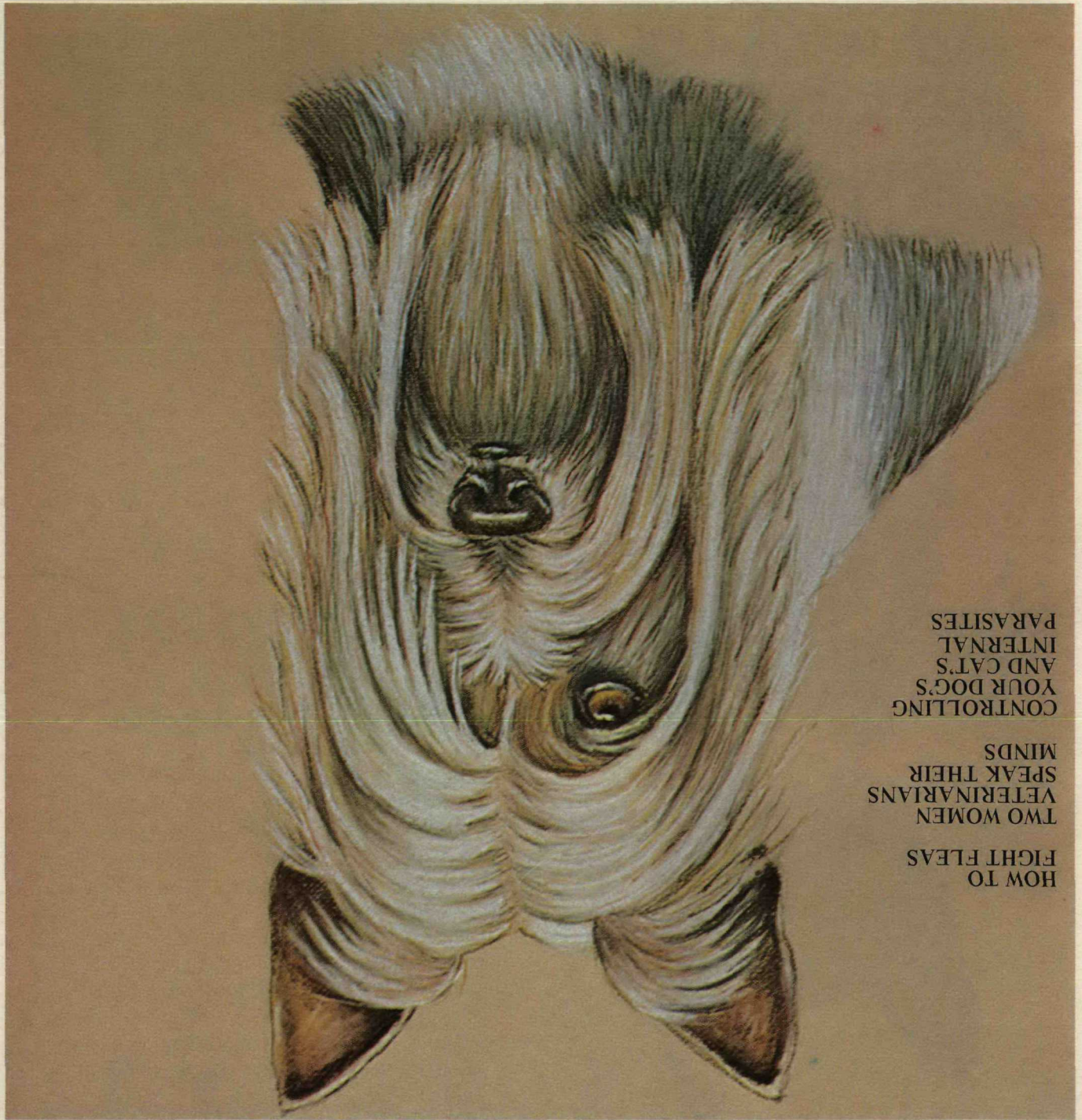


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HOW TO
FIGHT FLEAS
TWO WOMEN
VETERINARIANS
SPEAK THEIR
MINDS
CONTROLLING
YOUR DOGS
AND CATS
INTERNAL
PARASITES

ANIMAL WORLD

60¢

MAY/JUNE 1976

EDITOR'S NOTEBOOK



Looking at Public Relations

According to Webster, "Public Relations: the art and science of developing reciprocal understanding and goodwill between a person, firm or institution and the public; also: the degree of understanding and goodwill achieved."

The Animal Health Foundation and its Animal Cavalcade Magazine were founded purposely for the veterinary profession to have a good medium of communication. Amid the cries by officers of our veterinary associations for a public relations program, the Animal Cavalcade was born seven years ago. The staff of the magazine and the Board of Directors of The Animal Health Foundation persisted through the usual problems of producing an entirely new magazine. Through innovations and changes, the popular acceptance gained rapidly.

The tremendous coverage and public service (estimated 30,000 new readers each month) and the eagerness of the practitioners to provide Cavalcade to their clients is proving the success of this Public Relations Program. I recently read our magazine, The California Veterinarian. This March, 1976 issue features the need and a program of public relations.

Also featured in this issue is the serious need to find a way to inform the public of the coming seasonal scourge of insects and animal parasites. I am pleased to inform veterinarians that Animal Cavalcade has each May-June issue devoted its features to parasites. Not only that, it has been so enthusiastically received, we have requests for thousands of reprints for educational purposes. I submit that this is 'nitty gritty' public relations and not a 'let George do it' program, but George did it and is doing it.

The communications gap, I'm happy to say, is closing. Many veterinary associations have recognized the worth of the Animal Health Foundation and its Animal Cavalcade and are promoting animal health programs. The Southern California Veterinary Medical Association has recently offered its valuable assistance in coordinating our public relations efforts. That's what public relations and the Animal Cavalcade is all about — service to the pet owning public.

C. M. Baxter, D.V.M.
Editorial Director

ANIMAL CAVALCADE

Official Journal of the Animal Health Foundation on animal care and health.

MAY/JUNE 1976

Volume 7 Number 3

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C. M. Baxter, D.V.M.	Editorial Director
Norene Harris	Associate Editor
Millwood Custer, D.V.M.	Small Animals Editor
Charles H. Reid, D.V.M.	Equine Editor
Robert J. Schroeder, D.V.M.	Ecology & Public Health Editor
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Bill Williams	Art Director
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"Starline Little Traveler" portrayed in pastels by Goodwin Mark Alarik.
Courtesy of Starline Kennels, 17131 Kenmore Lane, Stanton, CA.

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DOCTOR'S ADVICE

Readers with health and other pet problems are invited to send in their questions to ANIMAL CAVALCADE. Those with the greatest reader interest will be handled on this page by Dr. J.F. Smithcors, D.V.M., Ph.D., who is technical editor of American Veterinary Publications, Inc.

Q. Do fleas cause any harm to dogs and cats other than discomfort?

A. Yes, the itching may be so intense as to cause the animal to mutilate itself by scratching or biting the area, and the open wounds so produced may become infected. Some animals are hypersensitive to flea saliva and may develop an allergic dermatitis, even when only a few fleas are present. This is often difficult to treat and may require a long course of hyposensitization — a series of injections that can be rather expensive. These fleas also serve as the intermediate host for the dog tapeworm *Dipylidium caninum*, which also infects cats and occasionally man. Fleas can also transmit bubonic plague.

Q. Do horses get "grubs" like cows do? My horse's back has draining puncture-like sores.

A. Practically all horses have bots, but unlike cattle grubs, these larvae do not migrate to under the skin of the neck and back. These sores may be fly bites that have become infected, or in rare cases horses may have cattle grubs, which would produce such sores.

Q. Does a flea bath do more good than a flea collar or dusting?

A. A flea bath is probably the most effective first step to take whenever a regular flea control program has not been followed. The residual action of baths, sprays and dusts is variable, and in any case the continuous action of a properly applied flea collar, replaced as directed, will provide more certain continuing control. If fleas have gained a foothold it may be necessary to treat the premises with dust or spray.

Q. Why do some dogs have bad skin and fleas, and others have fleas and no skin trouble?

A. Like persons, dogs are individuals and have individual problems. Some dogs seem to tolerate fleas better than others, perhaps because they have less sensitive skin. About 10 to 15% are hypersensitive to flea bites (saliva) and may develop severe skin reactions requiring veterinary attention. In some cases the problem can be treated successfully in a short time while others are stubborn, again a matter of individual difference. Some dogs may have allergic skin problems related to other causes such as pollen, fabrics, food, etc., in which case the dermatitis must be differentiated from that caused by fleas. In some families only one of two or more dogs are affected.

Q. Do dog fleas affect cats and other animals?

A. Yes, both cat and dog fleas will attack either cats or dogs and a wide variety of other mammals, including man.

Q. My neighbor says my horses will have trouble because the previous owner of the property had chickens and chicken lice. Is this true?

A. Lice stay on their own hosts and die off when the host (in this case the chicken) leaves. However, the sticktight flea of poultry can live a long time in cracks and become a serious problem if horses are placed in such quarters. If there is any indication of this the stable should be thoroughly sprayed with an effective insecticide.

Q. Are flea collars safe for kittens?

A. Many veterinarians do not recommend using a collar until the kitten is at least 4 months old, although some younger kittens tolerate them very well. In any case the directions on the box should be followed to the letter. The benefits of a properly used collar far outweigh the risks.

Q. What is your recommendation for fly control around my horses? I keep the area clean and use lime on the wet spots.

A. Keeping the area clean, as you are doing, is the first step. This includes any places flies may breed, not just the immediate area, although if you have careless neighbors this may not be entirely under your control. Until manure and bedding can be removed from the premises it should be stored in covered or screened containers. Insecticide sprays recommended for horses can be used directly during the fly sea-

son. A residual spray can be used in stables, and fly baits or pest strips can be placed in areas where flies congregate. Larvacides can be used in breeding areas. Whenever any insecticide is used, care should be taken not to contaminate feed, and directions for its use should be followed carefully. Screening the stable should help.

Q. Do those big black flies around my horses cause any trouble? The horses seem to be afraid of them.

A. I presume you mean the horsefly (Tabanus) and, yes, these can cause trouble. Their bite is painful and may be especially irritating to fine-skinned animals. Horses apparently learn this quickly and become restless, sometimes unmanageable, when the flies buzz around them. The flies also transmit several diseases, including the virus of equine infectious anemia (swamp fever). If they are particularly troublesome it may be necessary to keep the horses in a darkened stable during the heat of the day.

Q. How often should I worm my horse? We used to have him wormed once a year. My friend has her's wormed every month.

A. How often a horse should be wormed depends on several factors, including the species of parasites common in the area and individual conditions of management. Most veterinarians recommend worming at 2-month intervals from 2 months to 2 years of age, then every 3 months. This can be extended to every 6 months if the horse is kept on a large well-drained pasture and has little contact with other horses. Initially, and if a regular control program is not followed, the horse should be examined before treatment, to determine the best drug to use.

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Please notify Animal Cavalcade when you move! Failure to do this costs the Animal Health Foundation funds which should be spent on caring for sick animals or for veterinary medical research.

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CAVALCADE NEWS

DEMODECTIC "RED" MANGE STUDIED

It has been reported that 85% of all dogs are infested with *Demodex canis*, the small mite which can cause demodectic (red) mange. Most dogs live happily with the mange mite; however, about 1% of the dog population may develop signs of clinical disease, according to researchers at the University of Missouri.

For those dogs developing red mange, *it can be a very severe disease*. One sign is loss of hair, and areas of the skin become red, swollen, irritated and even drain pus.

With funding from the Tarrant County Veterinary Medical Association, Fort Worth, Texas, scientists are working to study the immune systems of dogs with severe red mange to find out how their immune systems are different from normal dogs. It is hoped an indicator or immune treatment can be developed to apply to severe cases.

Various treatments for demodectic mange kill only a small proportion of the mites. Thus, the individual dog must overcome the disease using its own immune mechanism. Some dogs are unable to effectively battle the

severe signs of pyoderma (pus in the skin) and may even die.

There seems to be a genetic correlation with severe demodectic cases, according to the scientists studying the disease. Several or all pups in the same litter may have severe mange (demodiosis). It may become a bad problem in certain breeds or related lines within a breed.

