received the royal treatment.

A child's sore throat, in spite of violent flailing and gagging, was painted., Clenched teeth and uncooperative tongue prolonged the task but, in time, the purple horse medicine was applied somewhere near the tonsils.

Ears that scaled and drained were swabbed and impetigo dabbed with it. Bumps, bunions and other external pestilence hid beneath the purple stain.

The pallid coloration of mercurochrome and merthiolate or iodine did not match the boldness and confidence of Purple Medicine. Few sights arrested attention as the sleeve rolled up revealing a blotch of liberally applied Purple Medicine, sometimes exaggerated beyond necessity. With Purple Medicine at hand, there was little need to be stoic.

The mystical healing power of Purple Medicine was a

gratefully acknowledged truth, permanent as the stars and the morning sun, the antithesis of sickness, the divine embodiment of healing. Frank White, a wagon team driver, had a stubborn ulceration of his face that for years wore the violet badge with trust and faith, requiring more time and patience than the ordinary malady.

Purple Medicine passed from my attention until years later, when in the dark and cluttered bacteriology laboratory among the culture plates and wire loops were bottles of stain. When poured over a glass slide, one developed a shimmering silver-green, reflecting the incandescent lamps in a deep, dark background and stained my fingertips intensely purple. This purple imposter was an odd phenomenon, properly forgotten. In medical school bacteriology, the silken purple stain from the bottle labelled "#1" appeared in a disturbing *deja vu*, yet Purple Medicine, the definitive remedy, always reliable, remained secure. No such distractions occurred in my other studies; still, there was wondering that Purple Medicine might have another name, chemical composition or formulation known to mere mortal man. These thoughts were quickly suppressed — it's best not to trifle with the gift of the Purple.

During the next few years any blush of innocence vanished in the trauma of observing the human condition. One day a patient required a stain of a vital fluid and I was dispatched to the laboratory with the specimen. The stain developed a sheen that shimmered, tantalized and swirled, transforming the inert glass slide with opal, silver and deep purple. Impatiently I turned the bottle, and the label "Gentian Violet" struck me in disbelief!

"Gentian Violet — a dye derived from rosaniline, used in chemistry as an indicator and in medicine as a fungicide, bactericide, anthelmintic and in the treatment of burns" was the manual's description. A dye! Have they not squirmed and gritted their teeth from its sting? Have they not seen the healing of warts? or scrapes? or rashes? There is no mention of its mystic power! Science must remain incomplete!

I returned with my findings and distractedly gave my report, aware that something important had happened. The purple stain was still on my fingers as I walked the dark, silent corridors that night. I used no soap, no brush or solvent to get it off. When time finally removed the princely, royal, regal, heavenly stain, there was no more Purple Medicine. I may have felt a hollow smugness that another cynical truth had been revealed, yet there was perplexed sadness instead of accomplishment.

Now a grizzled old veteran, where is Purple Medicine? We have medicines that are colorless, odorless, stainless and greaseless, as well as tasteless and ouchless. They are identifiable, proven effective, an acceptable level of toxicity, positive cost-benefit ratio and are "approved by a government agency" but still lack a vital ingredient. The belief and confidence in the eyes of those who wore the majestic medallion of Purple Medicine are gone and replaced by demanding expectation and impatience. Those with the violet stain were grateful and willing to wait.

Time has claimed the faithful, Doc and Purple Medicine — gentian violet remains. We are wiser but sadder.

Purple Medicine had everything, it was **real** medicine!

ANIMAL BEHAVIOR

continued from page 17

appreciated by the female goat, but it is objectionable to many people. Often the farmer will remove the patches of musk cells when the male goat is young to eliminate a smelly adult billy goat. This procedure is often done at the same time the horns are removed. Goats with horns, just like cattle with horns, can be very hard to handle as adults and a danger to other goats. Frequently the horns are removed from the young goats before the horns start to grow and are still the size of buttons.