FOR HORSE OWNERS

Courtesy: The National Humane Junior Review — August, 1975

Clean water should be available to your horse at all times; when it is, he will safely adjust the amount he drinks. He should always be offered water before feeding and again 30 minutes after he has finished eating. He should not be watered for at least an hour after exercise and should never be watered while hot, with one exception. When horses are working, such as in trail riding, it is well to water at every opportunity. Let him have all he wants, providing he is to continue working. Never water a horse during work and then allow him to stand still. Move on immediately to avoid cramps and colic.

CANINE HEARTWORM DISEASE SPREADS ACROSS COUNTRY

Veterinarians across the United States are seeing a dramatic increase in heartworm, a life-threatening but preventable infection of dogs.

"Heartworm is becoming a major veterinary health problem. Until recently it was confined to the mosquito infested southern coastal regions. Now it has spread as far north as the New England states and Minneapolis, Minnesota. Cases have been reported in Western U.S. and Canada," reports

Dr. Douglas C. Maplesden, director of animal health research and development at The Squibb Institute for Medical Research, Princeton, N. J.

Mosquitoes are responsible for the spread of the disease from infected to uninfected dogs. The mosquito carries the immature parasitic worm which lives, develops, and grows into an adult heartworm in the dog's heart.

"With the warm weather approaching, now is the time to think about heartworm. Dog owners should have their dogs tested by a veterinarian during the spring of the year," Dr. Maplesden recommends. "The veterinarian can then prescribe a sound preventative program, or treat the dog if heartworm disease is found."

If uninfected, the veterinarian will suggest an effective heartworm preventative, called diethylcarbamazine, to be given daily, starting just prior to the mosquito season, during the season, and continuing for up to two months thereafter.

Some dogs dislike the taste of the pills and refuse to take them. Crumbling the tablet and mixing it with the dog's food sometimes works.

Another solution, says Dr. Maplesden, is to request medicine in "FILMLOK" tablets. This special veneer-coating process seals the medicine within a chip-resistant and pleasant-tasting tablet that the dog will easily swallow, without any bitter aftertaste.

"The dog is protected only for as long as he is medicated. The dog that rejects his medicine is a candidate for heartworm, the silent summertime killer," says Dr. Maplesden.

Why is the disease spreading? Some scientists say mosquitoes have learned to adapt to colder climates, while others point out that the rising mobility of Americans allows them to take their dogs in and out of infected areas easily.

UNDERSTANDING WHAT MAKES HORSES "TICK"

EQUINE BEHAVIOR

Can a mare and a foal recognize each other by voice, sight or scent? Does the foal assume the same status in the herd "pecking order" as its mother? For that matter, how do horses determine and display dominance in the herd?

Investigators at the New York State College of Veterinary Medicine (Cornell University) hope to find the answers to these and other questions about equine behavior through a study now underway.

Katherine A. Houpt, VMD, PhD, who is supervising the work of a veterinary student in the one-year project,



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DO IT YOURSELF — A CANINE WINDOW

by Alan W. Farrant

Your dog wants to see what's happening in his neighborhood. So? Let him! If he lives in an enclosed area, out of which he can't see -- make a canine window. Your pet will love it. Proof of this is found in the hours he sits enjoying the view and the happenings.

said few such studies have been done. "It is somewhat ironical that more is probably known about the behavior of wolves, chimpanzees and even zebras than is known about domestic horses," Dr. Haupt said.

Knowledge of mare-foal interactions, she pointed out, would be helpful when attempting to raise an orphan foal with a foster mother. And an understanding of the dominance system would enable horsemen to set up herds or introduce new members to existing herds with minimum danger of fighting.

Horses being used in the study are part of the herd maintained at Cornell's Equine Research Park. Dominance patterns in the study group will be observed, as will the interactions of herd members and horses newly arrived at the park.

Mare and foal behavior will be examined with the help of tape recorders and "disguises" to discover the means by which horses recognize one another.

The project is being funded by the Tarrant County (Texas) Veterinary Medical Association.



Mr. Tom Durkin of Alpo.

ACCOLADES

The Directors of the Animal Health Foundation and the staff of Animal Cavalcade wish to thank the Allen Products Co., Inc., makers of *Alpo* for their outstanding contributions to the health of animals. *Mr. Tom Durkin* has been especially cooperative and helpful in advising us in our non-profit foundation projects.

Look for *Accolades* — next issue.



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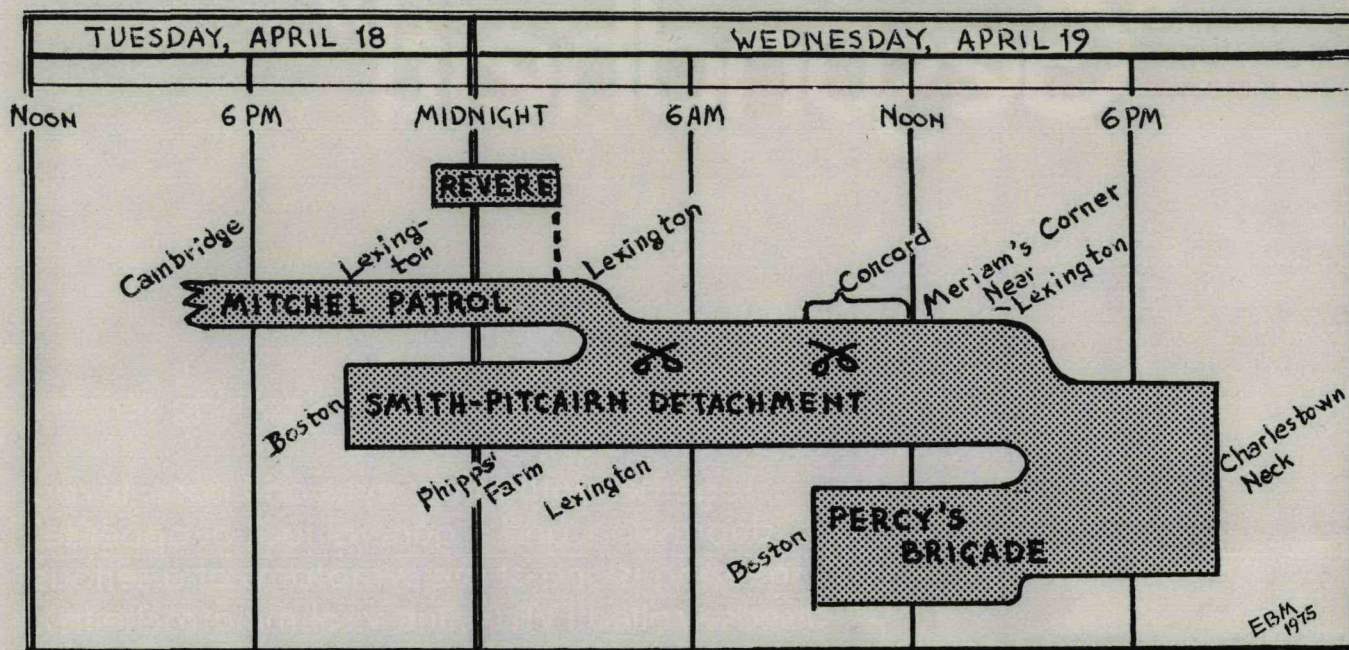
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TIMELINE



LEXINGTON & CONCORD April 19, 1775

CAVALCADE SALUTES AMERICA'S 200th YEAR

— A Special Bicentennial Account on the Horses and Riders at Lexington and Concord, April 19, 1775

An Animal Cavalcade Exclusive by Everett B. Miller, V.M.D.

Part III

Advance of the Smith-Pitcairn Detachment

The quiet assembly of this British "detachment," so named because it was made up by detaching the two flank companies (light infantry and grenadiers) from each of several British foot regiments garrisoned in Boston, was what had caused Warren to send postriders Dawes and Revere to the American political leaders (Hancock and Adams) in Lexington. These troops were transported (one and a half miles) by small boat to the Phipps's Farm on the mainland, disembarked between 11 p.m. and midnight, Tuesday, and after a delay of a few hours, got started; they marched rather slowly, reaching Menotomy about 3 a.m., Wednesday. On the way, the column met two or three men in a milk wagon from Lexington and kept them in the march column. Smith also became aware that along the march route, American colonists were waking, and he began to have the same apprehension also felt in the Mitchel patrol. Thus, Smith sent a messenger back to Gage, asking for reinforcements, and then continued onward from Menotomy.

At the same time, Smith ordered Pitcairn to take part of the detachment and move ahead faster. A few officers, in-

cluding Lieutenants William Sutherland and Adair, and men, together with a Tory guide (Daniel Murray), were spread out along the flanks of the front of the march column—forming the "point" or advance guard. They were early alerted that Lexington militiamen were assembling because they were joined by the British artillery lieutenant (Grant) who had left Boston Tuesday afternoon and had information on rebel activities in Lexington. The pointmen also spotted the 5 or 6 militia scouts dispatched from Lexington, and together with the retreating Mitchel patrol, which had been taken in, captured 4 of the American scouts (Munroe's 1; Parker's 3), but let Bowman (who was Parker's fourth scout) get away ("... his horse perceiving soldiers sitting on either side of the road, refused to pass them. The unsuspecting Bowman was still endeavoring to urge his horse forward, when he saw Pitcairn's detachment coming toward him. Turning about, he galloped away to give the alarm"). (Was Bowman's horse, America's first hero horse (?), because it is conceivable that the Lexington militia, unalarmed, would have stayed indoors and the Smith-Pitcairn detachment would have marched by.)

There were other matters attended to by the advance

guard. It also interviewed a mysterious "genteel man" driving a sulky, and it met a wagon loaded with wood—both were released. And somewhere along the march route, the British column had captured Ashahel Porter (of Woburn), a rider. (Subsequently, he tried to escape or was released during the excitement of the first musket fire at Lexington, and was shot and killed.) *Seemingly, horses of the captured militia scouts and rider from Woburn were kept by the British, and at least one of them was ridden by Sutherland in the Lexington battle.*

Battle of Lexington, April 19, 1775

In Lexington, three Americans on horseback suddenly appeared and momentarily turned back Pitcairn's advance guard (Sutherland now was riding a captured horse and Adair was in an artillery chaise). Then quickly, Pitcairn and perhaps 2 other British officers, and maybe as many as 5 or 6, rode to the front of the column and around one end of the meeting house on the green. They positioned themselves between the line of Parker's militia and the British infantry, who were hurrying forward, moving out of the march column formation, and forming firing lines opposite the militia. A shot was heard, then two, followed by musket volleys from British platoons. Eight Americans were killed. Pitcairn's horse had one or two slight bullet wounds. The encounter was all over in about ten minutes.

There is little else to describe about British horses in Lexington. Corporal John Munroe of Parker's militia later wrote about more than one ("we then both took aim at the main body of the British troops—the smoke preventing our seeing anything but the heads of some of their horses—and discharged our pieces"). One of the British officers (Sutherland) was almost lost, because his ill-gotten horse (probably not trained to the sounds of battle), bolted, ran

into the midst of several militiamen, and with difficulty was turned about.

Battle of Concord, April 19, 1775

Rapidly, as the sounds of musketry and fighting men on Lexington green faded, the Smith-Pitcairn detachment reformed, and then it started westward to Concord. The time was about 6 a.m., and the day's military target was that town, where a large cache of provincial cannons, medical chests, and military stores was to be destroyed. Already, since Sunday or Monday, the local populace had been carting these stores and supplies to other towns for hiding, and on the farm of Colonel James Barrett, the local militia leader, others had put cannon into furrows plowed into the fields and then hid them under a covering of dirt.

Now, on Wednesday morning (about 2 a.m.), Prescott galloped in and told them about his recent escape from the Mitchel patrol and about Hancock's and Dawes's messages from Warren concerning the British march column from Boston. (Prescott then departed to alert the militia in Acton.) At once, the Concord militia began to assemble, and groups began to come in from neighboring villages: Acton, Lincoln, Bedford . . . Two riders were scout to determine where the British were. One went on the road to Watertown (southeast of Concord), and the other, Reuben Brown, went eastward as far as Lexington. The latter, from some distance away, saw or heard the shooting there, and then galloped back to Concord. Finally, between 8 and 9 a.m., the British arrived.

One American on the Concord battleground that had a horse was the Concord militia leader, Barrett; he was elderly and ailing, and had been prevailed upon to lead.

EDITOR'S NOTE: Part IV cont. in July/August Cavalade.

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The two most important things to discuss about internal parasites of the cat are *transmission* and *control*. These are the most common concerns of the cat owner.

I will discuss these aspects for several parasites: *roundworms*, *tapeworms*, *hookworms*, *stomachworms*, *threadworms* and *toxoplasma*.

Roundworms are the most common internal parasite we see in the veterinary college at Cornell University, and they are probably the most widely publicized. They live in the small intestine.

Cats can pick up roundworms in four ways that we recognize so far: By consuming something that has been contaminated with the feces of an infected cat; by ingesting intermediate hosts such as rodents, birds, earthworms, etc. that harbor this parasite in their tissues; by the queen transmitting the infestation across the placenta to the kittens while they are in the uterus; and by drinking the colostrum of a queen who is shedding the early stages of the parasite in the milk.

Roundworm infestation commonly shows no signs. Or there may be the typical wormy kitten — big pot belly, dull, dry, brittle haircoat, diarrhea,

vomiting, etc. On the extreme end, there might be intestinal obstruction and/or perforation, but these are not common.

Diagnosis of these parasites is made by finding their eggs in the stool. Unfortunately, the animals do not shed eggs with every fecal. The eggs are shed intermittently, and on any one sample the eggs may be missed even though there is a tremendous load of worms. So we recommend a series of two or three consecutive fecal tests.

Roundworms can be partially controlled by picking up the feces frequently and maintaining a sanitary environment. If the cat is prevented from hunting, he will not be able to acquire the infestation through eating contaminated hosts.

A queen with the encysted form of roundworms in the tissues will pass the parasite to her kittens across the placenta or in the colostrum, the first milk. There is no product at this time, to my knowledge, available that will destroy the encysted forms of the parasite in the queen. Thus, it must be assumed that all kittens will harbor roundworms.

Tapeworm is the second most common parasite we see. It also lives in the small intestine and is acquired through ingesting uncooked meat, raw fish, or

FEL INTERNAL

By Danny W. Scott, D.V.M.
Instructor in Medicine,
Cornell University



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rodents, or through ingesting various arthropod intermediate hosts such as the flea and the biting louse.

There are usually no physical signs associated with tapeworm infestation. But the owner may notice small, white, rice-like things creeping around the anus, in the stool, or in the cat's bedding.

Tapeworm is easy to control if you can prevent the cat from hunting, make sure he eats only cooked meat and if you keep the fleas and lice off him.

Hookworm is not one of the common parasites, fortunately for the cat. It can cause some of the most severe clinical symptoms. It has been stated that the adult hookworm can suck 1/5 teaspoon of blood per day. In a very tiny kitten, hookworm can bleed him out quickly.

If the environment is contaminated, the cat does not have to ingest anything to get hookworm because the larval stages have the ability to penetrate skin. And, as the roundworms, hookworms can pass across the placenta and in the milk.

There may be no signs of hookworms, or there may be diarrhea, anemia, and these can be severe in the young cat. Diagnosis is by fecal examination.

If you control contamination and control the cat's hunting and going into places where the ground may be

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INE PARASITES

Presented at a Cat Health Seminar in Chicago sponsored by the Morris Animal Foundation, Denver.

There are ways to control external parasites such as fleas and lice also. Control fleas and one source of tapeworm infection is eliminated. Another point in prevention is to properly cook any meats or foods the cat eats. The best way to assure proper cooking is to feed canned or dry cat food.

Breeding animals, especially queens, should be checked for parasites. All kittens are assumed to be parasitized at birth, at least with roundworms and hookworms. So we recommend a routine fecal examination on all kittens from six to eight weeks of age. At Cornell we find that, whether they are showing signs or not, 75% of the kittens checked do have roundworms or hookworms.

The cat is a roamer and a hunter, and if they are not confined, they should be checked, at least yearly, for internal parasites.

Toxoplasmosis is quite a confusing subject to many people. It has some unusual aspects in that unlike other coccidia that are confined to the intestinal tract, toxoplasma has the ability to spread to almost any tissue of the body.

Members of the cat family are so far the only known animals able to become infected with toxoplasma, then

pass an infective form into the environment. Every species of animal can become infected with toxoplasma but none, except the cat, both wild and domestic, can pass it into the environment.

Infected cats may pass the infective form of toxoplasma in their stools for 10 to 14 days. In cat and man the organisms can cross the placenta and can be shed in the milk. People can become infected by handling raw meat. Flies, cockroaches and other insects can mechanically spread toxoplasma organisms.

Signs of toxoplasmosis are very diverse. They can be anything from severe liver disease, pneumonia or gastrointestinal disease to no symptoms. It is hard to diagnose toxoplasmosis just on the signs, but the cat's history might help.

To prevent toxoplasmosis, cook all meat that you or your cat eats to at least 150° F. Wear gloves or wash your hands after handling raw meat.

Restricting hunting, environmental sanitation and cleaning the litter pan at least once a day are important in preventing toxoplasmosis. When the cat sheds the organism, it does not become infective until it has been in the environment for 24 hours.

contaminated, you can partially prevent hookworm. But there is nothing that will destroy the encysted form in the queen's body.

Another parasite seen occasionally is stomachworms. Because they live in the stomach signs are like gastritis: vomiting, loss of appetite, sometimes even blood in the vomitus and stool, and the cat can become very anemic.

Transmission of stomachworms requires an intermediate host, and beetles, cockroaches and crickets have been incriminated. So, if you prevent hunting, you can break the cycle. Diagnosis is, again, by fecal examination.

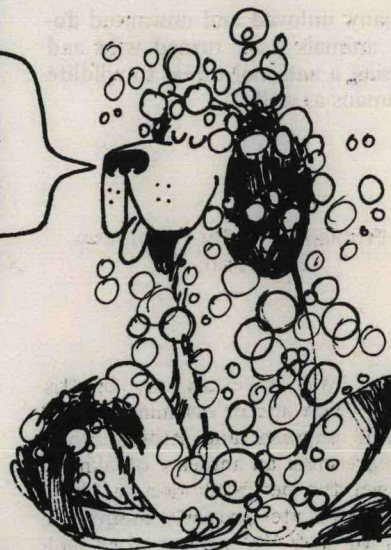
The threadworm is probably one of the least common parasites. It lives in the small intestine, and sometimes the large intestine. It is acquired much like the hookworm, either through oral intake of some contaminated material or through skin penetration.

Signs of threadworm are usually more severe than for other worms, including severe diarrhea and vomiting. If the infestation is very severe, there can be pneumonia. Diagnosis is made by fecal examination.

Because most parasites are associated with environmental contamination, proper sanitation is important, as are cleaning the litter pan or cage daily and preventing the cat from hunting. Then he will not be able to pick up encysted forms of tapeworm, coccidia or roundworms.

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THE STRONG SURVIVE

by Lori Wiseman

Too many unloved and unwanted domestic animals have turned wild and are posing a national threat to wildlife and humans as well.

The Problem? The Pet-Population Explosion.

Every hour of every day in this country, there are an estimated 5,000 to 6,000 puppies and kittens born. This represents an increase of almost 40% over the pet birth rate in 1960. The United States presently supports a census of 100-120 million dogs and cats and at least 50% of them are homeless. Herein lies the danger: *these 60 or so million feral animals (meaning domestic animals turned wild) are predators ranked as the number two enemy of native wildlife — second only to man, and in many areas, the number one enemy of man's livestock.*

Domestic dogs and cats, although centuries removed from their ancestors, have not lost all their hunting skills. A good many pets, if faced with the situation, would revert to their ancient instincts and learn to kill their own food. A second or third generation feral animal could be as good a

hunter as a wild predator.

It is believed, although exact counts are impossible to keep, that in most eastern states, feral dogs and cats kill more wildlife than all other predators combined. The results of feral predation in the more sparsely inhabited western states are less drastic, but the figures are still frighteningly sizeable. So here we have these animals whose estimated population far outnumbers that of any wild North American predator, taking their share of the wildlife bounty. But these animals are not natural, nor are they part of the very delicate ecological balance already seriously threatened. Every bird killed by a feral cat, every deer downed by a pack of feral dogs, is one less meal for a wild creature.

There is a second way in which these feral predators threaten our wildlife. Even though more indirect, it is

equally devastating. Our government, as well as most farmers and ranchers, maintains a costly "Predator Control" program. Much livestock is lost every year by predation, and the monetary loss to the owner from the milk and weight reduction in his harried stock cannot be measured. The wild predators are blamed and full scale war is raged against them. This conflict, whether man is armed with guns, traps, or the illegal poisons, results in the extinguishing of countless innocent creatures — plus the indiscriminate slaying of already endangered predatory species.

How much of the destruction is caused by naturally wild animals? Through intensive research, it has been proven that a good deal of it is the work of feral dogs, or the offspring results of an interbreeding between feral animals and the wild ones. Cougars,



bears, wolves, weasels, even the wiley foxes and coyotes prefer to seek their prey away from man's dangerous domain. And although it can't be said that wild hunters never attack livestock, they usually do so to a much lesser degree than the ranchers claim. The feral hunters, on the other hand, do not fear man to such a degree. They often seek out the more accessible livestock as their regular fare. In many states, feral dogs are listed as the only predators on four-legged stock.

Yet we cannot put the full blame on feral animals. Of the remaining 60 million pets that are claimed by some owner, how many of these are allowed to run at will? They do all the damage of their feral cousins, but their hunting is an unnecessary form of sport. They are well fed at home and don't rely on their kills for survival. Pets that have learned killing as recreation are incomparable destroyers.

In the interest of people who are neither livestock raisers nor wildlife enthusiasts, feral and free roaming pets often attack humans. At least once a week, one reads an account of a person being bitten by dogs or scratched by cats. These incidents are even more common in big cities than in rural areas. Surprisingly enough, most large cities support a substantial feral population. Last year alone, there were more than 1.4 million reported dog bite victims in this country. On top of the obvious danger of attacks, the possibilities of widespread rabies epidemics are enhanced by this unhealthy situation.

The solution? Like the answer to any problem that has reached such epic proportions, it will not be an easy one. First of all, the established feral population must be eliminated. Perhaps this should be a justified continued job for the present "predator controllers." **But individually, our job is to make sure that no more dogs and cats become feral.**

Are you guilty? How many of you have ever taken an unwanted domestic pet into the country and turned it loose? Worse yet, have you ever obtained a puppy or kitten to occupy your children during vacation and then abandoned it when the holiday ended? *Only a small minority of these abandoned pets ever find homes - probably fewer than ten out of one hundred. The greatest number of them meet death - starvation, exposure, under the wheels of autos, or at the hands of human vandals.* But there is a percentage of these ill-fated creatures who can and do learn to take care of themselves. These domestic pets turned wild add to the feral animals problem, as do the litters they almost unfailingly produce.

How many of you ever allowed

your pet to have a litter just for your children's sake? And did you find homes for all these puppies or kittens? And if so, did you think about the other puppies and kittens that your surplus litter forced into abandonment?

We should all keep in mind four simple rules:

- ... *Remember that a pet is a commitment, not a toy. Your responsibility to him should be understood and accepted at the outset.*
- ... *Spay your female pets, neuter your males. There is no reason why a female dog or cat should have a litter every year.*

- ... *Do not let your animals run loose. Keep them fenced in, tied up or in the house when you are not available to supervise them.*
- ... *If you can no longer keep your pet, find a new owner for him or take to your local animal shelter.*

Most important of all, remember that the only hope of solving this feral animal problem lies not with the government and legislature, but with the animal-loving, pet-owning citizens of this country. *People like you.*

Sources: National Observer, National Wildlife, National Humane Revue.

Project Jonah

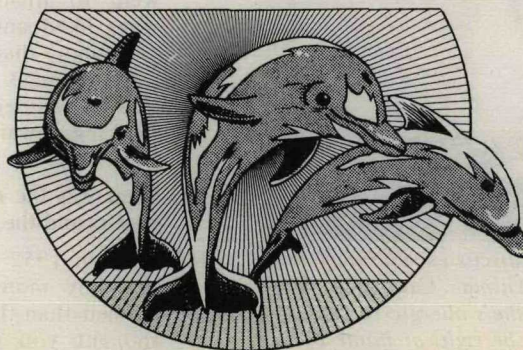
During the last 15 years over two million porpoises-friendly, air-breathing mammals of the sea, have been killed by the purse seine nets now used by the tuna industry to catch tuna.