SCENT POSTS

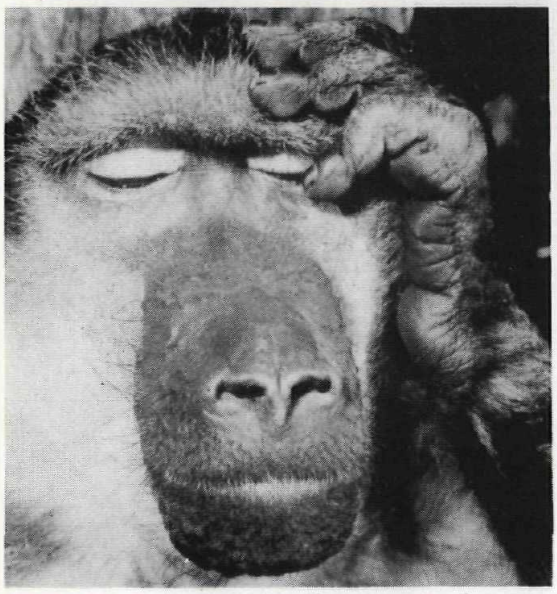
Cats and dogs live in an olfactory world much different from ours. Not only are they capable of smelling things that we cannot smell, but they engage in a good deal of scent marking, or leaving their individual odor on different objects. Cats, most often tomcats, tend to spray their urine to mark objects. Spraying tends to occur at certain times of the day, and cats may resort to spraying of urine when excited or emotionally upset, much to the disquiet of many cat owners. Another method of scent marking by cats is believed to occur when they rub their cheeks and heads against objects. Chairs, table legs, and the legs of his owner are often rubbed when the cat is in a friendly, contented mood.

Cats and dogs both have anal sacs located by the rectum which produce pheromones. These pheromones allow animals to put their own individual scent on objects. The odors are highly specific and are used by animals for identification similar to the way we use our written signature. Dogs leave their scent on objects and may mark their home territory. Often when dogs first meet, they will smell around each other's tails to investigate the individual's particular odor. When walking your dog, you may notice that he will often stop by specific objects, sniff, and then defecate or urinate and mark the areas with his own urine or feces. Scratching the ground after defecation also adds a visual sign to the chemical signature. Some scientists believe that the scent from the sweat glands in the toe and foot pads is deposited during ground-scratching. Dogs give and receive information from the scent posts distributed throughout the locality they visit. Male dogs can many times be seen elevating their legs and expelling a small amount of urine to mark different areas, or the dog may mark one area repeatedly, leaving his odor signature for all passing dogs.

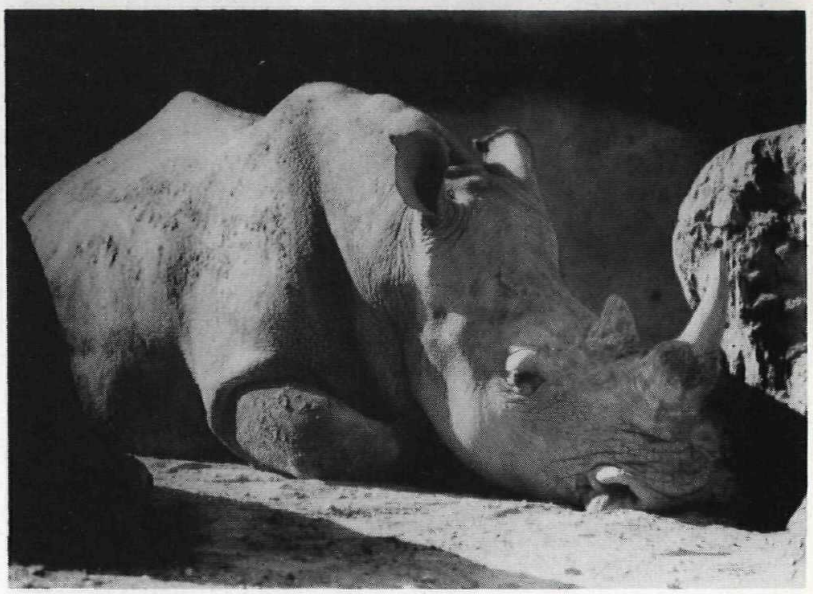
ANAL SACS A PROBLEM

Unfortunately, dogs have a considerable number of medical problems associated with their anal sacs, and they can become enlarged, painful and infected. Impaction of the anal sacs causes the dog to lick and chew around the anal area or drag the anus on the ground. In dogs with swollen, infected anal sacs, the skin over the region is usually glistening red, thin and extremely painful. Many times the infected sac ruptures, discharging pus to the outside and leaving a small draining open wound next to the rectum. In pet dogs the anal sacs often are more of a nuisance than a communication tool. Each type of communication has its disadvantages.

DON'T FEED THE ANIMALS



This baboon looks as if he may have a kingsize hangover . . . more likely, he has been overfed or supplied with inappropriate food by zoo visitors.



A sick rhinoceros or a sleeping one? Many zoo animals, large and small, die from foreign objects ingested and which are provided by some zoo visitors.