The fishermen use the porpoises to locate yellowfin tuna—the kind called light meat in the cans—and then set their nets around both the tuna and the porpoise in order to catch the tuna.

In 1972, the Marine Mammal Protection Act was passed to stop the killing of porpoises and other marine mammals. But the act has never been adequately enforced, and during last year's fishing season an estimated 130 thousand porpoises were killed in the nets.

Write your Congressman, c/o House Office Building, Washington, D. C. 20515, and ask that he help too—by demanding that the Marine Mammal Protection Act be enforced. Thank you.

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VETERINARY MEDICINE:

Anyone who has ever taken their pet to a veterinarian has some idea of the hard work, long hours and dedication that D.V.M.'s apply to their jobs. For many, it's more than a job, it's a way of life. Presented here are interviews with two extraordinary veterinarians: Marilyn Twitchell, D.V.M. of Santa Monica, and Kerry Wilets, D.V.M. of Encino. They each discuss their personal backgrounds, their training, education and interests within their field. What surprised Cavalcade interviewers Norene Harris and Barbara Sweeney was not how much each woman loved her work, but that each enjoyed unusual and impressive activities in addition to and outside of the veterinary field.

These interviews are a special Cavalcade series on women veterinarians; this is Part 1 and they will be continued in the next issue.

...Marilyn Twitchell, D.V.M.



In her leisure time, Dr. Twitchell enjoys piloting her own small craft.



Dr. Twitchell discusses veterinary medicine with Animal Cavalcade Staff; even though she's allergic to cats, this one seems to be right at home on her desk!

AC Dr. Twitchell, how many women veterinarians are there in the U.S. today?

MT The latest survey states that in March of 1972 there were 553. When I was graduated in 1952, there were only 9 women veterinarians in the whole country. I was the only woman in my class in 1952. There have been a lot of changes. Things have improved.

AC I guess I'm prompted to ask at this point, that in 1952 or 4 years prior to graduation, you undoubtedly knew that it was an all male profession? What prompted you to break the sex barrier and try it?

MT I never thought of it in terms of breaking a barrier. I have always liked animals, even though I'm from the city. I used to take care of a little dog when I was in the service, and I was always interested in Biology and things of that sort. So it seemed kind of a natural way to go, actually. I didn't think I had the brains to get into veterinary school, to tell you the truth, but I had several friends who encouraged me. I applied to Davis and Michigan State and was accepted at both schools. Davis wasn't accredited at the time so I went to Michigan State. I've always liked animals. Of course it takes more than that, but I think I was fortunate. I decided this was what I wanted to do, I started working towards that end, and I was lucky.

AC What was the reaction of the professors and the other students?

MT Back in 1952 I think there were probably more prejudices against women than there are now. They thought you were taking a job away from a man who was a pro-

vider for a family. But I have to say that my classmates were great. I got along with everyone. A few professors gave me a bad time, but they gave everybody a bad time. So I really feel that I have not been discriminated against.

AC I can tell.

MT No, I've been very fortunate. And it's a terrific profession, very stimulating and gratifying. It's sad; I'm almost to the point where I hate to encourage young people any more. I've been active in the vocational day experiences they have for young people. This week we had 8-16 youngsters through here to see how a hospital runs. Most veterinarians cooperate with this sort of thing and try to encourage young people to go into the profession, but it's so difficult now for the students to get into the veterinary schools. There are such long waiting lists. It's harder to get into veterinary medicine than it is to get into human medicine. For instance, Michigan State Veterinary College selected 115 students from 613 applicants in 1975! These students all had a grade point average of at least 3.45.

AC That's what I understand.

MT So I've taken a different attitude about encouraging people. Of course, there are some like I was. Nothing was going to stop me. I was told many times by the veterinarians I worked for as a kennel girl that I would never get into veterinary school. Veterinarians I knew at the time told me to forget it. They were very discouraging. I've seen a lot of people that I've trained here as doctor's assistants. *Continued on page 18*

A SPECIAL WAY OF LIFE

EDITOR'S NOTE: Animal Cavalcade would like to thank Dr. Twitchell and Dr. Wilets for the time and consideration which each has put into this project. It is greatly appreciated.

... Kerry Wilets, D.V.M.

AC Dr. Wilets, what made you decide to become a veterinarian?

KW When I was four years old, my parents explained to me very carefully, quietly and nicely that I could *not* be a dog. This came as a terrible blow because I had made a great effort to be a dog. So then I said that I wanted to be a nurse to dogs, and found that I would have to be a dog doctor. I could spell the word 'veterinarian,' I knew what it meant and what the word looked like before I was five. Then every new subject in school from the time I was five had to be carefully explained. I wanted to know how that particular subject was going to cure a dog, otherwise I wouldn't have taken it. I doubt very much if I would have gone through school unless it was going to do something for a dog. My schoolmates and camp companions always knew I wanted to be a veterinarian, so it was no surprise to them when I went to the veterinary school.

AC And no one said to you "But hey, girls aren't veterinarians."?

KW No. I went to an all girl school. I don't think they ever thought of it as a man's job. I don't think it had ever crossed their minds.

AC Where was your schooling?

KW In Montreal.

AC How did your family feel about your becoming a veterinarian?

KW They were dead set against it. It's been a constant battle.

AC What were their objections?

KW They thought the work was too hard. They felt it was a rough job, a hard job, a long college course, and they didn't feel I really needed it.

AC Where did you end up taking your training?

KW I studied one year at Cornell and then transferred to the University of Toronto.

AC Were there any other women in your class?

KW Yes, it was the largest class of women they had had so far and there were only five of us. And of those five girls, every one has been a veterinarian all their lives.

AC That's interesting because it's usually charged that a woman won't continue in the field. As you were taking your training, was it your idea to start your own practice?

KW No, actually when I started out, I just wanted to know what you had to know to be a veterinarian, and I figured that would take 5 years. And that would be the end of it. When I was going to school in Canada, they had a very good arrangement. You had to work for the holidays which came to about 4½ months in the summertime, with a veterinarian. One year small animals, one year large animals, one year meat and milk inspection, and one year was supposed to be spent studying bacteriology and parasitology, especially with poultry diseases in mind, handling bacteriological slides, growing organisms and



Dr. Wilets relaxing at home with her Irish Setter.

things like that. The large animal doctor was in Montreal, was an excellent veterinarian, and I liked him very much. The next year I went to Toronto to work for a doctor in small animals and it was a tossup between staying there, which I could have done and been very happy, and returning to Montreal. *But I really wanted to see if I could do it on my own. That's why I built the clinic. It was my own challenge within me. To see if I could run it, run it efficiently, and if I could run it as well or better than the good clinics I'd seen.*

AC When you graduated, did you immediately start your own practice?

KW No. When I graduated I came to California and wrote to the State

Continued on page 19



Rising to a hard challenge, Dr. Wilets has for 16 years been involved with amateur and professional car racing.

Photos by Kevin Sweeney

TWITCHELL

Continued from page 16

tants and kennel people who have been "A" students trying to get in, and they have not been accepted and have to change their majors. This can even happen after several years of pre-veterinary training and financial hardships; very disappointing.

AC Is that because of the scarcity of schools?

MT Right. We've tried to get a veterinary school here in Southern California for years, to no avail.

AC There are so many veterinarians in Southern California. In a sense it's kind of incredible that of all the places in the country there isn't one here.

MT That's true, and what's happening is that a lot of places are going into group practices. They're really becoming little universities because we're now becoming so specialized. At this point, if my plans continue the way they're going right now, I'll be specializing myself. I've attended Stanford University for 2½ months in an ophthalmology course. I'm planning to specialize in veterinary ophthalmology. I've been working every week with one of the few board certified veterinary ophthalmologists in the area, Dr. Vierheller, in La Habra, and I also work with another veterinary ophthalmologist, Dr. Lipton. At the present time, my own ophthalmology practice is growing. The diagnosis, treatment and surgery of the eye is very stimulating and I'm enjoying it immensely.

AC Is this a recent interest, Dr. Twitchell?

MT No, I've been interested in ophthalmology for a long time, but I haven't gotten into it as much as I am now.

AC How will your specialization affect your practice here then? Will you continue?

MT I will continue in my practice 2 days a week and devote the rest of my time to ophthalmology - at the present time I attend ophthalmology lectures one afternoon a week at UCLA, Jules Stein Eye Institute, and as I mentioned, work with other veterinary ophthalmologists.

AC And the ophthalmology would be sort of an adjunct to your regular practice?

MT Yes. Until I can devote all my time to ophthalmology, hopefully I

will become board certified in the next two years, and then I will only practice ophthalmology.

AC Is this a problem more peculiar to cats than dogs? Or to both?

MT More dogs than cats. You know, veterinary medicine is very much like human medicine. Many people are amazed when they come into the hospital and see X-ray



Dr. Twitchell in the cockpit preparing for takeoff. As a member of the "99," International Women's Pilot Association, she participates in a program of delivering medical supplies to needy people through the Direct Relief Foundation.

equipment, anesthetic machines and the whole setup. Veterinary medicine has become very specialized. We have certified radiologists, ophthalmologists, cardiologists, and internists. There are even studies going on with acupuncture, another adjunct to veterinary medicine. I also do a lot of bird work, mainly parakeets, canaries, pigeons, cockatiels and parrots. They have similar medical problems such as heart problems, hormone problems, pneumonia, fractures, etc. Veterinary medicine is so much more complicated than human medicine, actually. Or at least I've always thought so. You've only got one human being. They all work pretty much the same way. Every animal is different.

AC Plus the fact that an animal can't talk to you. That to me would be the difficulty in dealing with animals. You can't have a conversation about what it is that hurts.

MT It can be difficult, believe me. But veterinary medicine is becoming

very sophisticated. We have all kinds of continuing education organizations. Two of the best known are the American Animal Hospital Association and the American Veterinary Medical Association. Of course, we have a local group - the Southern California Veterinary Medical Association.

AC Do these groups promote women veterinarians and do they encourage women to go into the veterinary field, or do they follow the traditional male orientation?

MT I would say they are traditionally male oriented. From their literature, you can see that on the higher levels they're not really interested in women. I think the veterinarians in practice really like women. They feel that we do a good job. Out of the 553 women veterinarians mentioned earlier, only 76 weren't working, which isn't that bad. Three of those were ill, eleven retired, some were between jobs. Only one was unable to find employment. When I speak of high levels I'm referring to the policy making bodies in veterinary medicine - one sees very few women - but maybe this is our fault? More women are being employed in the universities and are appearing as lecturers at the various continuing education programs and seminars around the country.

AC Of the women in practice, would it be commonplace for them to have their own facility?

MT There are not too many women veterinarians operating their own facility. Many are self-employed, some work in universities, government and industry projects, some work as relief veterinarians and some in other private practices. Michigan State University has graduated 2,775 D.V.M.'s since 1910, 230 were females.

AC Let's get back to your point that you hesitate encouraging young people to go into the profession?

MT I mainly let them know that it is difficult, that it could be very discouraging, and that they should also have other interests at the same time that they can fall back on. Paraveterinary medical type things like laboratory medicine have become very popular. Many people are starting to work exclusively with mammals. There are a lot of other fields associated with veterinary medicine that do not require veterinary degrees. Animal technicians take examinations and are certified. It is so important for

Continued on page 21

WILETTS *Continued from page 17*

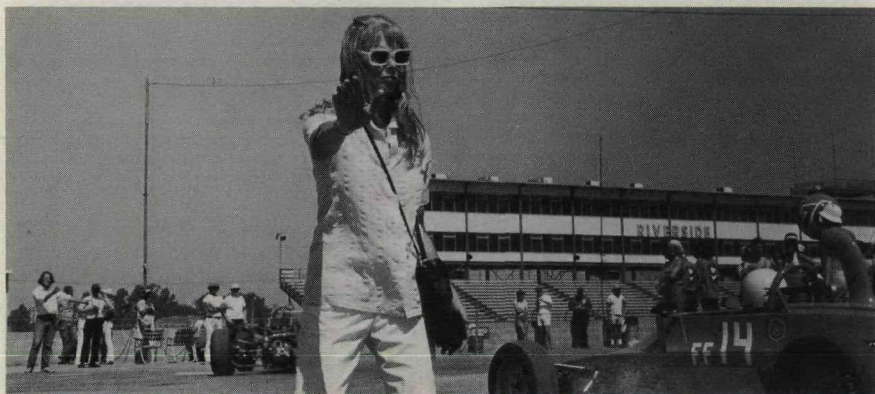
Board. I then worked for some veterinarians here until I learned that I had passed the California Board exams. I was out here for about a year. Then, while my clinic was being built, I went back to Toronto and worked for the veterinarian there for over a year.

AC Where was your clinic being built?

KW It was in West Los Angeles.

AC What prompted your decision to come to the United States?

KW I was sort of a honeymoon present. Also, I had always wanted to live in a warm climate. And then, I didn't want to be in Montreal because it would mean my parents' friends coming to me. That would spoil it. Then it would not be my challenge. If I went to Toronto or Ottawa, it again would



Dr. Wilets hard at work as Grid Marshall at the Riverside Raceway.

have been my classmates and friends from camp, and that to me was not a challenge. I had to start without knowing anyone.

AC Did you plan to just have a general practice?

KW No, just small animals. And we had done a lot of fur bearing animals up in Toronto, so I took some of those, too, because I had handled mink and other small animals before. I had no experience with canaries, parrots or pet birds. Barnyard fowl, yes, I treat them and I still like to.

AC Was there any particular specialty within animal medicine that interested you?

KW I was always extremely interested in distemper and how to prevent the fits before they showed up. And why one dog got well and another one didn't. I was also very interested in preventing distemper in the first place. I think that's because I worked almost a year in a distemper ward. And then, after I had been in business for a while, I became very interested in the skin and skin conditions and still do a number of them.

AC How were the early days of the clinic? Was it a struggle?

KW Actually it's a laugh because we played cards, I think, for the first two weeks periodically throughout the day. And then that was the last I ever saw of cards. I never played cards again, and I had the clinic 13 years.

AC You've been practicing for 13 years?

KW No, that's how long I had the clinic. And then I sold it. I retired and that retirement lasted, I think, 3 months. Then I decided to work for people who were away on vacation and sick or had had accidents. In one year I lived in twelve different houses.

AC What prompted the sale of the clinic? Had it just gotten too hard for you?

KW There were a couple of things really. When I built the clinic, it was in a bean field. They put in a freeway and the taxes became appallingly high. They put in a boulevard and the taxes rose again. In order to get help and to maintain the place as I had maintained it, which was extremely clean, I would have had to pay out more than I could possibly take in. I finally decided it wasn't worth it.

AC But your challenge has paid off?

KW Oh yes. My challenge had paid off after the 2 weeks that we played cards. I knew I could run it. I knew it was doing well. I also knew I had none of the problems that other people have. My help never fought amongst themselves. Their biggest problem was that everybody wanted to go to lunch together. We never had any problems with them and the animals. We had very, very few bites or accidents of any kind. Almost negligible.

AC So essentially, it was a happy time for you.

KW Absolutely.

AC After this period of taking over for people who were away, what did you turn your attention to?

KW I went to Sweden to visit a girlfriend who runs a clinic there. She rents the clinic, some days and some nights, and works in it herself two nights and two days a week. Other veterinarians work on the other nights. I watched what they did there and how they handled it. When I came home, I started the same kind of thing.

AC So that's what you're doing now?

KW Yes. My clients come 2 nights a week. We start at 7:30 and work until we're finished. Most of them come and leave their animals, go and have dinner, and then come back and pick them up. I share the clinic with another veterinarian who works during the day. He watches my animals and I watch his.

AC And is this in the San Fernando Valley in California?

KW Yes. I started that, and then I started making house calls for people who really couldn't get out of the house. But now the house calls have become a great thing. I make a circle around the valley one day and a circle around West Los Angeles the next.

AC So you're making house calls in addition to working at the clinic for two nights?

KW Yes, but clients cannot come to me unless they are referred. I don't take anybody who walks in off the street and I don't do any advertising, so I'm not really in any way in competition with the other veterinarians.

AC How do you like an arrangement with this much variety?

KW I love it. I don't think it's for the new person starting out and I don't think it's for the fellow with a family to support. But for me it works. I can have a day off when I wish to - I just don't take any appointments. You can do that in a building if you run it correctly.

AC Harry Maiden, Executive Director of the Animal Health Foundation, was telling us the story about some very unusual surgery you did - removing an amazing number of stones from a dog.

KW 496 stones to be exact!

AC Could you tell us about the incident?

KW It was very interesting. The dog was a medium sized to a small type dachshund and he was six months old. The owners brought

Continued on page 25

FLEAS

ENEMY OF MAN

&

ANIMALS

*Reprinted courtesy
Yearbook of Agriculture*

FLEAS, like the biting flies, are among the higher insects that have complete metamorphosis. They have developed highly specialized parasitic habits in the adult stage only. The wingless adults have laterally compressed bodies and strong, spiny legs, which help them move rapidly among the hairs or feathers of their hosts.

Their mouth parts are fitted for piercing and sucking. *All species, as far as we know, are parasites of higher vertebrates.* Fleas have astonishing strength in proportion to their small size. The human flea can jump 13 inches.

Some persons attract fleas more than do others under the same exposure. In one person, an area of inflammation immediately surrounds the bite; in others, a delayed irritation occurs. *Pulex irritans* is thus an appropriate name for the human flea, which has adapted itself to residence in folds of man's clothing as a substitute for the fur of the lower animals. Their eggs are dropped promiscuously and are not fastened to clothing or hair as are those of lice. The maggotlike larvae live on organic waste about the premises.

Other species that may become annoying in human abodes are the rat, cat, and dog fleas, which do not have so restricted a host preference as do some of their cousins on various rodents in the field.

The chigoe is an especially irritating



Photo courtesy Norden News

kind of flea to man and animals in the Tropics. The females bury themselves in the skin, particularly of the feet, and cause persistent, ulcerlike craters, from which the fleas have to be removed before the wound can heal. This flea is not a known disease carrier.

Of greater concern are the species that carry the serious widely occurring rodent infections, bubonic plague and murine typhus, to man. They live everywhere in warm climates. One of the authors during the Second World War watched the pests jump in all directions from the wrinkles in the pantaloons of Arabs while he was studying the effects of DDT in Egypt; boil up into his clothes from the straw in abandoned pillboxes and from cave floors occupied by refugees in Sicily, where he was investigating mosquitoes and sand flies; and emerge by thousands from the ground litter of a small, abandoned native village along a mountain stream in the Philippines. Regardless of locality, race and color, they were after human blood.

Bubonic plague is by all odds the most serious of the human diseases attributed to the flea. Think of the ravages of the Black Death in the Middle Ages, particularly among the populations of port cities. Plague still stalks the earth. In military operations in the Tropics we may have unavoidably spread the disease to new areas through beachhead or landing operations when it was not possible to use safeguards, like collared anchor cables and inspection, which are observed in peacetime to restrict the emigration of rats and their rat fleas into new ports and settled areas.

One of us lived in 1930 in a West Africa port city where people regarded

the annual human death rate of about 600 as not unusual.

The disease waxes and wanes in the Tropics, but the antibiotics developed since 1940 give promise of relief if they are available. No one now need die of this once dreaded disease if diagnosis is made early enough and suitable drugs are available.

The ecology of the so-called "syndemic plague" in the western half of the United States has been quite obscure. There the infection continues to wipe out whole populations of field rodents locally with only an occasional human case. The disease has not affected rats in cities to any great extent. The special fleas of the affected ground squirrels, prairie dogs, and rabbits are less prone to bite human beings than are the oriental and the northern rat fleas.

Murine typhus, or endemic typhus, is much like the louse-borne type, which in numbers of cases, but not in virulence, outweighs plague as a worldwide human disease. The spread of murine typhus from man to man by lice, after establishment from fleas, has been reported in Mexico and Manchuria. New laboratory techniques and careful diagnosis are required to verify such reports.

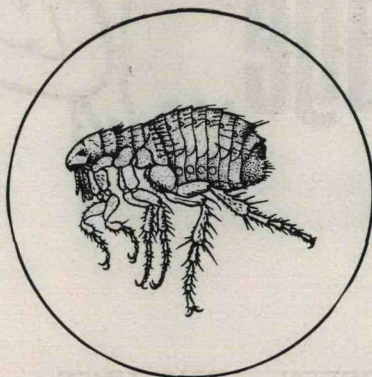
Murine typhus occurs widely in tropical and temperate climates. Treatment with antibiotics has been effective, but preventive measures are still the most important. Constant vigilance is required against the spread of rat fleas by domestic rats from foreign ports. In endemic localities DDT or other toxicants are used in rat runways to reduce existing flea populations on rats. Another weapon is rat poisons, which have been spectacularly improved in recent years; one of them is the comparatively safe warfarin.

HOW TO FIGHT

THOSE PROLIFIC PARASITES

*Reprinted courtesy Richmond
Times-Dispatch*

By Linda Kines



It happens in the best families and to pets of the longest pedigree. Fleas.

More of the prolific parasites make their debut on animals and humans late in the summer than any other time.

"Particularly since this is the 'Year of the Flea,' added Dr. Grover D. Cloyd, Director of veterinary medicine for A. H. Robins Company in Richmond (Miller Morton, Inc. Subsidiary), Cloyd has been called one of the world's foremost authorities on fleas.

Pet owners who leave for a vacation and board their dog or cat at a kennel may return to hungry houseguests breeding in their rugs, upholstery, and floor crevices. The impartial pests will hop onto the nearest living thing which enters the house.

Humans in flea-infested homes can develop irritating rashes. The greatest danger to flea-bitten children and to pets is that they will scratch the welts until they bleed and become subject to infection.

"The best control for the 1,500 species of fleas is a dog or cat wearing a flea collar," said Dr. Cloyd. He was part of the research team which developed the original "time-release" plastic collar impregnated with the chemical liquid DDVP, trademarked Vapona.

"Dogs and cats are walking flea collectors," said Dr. Cloyd, "and the collars make them flea exterminators as well."

The collar works because fleas must have moisture every day. The pests must pass the lethal collar to get to the animal's mouth, nose, or eyes for this moisture. Sometimes pets and children are allergic to the plastic or pesticide in the collar. Then the collar should be avoided, just like certain brands of shampoo, soap or hair spray which cause allergic reactions in certain people.

BUT WHAT IF the vacationing pet

was not unwittingly the first one back into the house to repossess his fleas?

The human hosts should check with a veterinarian or insect specialist about what dusts or sprays can be used effectively. Used alone, the pesticides will have to be repeated to keep pressure on fleas. Treatments used in the home should be tested for the possibility of staining.

Vacuum cleaning with attention to cracks, corners, rugs, drapes and upholstery may help if the cleaner's contents are carefully burned afterward.

One reason for this year's bounty of bloodsucking fleas is that flea populations tend to run in two-year cycles. Also, last year's warm summer with high humidity and mild winter is the favorite weather of fleas. With each female laying up to 500 eggs in a four-month period, a lot of fleas accumulate by late summer.

THE SMALL BROWN, wingless insects with powerful legs jump from host to host to attack any source of blood. Copulation in fleas occurs after a blood meal.

"If we were to eliminate all chemical control of fleas from dogs and cats," said Dr. Cloyd, "then we would face the necessity of losing some five to ten million of the eighty million pets in our homes with the ravages of bacteria, allergies, and tapeworm infestation to which the flea makes a sizable contribution."

The nuisance of fleas does not warrant development, at the moment, of a flea collar for people, Dr. Cloyd said. He has noticed fishermen using flea collars as hatbands "to drive away the gnats, they say."

"I also saw some backpacking long-haired types with flea collars around their shaggy hair," Dr. Cloyd said. "Maybe a flea collar was effective in holding their hair down. People will do anything."

TWITCHELL

Continued from page 19

people to work in the field they enjoy.

AC I wonder about somebody who really wants to be a veterinarian the same way someone else really wants to be a doctor, and you suggest alternates. Do they say, "Oh, I don't want to be a nurse."?

MT That's true to begin with — but after a while they don't have much choice, and so one has to have alternatives available that will be stimulating and in their area of interest.

AC I'll bet you've seen a lot of changes since 1952.

MT And how. We were a very disorganized group back in 1952.

AC Do you mean women or veterinarians?