By Anita Coffelt

Zoo animals should be safe and secure in their zoo enclosures – but in some respects this is not entirely possible. Aside from the teasing and tormenting that some are subjected to, even more injurious, from a health standpoint, is the practice of zoo visitors feeding the animals. Because of the throngs of people who visit a zoo, it is impossible for guards or staff personnel to police the activities of everyone on the zoo grounds. Even posted signs, DO NOT FEED THE ANIMALS, are ignored as unthinking or uncaring individuals continue to toss tidbits to animals in cages or open exhibit areas.

Many zoos have vending machines which contain scientifically balanced foods for some of the animals. This, of course, encourages feeding without the thought that some of these foods are not suitable for all animals. For instance, peanuts are fine for elephants but definitely bad for seals. Marshmallows can be fed to bears but cannot be digested properly by some of the other animals and can result in stomach obstructions. Even bears have stomach upsets if fed too many of these delicacies. Veterinarians would agree that while one peanut will not harm an elephant, collectively everyone giving him a peanut contributes to overfeeding and ultimately to the animal's ill health.

Some animals will eat plastic bags and can die of strangulation or suffocation. Monkeys and chimps who have been fed a conglomeration of foods or those to which they are sensitive, develop severe diarrhea. It takes them several days to recover from this condition and then another weekend rolls around with more zoo visitors who provide more food.

For these reasons, many zoos have removed vending machines from their grounds. Even so, that doesn't always stop people who buy such items as popcorn, candy, hot dogs, etc. from concession stands and feed the animals indiscriminately. While these items do more harm than good, the animals eagerly devour the food offered.

A major problem is the objects thrown at the animals — usually not thrown maliciously but rather as a way to get the animals' attention. People are not satisfied with just seeing the animals sitting or resting peacefully — they want them to move around and do something. Unfortunately, the thrown objects find their way to the animal's stomachs and therein lies the danger.

It is inevitable that zoo animals die as a direct result of swallowing foreign objects. At one California zoo, an autopsy on a seal disclosed 278 coins! From the stomach of another seal came pennies, a ring, a metal button and a Cub Scout star.

Other animals have yielded rubber bands, chewing gum, cigarette filters, flash cubes, sticks, plastic bags, lunch sacks, bottle caps, open safety pins and broken glass.

How to combat this problem has baffled zoo authorities nationwide. While some have removed vending machines, others have initiated a program in which keepers feed the animals as the public watches. This is intended to keep the viewers happy while still maintaining the animals on a proper diet.

Zoo directors probably would like to see public acceptance of the zoo as a place where animals would be respected and cherished as living exhibits — in short, a philosophy which treats the zoo more as a museum and less a place of "amusement." Further, it is important that the general public realize that the "Please Don't Feed the Animals" signs are meaningful and will save the lives of zoo animals, if adhered to.

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BEASTLY DESEASES

Israelis to study ailments of animals, man

By BRUCE KAPLAN, D.V.M.

Did you know the first successful Caesarean section on a human was performed by a Swiss veterinarian, Dr. Jacob Unfer, in 1500 . . . or that a French veterinarian, Dr. Gaston Ramon, perfected vaccine agents against tetanus and diphtheria?

Comparative medical research using many disciplines (e.g., engineers, statisticians, veterinarians, etc.) has been responsible for many "breakthroughs" beneficial to man and animals. A few more examples: veterinarian Dr. Cooper Curtice opened the way for control of malaria, yellow fever, typhus and bubonic plague.

The caudal-block method of spinal anaesthesia was perfected by Dr. Franz Benesch at the University of Vienna Veterinary College. Dr. Frank Scofield identified the chemical agent called coumarin in plants. That paved the way for the development of the life-saving anticoagulant drug (dicoumarol) for victims of heart attacks and strokes.

Schools of medicine and veterinary medicine continue to investigate comparative approaches to the discovery of new drugs, surgical techniques, cures, treatments and so on.

A remarkable new idea along these lines recently blossomed in the Negev Desert of Israel. The Isan Center for Comparative Medicine opened at the Ben-Gurion University of the Negev, overlooking the biblical city of Beersheba, Israel. According to its director, Dr. Daniel Cohen, it is on the "very same desert pastures where grazed the sheep and camels of the patriarch Abraham."

According to the *Jerusalem Post* international edition, Ben-Gurion University is the only one in Israel with all four major faculties: natural sciences, engineering, humanities and social sciences, and medicine. About 4,500 students are enrolled. The University's Research and Development Authority has been a major force in creating science-based industry in the Negev Desert.

Dr. Cohen formerly lived in the United States and was a well-known public health official associated with the U.S. Public Health Service and the University of Pennsylvania veterinary school. Later he worked for the World Health Organization in Geneva before moving to Israel.