MT *Veterinarians.* That's how I think — in terms of veterinarians. *I don't think in terms of male or female.* But, in 1952 we were worried about animal insurance coming in and the lay people taking over — so it banded all of us together. This was the start of the Southern California Veterinary Medical Association which is one of the best in the country.

AC Is the insurance you mentioned like animal malpractice insurance?

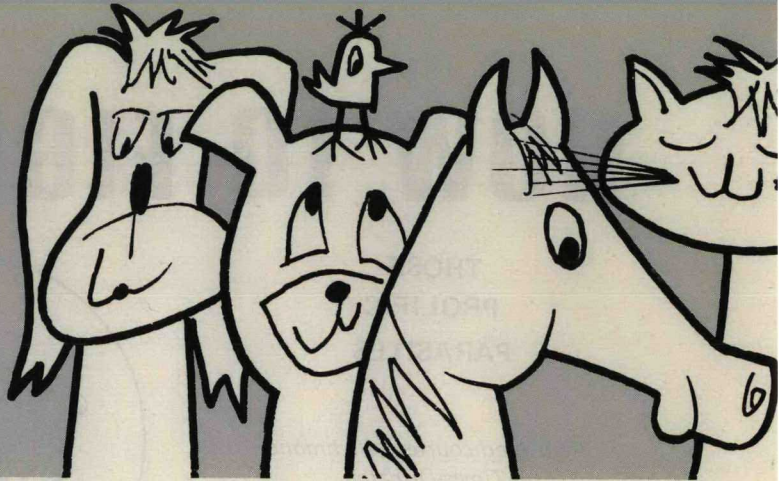
MT No. It was a pet health insurance plan. In fact, I've even thought about setting up something like it for my clients at different times over the years, but it becomes pretty complicated. It's out of my realm. I do not like the management part of being a veterinarian. If I could just do the medicine part, I'd be very happy. So by going into ophthalmology, I'll get away from the business end of my work, that is, I'll be an employee and not an employer!

AC Many women feel that way. Do you think it's a predilection of women in general?

MT I think it's an age thing really. I don't think it has anything to do with being a woman. A lot of people you talk to in their 40's and 50's have had the constant pressure of being in the same field, or business, all their working lives; they retire and that's the end of them. Other people go on to new careers, take up new interests, and that's what keeps them young as far as I'm concerned. Almost four years ago I decided to learn to fly.

*(To be continued in July/August 1976
Cavalcade).*

CHILDRENS page...



KELLY

IS GREEN . . . SOMETIMES

By Marilyn Cram Donahue

Photos by R. S. Novotny



1) is evidence that the throat of a chameleon is not always yellow. Some combination of circumstances made it suddenly turn this vivid color. He was coming up from a bath in his drinking dish, when he raised his head, showing all three horns and both eyes.



2) Kelly than began to turn yellow all over, except for a tiny path of turquoise blue on the side of the head.

One scaly leg reached slowly out, and a two-sectioned foot grasped a small boulder, just as you would choose a radish with salad tongs. Hanging by its strange, monkey-like tail, the monster rolled both eyes forward, riveted them on its prey, pulled one arm back like a major league pitcher, and heaved a well-aimed rock at a group of small crawling things.

The boulder hit home, the creatures scattered, and . . . slurp . . . slurp . . . he chose the tastiest ones with his amazing tongue, long, black and sticky, which shot out at an astounding distance and speed.

He chomped happily until his breakfast was over, then settled down for a rest, disappearing against the moist foliage of a bright green philodendron.

Three hundred million B. C.? Not at all. This strange little creature lives at our house in a man-made rain forest aquarium.

His name is Kelly, because he is green . . . sometimes. For Kelly can change his color, and does . . . many times a day! He is a member of one of the most remarkable lizard families in the world; he is a chameleon . . . and a very special one at that, for he is a three-horned Jackson's Chameleon from East Africa.

Now you may think that the tiny little lizards that you can buy at the circus and at carnivals are chameleons.

Not at all! Those little fellows are anoles and live right here in this country. They are just called chameleons because they are pretty clever at changing their colors. True chameleons aren't found in this country at all. Most of them come from far away Africa and Madagascar. So Kelly is really very, very far from home!!

But he doesn't really mind, for his aquarium is filled with moist sand and moss, long sturdy branches for him to climb upon, many green plants from the dime store for him to hide among,

a water hole made by burying a puppy's water dish deep in the sand, lots of large rocks, and a bright, bright light, which he thinks is the sun!

Now you are probably thinking, "Why would anyone want a reptile for a pet?" Maybe you don't know that reptiles have been around a lot longer than we have. In fact, they have been on earth for three hundred million years, and people have just begun to realize that they are not all terrible monsters. Some, like Kelly, make interesting house pets. *He is quiet and clean, and, although he is not quite as awe-inspiring as his ancient cousins, the dinosaurs, he is every bit as interesting . . . and much gentler.*

At first you might have to search for Kelly. You see, he is a tree lizard, and every part of him is made for life above ground. He can flatten his sides and hold very still, so that his body looks like a large brownish green leaf with notched edges.

When you do find him, have a look at his feet. They are perfect for climbing, for they are made like kitchen tongs and work the same way too! Each foot is divided into two bundles of toes, two toes on one side and three on the other. So when Kelly wants to climb — up he goes . . . just like a monkey!

Probably he has his eyes on something tasty for breakfast. Whatever small insect it is, it hasn't a chance against Kelly's remarkable tongue. Let's watch him while he stalks his food and see how it works.

He creeps slowly along a branch, moving just like a sly cat hunting a fat bird. Look at that large black fly washing its face on a leaf! Too bad it is moving, for that's just what catches Kelly's attention. He watches quietly, not even breathing, one eye on the fly and one eye looking back over his shoulder watching for danger.

That's right! His eyes can swivel in different directions at the same time. Now he decides it's safe and rolls both eyes forward, focusing on his prey. His body rocks slowly back and forth and sideways . . . he is helping his eyes measure the correct distance to his breakfast. Suddenly, with no warning, his tongue shoots out, long and black, with a sticky bulb on the end, and the fly disappears from sight.

But Kelly's tongue and eyes are the only fast things about him. The rest of him is so slow that when he creeps along a branch, he lifts one foot, looks all around him, pretends that he is a leaf for awhile, and then forgets what it was he started out to do and just sits there, one foot in the air.

While he is sleeping, his strange tail curls up tightly like the end of a noisemaker at a birthday party! This is a

Continued on Page 31



3) shows Kelly hanging in the air drinking water from the leaves. He never drinks from the bowl. That is his tongue you see scooping up tiny droplets of water.



4) and 5) classic chameleon positions. In 5 he crawled from the dark shade into a patch of light on the branch and immediately began to go dark, with only one yellow patch left. These two shots were taken within seconds of each other. The only thing changed was the light intensity.





Mrs. Frederic E. Giersch, Jr., President of GLAZA and a graduate of the 1967 Docent provisional class, is shown making friends with a South American capybara (*Hydrochoerus hydrochaeris*), the largest living rodent, in the petting area of the Children's Zoo. Under Mrs. Giersch's aegis the program has developed into a concerted effort to educate the community, the schools and the senior citizens in animal and conservation responsibility.

THERE IS MORE
TO A
ZOO
THAN ANIMALS!!

by Chris Garton,
Glaza Volunteer

THE GREATER LOS ANGELES ZOO ASSOCIATION or GLAZA, a non-profit organization which is the fund raising arm of the Los Angeles Zoo, established a docent regime in 1965. This was the beginning of an educational program that has surpassed anything "done" in a Zoo environment and to date has developed until it is internationally recognized. In 1965 the group consisted of 15 dedicated women, and today has 200 exceptionally trained docents.

As the Zoo provides a "living classroom atmosphere," the docent is able to communicate to the children and/or adults (3rd grade to college) a clear understanding of the animal population, conservation, behavioral attitudes and a greater appreciation of man and his relationship and responsibility to the animal kingdom.

Among our docent community are grandmothers, retired teachers, housewives and dedicated singles.

Mrs. Frederic E. Giersch, Jr., President of GLAZA, says: "Our Docent

Program is unique. For many children the touring or teaching docent is the only contact they will ever have with the wild animal kingdom, elements of conservation and/or ecology"

Both adult men and women are eligible to join the docent provisional class given once a year at the Los Angeles Zoo. The program consists of a twenty week course one day a week and includes a series of lectures covering three classes of animals exhibited most frequently in Zoos (AVES, REPTILES and MAMMALS). The beginning lectures are given by Dr. Warren D. Thomas, Zoo Director, and qualified docents continue the program. There are several outside tours through the Zoo conducted by the professional curatorial staff.

EDITOR'S NOTE: *Cavalcade wishes to express its special thanks to Mrs. Frederic E. Giersch, Jr., and Mrs. R. T. Garton for their splendid cooperation in preparing this material.*



A reptile seminar of graduate docents taken with Harvey Fisher, reptile Curator. From left - Mrs. Michael Rosenfeld, Mrs. Donald Lundquist, Mrs. Arthur Dodd, Mr. Fisher, Mrs. John Martin, Mrs. Lloyd Rentsch and Mrs. Thomas Winchester, holding a young crocodile and a California King snake.



From left - Chris Garton, Dorothea Petrula showing the Animal Anesthesia Ventilator machine given to the Los Angeles Zoo Health Center by GLAZA. Mrs. Garton and Mrs. Petrula graduated from the 1968 Docent Provisional class. Mrs. Garton is now head of GLAZA Public Relations and Mrs. Petrula is the GLAZA photographer. Both are still volunteers!



Foreground - Mrs. Kenneth Tinckler, a graduate of the 1966 Docent provisional class, and Mrs. Edith Donegan, a last year's graduate (background), working with the junior blind in The Andrew Norman Education Center at the Los Angeles Zoo.

WILETTTS *Continued from page 19*
the dog in around 4:00 in the afternoon. You could see the stomach was way out and you could feel the stones in him. So we X-rayed him and found that there were so many stones that they obviously wouldn't pass through. The owners went home and we called and told them that we thought surgery would be the answer. They asked us to call them later. The dog became more and more uncomfortable and finally we did call them when we couldn't put it off any longer. They didn't answer their phone. There was absolutely no way of reaching them. We asked all sorts of people where they had gone, where they could be reached and we just couldn't find them. I felt that they had deliberately gone somewhere I couldn't reach them. I felt that they had done that because they didn't want to make a decision on the surgery. They knew the dog was sick, they had my phone number, and I waited as late as I dared, which was about 9:00 p.m., 9:30, something like that . . . I knew the dog would die if we didn't do something, so we opened him up, and the next morning he was anxious to get some food. We gave him just a simple little liquid diet for several days, and he came along beautifully.

AC What kind of stones were they?

KW What happened was that he ate the stone in a gravel driveway. The owners were having work done on the house and some of the men had dropped ice cream onto the stones. When the dog tried to get the ice cream off the stones he took the stones with it.

AC How did the owners feel when you told them what you'd done?

KW Very, very grateful.

AC They were lucky to have someone like you.

KW I had no alternative other than to let him die. And I knew they didn't want that.

AC In addition to your work in veterinary medicine, what are some of your outside interests?

KW I've been very much involved with amateur and professional auto racing for about 16 years.

(To be continued July/August 1976 Cavalcade).

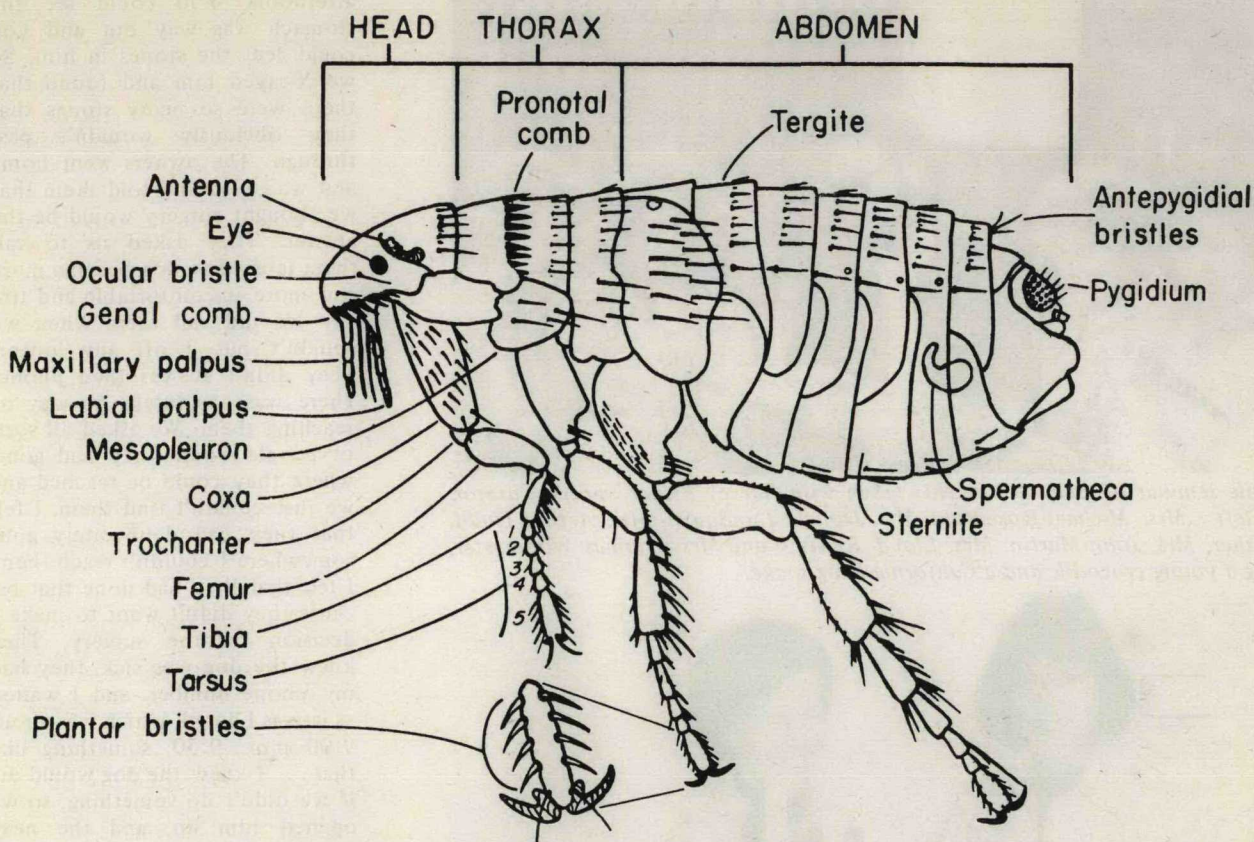


DIAGRAM OF FLEA WITH PARTS LABELED

HOW TO BEST CONTROL

FLEAS

Reprinted courtesy Bulletin U. S.
Dept. Health, Education & Welfare

Flea control may be divided into two main categories: *control of pest fleas on pets or premises*, primarily of cat and dog fleas, and *control of rodent fleas for disease prevention*. Insecticides for the control of fleas on pets or inside buildings are usually less toxic and are used at a lower concentration than those applied outside buildings.

With cat and dog fleas reinfestation will occur within a short period of time unless thorough control procedures are carried out. Simultaneous treatment of both hosts and premises gives a much better chance of economical and quick control than either alone. Thus, if a cat or dog is treated to kill a flea infestation, it will soon become heavily infested again unless all nearby flea breeding sites are treated. It is necessary to know the habits of the animal in order that its favorite resting places will be known. A treatment of the infested animal plus a complete coverage of all flea breeding sites is much more effective than weekly treatments of the animal

alone. Thoroughness is also required in controlling rodent fleas.

CONTROL OF PEST FLEAS ON PETS OR PREMISES

Cat and Dog Fleas. Control of cat and dog fleas, the usual species found on pets or in buildings, can be accomplished with a number of insecticides. The insecticides of vegetable origin, rotenone or pyrethrum, are safe to use on cats, kittens, puppies, dogs and other domestic animals. Dusts containing 0.75 to 1 percent pyrethrum or rotenone, or 0.2 percent pyrethrum plus synergists such as sulfoxide or piperonyl butoxide, may be used safely on cats, kittens, or puppies which might be affected by chlorinated hydrocarbons such as DDT. Cats, in particular, lick their fur so the chlorinated hydrocarbons have not been recommended for controlling their ectoparasites. These vegetable insecticides are safe to use and give effective control for 3 to 4 days. Some authorities feel that pyrethrum stuns, but does not kill, cat and dog fleas. Therefore,

it has been recommended that the affected animal be dusted over a piece of newspaper, the paralyzed fleas brushed or combed out of the animal's fur, and the newspaper with the fleas burned to prevent reinfestation of the pet or premises.

Since 1944 and 1945 the chlorinated hydrocarbon insecticides have been used for the control of cat and dog fleas on dogs. These include 5 percent DDT, 2-4 percent chlordane, or 1 percent lindane as dusts. *Dusts are far safer to use than sprays because the insecticides are less likely to be absorbed through the skin in the dry form. Dusts also produce less odor and do not affect the skin as much as sprays.* However, in many parts of the United States where DDT, chlordane, lindane and similar insecticides have been used for a number of years, cat and dog fleas are not being controlled on pets today as effectively as they were in the middle 1940's, possibly as a result of resistance developing to these chlorinated hydrocarbons.

For several years, malathion has been used for flea control on cats and dogs. It is used as a 1 to 5 percent dust or as a 0.5 percent spray. The senior author has used 3 percent malathion dust to control cat fleas on a female cat and three successive litters of kittens with no apparent harm to the animals. The fleas were controlled for 7 to 10 days following each treatment. Malathion is also suitable as an animal dip at 0.25 percent concentration, but the treatment should be done under the supervision of a veterinarian.

With all these insecticides the dust is applied to the fur with a shaker, or by hand, and rubbed in to give a complete treatment. Avoid getting the dust into the eyes, nostrils, and mouth of the animal. Also avoid making heavy applications to the abdomen as the material will be licked off by the pet. Start the application above the eyes on the head and cover all areas backward to the tail and haunches, being certain to treat thoroughly around the ears and underneath the forelegs. A tablespoonful of dust will treat a small ani-

mal, while as much as an ounce will be required for a large dog. Frequently following the application of insecticidal dusts, fleas become extremely active and make cats and dogs most uncomfortable for some time.

A new development in the control of fleas and other ectoparasites on dogs is the use of one of the less toxic organic phosphorus insecticides, ronnel, as a systemic insecticide. Pills containing ronnel are sold only by or on the order of a licensed veterinarian. For a 10 pound dog, one 500 milligram tablet is administered every 2 days for 4 treatments, then 1 tablet weekly thereafter to prevent reinfestation. Dogs weighing 20 or more pounds may require 2 or more times this dosage to maintain the proper blood level of the chemical in milligrams per kilogram necessary to kill the ectoparasites.

Treating Premises. For effective control of fleas, the treatment of the animal should be supplemented by insecticidal applications to the premises. Special attention should be given to the resting places of the animal, where the eggs, larvae, pupae and adults are most abundant. Flea infestations may be greatest in dog kennels and bedding, rugs, under porches and similar resting places. Where possible, the animal bedding should be burned or laundered in hot, soapy water. A vacuum cleaner may be used to remove accumulations of lint and dust that contain flea larvae and pupae. Then the infested premises may be treated with a residual insecticide such as 0.5 to 1 percent lindane, 0.5 percent dieldrin, or 5 to 10 percent DDT solutions or emulsions at a rate of about 1 gallon per 1,000 square feet of floor surface. These materials are useful if resistance is not a problem. Where resistance to chlorinated hydrocarbon insecticides occurs, the organic phosphates may be used including 2 percent malathion or ronnel or 0.5 percent Diazinon. In difficult situations in kennels, runways, or basements with large amounts of rubbish or other material the application of 0.2 percent sprays of DDVP

may be effective because of the fumigant action of this organic phosphorus insecticide. A number of factors will influence the choice of material and type of formulation to be used for indoor applications, particularly odor, fire hazard, possibility of staining, and use of the treated area. The sprays of choice are DDT, and in case of resistant fleas, malathion or ronnel.

Dusts may also be used in controlling fleas inside buildings, particularly animal boxes or bedding, basements, and other situations where the whitish discoloration from powders is not objectionable. Dusts are frequently blown under porches, the crawl-space under homes, garages, and outbuildings. Five to 10 percent DDT dust is usually the insecticide of choice with 2 to 5 percent malathion dust if resistance is clear-cut.

In many places in the United States, particularly the South and West, yard infestations of fleas often are a real problem. Sanitation is just as important in flea control as in other fields of vector control. Animal manure and debris should be removed from pens and yards where fleas may be developing.

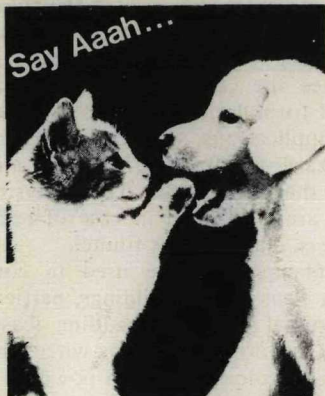
For insecticidal treatment of lawns and yards, dusts or suspensions are frequently used in preference to emulsions or solutions. Wettable powders and dusts are safe on shrubbery and grass and have a long residual action, but they leave a light-colored deposit. The dusts are frequently twice as strong as the sprays. Emulsions containing these insecticides may be used in yards, if the operator is certain that the emulsions being used will not harm the plants. Some of the auxiliary solvents used in preparing emulsion concentrates will "burn" foliage or grass. The use of solutions on vegetation is even more dangerous since many of the petroleum solvents are known to be phytotoxic. Care should be taken not to release sprays at high pressure close to foliage since this may also damage vegetation. Any soil or lawn areas that require treatment should be very thoroughly soaked.

BATHING YOUR DOG CAN BE FUN – AND HEALTHY

Before bathing a dog, it should be thoroughly checked for fleas or granular "flea dirt," mats should be removed, and the animal preliminarily brushed out. The hair should be plucked from the ears of Poodle or Terrier type dogs and mineral oil or vaseline should be placed in the animal's eyes to shed off soapy water. Cotton balls should be placed in each ear to prevent moist ear infections as a result of soapy water.

To prevent frightening an animal, apply the water to the animal rather than submerging the animal. Wet the animal down well, then shampoo with a mild shampoo (i.e., baby shampoo) or a deflea shampoo, as necessary. Rinse the animal well; a nozzle spray works best, being careful to cleanse the underside thoroughly of soap. Dry briskly with a heavy-duty terry towel, then completely dry with an electric hair dryer. Brushing while drying will increase drying rate. Groom and comb completely when dry.

Remember, there is no bath that can substitute for frequent, routine brushing and combing. Don't wait for a skin problem to appear before bathing or grooming as it will not always stop the itching or chewing. If wounds are present, consult your veterinarian. Your animal's appearance reflects your personal care.



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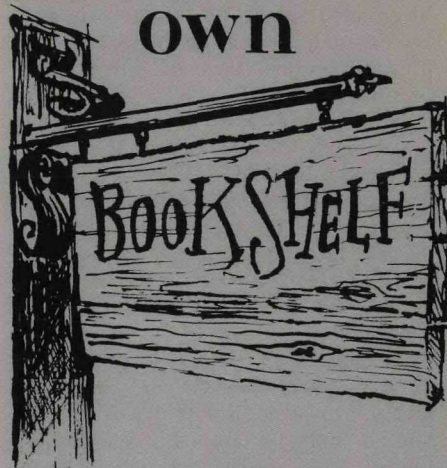
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THE OTHER FEMALE IN HIS LIFE

by: Dodo Laric

Popular Library, New York;
paperback

\$1.25

The back cover of this book reports that "Eloise was that most dreaded and dangerous of females — a husband stealer." "Meet Eloise — the most se-



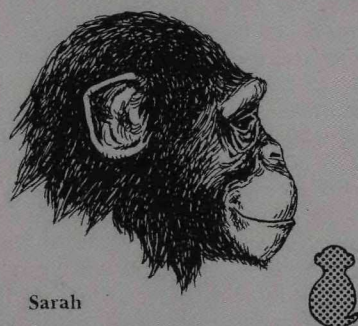
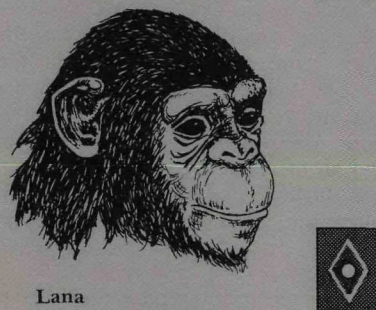
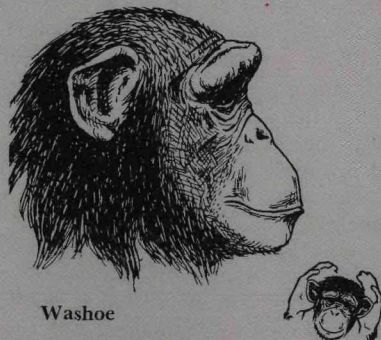
ductive Siamese that ever stole a husband's heart... a sensuous siren, queenly ruler, and independent sinner." This is the story of a Siamese and her family owners: Paul, the husband, Dodo, the French wife and author, and Katya, their little girl. It is a warm story about people who love their cat, written with a wry feminine wile/manipulative twist. It is riddled with cute French phrases and often tangled and confusing sentences, but it is a warm story nonetheless. If you're into pets that "steal your heart" and women who plot and calculate their own sexuality, you'll love this book.