Many of the 300 or more animal diseases similar to those of man will be studied at the center. Such ailments as cancer, heart disease, diabetes, arthritis, etc., will be considered for investigation.

More than 180 diseases can be transmitted between animals and man. Some of these will be investigated also. The center will concentrate on the "preventive and curative treatment of desert" diseases communicable from animals to man.

The center will also conduct postgraduate training for veterinarians and will have a wildlife-disease laboratory. Studies on heat stroke and dehydration, for example, could have significant effects on people who dwell in desert areas. And wild animals found in the desert suffering from such maladies may be treated and saved. Information about such unique problems can be catalogued and analyzed.

There will be an educational zoo next to the center. Animals will be humanely protected and exhibited in their natural habitats.

Dr. Cohen said in a telephone interview that the center already has built and opened the first academic, small-animal clinic in Israel. They want to establish a large animal clinic soon.

One of the first research projects will be survey work on cardiovascular (heart and other circulatory) diseases. Dr. Cohen said, "A second-year medical student walked into our clinic recently with an Irish-setter puppy with patent ductus (a congenital heart defect affecting people as well as dogs). Ironically, questioning revealed that the dog's uncle also had this problem. So apparently we have a family of Irish setters passing on this undesirable condition, and we will try to do work on this now."

"We're having our official opening Nov. 22. That's Tuesday, and according to Jewish tradition, that's Paamayim Ki-tov (a biblical Hebrew phrase meaning 'twice it was good.') It refers to the passage in Genesis in which God expressed satisfaction on two separate occasions with the day of Tuesday; satisfaction was only expressed once for each of the other days of the week. In Israel, Tuesday is a favorite day for having weddings and other great events. We think this is significant for us, too," he said.

INVESTIGATORS CONTINUE STUDY OF CANINE ALLERGIC DISEASE

Investigators from two universities are progressing well in their efforts to develop a new safe and inexpensive method for the control of canine allergic diseases.

Canine atopic allergy, sometimes called grass allergy or summer itch, is a very common problem in the dog and one which is not only difficult to treat, but expensive. These allergies create a still greater problem to owners of guide dogs, due to the side-effects of current cortisone treatment methods that may shorten the dog's working life. These studies at the University of Florida and the University of Tennessee are being funded by The Seeing Eye, Inc., through Morris Animal Foundation.

At Tennessee, Barry T. Rouse, D.V.M., Ph.D., and Alfred M. Legendre, D.V.M., designed the study in two phases.

The first objective was to establish experimentally canine allergy to ragweed antigen, a common sensitizing agent. Experimentally produced allergy provides a "cleaner" system than natural allergy since in the latter circumstance allergy to multiple agents is common and complicates the study of one allergen.

The initial study established the optimal dose and schedule for producing experimental ragweed in the dog. The optimal schedule should insure that all dogs are effect sensitized (made allergic) to ragweed pollen. Allergy is determined by skin sensitivity to ragweed and a positive passive cutaneous analphylaxis (PCA) test.

The establishment of experimental allergy has set the stage for their initial desensitization studies, which constitute phase II.

These puppies don't suffer from grass allergy or summer itch, and hopefully they never will. Barry T. Rouse, D.V.M., Ph.D., Alfred M. Legendre, D.V.M., and Richard Halliwell, V.M.D., Ph.D., are searching for answers to problems posed by canine allergic diseases.

The artificially allergized dogs will be subjected to a new method of treatment designed to produce long-term suppression (tolerization) of their responsiveness to ragweed. This treatment involves binding an allergen such as ragweed pollen to a chemical known as PEG (polyethylene glycol) and injecting it into the dog.

Dr. A. Sehon of Winnipeg, Canada, is responsible for the initial exciting discovery of the efficacy of PEG. Dr. Sehon found that PEG not only prevents the development of an allergy, but also suppresses symptoms in animals that are already allergic.

"If PEG is as successful for dogs as it has been for mice, it may be possible to rapidly desensitize animals against allergies in a few doses rather than long-term injections as current treatment dictates," Dr. Legendre said.

At the University of Florida, Richard Halliwell, V.M.D., Ph.D., is working in active collaboration with the Tennessee scientists. Dr. Halliwell and G. A. Kunkle, D.V.M., developed a diagnostic test called a RAST (radioallergosorbant). Drs. Halliwell and Kunkle use RAST in a Florida study involving flea allergy dermatitis as well as playing a major role in the Tennessee canine atopic allergy study.

The RAST detects antibodies in the dog's blood that are responsible for allergic reactions. Measurement of these antibodies has been found to be a more accurate gauge of the animal's sensitivity to allergens than skin testing in some cases.

The RAST test has a lot to offer the veterinarian in terms of convenience and its predictive potentiality.

"In a study of children from allergic parents it was found that many developed a positive RAST test up to a year before their allergy became clinically apparent, Dr. Halliwell said. If this were also true for dogs, it would be invaluable as a means of predicting the more allergy prone animals and excluding them from the Seeing Eye training program before a lot of unnecessary expense is incurred.

Dr. Halliwell is using RAST in his Florida flea allergy study as well. Flea allergy, a major problem in the south, is currently treated with a flea vaccine that is not as effective as desired. Dr. Halliwell hopes the RAST procedure will determine whether a dog is allergic to flea bites and a way to desensitize the dog.

worth reading

We have received three interesting books on livestock raising which would be helpful to the amateur husbandman.

Practical Poultry Feeding
By: Ray Feltwell and Syd Fox
London & Boston: Faber and Feaber
1978: $19.95

Very thorough, very scientific. All practical aspects of feeding and nutrition are covered. Helpful even for the small poultry raiser.

Small-Scale Pig Raising
By: Dirk Van Loon
Charlotte, Vermont: Garden Way Publishing
1978: $5.95

Very worthwhile paperback. As the author states in his introduction, a pig is the most sensible animal to be raised for meat by the person who has never raised an animal or who has not much land or who wants to achieve the most in the line of meat production with a minimum invested in time and money. This is a very clear comprehensive how-to book. It will help to avoid costly errors.

Keeping Livestock Healthy
By: N. Bruce Haynes, D.V.M.
Charlotte, Vermont: Garden Way Publishing
1978: $9.95

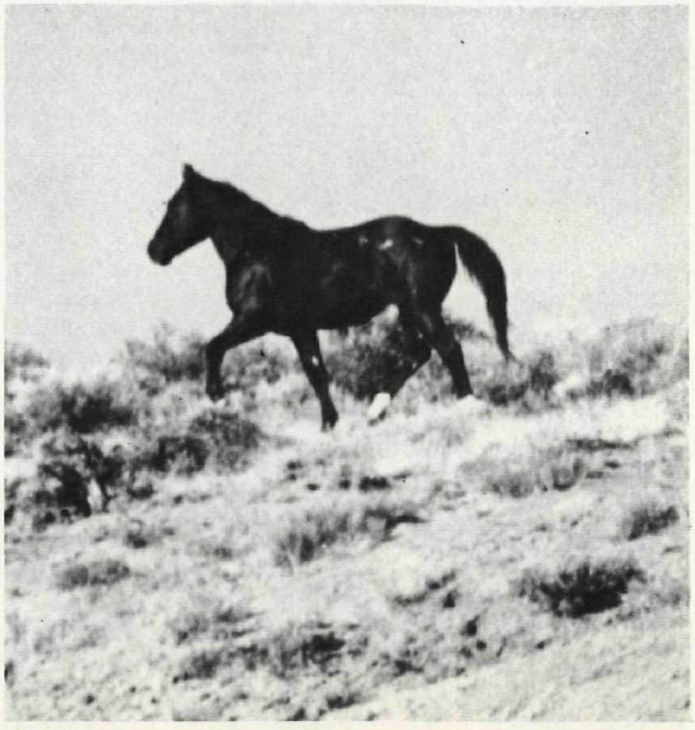
A supplementary paperback to the above, but deals with all kinds of livestock. The veterinarian who has written this feels that most animal disease is preventable and he tells you how. The book is technical but easily understood. Health problems of cattle, horses, pigs, sheep and goats are covered.

The Literary Dog
Edited by William Maloney and Jean-Claude Suares
New York: Berkley Windover
1978: $7.95

This is an absolutely *splendid* book. Illustrated with classic art and contemporary illustrations and containing selections from Shakespeare, Homer, the Bible, Robert Burns, Dickens, Browning, Karel Capek, Steinbeck — one could go on and on. The art is wonderful — humorous, beautiful, appropriate. There are full-color plates, small vignettes in black and white. I have only one objection to the format — the artists are not listed beneath the illustrations but are at the end of the book more or less alphabetically. The book for browsing or serious reading or gifting. Don't miss it.

Help! This Animal Is Driving Me Crazy
By: Daniel F. Tortora, Ph.D.
New York: Wideview, distributed by Simon & Schuster
1978: $4.95

Entertaining and comprehensive, another good book to have if you are a dog lover. Dr. Tortora is an experimental psychologist who stepped outside the controlled laboratory atmosphere to test ways of solving problem behavior in dogs. He covers many manifestations which have plagued all of us who have had dogs. The solutions are interesting and helpful.



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. □