READING, WRITING CHATTERING CHIMPS

by Aline Amon

Atheneum, New York; hardcover \$7.95

This is a book that tells an interesting story about animals, in particular chimpanzees and their use of language. We find out that sign language, plastic symbols and computer language have been used with the chimps since the discovery that their throats are shaped so that they cannot make all the different sounds of a human language.



Readers will find warm case histories about bright chimps who not only learned fairly elaborate communication skills, but rules of grammar as well. This book describes the training methods of the imaginative and very patient scientists and trainers.

Cleanly written, with many pages of photographs and illustrations, this book ends with a chapter demonstrating two chimps communicating with each other in a form of human language. It is a book that makes the future of animal/human communication look quite promising.



GUNSHOT VICTIM: Florida, a golden eagle, with Dr. James Roush, who repaired all the little bones, tendons and joints in her feet, after she was found injured.

VETERINARIAN SAVES RARE EAGLES WITH DELICATE BONE SURGERY

by Allan A. Zullo

*Reprinted courtesy
National Enquirer 4/75*

Dr. James Roush's veterinary practice has gone to the birds — wild birds, that is. As one of a handful of veterinarians in the U.S. specializing in orthopedic surgery for birds, Dr. Roush has saved the lives of three rare eagles.

"The first eagle, which my children named Thunder, was near death with a broken leg when found on the side of a northern California road," he said. "His injury was the result of an earlier fracture that hadn't healed properly."

With an assistant and an anesthesiologist, Dr. Roush performed the surgery on Thunder. "Gas was administered to the bird through the windpipe. Heartbeat, respiration and eye reflexes were carefully monitored. The operation took two hours.

"Thunder is feeling quite perky now and he can even tear up food with his feet."

When word of his work with Thunder spread, conservationists shipped two more wounded wild eagles to Dr. Roush at the Santa Cruz Veterinarian Hospital in Santa Cruz, Calif.

"Florida, a golden eagle, was found

shot through the feet beside a road in Florida. We had to put together all the little bones, tendons and joints in her feet. Next came Geronimo, another golden eagle, that was shot through the wing. He and Florida are unlikely to return to the wilds — they'll probably end up in a zoo."

The hospital, which has donated its services to rehabilitate the birds, has incurred "expenses well over a thousand dollars," Dr. Roush said.

"Even though I make a living taking care of people's pets, I have a deep interest in all wild birds of prey like the eagle.

"They are so brave, so fierce-looking, so proud . . . yet so vulnerable when hurt.

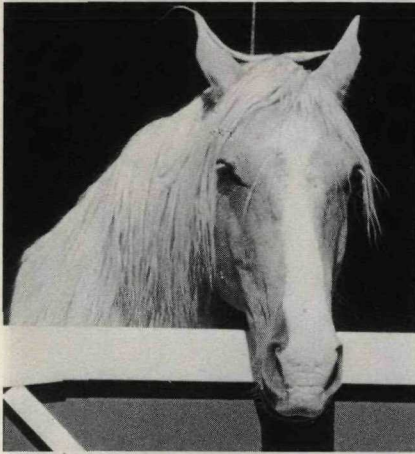
"In the case of the three eagles, lesser animals would have given up long ago and died. But these eagles had determination to get well."

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BOTS

— TROUBLESOME PEST OF HORSES



Horse bots are the larvae of an annoying, bee-sized fly called *Gasterophilus intestinalis*. Horse owners know these pests as gadflies or botflies. Horses, I am certain, have yet other (but unprintable) names for these parasites.

The adult flies are most active from mid-summer until the first frosts which can be as late as December in the warm, dry regions of the state. The adult females live only seven to ten days. During this time, they may lay

150 to 500 eggs which they glue to hairs on the horse. The eggs are mostly attached to the belly, forequarters, and neck area.

Horses under attack are extremely agitated by the persistent loud droning of these flies as they dart about depositing their eggs. *Contrary to common belief, botflies have rudimentary mouthparts and so cannot bite horses.*

When a horse is besieged by botflies, it often will take off at a full run, toss its head vigorously, or bunch up with other horses seeking protection. Horses can be seriously injured trying to flee from botflies.

The yellow-colored eggs incubate in one to two weeks. They will hatch only if the horse licks them. Apparently the moisture, warmth and friction of the horse's tongue stimulates hatching.

The larvae that emerge are covered with spines and stick to the horse's tongue. They then burrow into the tongue and, after migrating through the horse for three to four weeks, take up residence inside their victim's stomach. There they attach to the stomach wall by means of large mouth hooks.

Bots remain attached in the stomach for eight to ten months. These spiny creatures can cause considerable irritation. During this time, a horse may be quite restless and colicky.

When the bots finally detach from the stomach and are passed through the intestines, a bloody diarrhea may be produced.

Once the bot is eliminated in the

feces, it burrows into the ground and forms a pupa. One to two months later, the pupa has gone through its metamorphosis and become an adult fly. The entire cycle takes a year to complete.

Control

First and foremost - have your veterinarian check your horse to make sure that the source of the animal's problem is, indeed, botfly infestation. A few flies are common and cause little damage. Other parasites can also produce colic or bloody diarrhea.

Control of bots is aimed at interrupting the life cycle. There are two phases of the cycle when the bots are in a concentrated, hence easily treated, condition - when the eggs are coating hairs and when the larvae are congregated in the stomach.

By vigorously rubbing egg laden hair on an infested horse, hatching of the bot eggs can be induced. Use a washcloth soaked in a warm insecticide solution recommended by your veterinarian. Scrub the horse down once a week for the common botfly and twice a week for the chin and nose botflies.

Internal treatment of bots in the horse's stomach should begin in the Fall. The exact timing varies with the locale and the severity of the fly infestation. **A veterinarian can best recommend an effective treatment schedule. Often, bot treatment is combined with medication against other internal parasites.**

ALL ABOUT

WORMS

There are a number of different parasites affecting animals. These unwanted guests range in size from the microscopic parasites causing sleeping sickness to tapeworms which can be several feet long. *Symptoms of animals with parasites vary from mild to severe and may even cause death.*

In dogs and cats, the two most common digestive parasites found in this area are *roundworms* and *tapeworms*. Roundworms spend their adult life in the intestines and the female worm may lay over 10,000 eggs daily which are passed in the pet's stool.

These eggs can develop into small microscopic larvae which are immature forms of the adults.

These small larvae penetrate the lining of the intestines and migrate through the pet's body for a period of weeks and finally come back to the intestine to develop into adulthood.

A great many puppies acquire roundworms from their mothers before they are born because of these wandering microscopic larvae which pass into the placenta and continue development in the unborn puppy.

Dogs and cats obtain tapeworms by ingesting fleas or animals such as rabbits and sheep. A sample of the tapeworm or a stool sample will enable your veterinarian to tell you from which source; fleas or other animals, your pet obtained his tapeworms.

The roundworms and common tapeworms of pets in California will not develop to adulthood in humans just as human parasites generally don't develop to adulthood in your pet. However, if a larvae does enter a person's body it will wander aimlessly through the tissues for awhile before it dies. The larvae can damage tissue dur-

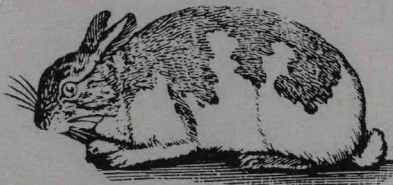
ing its migration. *To prevent such a situation, good sanitation should be employed around pets. Care should be used especially with young children to keep them from eating soil contaminated with feces from parasitized pets.*

It is advisable to have all new pets checked for worms. To determine if your pet has worms, a stool sample must be examined. On visual inspection, generally, no worms will be seen in the stool since the adult worms spend their entire life inside your pet. Your veterinarian adds a solution to the stool sample and then examines it with the aid of a microscope to determine if any of the minute eggs laid by the female worm are present which would indicate a worm problem.

Occasionally, small white tapeworm segments may be seen on the stool. Finding a stool in the yard with white worms in it doesn't necessarily mean your pet has worms, however. Flies lay eggs on decaying matter and, under suitable conditions, the eggs may hatch into small white worms called maggots within 24 hours. Maggots should not be confused with tapeworms.

PET CARE

THE RABBIT



Courtesy of THE ANIMAL PROTECTION
INSTITUTE OF AMERICA

Rabbits are gentle, quiet, and clean. They are easy to tame, but hard to train and housebreak. **NEVER** keep wild rabbits; they do not live long in captivity and do not make good pets.

DO cuddle your rabbit often and hand feed to help keep him tame and happy. Hold a rabbit close to your body, one hand under his rump, one hand holding the loose skin over his shoulders.

DON'T pick up a rabbit by his ears or legs.

DO always keep rabbit pellets available in a heavy dish. Rabbits also need and like fresh greens (grass, clover, cabbage, dandelion leaves), grains, and raw vegetables. Always provide a salt lick and keep hay in the hutch for munching. Give your rabbit a hard, chewy substance (thick green twigs) to keep his teeth worn down.

DON'T feed meat to your rabbit; rabbits are vegetarians.

DO provide a large house (hutch), at least 10 sq. ft. in size. Be sure your rabbit can't get out. Cover the floor with absorbent material (hay, wood-shavings); clean the litter area daily or more often — rabbits eliminate frequently. Provide a sleeping area with soft bedding (hay, straw). Protect an outdoor hutch from rain, wind, and hot, direct sun. Keep the hutch high off the ground.

DON'T use sawdust for bedding; it will get stuck in your rabbit's fur.

DO exercise your rabbit daily in an enclosed area. Watch for sneezing — rabbits easily catch cold. Additional signs of poor health are excessive thirst, scaly patches, constant scratching or shaking of ears (ear mites). Feed fewer greens if diarrhea develops.

KELLY

Continued from page 23

special kind of tail with a special name. It is called prehensile (PREE-HEN-SILL and means that the tail is able to hold onto things by wrapping tightly around them.) A few other tree lizards have developed these tails, but *all* chameleons have them.

Kelly is so used to wrapping his tail around branches that he even does it in his sleep. Once in awhile he uses it to help him swing from one branch to another... just like a monkey in the zoo.

Kelly has another very remarkable trick... the one that gave him his name... chameleon. His skin contains many little star shaped pigment or color cells, which can move about and make the color of his skin change. He normally looks like a greenish brown leaf with dark patches in its sides, but when he suns himself, he turns very dark... nearly black... all over. Then when he crawls into the shade where it is dark and cool, his color fades to a creamy tone, and his dark patches turn yellow.

Kelly will be about twelve inches long when he is fully grown, so he will never outgrow his aquarium home. *Do you have an old aquarium or large fish bowl at your house? Maybe you can find a chameleon for your own at your neighborhood pet store. If you do, feed him plenty of live meal worms, crickets, flies, and grasshoppers.*

And sometimes, on a warm day, take him outside for a short sunning on some green grass. Just watch him snap up all the insects he can find!

Most important of all, give him plenty of water. He drinks dew from the forest leaves, so we spray his aquarium plants several times a day. When he sees us coming, he stands up on his hind legs and opens his mouth wide. Maybe he thinks we are making it rain for him!

One thing we know for sure... even these tiny reminders of prehistoric ages can be fascinating and gentle pets. *The only requirements are patience and a love for a living thing.*

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Lorne Greene



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